

State Route 116/121 Intersection Improvements Project

SONOMA COUNTY, CALIFORNIA
DISTRICT 4 – SON – 116, POST MILE 46.0/46.7
DISTRICT 4 – SON – 121, POST MILE 5.8/R7.4
EA 3G900 / Project ID 0412000557

Initial Study with Proposed Mitigated Negative Declaration / Environmental Assessment



Prepared by the
State of California Department of Transportation
and the Sonoma County Transportation Authority

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 U.S.C. 327.



June 2016

GENERAL INFORMATION ABOUT THIS DOCUMENT

What's in this document:

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), and the Sonoma County Transportation Authority (SCTA) have prepared this Initial Study/Environmental Assessment (IS/EA) for the proposed State Route (SR) 116/121 Intersection Improvements Project, located in Sonoma County, south of the city of Sonoma. Caltrans is the lead agency under both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). This document examines the potential environmental impacts of the alternatives being considered for the proposed project. It describes why the project is being proposed, alternatives for the project, existing environment that could be affected by the project, potential impacts from each of the alternatives, and proposed avoidance, minimization, and/or mitigation measures.

What you should do:

- Please read this IS/EA. Additional copies of this document are available for review at the Sonoma Valley Regional Library (755 W. Napa Street) and at the Petaluma Regional Library (100 Fairgrounds Drive); the document, as well as the technical studies, is available for review at the Caltrans office at 111 Grand Avenue, Oakland, CA 94612. This document may be downloaded at the following Web site: <http://www.dot.ca.gov/dist4/envdocs.htm>.
- We welcome your comments. If you have any concerns regarding the proposed project, please attend the public open house at the Finnish American Home Association (197 West Verano Avenue, Sonoma, CA 95476) on July 13, 2016, from 5:00 to 7:00 p.m. and/or submit comments to Caltrans by August 2, 2016.
- Attend the public meeting.
- Submit comments via post mail to:
Arnica MacCarthy, Associate Environmental Planner
Department of Transportation, Office of Environmental Analysis
P.O. Box 23660, MS 8B, Oakland, CA 94623
- Submit comments via e-mail to: Arnica.MacCarthy@dot.ca.gov
- Submit comments by the deadline: August 2, 2016

What happens next:

After comments are received from the public and reviewing agencies, Caltrans, as assigned by FHWA, may (1) give environmental approval to the proposed project (2) undertake additional environmental studies, or (3) abandon the project. If the project were given environmental approval and funding were appropriated, Caltrans or SCTA could design and construct all or part of the project.

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attention: Arnica MacCarthy, Department of Transportation, Office of Environmental Analysis, MS 8B, 111 Grand Avenue, Oakland, CA 94612, (510) 286-7195, or use California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2922 (Voice) or 711.

SCH # _____
04-SON-116, PM 46.0/46.7
04-SON-121, PM 5.8/R7.4
EA 3G900 / Project ID 0412000557

Improve the State Route (SR) 116/121 intersection in Sonoma County, from 1,250 feet north of the SR 116/121 intersection on SR 116/Arnold Drive to 800 feet south of the SR 116/121 intersection on SR 121/Arnold Drive and from 200 feet west of the SR 116/121 intersection on Bonneau Road to 1,650 feet east of the SR 116/121 intersection on SR 121/Fremont Drive.

INITIAL STUDY with PROPOSED MITIGATED NEGATIVE DECLARATION / ENVIRONMENTAL ASSESSMENT

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

THE STATE OF CALIFORNIA
Department of Transportation
and the
Sonoma County Transportation Authority

Cooperating Agencies: U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers,
State Historic Preservation Officer, and Regional Water Quality Control Board

Responsible Agencies: California Transportation Commission

6-22-16
Date of Approval


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

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PROPOSED MITIGATED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) and the Sonoma County Transportation Authority (SCTA) propose to improve operations for vehicles, bicycles, and pedestrians where State Route (SR) 116 and SR 121 intersect, consequently reducing congestion and the occurrence of accidents. Additionally, where possible, the project would maintain and enhance access to adjacent properties and parking for public transit and carpool users.

Determination

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

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

The proposed project would have no effect on coastal zone; wild and scenic rivers; timberlands; growth; parks and recreational facilities; community impacts; traffic and transportation; hydrology and floodplains; mineral resources; and plant species. The proposed project would have a less than significant effect on land use and planning; farmlands; property acquisitions; utilities and emergency services; visual/aesthetics; cultural resources; water quality and stormwater runoff; geology, soils, and seismicity; paleontology; hazardous materials/waste; air quality; noise; natural communities; animal species; threatened and endangered species; invasive species; and cumulative impacts.

With the following mitigation measures incorporated, the proposed project would have less than significant effects to wetlands, native trees, and California red-legged frog habitat:

- Native trees removed will be replanted at a 1:1 ratio.
- Permanently impacted wetlands will be replaced at a 1:1 ratio.
- Impacted California red-legged frog upland dispersal habitat will be mitigated through the purchase of California red-legged frog credits from a mitigation bank.

Melanie Brent
Deputy District Director
District 4
California Department of Transportation

Date

Summary

The California Department of Transportation (Caltrans) is the lead agency under the California Environmental Quality Act (CEQA) for this proposed project, and effective July 1, 2007, has been assigned environmental review and consultation responsibilities under the National Environmental Policy Act (NEPA) pursuant to 23 United States Code (U.S.C.) 327. California participated in the “Surface Transportation Project Delivery Pilot Program” pursuant to 23 U.S.C. 327, for more than 5 years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (Moving Ahead for Progress in the 21st Century) (P.L. 112-141), signed by President Barack Obama on July 6, 2012, amended 23 U.S.C. 327 to establish a revised and permanent Surface Transportation Project Delivery Program. As a result, Caltrans entered into a Memorandum of Understanding pursuant to 23 U.S.C. 327 with the Federal Highway Administration (FHWA). The NEPA Assignment Memorandum of Understanding became effective October 1, 2012, and terminates 18 months from the effective date of FHWA regulations developed to clarify amendments to 23 U.S.C. 327 or on January 1, 2017. The NEPA Assignment Memorandum of Understanding incorporates by reference the terms and conditions of the Pilot Program Memorandum of Understanding. With NEPA Assignment, FHWA assigned and Caltrans assumed all of the United States Department of Transportation Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to Caltrans under the 23 U.S.C. 326 Categorical Exclusion Assignment Memorandum of Understanding, projects excluded by definition, and specific project exclusions. This project is proposed in cooperation with the Sonoma County Transportation Authority (SCTA).

The project is located in unincorporated Sonoma County at the intersection of State Route (SR) 116/SR 121/Arnold Drive/Bonneau Road (SR 116 Post Miles 46.0 to 46.7 and SR 121 Post Miles 5.8 to R7.4). The project proposes to improve operations for all modes of transportation at a high-volume, four-way stop where SR 116 and SR 121 intersect in unincorporated Sonoma County. The project would reduce congestion and the occurrence of accidents for vehicles, bicycles, and pedestrians, while maintaining and enhancing, where possible, access to adjacent properties and parking for public transit and carpool users. The No Build Alternative and two Build Alternatives – a Roundabout Alternative and a Signalized Intersection Alternative – are under consideration. The Roundabout Alternative includes construction of a hybrid multilane roundabout with 180 degrees of the circulatory roadway having two lanes, a full right-turn bypass lane in the northbound direction, and a partial right-turn bypass lane in the westbound direction. The Signalized Intersection

Alternative proposes to introduce a four-way traffic signal to the project intersection. Both Build Alternatives include construction of pedestrian and bicycle facilities.

This Initial Study/Environmental Assessment (IS/EA) addresses the proposed project's potential to have impacts on the environment. Potential impacts and avoidance, minimization, and/or mitigation measures are summarized in Table S-1 on the following pages. Resource areas that were determined to be less than significant with mitigation are biological resources (i.e., wetlands, tree removal, and California red-legged frog). These significance determinations are further discussed in the CEQA Checklist in Appendix A.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Roundabout Alternative	Signalized Intersection Alternative	
Land Use	No impacts.	The Roundabout Alternative would permanently convert 4.43 acres of land to transportation use, including 0.04 acre of diverse agriculture, 4.26 acres of land-intensive agriculture, 0.05 acre of limited commercial, and 0.07 acre of recreation/visitor-serving commercial land uses.	The Signalized Intersection Alternative would convert 4.72 acres of land to transportation use, including 0.03 acre of diverse agriculture, 4.33 acres of land-intensive agriculture, 0.07 acre of limited commercial land uses, and 0.29 acre of recreation/visitor-serving commercial land uses.	No avoidance, minimization, and/or mitigation measures are required.
Consistency with State, Regional, and Local Plans and Programs	The No Build Alternative is not consistent with regional and local land use policies.	The Build Alternatives are mostly consistent with planning goals and policies in local and regional plans and studies. The only policy with which the Build Alternatives would be inconsistent with local plans relates to the protection of agricultural land. The Build Alternatives would be consistent with the other stated objectives of these jurisdictions.		No avoidance, minimization, and/or mitigation measures are required.
Farmlands	No impacts.	The Roundabout Alternative would result in the direct conversion of 4.2 acres of Farmland of Local Importance.	The Signalized Intersection Alternative would result in the direct conversion of 4.3 acres of Farmland of Local Importance.	No avoidance, minimization, and/or mitigation measures are required.
Acquisitions	No impacts.	The Build Alternatives would not affect any residential properties. Partial acquisitions of commercial properties and agricultural land would be required under both Build Alternatives.		Access to all properties will be maintained during construction.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Roundabout Alternative	Signalized Intersection Alternative	
Utilities and Emergency Services	No impacts.	Both Build Alternatives would require the relocation of utilities, Pacific Gas & Electric (PG&E) utility poles, and underground storm drain facilities. There would be no impacts to emergency service providers.		Where feasible, relocations will be undertaken in advance of project construction. Coordination efforts with utility providers will include planning for utility reroutes. A Traffic Management Plan will be developed to address impacts to emergency services. If the Roundabout Alternative is selected, a public education campaign will be implemented to inform area drivers and residents about the new roundabout, including information on how drivers should respond when emergency vehicles are approaching the roundabout.
Traffic and Transportation, Pedestrian and Bicycle Facilities	The No Build Alternative would not add pedestrian and bicycle facilities or modify the Park-and-Ride lot. Under future no build conditions, intersection delay and level of service (LOS) would continue to worsen. By 2040, the wait time for traffic to cross the intersection would worsen from approximately 5 minutes to approximately 10 minutes in the morning peak hour, and from approximately 6 minutes to approximately 12 minutes in the evening peak hour.	The existing Park-and-Ride lot at the SR 11/121 intersection would be relocated to the northeast quadrant of the intersection. Pedestrian and bicycle facilities would be added. By 2040, the Roundabout Alternative would provide acceptable LOS conditions for the morning and evening peak period, accommodate queue lengths, and reduce the delay by approximately 4 minutes, 51 seconds per vehicle in the morning peak hour and by approximately 5 minutes, 56 seconds per vehicle in the evening peak hour.	The existing Park-and-Ride lot at the SR 116/121 intersection would be reconfigured in its current location. Pedestrian and bicycle facilities would be added. By 2040, this alternative would provide acceptable LOS conditions for the morning and evening peak period, accommodate queue lengths, and reduce the delay by approximately 4 minutes, 22 seconds per vehicle in the morning peak hour and by approximately 5 minutes, 14 seconds per vehicle in the evening peak hour.	A Transportation Management Plan will be developed and implemented as part of the project construction planning phase. In addition, if a full closure of the existing Park-and-Ride lot is required, Caltrans will redirect patrons to other Park-and-Ride lots.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Roundabout Alternative	Signalized Intersection Alternative	
Visual/ Aesthetics	No Impacts.	The Roundabout Alternative would result in visual changes from widening the intersection, shifting the intersection to the northeast, relocating the existing Park-and-Ride lot to the northeast quadrant, tree removal, and the addition of pedestrian and bicycle facilities, lighting, and signage. Temporary visual impacts would also result from construction activities.	The Signalized Intersection Alternative would result in visual changes from widening the intersection, tree removal, and the addition of pedestrian and bicycle facilities, lighting, signage, and signal poles. Temporary visual impacts would also result from construction activities.	Vegetation will be preserved to the extent feasible, and tree replanting will occur onsite. Decorative paving and fencing and barriers will be installed. Stormwater treatment facilities will be designed so that they appear to be a natural landscape feature.
Cultural Resources	No Impacts.	One National Register of Historic Places-eligible property was identified within the archaeological or historical areas of potential effect – the Vineyard Inn Hotel. Both Build Alternatives would acquire land from this property permanently and temporarily; however, neither Build Alternative would adversely affect the Vineyard Inn Hotel. There is a low potential for buried archaeological sites within the archaeological area of potential effects; therefore, the Build Alternatives would have no adverse effect on unidentified archaeological resources that may be present.		The Secretary of the Interior's Standards for the Treatment of Historic Properties Action Plan will be implemented to protect the Vineyard Inn Hotel during construction. The Phased Identification Plan will be implemented for archaeological resources in the unsurveyed northeast parcel. If cultural materials are discovered during construction, earth-moving activities will be stopped at that location until an archaeologist can assess the find. If human remains are discovered, the procedures described in State law will be implemented.
Hydrology and Floodplain	No Impacts.	Neither of the Build Alternatives is located within the base floodplain; there would be no impacts to natural and beneficial floodplain values and no longitudinal encroachment into the floodplain.		No avoidance, minimization, and/or mitigation measures are required.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Roundabout Alternative	Signalized Intersection Alternative	
Water Quality and Stormwater Runoff	The No Build Alternative may have potential permanent water quality impacts due to increasing congestion, leading to a greater deposition of particulates from exhaust and heavy metals from braking.	Potential temporary impacts to water quality may include vegetation removal and stormwater runoff from road construction and increases in sediment-laden flow into water bodies. From existing conditions, permanent impacts would increase the potential for stormwater runoff and soil erosion due to the net increase of impervious surfaces by 0.5 acre under the Roundabout Alternative.	Potential temporary and permanent impacts to water quality are the same as described for the Roundabout Alternative, except the net increase of impervious surfaces, from existing conditions, would be 1.53 acres under the Signalized Intersection Alternative.	Best management practices will be included to prevent adverse changes in downstream water quality. Measures will include feasible temporary and permanent (i.e., post-construction) best management practices. Pollution and erosion control measures will be incorporated. A Stormwater Pollution Prevention Plan will be implemented during construction.
Geology, Soils, and Seismicity	The No Build Alternative would have the same potential impacts as described for the Build Alternatives.	Earthquake shaking potential for this site is considered strong, and the risk of secondary seismic hazards to affect users of the intersection (i.e., liquefaction, seismically induced landslides, rock falls, settlement, and subsidence) is low.		Project elements will be designed and constructed to meet seismic design requirements for ground shaking and ground motions. A geotechnical investigation will be conducted to determine the engineering characteristics of native soil in undeveloped areas.
Paleontology	No impacts.	Ground-disturbing activities for both Build Alternatives would impact native material up to 3 feet below ground surface within the project study area, with some locations requiring excavations up to 13 feet for utility poles. Earthwork to these depths would impact sensitive geological deposits (Late Pleistocene alluvium), but it is unlikely to affect significant paleontological resources.		A project-specific Paleontological Mitigation Plan will be prepared by a qualified principal paleontologist. Paleontological monitors will be onsite during excavation.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Roundabout Alternative	Signalized Intersection Alternative	
Hazardous Waste and Materials	No impacts.	Three properties with known historical releases of hazardous materials are present within the study area. Aerially deposited lead from exhaust from leaded gasoline may occur near a highway or roadway. Subsurface construction activities could encounter petroleum hydrocarbons in shallow groundwater. Project activities would require removal of pavement and disturbance of the underlying soil within a commercial complex, and impacts could occur from exposure to hazardous materials associated with automotive repairs, fueling of vehicles, and other vehicle maintenance activities below the paved surface. The potential for environmental contamination from pesticide usage in agricultural lands is also possible.		A preliminary site investigation will be conducted during the design phase of the project and will include the collection and analysis of soil samples for lead in areas near the highway or painted structures where surface soil will be disturbed. All activities involving contaminated soil or groundwater, if found, will comply with the various regulatory agencies' requirements.
Air Quality	Air quality would worsen in the study area under the No Build Alternative due to increased congestion, slower speeds, queuing, and delay times.	Neither of the Build Alternatives would increase emissions of criteria air pollutants or precursors (i.e., ozone, carbon monoxide, sulfur dioxide, particulate matter, nitrogen dioxide, and lead) relative to the No Build Alternative in the vicinity of the SR 116/121 intersection. A much greater reduction would occur under the Roundabout Alternative. Project construction would generate fugitive (airborne) dust and exhaust emissions that would have direct temporary effects on local air quality.		Dust control practices will be employed to minimize or avoid potential exceedances of the respirable particulate matter air quality standard during construction.
Noise	No impacts.	Future noise levels under the Build Alternatives approach or exceed the noise abatement criteria at one receptor in 2040; therefore, consideration of noise abatement is required. Construction activities could at times generate noise levels higher than existing traffic noise levels.		A soundwall has been identified as feasible based on the acoustical design goal in one location; however, it was found not reasonable from a cost perspective. Temporary construction-related noise and vibration will be reasonably minimized by implementing measures such as noise monitoring, noise testing and inspection of equipment, and restricting construction activities to daytime hours when feasible.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Roundabout Alternative	Signalized Intersection Alternative	
Natural Communities	No impacts.	Approximately 36 native and 74 non-native trees would be removed. Permanently impacted habitat would include 8.76 acres of urban, 3.09 acres of landscaped, 4.40 acres of annual grassland, 0.06 acre of eucalyptus, and 1.50 acres of wetland, for a total of 17.81 acres. Construction activities would temporarily impact 0.41 acre of urban, 0.08 acre of landscaped, 0.01 acre of annual grassland, and 0.08 acre of eucalyptus, for a total of 0.58 acre.	Approximately 49 native and 89 non-native trees would be removed. Permanently impacted habitat would include 10.14 acres of urban, 3.57 acres of landscaped, 3.90 acres of annual grassland, 0.10 acre of eucalyptus, and 1.54 acres of wetland, for a total of 19.25 acres. Construction activities would temporarily impact 0.40 acre of urban, 0.22 acre of landscaped, 0.03 acre of eucalyptus, and 0.22 acre of wetland, for a total of 0.87 acre.	Existing native vegetation will be preserved to the greatest extent feasible. Native trees removed will be replanted at a 1:1 ratio within the relocated Park-and-Ride lot under the Roundabout Alternative or along SR 116/Arnold Drive and SR 121/Fremont Drive under the Signalized Intersection Alternative. Environmentally sensitive areas will be delineated; disturbed areas will be replanted, reseeded, and restored; wildlife exclusion fencing will be installed; and best management practices will be implemented. An environmental awareness training program will be implemented for project personnel.
Wetlands and Other Waters of the United States	No impacts.	This alternative would result in permanent impacts to 1.5 acres of wetlands. There would be no direct impacts to Yellow Creek.	This alternative would result in permanent impacts to 1.54 acres of wetlands and temporary impacts to 0.22 acre of wetlands. There would be no direct impacts to Yellow Creek.	Wetlands will be replaced at a minimum 1:1 ratio through the purchase of credits at a wetland mitigation bank. Additionally, environmentally sensitive areas will be established, water quality best management practices will be implemented, and a Restoration Plan will be developed to restore all wetlands temporarily impacted by the project.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Roundabout Alternative	Signalized Intersection Alternative	
Plant Species	No impacts.	Special-status plant species were not observed in the study area during surveys; therefore, impacts are not anticipated. However, a portion of the study area was not surveyed due to access restrictions. When the inaccessible parcel northeast of the intersection becomes accessible to biologists, seasonally timed special-status plant surveys would occur prior to project construction. If special-status plant species are observed during these surveys, potential direct impacts could occur during construction due to ground-disturbing activities and installation of impervious surfaces, primarily associated with work in the northeast quadrant.		When the inaccessible parcel northeast of the intersection becomes accessible to biologists, seasonally timed special-status plant surveys will occur prior to project construction. If protected species are discovered, appropriate agency coordination and protective measures will be established.
Animal Species	No impacts.	Direct impacts to individual western pond turtles may result from relocation efforts and earth-moving activities in potential habitat during construction of the Build Alternatives. Indirect impacts may result from water-quality degradation from erosion or sediment-loading due to construction activities. Vegetation removal could affect migratory birds, such as nesting raptors, through temporary habitat removal. The removal of large trees within the project area that may provide suitable roosting habitat could cause a temporary impact on roosting bats, including the pallid bat.		Western pond turtle monitoring, wildlife exclusion fencing, worker awareness training, and preconstruction surveys will be implemented. To avoid impacts to roosting bats, a qualified biologist will conduct visual and acoustic surveys during the maternity season prior to permitting. If bats are found during the survey, a plan will be developed for passive relocation. Preconstruction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction for activities occurring during the breeding season (February 15 to August 31). If an active nest of a raptor, game, or non-game bird is found, a no work zone buffer will be established to minimize disturbance. A 300-foot-wide buffer will be erected around active raptor nests and a 50-foot-wide buffer will be erected around active game and non-game bird (non-raptor) nests.

Table S-1: Summary of Environmental Impacts

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Roundabout Alternative	Signalized Intersection Alternative	
Threatened and Endangered Species	No impacts.	Contra Costa goldfields, Sebastopol meadowfoam, Sonoma sunshine, and two-fork clover/showy rancheria clover could be impacted during grading of the project area. Vernal pool fairy shrimp and California red-legged frog could be injured or killed by construction-related personnel or equipment during project construction if these species enter or are found in the work area. Due to the project's increases in pervious and impervious surface area, permanent impacts to California red-legged frog dispersal habitat would occur. Listed species could also be injured or killed by construction-related personnel or equipment during project construction if listed species enter or are found in the work area. It should be noted that a portion of the study area was not surveyed due to access restrictions. Species assumed to be present until surveys are conducted include vernal pool fairy shrimp, Contra Costa goldfields, Sebastopol meadowfoam, Sonoma sunshine, and two-fork clover/showy rancheria clover.		When the undeveloped field northeast of the intersection becomes accessible to biologists, seasonally timed special-status plant surveys and surveys for vernal pool fairy shrimp will occur prior to project construction. Compensatory mitigation will be required for the potential permanent loss of California red-legged frog dispersal habitat. Additionally, general avoidance and minimization measures will be implemented to protect California red-legged frogs.
Invasive Species	No impacts.	Project construction activities could have the potential to inadvertently spread invasive species.		Project landscaping and erosion control will avoid using species listed as noxious weeds. The contractor will be required to use equipment that is cleaned and inspected for plant material prior to arrival and use at the project site. A wash station will be established or designated so that equipment is free of soil tracked from other sites that may harbor invasive plant seeds prior to the deployment of equipment onto the site.
Cumulative Impacts	No impacts.	The resources identified for cumulative analysis would not result in cumulative impacts; therefore, the Build Alternatives would not result in cumulative impacts.		No avoidance, minimization, and/or mitigation measures are required.

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Chapter 1 Proposed Project

The California Department of Transportation (Caltrans) and Sonoma County Transportation Authority (SCTA) propose to improve traffic operations at the State Route (SR) 116/121 intersection in unincorporated Sonoma County.

Caltrans is the lead agency under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans has been assigned environmental review and consultation responsibilities under NEPA pursuant to 23 United States Code (U.S.C.) 327. The project is proposed in cooperation with SCTA, which is responsible for providing regional funding.

1.1 Introduction

The project is located in Sonoma County at the intersection of SR 116/SR 121/Arnold Drive/Bonneau Road. This intersection is the southern terminus of SR 116, which is the north “leg” of the intersection and, in the project vicinity, is also called Arnold Drive. SR 121 makes a right angle at this intersection, so that the south and east legs of the intersection are both SR 121. In the project vicinity, SR 121 is also called Arnold Drive south of the intersection, and it is called Fremont Drive east of the intersection. Bonneau Road, a County road, is the west leg of the intersection. There is a Park-and-Ride lot located in the southeast quadrant of the intersection, and while the project vicinity is predominantly rural, there are some commercial uses surrounding the intersection, as well as farmland. Figure 1-1 provides a project vicinity map, and Figure 1-2 provides a project location map.

Within the limits of the proposed project, SR 116 and SR 121 are conventional two-lane highways with 10- to 12-foot-wide lanes and zero- to 8-foot-wide shoulders. Bonneau Road is a two-lane County road with 10-foot-wide lanes and no shoulders. Currently, this intersection is a four-way, stop-sign controlled intersection with a flashing red beacon in the middle of the intersection. Both highways support commuter, residential, commercial, and tourist traffic. Caltrans proposes to improve operations for vehicles, bicycles, and pedestrians at this intersection through the implementation of a roundabout or a signal.

This project is included in the Metropolitan Transportation Commission’s most recent Regional Transportation Plan, *Plan Bay Area 2040* (Regional Transportation Plan ID No. 22190). The project is also included in the 2015 Transportation Improvement Program, which was adopted by the Metropolitan Transportation Commission on September 24, 2014 (Transportation Improvement Program ID No. SON150009). The Federal Highway Administration (FHWA) and Federal Transit Administration approved the 2015 Transportation Improvement Program on December 15, 2014.

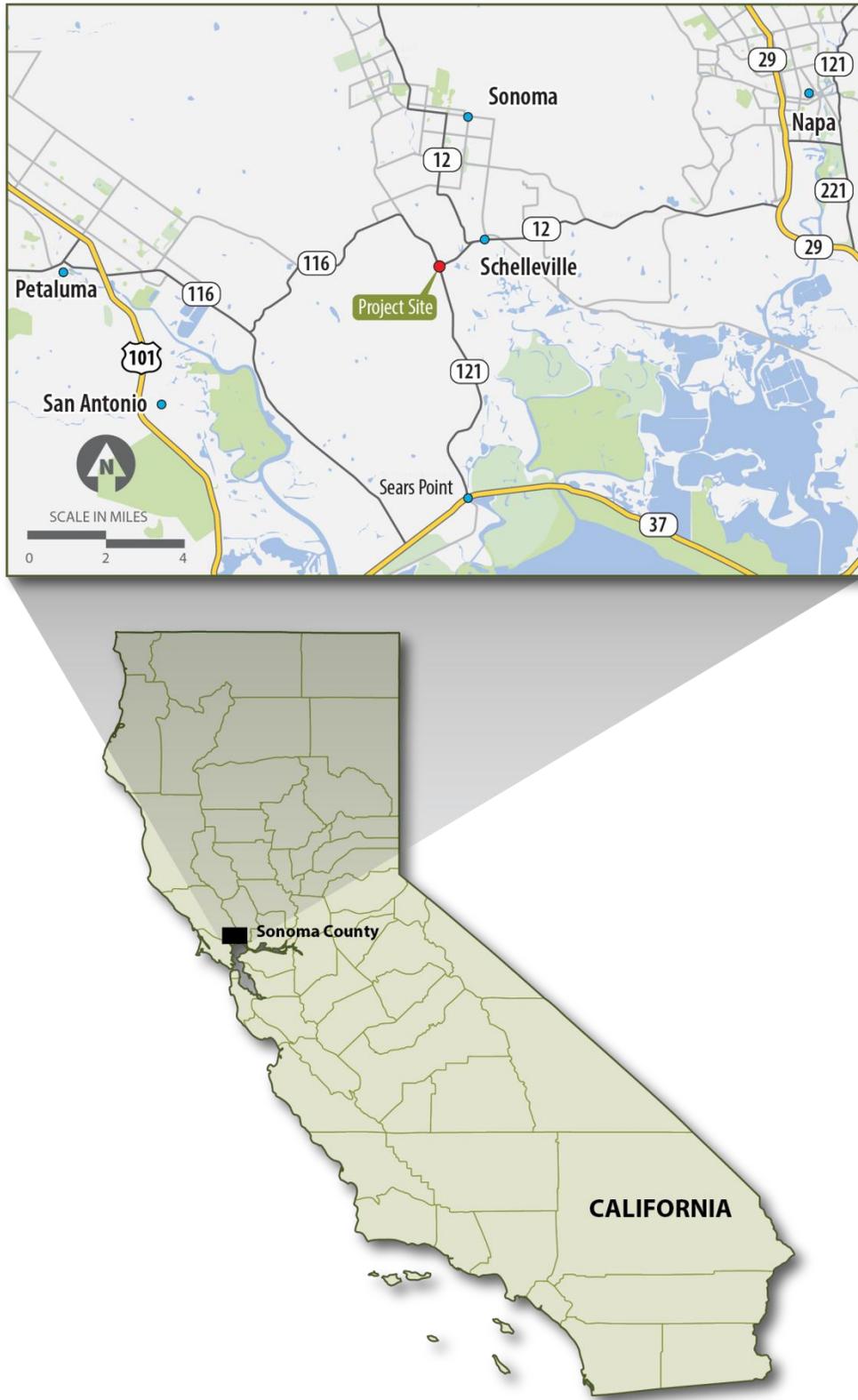


Figure 1-1: Project Vicinity Map

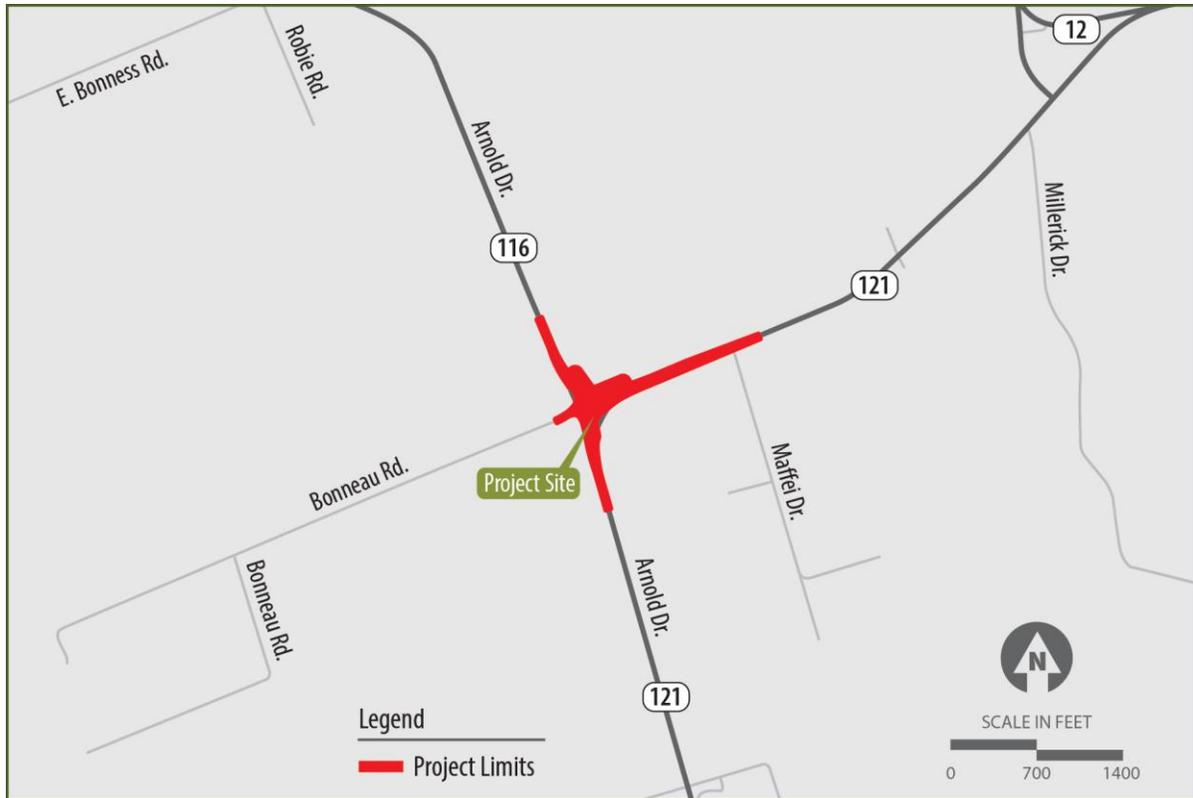


Figure 1-2: Project Location Map

1.2 Purpose and Need

1.2.1 Project Purpose

The purpose of this project is to accomplish the following at the SR 116/121 intersection:

- Improve operations for vehicles, bicycles, and pedestrians;
- Reduce congestion;
- Reduce occurrences of accidents;
- Maintain and enhance access to adjacent properties; and
- Where possible, maintain and enhance parking for public transit and carpool users.

1.2.2 Project Need

The SR 116/121 intersection, in the existing condition with a four-way stop, has decreased its ability to function operationally as the junction of two state highways because traffic on both highways has increased significantly since it was originally constructed. As a result, the intersection experiences congestion and high peak-hour delay due to high traffic volume and high turning movements. Existing (2014) delay is 5 minutes in the morning peak hour (7:30

to 8:30 a.m.) and 6 minutes in the evening peak hour (4:30 to 5:30 p.m.). It is currently operating at unacceptable level of service (LOS) E and F under existing year 2014. LOS E denotes heavy traffic, and LOS F denotes stop-and-go conditions. The most recent 3-year accident data available shows a higher than average total accident rate on SR 121 at the project location. The most recent accident data available dates from the period October 1, 2010 – September 30, 2013 (Caltrans Traffic Accident Surveillance and Analysis System-Transportation System Network [TASAS/TSN], 2015). In addition, the design of the existing intersection does not adequately accommodate pedestrians and bicyclists. Other needs have been identified, including the need to continue to support ride-sharing and access to public transit use at the intersection, and the needs expressed by residents and businesses regarding ingress and egress to properties adjacent to the project area.

1.2.2.1 Capacity, Transportation Demand, and Safety

Caltrans has documented high traffic volumes and delays at the SR 116/121 intersection in traffic studies and transportation planning documents dating back to 1997 (Caltrans, 2013a). SR 116 is a two-lane conventional highway contained entirely within Sonoma County that ends at SR 121 at the project site. Vehicular traffic on SR 116 is primarily commuter and commercial truck traffic, with some recreational traffic consisting of visitors to the Sonoma and Napa wine region. SR 121 is also a two-lane conventional highway that crosses Sonoma and Napa counties. Traffic on SR 121 is recreational, commuter, and commercial. SR 121 experiences additional traffic generated by attendees of special events at the nearby Sonoma Raceway, located approximately 6 miles to the south on SR 121.

According to the *Traffic Operations Analysis Report*, the study intersection is currently operating at unacceptable LOS E and F under existing year 2014. LOS is a rating of congestion and varies on a scale from LOS A to LOS F, where LOS A represents stable flow and very slight delay, and LOS E represents unstable flow, poor progression, and long cycle lengths. At LOS F, an intersection is considered over capacity and operates at forced-flow, jammed conditions. Figure 2.1-7 in Section 2.1.5 shows the LOS scale for an unsignalized intersection, which has the same delay categories as a four-way stop intersection. The wait time for traffic to cross the intersection is currently approximately 5 minutes in the morning peak hour (7:30 to 8:30 a.m.) and approximately 6 minutes in the evening peak hour (4:30 to 5:30 p.m.). For future years, conditions are projected to worsen based on the overall intersection delay and the corresponding LOS. The wait time for traffic to cross the intersection worsens from approximately 5 minutes to approximately 10 minutes in the morning peak hour, and from approximately 6 minutes to approximately 12 minutes in the evening peak hour by 2040. High traffic volume in the project intersection can also cause difficult ingress and egress at adjacent and nearby properties, as vehicles must wait for a safe break in traffic flow to complete their turn onto or off of SR 121 and SR 116.

The most recent accident data available (from years 2010 – 2013), shown in Table 1-1, shows a higher than average total accident rate on SR 121 at the project location (Caltrans TASAS/TSN, 2015). Total accident rates are approximately 24 percent higher on SR 116 than the statewide average and 41 percent higher on SR 121 than the statewide average. Preliminary analysis of the accident data indicates that up to 33 percent of accidents on SR 116 and up to 50 percent of accidents on SR 121 were congestion related. Vehicles often enter the northbound-to-eastbound free right turn off of SR 121 at high speeds, posing safety hazards (Caltrans, 2013a).

**Table 1-1: Number of Accidents and Rates
(October 1, 2010, to September 30, 2013)**

Main Line Highway Segments		Number of Accidents/Significance							Accident Rates*					
									Actual			Statewide Average		
		Tot	F	I	Single Veh	Multi Veh	Wet	Dark	F	F+I	Tot	F	F+I	Tot
1	Son 116 PM 44.84/46.755	27	1	9	4	23	5	5	<u>0.03</u>	<u>0.30</u>	<u>0.82</u>	0.02	0.28	0.62
2	Son 121 PM 5.6/R7.438	59	0	17	15	44	14	18	0.00	<u>0.47</u>	<u>1.64</u>	0.02	0.43	0.97

*Number of Accidents/Million Vehicle Miles; F= Fatal; F+I= Fatal +Injury; Tot=total

Bold underlined numbers reflect higher-than-average accident rates.

1.2.2.2 Roadway Deficiencies

The existing intersection has many roadway, pedestrian, and bicycle facility deficiencies. The intersection has limited facilities for pedestrians. The intersection lacks sidewalks, with the exception of a short stretch of sidewalk at the southwest corner of the intersection along SR 121. The four-way intersection has a single crosswalk, which crosses SR 121 at the south end of the intersection. This crosswalk connects the Park-and-Ride lot to the bus stop on the west side of the highway. The other three intersection legs lack a crosswalk, and all intersection legs lack other pedestrian infrastructure such as controlled crossings with countdown signals, pedestrian-scale lighting, accessible pedestrian signals, and Americans with Disabilities Act-compliant features. The transit stops located adjacent to the intersection lack a pedestrian refuge or designated patron waiting area.

Other roadway deficiencies include the nonstandard lanes and shoulders on SR 116 and SR 121, particularly along SR 121 at the southern end of the project limits and the free right turn at Fremont Drive from SR 121. The project limits are defined as the limits of the

proposed improvements for the Build Alternatives. In addition, access to properties adjacent to the intersection is challenging.

There is a need for improved nighttime lighting and additional street and highway signage at the project intersection. There are limited directional signs, and there are no signs to indicate Arnold and Fremont drives. Lastly, there is a lack of bicycle facilities at the project intersection and intersection approaches. This presents safety hazards for bicyclists using the existing intersection and may discourage the use of bicycles through the intersection.

1.2.2.3 Social Demands and Economic Development

According to the *Sonoma County General Plan 2020* (September 2008), SR 116 and SR 121 are important traffic arteries in the Sonoma Valley region, defined as the area that extends from Bennett Valley and Kenwood south to San Pablo Bay and from the crest of the Sonoma Mountains east to the Sonoma-Napa county line. Sonoma Valley is heavily impacted by recreational travel. The valley's wine industry and its proximity to the Bay Area results in significant weekend congestion, particularly during summer months and harvest season, which begins in September and goes through October. Special event activity, including from the nearby Sonoma Raceway, also contributes to this traffic. The growth in demand for tourist-serving uses particularly affects SR 121; thus, it is projected to become more congested, especially during weekend peak periods (Caltrans, 2013a). The *Sonoma County General Plan* includes planned improvements at the SR 116/121 intersection to reduce congestion and to address pedestrian and safety issues. In addition, the goals of the SCTA 2014 Measure M Strategic Plan (SCTA, 2014a), the 2009 Comprehensive Transportation Plan for Sonoma County, and the Metropolitan Transportation Commission's Regional Transportation Plan, *Plan Bay Area 2040* (MTC, 2013) include improving traffic conditions, reducing congestion, and improving pedestrian and bicycle facilities in the region. There are no planned land use changes or growth management controls in the vicinity of the SR 116/121 intersection.

1.2.2.4 Legislation

On November 2, 2004, the voters of Sonoma County passed Measure M, a ¼ cent sales tax to address transportation needs throughout the county. On June 11, 2005, the SCTA Board of Directors approved the 2005 Measure M Strategic Plan, which is a 5-year programming document outlining how money generated from the sales tax would be spent on transportation needs.

The Measure M Strategic Plan provides a snapshot of anticipated tax revenue and commitment of funds to specific transportation projects for the following 5 years. The Measure M Strategic Plan has been updated four times since 2005. The proposed SR 116/121 Intersection Improvements Project is identified in the 2014 Measure M Strategic Plan, which

programmed \$1.95 million, of the total \$5 million available, of Measure M funds for the proposed project.

1.2.2.5 Modal Relationships and System Linkages

In the southeast corner of the SR 116/121 intersection, there is a Caltrans-operated Park-and-Ride lot with 47 spaces. This Park-and-Ride lot supports ride-sharing by residents in the local area, and it serves two bus stops for Sonoma County Transit Line 38, located just south of the intersection. Line 38 travels from San Rafael to Oakmont (east of Santa Rosa), and there is one bus trip in the morning and one bus trip in the afternoon. Sonoma County Transit Line 32 also passes through this intersection, with a stop to the east on South Temelec Circle. Line 32 travels from Temelec (located approximately 3 miles north of the SR 116/121 intersection), through Sonoma, and north to Agua Caliente throughout the day. This Park-and-Ride lot is the only lot serving the Sonoma Valley, and it is an important element of maintaining and improving multimodal connections in the region. Retaining the existing Park-and-Ride lot at the project intersection would support any future plans to expand transit service through this area.

Additionally, the 2014 Sonoma County Bike and Pedestrian Plan identifies two high-priority projects to accommodate bikes and pedestrians within the study area. One high-priority project calls for Class II bikeways to be created on SR 121 between Bisso and Napa roads, which provide a striped lane for one-way bike travel on a street or highway. The second high-priority project calls for Class II bikeways along SR 116 between Adobe Road and SR 121. Improving bicycle and pedestrian facilities within the vicinity of the SR 116/121 intersection would support the goals of this plan.

Furthermore, the proposed project would be designed to accommodate high volumes of heavy trucks passing through the intersection to support continued goods movement and truck circulation throughout Sonoma Valley.

Lastly, the proposed SR 116/121 Intersection Improvements Project is Phase 3 of the 5 phase SR 116/121 Intersection Improvements and Arnold Drive Improvements identified in the 2014 Measure M Strategic Plan. Phases 1 and 2 included improvements along Arnold Drive and were completed in 2012 and 2014, respectively. Phase 4 is to widen the shoulders on Arnold Drive between Country Club Drive and Loma Vista Drive, and Phase 5 is to replace the existing stop-controlled intersection at Arnold Drive and Madrone Avenue with a signalized intersection or roundabout. No work has started on Phases 4 and 5. The current proposed project (Phase 3) is an important component of the overall system of improvements planned for Arnold Drive.

1.2.3 Independent Utility and Logical Termini

FHWA regulations (23 *Code of Federal Regulations* [CFR] 771.111 [f]) require that the project evaluate:

- If the proposed project has logical termini,
- If the proposed project has independent utility, and
- Does not restrict the consideration of alternatives for other transportation improvements.

FWHA defines logical termini as rational end points for a transportation improvement and rational end points for a review of environmental impacts for the transportation improvement. The proposed project possesses logical termini because the project focuses on improvements to the SR 116/121 intersection and adjacent Park-and-Ride lot, and the project limits include the intersection, intersection approach, and Park-and-Ride lot. The proposed improvements would not restrict the consideration of alternatives for other reasonably foreseeable transportation improvements. The proposed project is being developed with the local and regional transportation authorities in the area, SCTA, and Caltrans. Continuing coordination will avoid potential conflicts with alternatives for this project and for other planned area transportation improvements.

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

1.3 Project Description

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

The project is located in Sonoma County at the intersection of SR 116/SR 121/Arnold Drive/Bonneau Road (SR 116 Post Miles 46.0 to 46.7 and SR 121 Post Miles 5.8 to R7.4). Within the limits of the proposed project, SR 116 and SR 121 are conventional two-lane highways with 10- to 12-foot-wide lanes and zero- to 8-foot-wide shoulders. Bonneau Road is a two-lane County road with 10-foot-wide lanes and no shoulders. The purpose of this project is to improve operations for motorists, bicycles, and pedestrians at the SR 116/121 intersection,

consequently reducing congestion and the occurrence of accidents. Additionally, where possible, the project would maintain and enhance access to adjacent properties and parking for public transit and carpool users.

1.4 Alternatives

Three project alternatives are proposed for consideration, as described below. Two Build Alternatives – the Roundabout Alternative and the Signalized Intersection Alternative – were developed to meet the identified purpose and need of the project, while avoiding or minimizing environmental impacts. The third alternative is the No Build Alternative. The alternatives will be evaluated based on project cost, vehicle miles traveled, and other traffic data. Impacts to the environment, such as community and land use impacts, cultural resources, floodplains, wetlands, greenhouse gas emissions, and special-status species will also be evaluated. The general project vicinity is shown in Figure 1-1; the specific project location is shown in Figure 1-2.

1.4.1 Roundabout Alternative

The Roundabout Alternative includes construction of a hybrid multilane roundabout with 180 degrees of the circulatory roadway having two lanes, a full right-turn bypass lane in the northbound direction, and a partial right-turn bypass lane (yield control at the exit) in the westbound direction. The provision of a full right-turn bypass lane allows right-turning traffic to bypass the roundabout and merge onto the exit roadway. A partial right-turn bypass also bypasses the roundabout, but provides a yield control at the exit roadway instead of a separate merge lane. The Roundabout Alternative extends approximately 750 feet on SR 116/Arnold Drive (north of the intersection), approximately 1,600 feet on SR 121/Fremont Drive (east of the intersection), approximately 800 feet on SR 121/Arnold Drive (south of the intersection), and approximately 200 feet on Bonneau Road (west of the intersection). The Roundabout Alternative is shown in Figures 1-3 and 1-4.

The full right-turn bypass lane would be in the southeast quadrant for motorists traveling northbound on SR 121/Arnold Drive to SR 121/Fremont Drive. The partial right-turn bypass lane would be in the northeast quadrant for motorists traveling from westbound SR 121/Fremont Drive and connecting to northbound SR 116/Arnold Drive. SR 116/Arnold Drive, SR 121/Arnold Drive, and SR 121/Fremont Drive would have 12-foot-wide lanes, except when they would approach the roundabout, at which point they would widen to between 12 and 19 feet. Within the roundabout, lane widths would range between 12 and 20 feet. Bonneau Road would be widened and realigned to accommodate standard, 12-foot-wide single-entry and single-exit lanes with 2-foot-wide shoulders. Flashing beacons and advance warning signs would be installed as appropriate to alert approaching motorists to slow down from the approaching speed of 50 miles per hour (mph) to the entering speed of 25 mph. The

existing free right turn from northbound SR 121/Arnold Drive eastbound to SR 121/Fremont Drive would be removed. The Roundabout Alternative has a cost estimate of \$14 million, including \$360,000 for right-of-way (ROW) acquisition. This includes roadway items, such as excavation, clearing and grubbing, mitigation, and pavement; construction costs; and ROW items (i.e., acquisitions, utility relocation).

Pedestrian and Bicycle Facilities

The highway shoulders would be striped and signed as Class II bicycle lanes. Bicyclists would have the option of using these Class II bicycle lanes in approaching and exiting the roundabout. In lieu of merging with the circulating traffic, the bicyclists would have the option to leave the mixed-flow lane via bicycle ramps and use a Class I 10-foot-wide shared-use path. This shared-use path would serve as a shared pedestrian/bicyclist facility for the approach, passage through, and exit of the roundabout. It would be constructed to surround the roundabout at each roadway crossing.

Each roadway crossing of the shared-use path would include a striped crosswalk, pedestrian-scale lighting, and signage to alert motorists to the presence of pedestrians and bicyclists. All paths, ramps, and crossings would be built to meet current Americans with Disabilities Act standards. These standards include, but are not limited to, paths not exceeding a maximum slope of 5 percent. To increase pedestrian visibility and motorist yielding rates, rectangular rapid flashing beacons will be considered and further evaluated during the design phase of the project for wherever pedestrians cross two lanes of same-direction travel.

In addition, a 5-foot-wide strip separating the path from the roundabout traffic lanes would be constructed along all four legs of the intersection to provide a division between the traffic lanes and bicyclists and pedestrians.

Partial Property Acquisitions

Construction of the roundabout would require partial acquisition of adjacent properties for the project ROW. The roundabout center would be located northeast of the existing intersection center to minimize ROW impacts to local businesses. No businesses or residences would be displaced. Temporary construction easements would also be required to facilitate construction of the project. The temporary work would include access onto project frontages to construct project-related features, including relocating utilities, and constructing drainage and the new shared-use path.

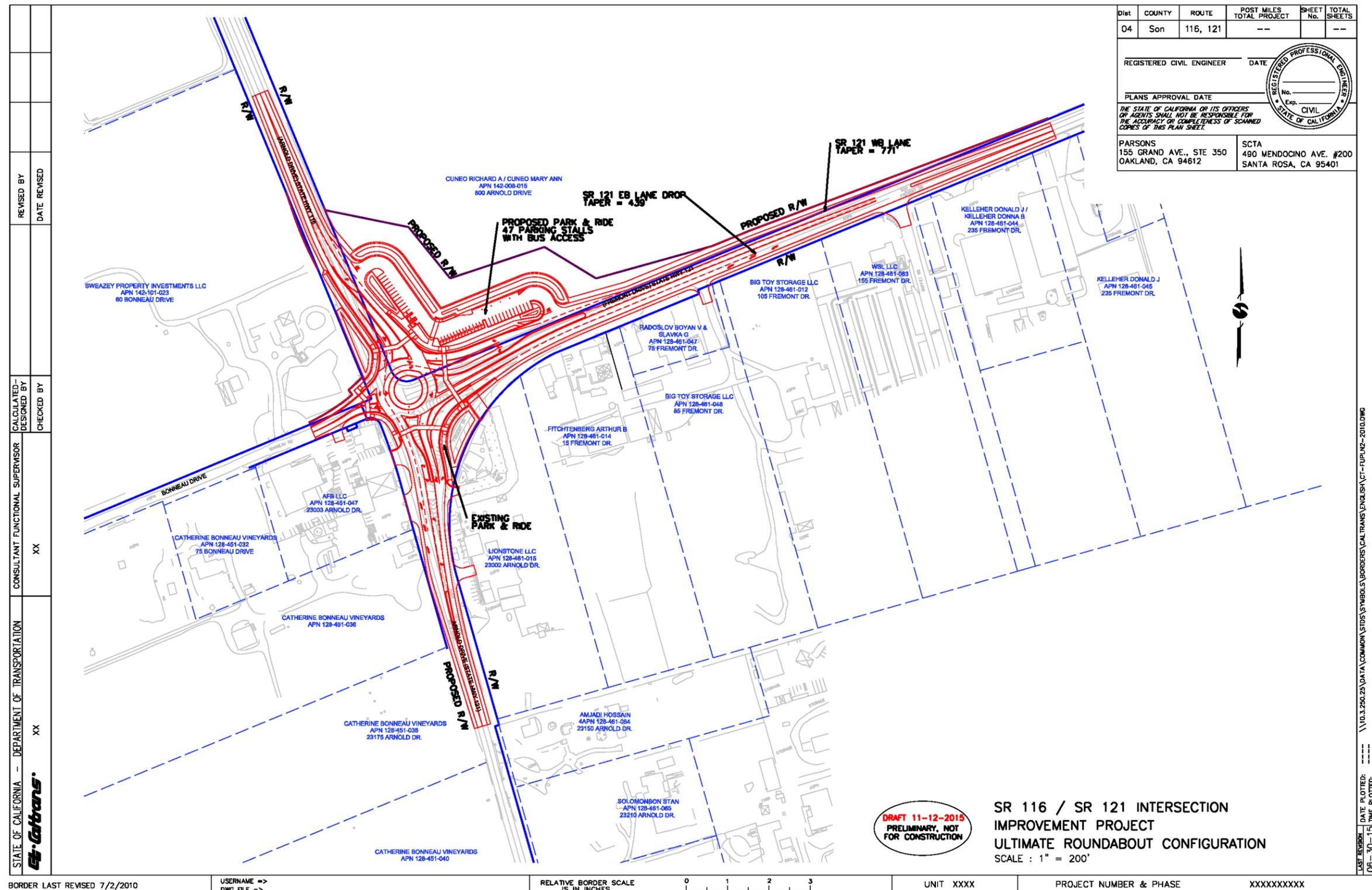


Figure 1-3: Roundabout Alternative

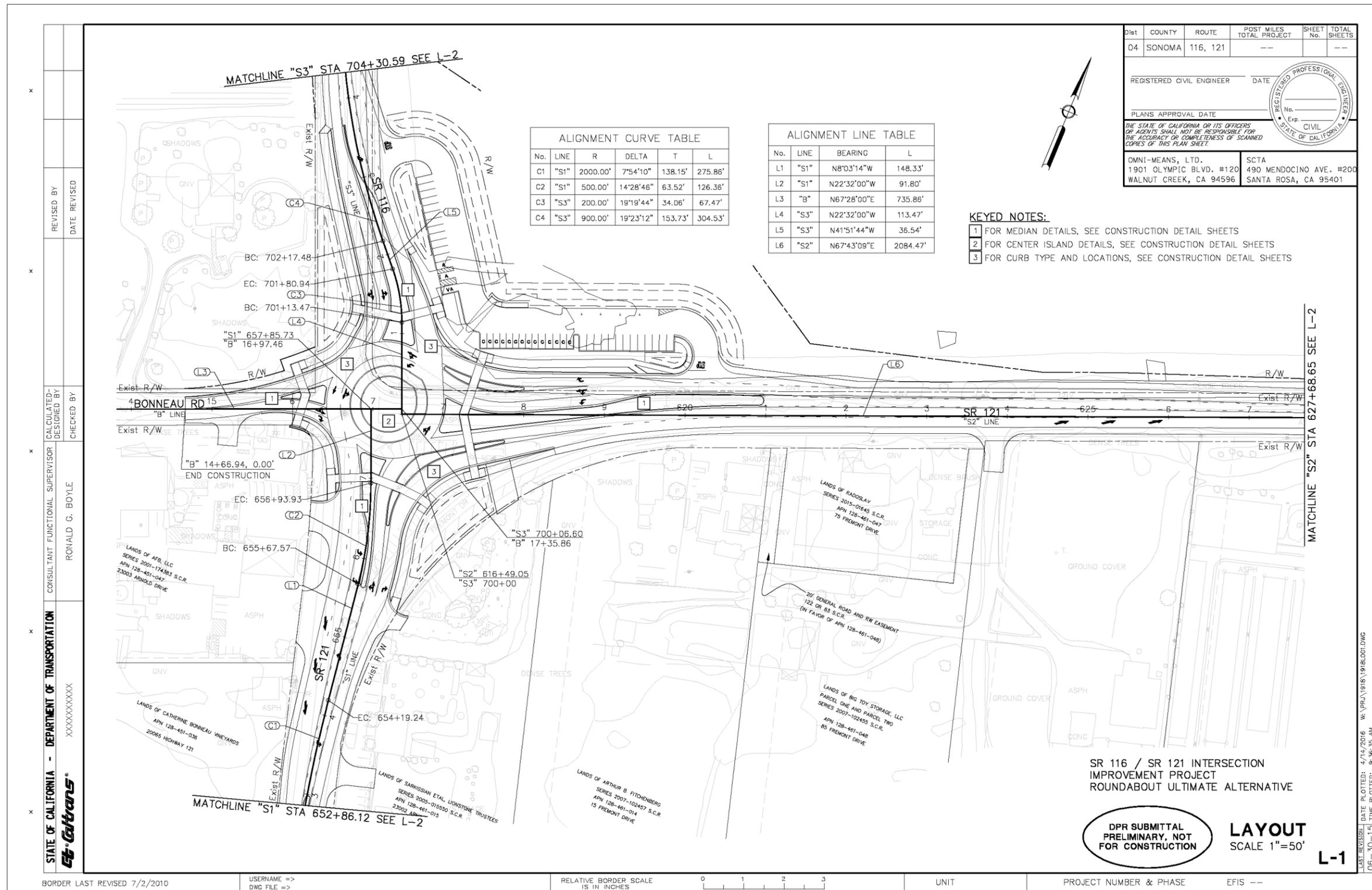


Figure 1-4: Roundabout Alternative – Detail

Park-and-Ride Lot

The existing Park-and-Ride lot, located in the southeast quadrant of the existing intersection, would be relocated to the northeast quadrant of the roundabout, which would require ROW acquisition in this area. Traffic ingress and egress to the Park-and-Ride lot would be provided off of SR 116/Arnold Drive and SR 121/Fremont Drive and would be set back from the highway and shared-use path of the proposed roundabout to accommodate traffic flow. The setback allows for a driveway area to be developed, thus providing a smooth flow of traffic into the Park-and-Ride lot. The relocated Park-and-Ride lot would have the same number of parking spaces (47) as the original lot, but the overall footprint of the lot would be larger, due to utility relocations, tree replanting, and water treatment measures.

Landscaping, Drainage, and Access

Existing landscape, drainage systems, access, and maintenance would be redesigned to support the roundabout. Utility relocations would be required for utility poles and underground storm drain facilities; no other underground utilities have been identified. A total area of approximately 100 square feet would be excavated for utility pole relocation, and the depth of these excavations would range from approximately 5 to 13 feet below grade. Of the 100 square feet, approximately 20 square feet would be excavated for light poles. Utility boxes would also be required at each curb return, which are located at the curved section of the curb at the corner of an intersection. They would be a maximum of 3 feet deep. Additionally, maintenance pullouts would be provided within all 8-foot-wide shoulders approaching the intersection.

New and extended storm drains would tie into the existing storm drain system, and the depth of these excavations would generally be at the same depth as existing storm drain facilities. The Roundabout Alternative has been designed to avoid impacts to Yellow Creek Bridge, which is a concrete bridge supporting SR 121/Arnold Drive over Yellow Creek.

Design Option 1: Interim Roundabout

The Interim Roundabout design option would also include construction of a hybrid multilane roundabout, which would be a phased version of the Roundabout Alternative. This design option would be implemented initially, prior to implementation of the full Roundabout Alternative. Under the Interim Roundabout design option, 90 degrees of the circulatory roadway would have two lanes (instead of two lanes for 180 degrees). Two partial right-turn bypass lanes would be provided, one in the southeast (instead of a full right-turn bypass) and one in the northeast quadrants. The project limits, ROW acquisition, and the area of impact would be the same as those described above for the Roundabout Alternative. The only difference between the Interim Roundabout and the Roundabout Alternative would be the number of lanes; the Interim Roundabout would be striped with one lane (except for 90

degrees which would be striped with two lanes), while the Roundabout Alternative would be striped with one or two lanes (180 degrees each), and the northbound full right-turn bypass is replaced by a partial right-turn bypass (i.e., yield at exit leg) with the interim roundabout. This design option would be implemented first to allow drivers to become familiar with a roundabout and since roundabouts with fewer lanes have fewer accidents. The ultimate Roundabout Alternative would be required in approximately 10 years to accommodate future traffic volumes. When the hybrid multilane roundabout is required, SCTA will program a job to restripe the roundabout to the ultimate hybrid multilane configuration. The Interim Roundabout design option is shown in Figures 1-5 and 1-6.

Construction Activities

Construction Hours. Construction work for either Build Alternative would be done primarily during daylight hours from 7:00 a.m. to 6:00 p.m.; however, there may be some work during night-time hours to avoid temporary highway closures for tasks that could interfere with traffic or create safety hazards. Examples of these tasks include striping operations, traffic control setup, installation of storm drain crossings, and asphalt pavement mill and overlay.

Road Closures. The entire intersection would not be closed during construction; however, temporary lane closures would occur. It is anticipated that temporary closure of existing bicycle, transit, or pedestrian facilities would occur at times and may require temporary rerouting of transit service due to intersection work. A Transportation Management Plan would be developed and implemented as part of the project construction planning phase. The Transportation Management Plan would address potential impacts to circulation of all modes of travel (i.e., transit, bicycles, pedestrians, and private vehicles). Highway and/or pedestrian access to all occupied residences and businesses and respective parking lots would be maintained during project construction. The Transportation Management Plan would include measures to minimize, avoid, and/or mitigate impacts from temporary lane closures, such as agreements with local agencies to provide enhanced infrastructure on arterial roads or intersections to deal with additional traffic. The Transportation Management Plan may provide for employing traffic control personnel from another agency, especially for special event traffic through or near the construction zone.

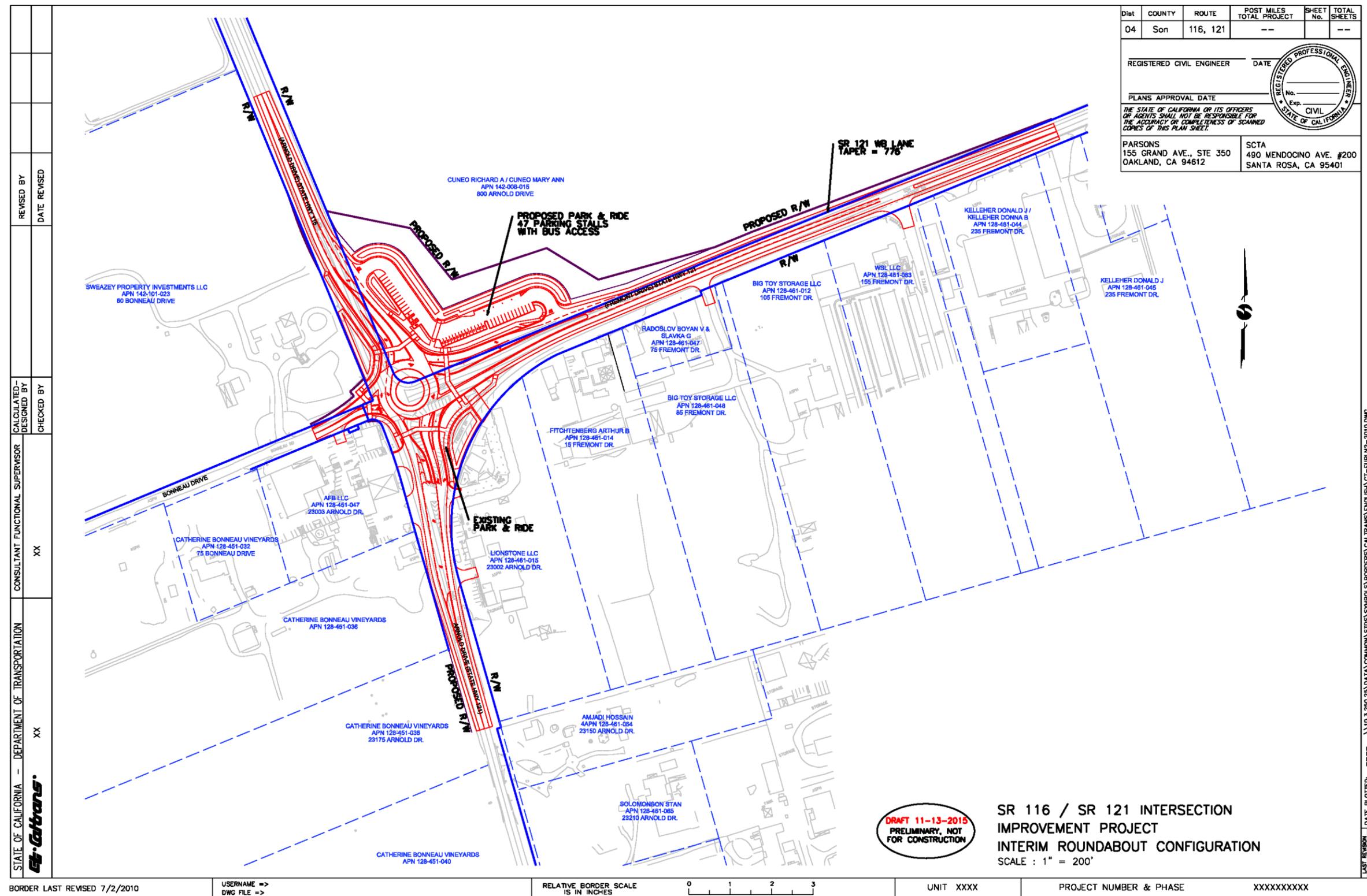


Figure 1-5: Interim Roundabout Design Option

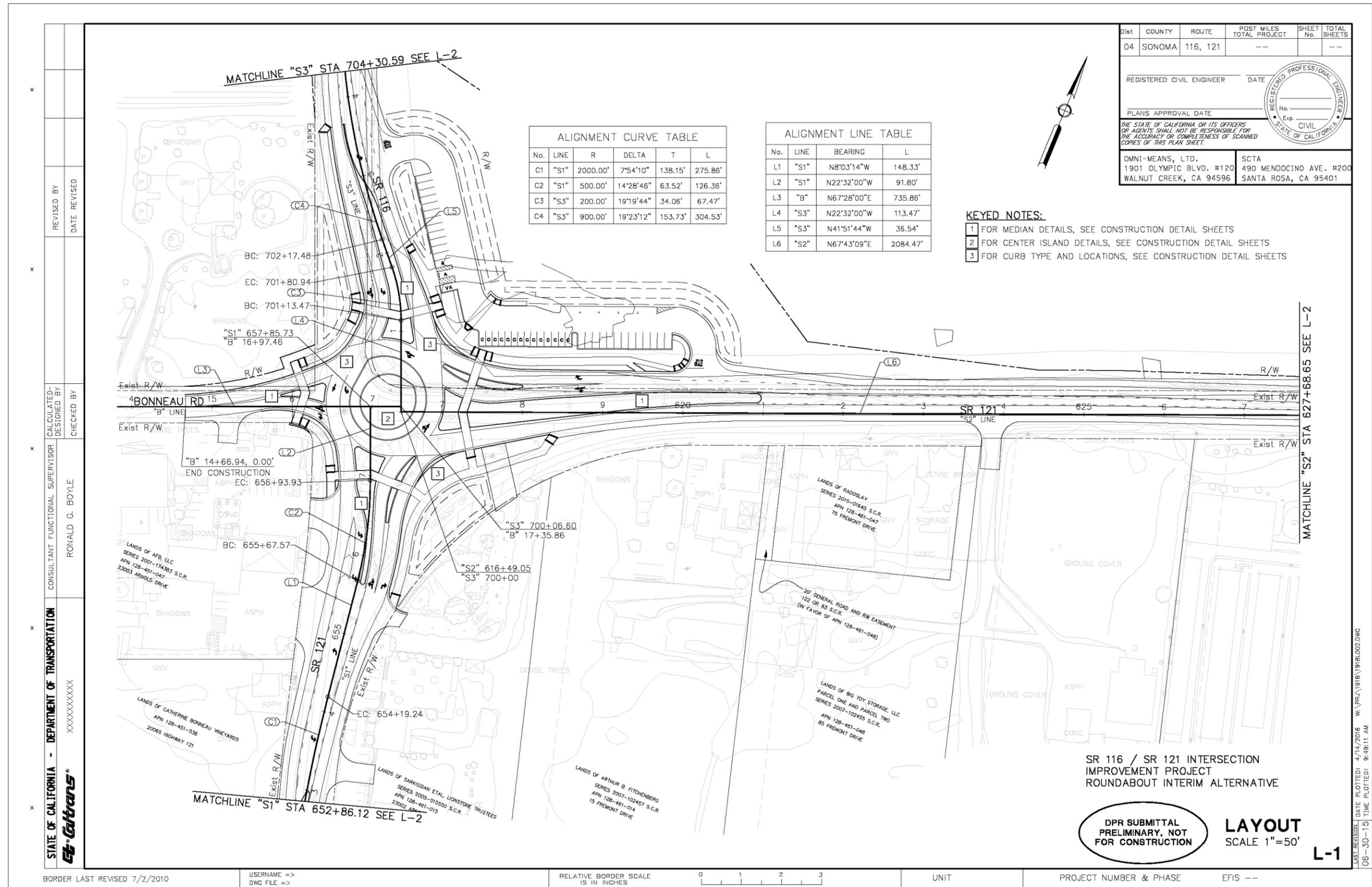


Figure 1-6: Interim Roundabout Design Option – Detail

Park-and-Ride Lot Closure. The existing Park-and-Ride lot would be partially, and potentially fully, closed during construction. Approximately 60 percent of the lot would remain open during portions of the construction period, while the remaining portion of the lot would be used as a construction staging area; however, full closure of the Park-and-Ride lot may be necessary for short periods of time due to construction activities in the southeast quadrant of the intersection, such as paving activities. Caltrans would redirect patrons to other associated lots if a full closure becomes necessary, such as the Petaluma, Lakeville Highway Park-and-Ride lot, located at Highway 101 and SR 116; South Petaluma Park-and-Ride lot, located at Highway 101 and South Petaluma Boulevard; or the Novato, Black Point Park-and-Ride lot, located at Route 37 and Atherton Avenue. The Transportation Management Plan will include measures to minimize, avoid, and/or mitigate impacts from diverting patrons to associated lots.

Staging Location. The anticipated construction staging areas available include areas within the existing roadway ROW construction limits, primarily inside the Park-and-Ride lot. It is anticipated that no staging areas outside of the existing roadway ROW and Park-and-Ride lot would be required.

Construction Equipment. Equipment, including but not limited to an auger drill rig, backhoe, compactor, concrete pump, crane, dozer, excavator, front end loader, grader, heavy-duty dump truck, jackhammer, vibratory roller, and pavement breaker, could be used during construction.

1.4.2 Signalized Intersection Alternative

The Signalized Intersection Alternative proposes to introduce a four-way traffic signal to the project intersection. The Signalized Intersection Alternative extends approximately 1,250 feet on SR 116/Arnold Drive (north of the intersection), approximately 1,650 feet on SR 121/Fremont Drive (east of the intersection), approximately 750 feet on SR 121/Arnold Drive (south of the intersection), and approximately 200 feet on Bonneau Road (west of the intersection).

The existing intersection would be widened to accommodate a configuration that would include an additional left-turn lane for traffic turning eastbound from SR 116/Arnold Drive and add an additional right-turn lane on northbound SR 121/Arnold Drive. SR 116/Arnold Drive and SR 121/Fremont Drive would have standard 12-foot-wide lanes. SR 121/Arnold Drive would have a 12-foot-wide lane. Bonneau Road would be widened to accommodate standard 12-foot-wide lanes and shoulders. All shoulders would be 8 feet wide, except adjacent to the westbound right-turn pocket, which would be 4 feet wide, and adjacent to the

northbound right-turn pocket, which would be 6 feet wide, to avoid additional property acquisition.

Flashing beacons and advance warning signs would be installed as appropriate to alert approaching motorists to slow down. The existing free right turn on northbound SR 121/Arnold Drive would be removed. The Signalized Intersection Alternative is shown in Figures 1-7 and 1-8. The Signalized Intersection Alternative has a cost estimate of \$13.5 million, including \$851,000 for ROW acquisition. This includes roadway items, such as excavation, clearing and grubbing, mitigation, and pavement; construction costs, and ROW items (i.e., acquisitions, utility relocations).

Pedestrian and Bicycle Facilities

New 6-foot-wide pedestrian sidewalks would be constructed for connectivity between the four intersection legs. All sidewalks and crossings would be Americans with Disabilities Act compliant. On the SR 116/Arnold Drive, SR 121/Arnold Drive, and SR 121/Fremont Drive intersection legs, bicycle lanes would be Class II compliant. No bicycle lanes are proposed on Bonneau Road because the roadway terminates at a dead end approximately 1 mile east of the intersection. Bicyclists would use the highway shoulders on the intersection approach. Through the intersection, bicyclists would have their own dedicated lane.

Partial Property Acquisition

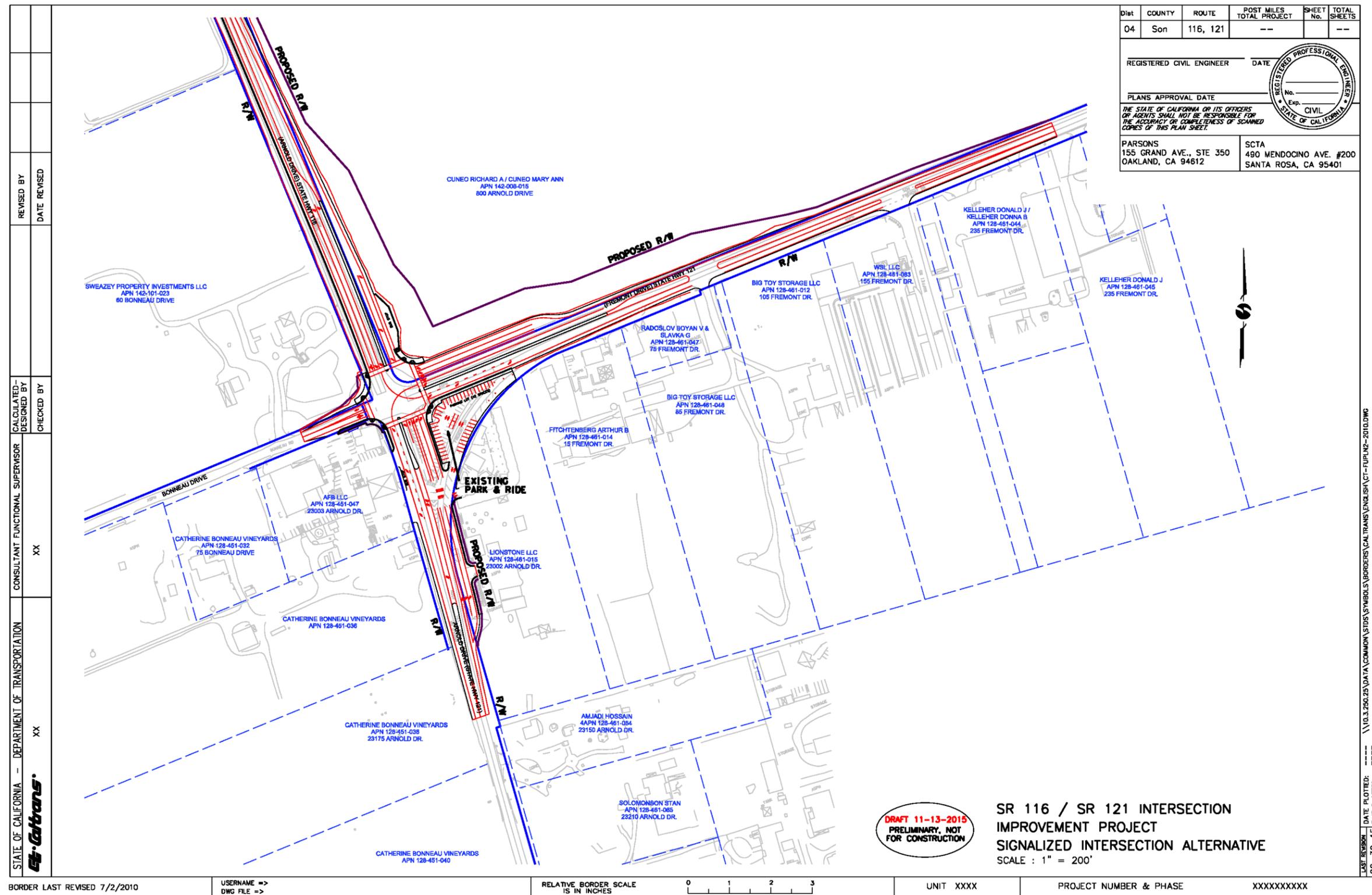
Partial acquisition of properties adjacent to the intersection would be required under the Signalized Intersection Alternative. No businesses or residences would be displaced.

Park-and-Ride Lot

The existing Park-and-Ride lot, located in the southeast quadrant of the intersection, would remain in the southeast quadrant of the intersection and would be reconfigured. Access to the reconfigured Park-and-Ride lot would be from northbound SR 121/Arnold Drive, south of the intersection.

Landscaping, Drainage, and Access

Existing landscape, drainage systems, access, and maintenance pullouts would be slightly modified under the Signalized Intersection Alternative. Utility relocations would be required for utility poles and underground storm drain facilities; no other underground utilities have been identified. The total area of approximately 100 square feet would be excavated for utility pole relocation, and the depth of these excavations would range from approximately 5 to 13 feet below grade. Of the 100 square feet, 40 square feet would be excavated for signal poles and 20 square feet would be excavated for light poles. Utility boxes would also be required at each curb return, at a maximum of 3 feet deep. Additionally, maintenance pullouts would be provided within all 8-foot-wide shoulders approaching the intersection.



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Son	116, 121	--	--	--

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

PARSONS 155 GRAND AVE., STE 350 OAKLAND, CA 94612	SCTA 490 MENDOCINO AVE. #200 SANTA ROSA, CA 95401
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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CHECKED BY	DESIGNED BY	REVISIONS
XX	XX			

BORDER LAST REVISED 7/2/2010 USERNAME => RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 UNIT XXXX PROJECT NUMBER & PHASE XXXXXXXXXX

Figure 1-7: Signalization Intersection Alternative

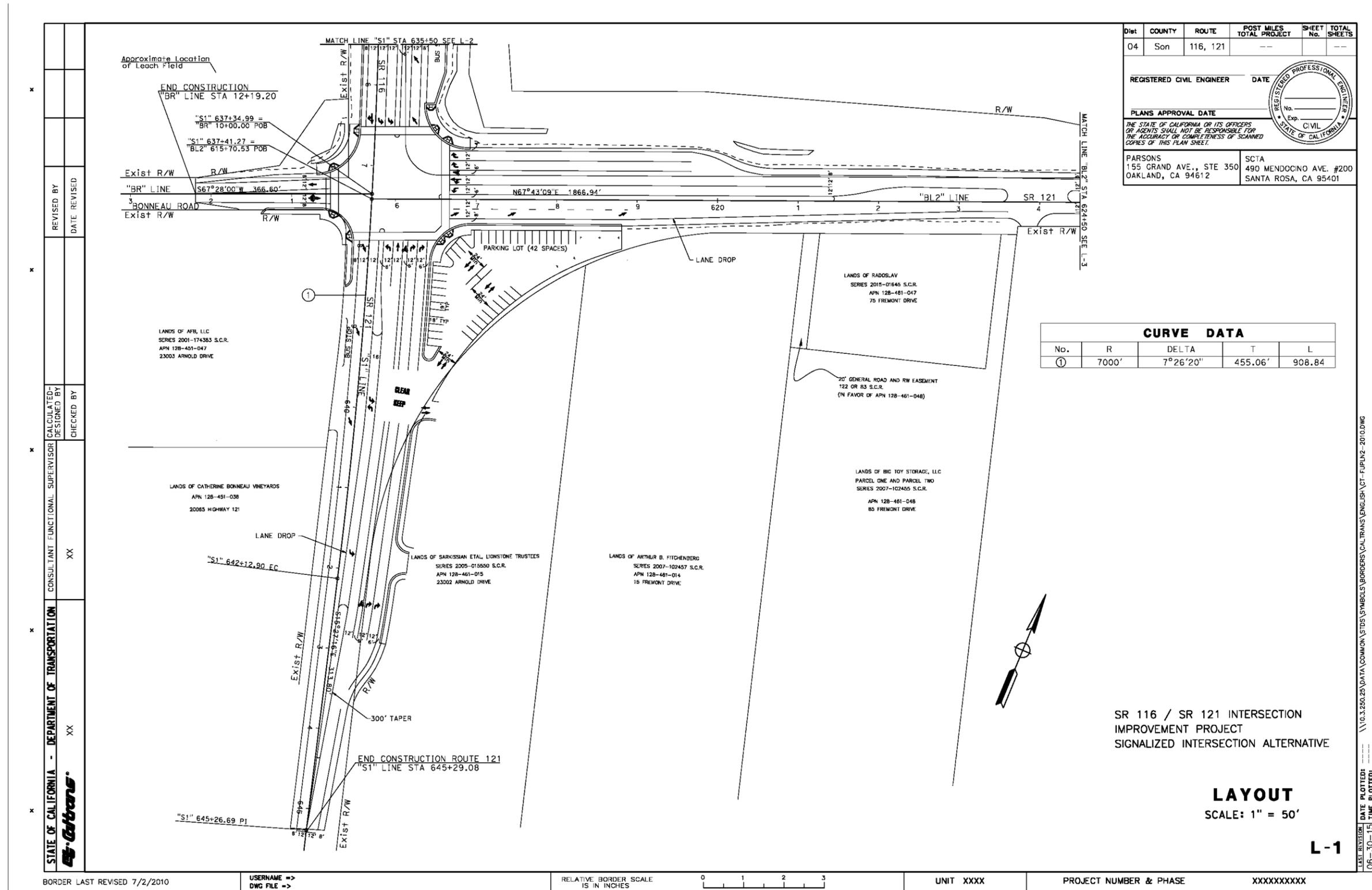


Figure 1-8: Signalization Intersection Alternative – Detail

New and extended storm drains would tie into the existing storm drain system, and the depth of these excavations would generally be at the same depth as existing storm drain facilities. The Signalized Intersection Alternative has been designed to avoid impacts to Yellow Creek Bridge, which is a concrete bridge supporting SR 121/Arnold Drive over Yellow Creek.

Construction Activities

The description of construction activities under the Roundabout Alternative, above, also applies to the Signalized Intersection Alternative.

1.4.3 Transportation System Management and Transportation Demand Management Alternatives

Transportation System Management strategies increase the efficiency of existing facilities; they are actions that increase the number of vehicle trips a facility can carry without increasing the number of through lanes. Examples of Transportation System Management strategies include ramp metering, auxiliary lanes, turning lanes, reversible lanes, and traffic signal coordination. Transportation System Management also encourages automobile, public and private transit, ride-sharing programs, and bicycle and pedestrian improvements as elements of a unified urban transportation system. Transportation Demand Management focuses on regional means of reducing the number of vehicle trips and vehicle miles traveled, as well as increasing vehicle occupancy. It facilitates higher vehicle occupancy or reduces traffic congestion by expanding the traveler's transportation options in terms of travel method, travel time, travel route, travel costs, and the quality and convenience of the travel experience.

Although Transportation System Management measures alone could not satisfy the purpose and need of the project, the following Transportation System Management measures have been incorporated into the Build Alternatives for this project: signage and lighting, pavement striping, bicycle and pedestrian improvements, and maintenance of the existing Park-and-Ride lot. In addition, bypass lanes have been incorporated into the Roundabout Alternative, and signal timing optimization and turning lanes have been incorporated into the Signalized Intersection Alternative.

1.4.4 No Build Alternative

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

and delay at the intersection by 2040. The wait time for traffic to cross the intersection worsens from approximately 5 minutes to approximately 10 minutes in the morning peak hour, and from approximately 6 minutes to approximately 12 minutes in the evening peak hour. Due to this additional congestion and delay, safety at the intersection would continue to worsen, and ingress and egress from adjacent properties would continue to be challenging. Additionally, pedestrian and bicycle facilities would not be constructed.

1.5 Comparison of Alternatives

The criteria developed to evaluate the Build Alternatives are the points outlined in the purpose statement. These criteria were developed in coordination with Caltrans, SCTA, and through the public participation process. They are based on what each of these entities hopes the project will achieve. The Build Alternatives and the No Build Alternative will be evaluated based on how well they accomplish the criteria outlined in the purpose statement.

The Build Alternatives share some common design features. For both, the existing eastbound free right turn off of SR 121/Arnold Drive would be removed, and the alternatives would provide pedestrian facilities, pedestrian-scale lighting, striped crosswalks, and bikeway facilities. Modification to landscape, drainage systems, and access control would be needed to accommodate the new configuration of the signalized intersection or roundabout, and ROW acquisition would be required. Utility relocations are anticipated for overhead and underground utilities under each Build Alternative. Table 1-2 provides a summary comparison of the project alternative features.

Table 1-2: Project Features

Project Features	Roundabout Alternative	Signalized Intersection Alternative	No Build Alternative	Additional Detail
Traffic signal	N	Y	N	Not applicable (N/A)
Traffic roundabout	Y	N	N	N/A
Pedestrian facilities	Y	Y	N	N/A
Pedestrian-scale lighting	Y	Y	N	N/A
Striped crosswalks	Y	Y	N	N/A

Table 1-2: Project Features

Project Features	Roundabout Alternative	Signalized Intersection Alternative	No Build Alternative	Additional Detail
Pedestrian countdown signals	N	Y	N	Hawk signals (a traffic control device used to stop road traffic and allow pedestrians to cross safely) could be provided on multilane crossings at roundabout if necessary. This will be determined during the design phase of the project.
Bicycle lanes	Y	Y	N	Bicyclists could utilize the Class II bicycle lanes or the shared-use path under the Roundabout Alternative. Under the Signalized Intersection Alternative, bicyclists would travel through a bicycle-dedicated lane in the intersection.
Park-and-Ride relocation	Y	N	N	Under the Signalized Intersection Alternative, the lot would remain in the southeast quadrant but would be reconfigured.
Landscape changes	Y	Y	N	N/A
Utility relocation	Y	Y	N	N/A
Drainage system modification	Y	Y	N	N/A
ROW acquisition	Y	Y	N	N/A
Business displacement	N	N	N	N/A

After the public circulation period, all comments will be considered, and Caltrans will select a preferred alternative and make the final determination of the project's effect on the environment. Under CEQA, if no unmitigable significant adverse impacts are identified, Caltrans will prepare a Mitigated Negative Declaration. Similarly, if Caltrans determines the action does not significantly impact the environment, Caltrans, as assigned by FHWA, will issue a Finding of No Significant Impact (FONSI) in accordance with NEPA.

1.6 Alternatives Considered but Eliminated from Further Discussion

During an earlier phase of this project, other alternatives were considered and evaluated for feasibility. One alternative, Build Alternative 1A (Roundabout with S-Curve), was considered but eliminated from further discussion. Build Alternative 1A would have been the same as the Roundabout Alternative, except for the addition of a set of successive curves (S-curve). These S-curves would have been included on three of the four legs to reduce the approaching speed of vehicles heading towards the roundabout so that the approaching speed would match the circulatory speed of the roundabout. Build Alternative 1A would have required the acquisition of more ROW than the other Build Alternatives. In addition, subsequent studies found that the approaching speed of vehicles heading towards the roundabout would be slow enough without the S-curve. Therefore, to minimize environmental impacts, Build Alternative 1A was not carried forward for further analysis.

1.7 Permits and Approvals Needed

Table 1-3 summarizes the regulatory permits and approvals needed for project construction.

Table 1-3: Regulatory Permits and Approvals

Agency	Permit or Approval	Status
U.S. Fish and Wildlife Service	Biological Opinion documenting formal consultation for threatened and endangered species under Section 7 of the Federal Endangered Species Act.	Caltrans will consult with U.S. Fish and Wildlife Service and obtain the Biological Opinion after the preferred alternative is chosen.
U.S. Army Corps of Engineers, San Francisco District	Concurrence of wetland/waters of the U.S. delineation. Section 404 Individual Permit for dredge and/or fill in wetlands and other waters of the U.S.	Caltrans will consult with the U.S. Army Corps of Engineers to obtain a Wetland/Waters of the U.S. Determination. The Section 404 Individual Permit will be obtained during final design.
Federal Highway Administration	Project-level conformity determination.	Caltrans will request that FHWA issue a project-level conformity determination for the project after a preferred alternative is selected.
State Water Resources Control Board	Construction General Permit for stormwater discharges – Caltrans; Section 402 Caltrans National Pollutant Discharge Elimination System Permit for greater than 1 acre.	Obtain coverage under the General Permit by preparation and submittal of a Notice of Intent before start of construction.
San Francisco Bay Regional Water Quality Control Board	Section 401 Water Quality Certification.	Obtain the 401 Water Quality Certification during the final design phase.

Table 1-3: Regulatory Permits and Approvals

Agency	Permit or Approval	Status
State Historic Preservation Officer	Concurrence with the project Historic Property Survey Report and Section 106 requirement.	Caltrans sent a letter to the State Historic Preservation Officer on February 11, 2016, to complete Section 106 requirements. Concurrence from the State Historic Preservation Officer was received on March 21, 2016.
Sonoma County Permit Resource Management Department/Sonoma County Department of Health Services	Drilling Permit for geotechnical investigations. Notification regarding presence of hazardous materials.	Obtain during the final design phase. Obtain during the final design phase after a Preliminary Site Investigation is prepared.

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

This chapter explains the impacts that the project would have on the environment. It describes the regulatory setting, existing environment that could be affected by the project, potential impacts (environmental consequences), and proposed avoidance, minimization, and/or mitigation measures. Potential impacts are broken up into project-level impacts, which occur permanently during project operation, and construction impacts, which are temporary impacts during construction. The environmental resource discussions presented in this chapter are based on the technical studies cited at the beginning of each discussion and listed at the end of this document. An evaluation of the proposed project per the CEQA checklist criteria is provided in Appendix A. Avoidance, minimization, and/or mitigation measures for each of the environmental resource areas are discussed in the following sections.

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.

- **Coastal zone:** The study area is not within a coastal zone, as determined by the Local Coastal Plan of Sonoma County; therefore, no impact to this resource is anticipated (County of Sonoma, 2001). In addition, the study area is not within San Francisco Bay Conservation and Development Commission jurisdiction.
- **Wild and scenic rivers:** There are no wild and scenic rivers within the study area, as defined by the National Wild and Scenic Rivers System. The closest wild and scenic river is the American (lower) River in Sacramento; therefore, no impact to this resource is anticipated (National Wild and Scenic Rivers System).
- **Parks and recreational facilities:** There are no parks, recreational facilities, or Section 4(f) resources of this type within or near the study area. The closest parks and recreational facilities are 7 miles to the west in Petaluma and 3 miles to the north in Sonoma; therefore, no impacts are anticipated.
- **Growth:** The first-cut screening was conducted in accordance with the Caltrans Standard Environmental Reference (2015) Guidance for Preparers of Growth-Related, Indirect Impact Analyses to determine whether there would be growth impacts due to implementation of the Build Alternatives. The purpose of the project is to improve operations for vehicles, bicycles, and pedestrians, consequently reducing congestion and

the occurrence of accidents. Additionally, where possible, the project would maintain and enhance access to adjacent properties and parking for public transit and carpool users. These improvements could change the accessibility of the area by making this intersection a more attractive travel option (e.g., aesthetics, reduced congestion), which could encourage some businesses or households to locate in the study area instead of other places in the region. The project type (intersection improvements) could also create new and/or improved access to nearby roadways and businesses in the area. However, after considering other factors such as project location (rural) and a lack of growth pressure (restrictive land use controls), it can be determined that project-related growth is not reasonably foreseeable and further growth analysis is not warranted; therefore, no growth-related impacts are anticipated.

- **Timberlands:** There are no timberlands within the study area; therefore, no impacts to these resources are anticipated.
- **Community character and cohesion:** Impacts on community character and cohesion are not anticipated. The project would not affect community character or cohesion. While the overall footprint of the intersection would increase under any Build Alternative, the project would not divide neighborhoods, separate residences from community facilities, change the quality of life, or increase urbanization or isolation.
- **Environmental justice:** The project would not cause disproportionately high and adverse effects on any minority or low-income populations as per Executive Order 12808 regarding environmental justice. Environmental justice impacts would occur only if the population in any Census Tract Block Group met or exceeded either of the following criteria, as suggested by the Council on Environmental Quality: (1) The Census Tract Block Group contained 50 percent or more minority or low-income population; or (2) The percentage of minority or low-income population in any Census Tract Block Group was more than 10 percentage points greater than the average in the city and/or county in which the Census Tract Block Group is located. The project area is located within Census Tract 1501. The total population of this census tract is 2,854; 81 percent of the population is white, and 6.9 percent is below the poverty threshold. These percentages indicate that there is not a significant minority or low-income population within the study area; therefore, implementation of the Build Alternatives would not cause disproportionately high and adverse effects on any minority or low-income populations.

2.1 Human Environment

2.1.1 Existing and Future Land Use

2.1.1.1 Affected Environment

This section summarizes the *Land Use and Community Impacts Memorandum* (December 2015). The primary land use in the study area is agriculture, with some commercial and rural

residential land uses located at the corners of the SR 116/121 intersection. Commercial land uses include a gas station, deli, hotel, and retail shops. Figure 2.1-1 shows the land uses, as designated by the Sonoma County General Plan, within the study area. A site survey was conducted on March 16, 2015, and confirmed that, within the study area, the existing land uses match the land uses shown in Figure 2.1-1.

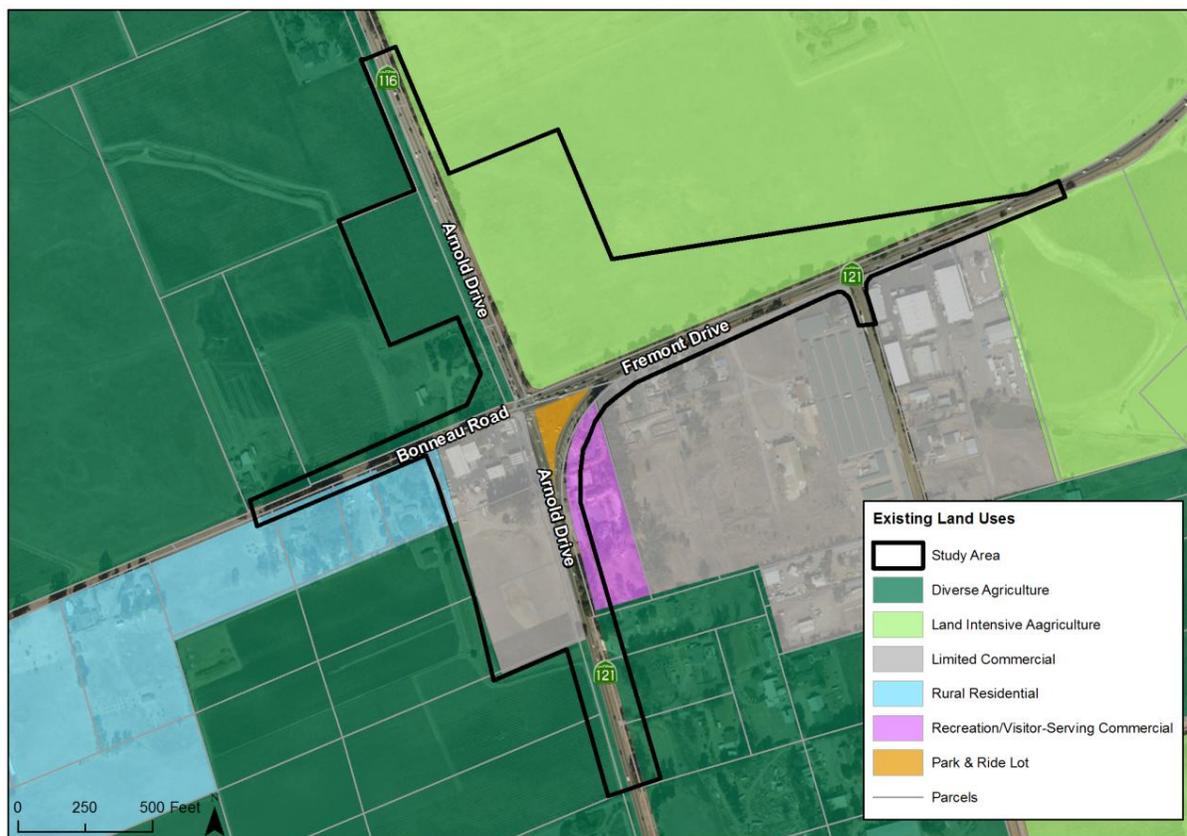


Figure 2.1-1: Existing Land Use

The Sonoma County General Plan divides Sonoma County into nine sub-county planning areas to better develop and implement goals, policies, and programs specific to each planning area. The project study area is located in the Sonoma Valley planning area, defined as the area that extends from Bennett Valley and Kenwood south to San Pablo Bay and from the crest of the Sonoma Mountains east to the Sonoma-Napa county line. SR 116 and SR 121 are important traffic arteries in this planning area, and agriculture, particularly vineyard cultivation, wine processing, and tourism, are mainstays of the local economy. Some manufacturing and service businesses also exist. Much of the local employment is in the "retail trade" and "services" sectors. Many workers commute to jobs outside the Valley, and the SR 116/121 intersection is one of the primary routes into and out of Sonoma (County of Sonoma, 2008).

In 2010, the population in the Sonoma Valley planning area was 35,505 (U.S. Census Bureau, 2010). By 2020, the population of the planning area is expected to reach 48,990 people. Of this population, a total of 34,400 is expected within the unincorporated area, particularly in the Urban Service Area along Highway 12, with the remaining 14,590 people within the city of Sonoma. Local job growth is projected primarily in the "services" and "retail" sectors (County of Sonoma, 2008). Despite this projected growth in the region, the study area is unlikely to absorb much of it, due to building restrictions and agricultural preservation goals.

There are a few projects currently in various phases of planning in the project vicinity. These projects, which are listed in Table 2.1-1, are located within 1 mile of the SR 116/121 intersection in Sonoma County, near the city of Sonoma.

Table 2.1-1: Major Transportation and Development Projects within the Study Area

Name	Type	Jurisdiction	Proposed Uses	Status
8 th Street East/ Hwy 121 intersection	Transportation	Sonoma County Transportation and Public Works Department	The project would relieve congestion and make safety improvements at the 8 th Street/SR 121 intersection.	Pre-planning
Route 116 Stage Gulch Road Curve Improvement and Realignment Project	Transportation	SCTA	The project improved 2.9 miles of SR 116 in Sonoma County from Adobe Road in the west to Arnold Drive.	Construction completed in 2011
Watmaugh Road Bridge Replacement	Development	Sonoma County Transportation and Public Works Department	The project would replace the Watmaugh Road Bridge over Sonoma Creek.	Mitigated Negative Declaration completed in 2012; construction in 2016
North Bay Water Recycling Program – Phase 1	Transportation	10 municipal water and sanitation agencies in Marin, Napa, and Sonoma counties	This project would install 153 miles of recycled wastewater pipeline and construct storage reservoirs. In the project vicinity, the pipeline would be installed along Arnold Drive to a point approximately 0.7 mile north of the SR 116/121 intersection.	Environmental Impact Report completed in 2009

**Table 2.1-1: Major Transportation and Development Projects
within the Study Area**

Name	Type	Jurisdiction	Proposed Uses	Status
Chase Street Bridge Replacement Project at Nathanson Creek	Transportation	City of Sonoma	The project replaced the Chase Street Bridge in 2014. The new bridge is a 30-foot-long single-span bridge.	Mitigated Negative Declaration completed in 2014
Art Fichtenburg's Tasting Room (15 Fremont Drive)	Development	Sonoma County	The project would convert an existing retail building into a tasting room on a 5.09-acre parcel. It is CEQA exempt.	On hold since 2011
Vineyard Inn (23000 Arnold Drive)	Development	Sonoma County	Requested a permit to locate retail space in their existing building.	Permit pending
Anaba Winery (60 Bonneau Road)	Development	Sonoma County	Requested a permit to allow a tasting room to remain onsite.	Permit approved
Wagner Road Vineyards (100 Wagner Road)	Development	Sonoma County	The project would include construction of a new building approximately 4,000 square feet in size to house a winery with barrel storage and agricultural promotional events.	Mitigated Negative Declaration prepared in 2013
Schug Winery (602 Bonneau Road)	Development	Sonoma County	The project would increase production at an existing winery from 10,000 cases per year to 30,000 cases per year and add a 6,300-square-foot tasting/hospitality building.	Mitigated Negative Declaration is being prepared

Source: Land Use and Community Impacts Memorandum 2016; Natural Environment Study, 2016; Sonoma County Permit and Resource Management Department, 2015.

2.1.1.2 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. The Build Alternatives would require the acquisition of property in order to be implemented, which is discussed further in Section 2.1.4, Property Acquisitions. Land use conversion totals are shown in Table 2.1-2. The Roundabout Alternative would convert 4.43 acres of land to transportation use, including 0.04 acre of diverse agriculture, 4.26 acres of land-intensive agriculture, 0.05 acre of limited commercial, and 0.07 acre of recreation/visitor-serving

commercial land uses. The Signalized Intersection Alternative would convert 4.72 acres of land to transportation use, including 0.03 acre of diverse agriculture, 4.33 acres of land-intensive agriculture, 0.07 acre of limited commercial land uses, and 0.29 acre of recreation/visitor-serving commercial land uses. Overall, this conversion of land would be minor compared to the total amount of the land in the study area (70.2 acres) and the total amount of land in Sonoma County.

Table 2.1-2: Permanent and Temporary Conversion of Land Use

Land Use	Roundabout Alternative		Signalized Intersection Alternative	
	Permanent (acres)	Temporary (acres)	Permanent (acres)	Temporary (acres)
Diverse agriculture	0.04	0.02	0.03	0.02
Land intensive agriculture	4.26	-	4.33	-
Limited commercial	0.05	0.10	0.07	0.12
Recreation/visitor-serving commercial	0.07	0.09	0.29	0.07
Total	4.43	0.21	4.72	0.21

Source: Land Use and Community Impacts Memorandum, 2016.

No Build Alternative

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

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. The Build Alternatives would require the temporary acquisition of property to have sufficient space to physically construct the project features, and for other construction activities such as access, construction of fences, and to conform the project features to the existing topography. Temporary conversion of land use totals are shown above in Table 2.1-2. The Roundabout Alternative would temporarily acquire 0.21 acre of land, including 0.02 acre of diverse agriculture, 0.10 acre of limited commercial land uses, and 0.09 acre of recreation/visitor-serving commercial land uses. The Signalized Intersection Alternative would temporarily acquire 0.21 acre of land, including 0.02 acre of diverse agriculture, 0.12 acre of limited commercial land uses, and 0.07 acre of recreation/visitor-serving commercial land uses.

Overall, this temporary conversion of land would be minor compared to the total amount of the land in the study area (70.2 acres) and the total amount of land in Sonoma County.

No Build Alternative

The No Build Alternative would not temporarily acquire any existing property, nor would it affect land uses in the project area. Furthermore, the location, characteristics, and uses of existing transportation facilities generally would not change. As traffic volumes increase in the future, delay and congestion at the intersection would continue to worsen without any operational improvements.

2.1.1.3 Avoidance, Minimization, and/or Mitigation Measures

The project alignment for both Build Alternatives has been adjusted to fit within existing ROW where feasible to minimize conversion of land use. In addition, the measures identified in Section 2.1.4.4, Property Acquisitions, Avoidance, Minimization, and/or Mitigation Measures also apply. No additional avoidance, minimization, and/or mitigation measures are required.

2.1.2 Consistency with State, Regional, and Local Plans

2.1.2.1 Affected Environment

This section summarizes the *Land Use and Community Impacts Memorandum* (December 2015) and identifies existing State, regional, local, and area plans and policies that apply to areas along SR 116 and SR 121. The proposed project is located in unincorporated Sonoma County. Planning goals and policies relevant to the proposed project are described below in Table 2.1-3.

Sonoma County General Plan

The Sonoma County General Plan 2020, adopted in 2008, expresses policies that will guide decisions on future growth, development, and conservation of resources through 2020 in a manner consistent with the goals and quality of life desired by the county's residents. The land use (LU), circulation (CT), and open space (OSRC) goals, objectives, and/or policies that relate to the proposed project are discussed in Table 2.1-3.

Metropolitan Transportation Commission Plan Bay Area

Metropolitan Transportation Commission's *Plan Bay Area 2040*, adopted in 2013, is a long-range integrated transportation and land-use/housing strategy through 2040 for the San Francisco Bay Area. *Plan Bay Area 2040* marks the nine-county region's first long-range plan to meet the requirements of California's landmark 2008 Senate Bill 375, which calls on each of the State's 18 metropolitan areas to develop a Sustainable Communities Strategy to accommodate future population growth and reduce greenhouse gas emissions from cars and

light trucks. The investment strategy that relates to the proposed project is discussed in Table 2.1-3.

SCTA 2009 Comprehensive Transportation Plan

SCTA’s 2009 *Comprehensive Transportation Plan*, adopted in 2009, is the latest countywide planning document approved by SCTA. The purpose of the Plan is primarily to update past transportation planning efforts to prioritize transportation needs throughout Sonoma County for the next 25 years. The policies that relate to the proposed project are discussed in Table 2.1-3.

2014 Countywide Bicycle and Pedestrian Master Plan

SCTA’s 2014 update to the *Countywide Bicycle and Pedestrian Master Plan* seeks to facilitate transportation improvements for bicyclists and pedestrians. The goals and objectives that relate to the proposed project are discussed in Table 2.1-3.

2.1.2.2 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. Planning goals and policies identified in State, regional, and local plans related to the proposed project are described below in Table 2.1-3.

Table 2.1-3: Consistency with State, Regional, and Local Plans and Programs

Goals/Policy	Roundabout Alternative	Signalized Intersection Alternative	No Build Alternative
Sonoma County General Plan			
GOAL LU-9: Protect lands currently in agricultural production and lands with soils and other characteristics that make them potentially suitable for agricultural use. Retain large parcel sizes and avoid incompatible nonagricultural uses.	Not Consistent. The Roundabout Alternative would require the acquisition of 4.2 acres of Important Farmland. However, this property acquisition would be at the edges of large agricultural parcels; therefore, large parcel sizes and minimum parcel size requirements would be maintained.	Not Consistent. The Signalization Intersection Alternative would require the acquisition of 4.3 acres of Important Farmland. However, this property acquisition would be at the edges of large agricultural parcels; therefore, large parcel sizes and minimum parcel size requirements would be maintained.	Consistent. The No Build Alternative would not affect agricultural lands or parcel sizes within the project study area.

Table 2.1-3: Consistency with State, Regional, and Local Plans and Programs

Goals/Policy	Roundabout Alternative	Signalized Intersection Alternative	No Build Alternative
<p>Objective CT-3.8: Increase the safety, convenience, and comfort of all pedestrians and bicyclists by eliminating the potential obstacles to this mode choice that is associated with the lack of continuous and well-connected pedestrian walkways and bicycle facilities, and the lack of safe crossing facilities, especially focusing on short trips that could result in a decrease in automobile travel.</p>	<p>Consistent. The Roundabout Alternative would provide paths surrounding the roundabout, including at all crossings. Each crossing would include a striped crosswalk, pedestrian-scale lighting, and signage to alert motorists to the presence of pedestrians and bicyclists. Bicyclists would use the highway shoulder in approaching and exiting the roundabout, with the shoulder serving as a Class II bike lane. In lieu of merging with the circulating traffic, the bicyclists would have the option to leave the mixed-flow lane via bicycle ramps and instead use the 10-foot-wide path.</p>	<p>Consistent. The Signalization Intersection Alternative would provide 6-foot-wide pedestrian sidewalks between the four intersection legs. On the SR 116/Arnold Drive, SR 121/Arnold Drive, and SR 121/Fremont Drive intersection legs, bikeways would be Class II compliant. Bicyclists would use the highway shoulders on the intersection approach, and through the intersection bicyclists would have their own dedicated lane.</p>	<p>Not Consistent. Under the No Build Alternative, sidewalks and bicycle lanes would not be constructed. Pedestrian and bicycle conditions would remain inconvenient.</p>
<p>Policy CT-7uu: Work with Caltrans in considering intersection improvements at Highways 116 and 121 and passing lanes, and access management along Highway 121 to reduce congestion, provided that the improvements are consistent with the designated road classifications.</p>	<p>Consistent. The Roundabout Alternative considers SR 116/121 intersection improvements in the form of a roundabout, which, if implemented, would reduce congestion and delay. Improvements would be consistent with the designated road classifications.</p>	<p>Consistent. The Signalization Intersection Alternative considers SR 116/121 intersection improvements in the form of signalization, which, if implemented, would reduce congestion and delay. Improvements would be consistent with the designated road classifications.</p>	<p>Not Consistent. The No Build Alternative would not implement intersection improvements at the SR 116/121 intersection. Congestion and delay would continue to worsen.</p>

Table 2.1-3: Consistency with State, Regional, and Local Plans and Programs

Goals/Policy	Roundabout Alternative	Signalized Intersection Alternative	No Build Alternative
<p>GOAL OSRC-7: Protect and enhance the County's natural habitats and diverse plant and animal communities.</p>	<p>Consistent. The Roundabout Alternative would impact natural habitats and plant and animal communities; however, avoidance, minimization, and/or mitigation measures will be implemented to restore any lost natural habitat and to avoid and minimize impacts to natural habitats and diverse plant and animal communities. This is further described in Section 2.3.</p>	<p>Consistent. The Signalization Intersection Alternative would impact natural habitats and plant and animal communities; however, avoidance, minimization, and/or mitigation measures will be implemented to restore any lost natural habitat and to avoid and minimize impacts to natural habitats and diverse plant and animal communities. This is further described in Section 2.3.</p>	<p>Consistent. Under the No Build Alternative, natural habitats and diverse plant and animal communities would not be affected.</p>
Metropolitan Transportation Commission Plan Bay Area			
<p>Investment Strategy 4: Boost freeway and transit efficiency.</p>	<p>Consistent. The Roundabout Alternative would improve efficiency at the SR 116/121 intersection by reducing congestion and delay.</p>	<p>Consistent. The Signalization Intersection Alternative would improve efficiency at the SR 116/121 intersection by reducing congestion and delay.</p>	<p>Not Consistent. Under the No Build Alternative, the SR 116/121 intersection would not undergo any improvements. Delay would continue to worsen, as would the efficiency of the intersection.</p>
SCTA 2009 Comprehensive Transportation Plan			
<p>Policy 2c: Implement new technologies to monitor and control traffic flow.</p>	<p>Consistent. The Roundabout Alternative would implement new technologies (i.e., traffic circle) to better control traffic flow, which in turn would reduce congestion and delay.</p>	<p>Consistent. The Signalization Intersection Alternative would implement new technologies (i.e., signalization improvements) to better control traffic flow, which in turn would reduce congestion and delay.</p>	<p>Not Consistent. Under the No Build Alternative, new technologies to control traffic flow would not be implemented. Congestion at the SR 116/121 intersection would continue to worsen.</p>

Table 2.1-3: Consistency with State, Regional, and Local Plans and Programs

Goals/Policy	Roundabout Alternative	Signalized Intersection Alternative	No Build Alternative
<p>Policy 3c: Improve accessibility and safety for pedestrians at and around activity centers.</p>	<p>Consistent. The Roundabout Alternative would provide 10-foot-wide paths surrounding the roundabout, including at all crossings. Each crossing would include a striped crosswalk, pedestrian-scale lighting, and signage to alert motorists to the presence of pedestrians.</p>	<p>Consistent. The Signalization Intersection Alternative would provide 6-foot-wide pedestrian sidewalks between the four intersection legs.</p>	<p>Not Consistent. Under the No Build Alternative, sidewalks would not be constructed. Pedestrian conditions would remain inaccessible and inconvenient due to the lack of sidewalks and crosswalks, thereby increasing potential for conflicts between vehicles and pedestrians.</p>
2014 Countywide Bicycle and Pedestrian Master Plan			
<p>Principal Goal: To develop and maintain a comprehensive countywide bicycle and pedestrian transportation system, which includes projects, programs, and policies that work together to provide safe and efficient transportation opportunities for bicyclists and pedestrians. The plan also calls for the implementation of Class II bicycle lanes along SR 121 between Bisso and Napa roads and along SR 116 between Adobe Road and SR 121.</p>	<p>Consistent. The Roundabout Alternative would provide paths surrounding the roundabout, including at all crossings. Each roadway crossing would include a striped crosswalk, pedestrian-scale lighting, and signage to alert motorists to the presence of pedestrians and bicyclists. Bicyclists would use the highway shoulder in approaching and exiting the roundabout, with the shoulder serving as a Class II bike lane. In lieu of merging with the circulating traffic, the bicyclists would have the option to leave the mixed-flow lane via bicycle ramps and instead use the 10-foot-wide path.</p>	<p>Consistent. The Signalization Intersection Alternative would provide 6-foot-wide pedestrian sidewalks between the four intersection legs. On the SR 116/Arnold Drive, SR 121/Arnold Drive, and SR 121/Fremont Drive intersection legs, bikeways would be Class II compliant. Bicyclists would use the highway shoulders on the intersection approach, and through the intersection, bicyclists would have their own dedicated lane.</p>	<p>Not Consistent. Under the No Build Alternative, sidewalks and bicycle lanes would not be constructed. Pedestrian and bicycle conditions would remain unsafe.</p>

Source: Land Use and Community Impacts Memorandum, 2016.

As shown in Table 2.1-3, the Build Alternatives for the SR 116/121 Intersection Improvements Project are mostly consistent with planning goals and policies in local and regional plans and studies. The only policy with which the Build Alternatives would be inconsistent relates to the protection of agricultural land, which is discussed further in Section 2.1.3, Farmlands. Therefore, overall the Build Alternatives would be mostly consistent with the stated objectives of these jurisdictions.

No Build Alternative

The No Build Alternative would not support achievement of the goals described above in Table 2.1-3 because congestion and delay would continue to worsen and pedestrian and bicycle facilities would not be constructed.

Construction Impacts

Build Alternatives

Construction impacts of the Build Alternatives related to policy consistencies would be the same as described above under project-level impacts. The Build Alternatives would be mostly consistent with the stated objectives of these jurisdictions.

No Build Alternative

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

2.1.2.3 Avoidance, Minimization, and/or Mitigation Measures

The project alignment for both Build Alternatives has been adjusted to fit within existing ROW where feasible, which helps to ensure consistency with State, regional, and local plans by minimizing land use conversion. No other avoidance, minimization, or mitigation measures are required.

2.1.3 Farmlands

2.1.3.1 Regulatory Setting

NEPA and the Farmland Protection Policy Act (7 U.S.C. 4201-4209; and its regulations, 7 CFR Part 658) require federal agencies, such as FHWA, to coordinate with the Natural Resources Conservation Service if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the Farmland Protection Policy Act, farmland includes Prime Farmland, Unique Farmland, and Land of Statewide or Local Importance.

CEQA requires the review of projects that would convert Williamson Act contract land to nonagricultural uses. The main purposes of the Williamson Act are to preserve agricultural

land and to encourage open space preservation and efficient urban growth. The Williamson Act provides incentives to landowners through reduced property taxes to discourage the early conversion of agricultural and open space lands to other uses.

2.1.3.2 Affected Environment

This section summarizes the *Land Use and Community Impacts Memorandum* (December 2015). As of 2012, Sonoma County had 29,882 acres of land designated as Prime Farmland, 17,213 acres designated as Farmland of Statewide Importance, 33,079 acres designated as Unique Farmland, and 80,741 acres designated as Farmland of Local Importance (California Department of Conservation, 2015). The total amount of agricultural land in production was 578,006 acres. The Sonoma County General Plan identifies goals, policies, and objectives related to preserving existing agricultural land, as described in Section 2.1.2.1. The reported total value of agricultural production in Sonoma County for 2014 was \$899,015,400, which is a 6 percent increase from the 2013 value. Fruit and nut crops represent 67 percent of the total production value, followed by livestock and poultry products at 18 percent. While the total value of agricultural production has been increasing, the total amount of agricultural land in production has been roughly the same due to both development and conservation activities.

The study area, shown in Figure 2.1-2, contains 22.7 acres of Important Farmland, including 1.16 acres of Prime Farmland, 5.7 acres of Farmland of Statewide Importance, and 15.9 acres of Farmland of Local Importance. There are no lands mapped as Unique Farmland or under a Williamson Act Contract within the project study area (California Department of Conservation, 2015). Farmland designations for parcels within the project study area are shown in Figure 2.1-2.

Prime Farmland is farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Farmland of Statewide Importance is farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Unique Farmland is land other than Prime Farmland that has a special combination of unique characteristics needed to economically produce sustained high yields of a specific crop. Farmland of Local Importance is land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. Farmland of Local Importance is either currently producing, or has the capability of production, but does not meet the criteria of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland.

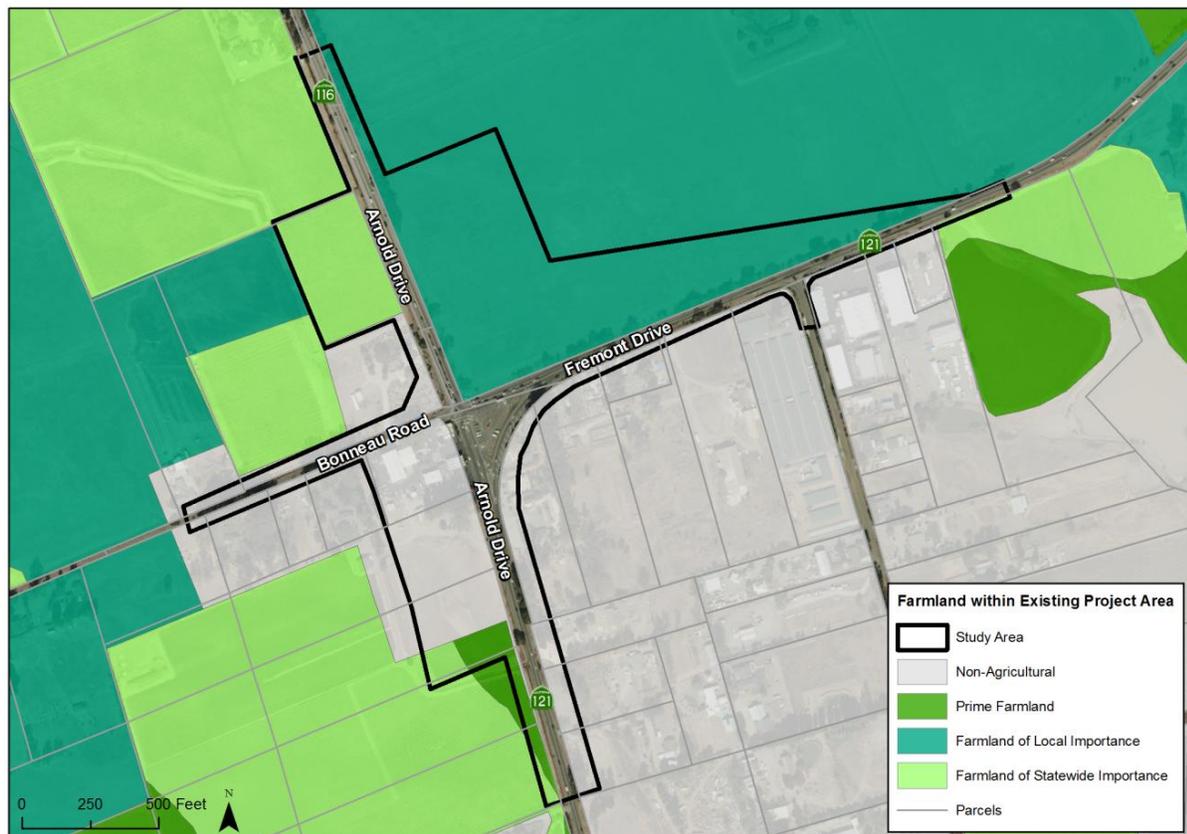


Figure 2.1-2: Farmland within the Project Study Area

Within the project study area, vineyard cultivation is the primary agricultural use. Approximately 75 percent of the land within the study area, while classified as Important Farmland, is not currently in agricultural use.

2.1.3.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. Neither Build Alternative would impact Williamson Act Contracts, Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. The Roundabout Alternative would result in the direct conversion of 4.2 acres of Farmland of Local Importance, while the Signalization Intersection Alternative would result in the direct conversion of 4.3 acres of Farmland of Local Importance, as shown in Table 2.1-4 and Figures 2.1-3 and 2.1-4. As shown in Table 2.1-4, the amount of Important Farmland impacted by each alternative is a very small percentage of the total percent of farmland in Sonoma County and the State of California.

Table 2.1-4: Farmland Conversion by Alternative

Build Alternative	Land Converted (acres)		Important Farmland* (acres)		Percent of Farmland in County	Percent of Farmland in State	Farmland Conversion Impact Rating
	Perm	Temp	Perm	Temp			
Roundabout Alternative	4.40	0.21	4.20	0.0	<0.01%	<0.01%	98
Signalization Intersection Alternative	4.70	0.21	4.30	0.0	<0.01%	<0.01%	98

* Important Farmland includes Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance.
Perm=Permanent Impact; Temp=temporary impact



Figure 2.1-3: Affected Farmland – Roundabout Alternative

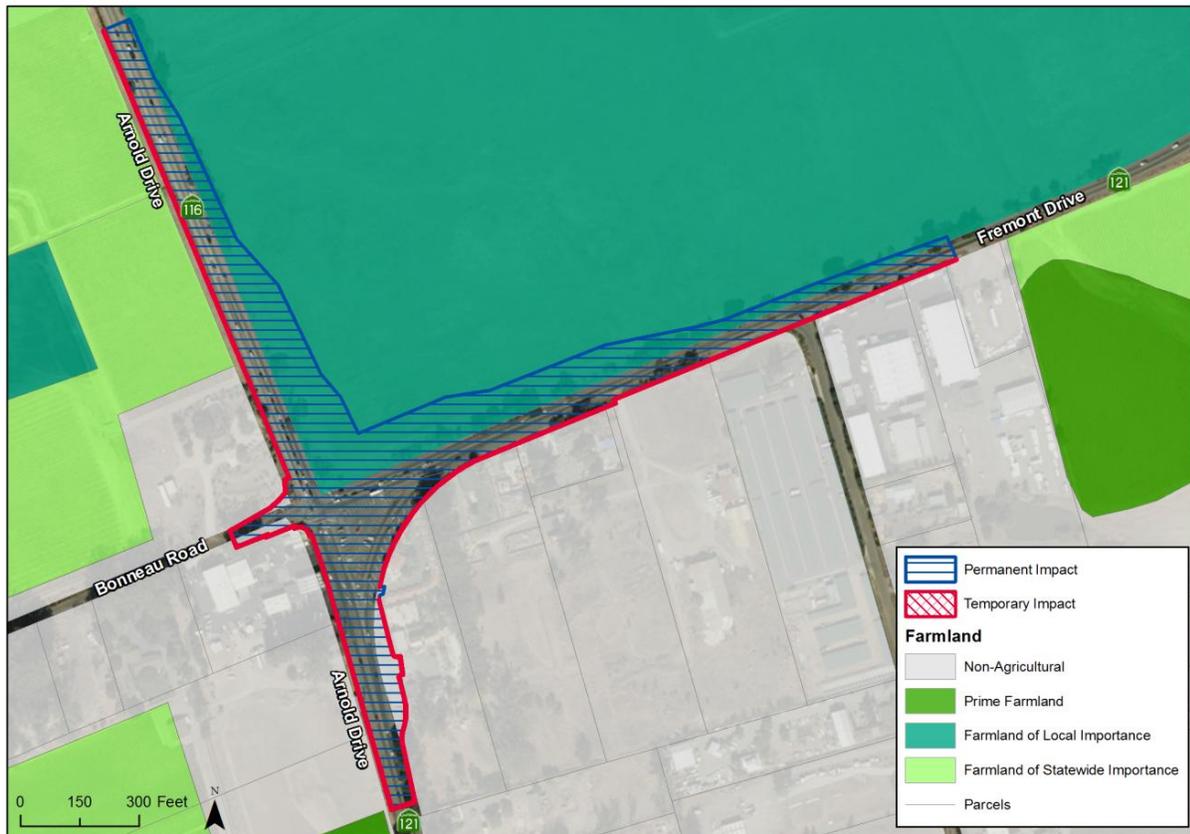


Figure 2.1-4: Affected Farmland – Signalized Intersection Alternative

Impacts to mapped farmland were evaluated using the U.S. Department of Agriculture “Farmland Conversion Impact Rating” (Form AD 1006), which was completed in conjunction with the Natural Resource Conservation Service. Form AD 1006 helps determine the impact the project may have on farmlands within the project area. Specific criteria are looked at by both the Natural Resource Conservation Service and the federal agency involved, including, but not limited to, soil productivity, water conditions, proximity to other urban and rural land uses, impacts on remaining farmland after the conversion, and indirect or secondary effects of the project on agricultural and other local factors. The Natural Resource Conservation Service must complete the land evaluation part of the form, and the federal agency must complete the site assessment portion. Each criterion has a set number of points it may be awarded. Once those points are added up, they are compared to the “threshold score” of 160 points created by the U.S. Department of Agriculture. Sites receiving a total score of less than 160 need not be given further consideration for protection, and no additional sites need to be evaluated under the Farmland Protection Policy Act (CFR 658.4 (c) (2)). The Natural Resource Conservation Service reviewed and completed Parts II, IV, and V of the form on June 24, 2015. The completed form may be found in Appendix G.

The total site assessment rating for the project is 98, which is below the threshold score of 160.

Based on the score of 98, further protection from farmland conversion is not warranted under either Build Alternative. In addition, the size of the conversion represents a very small fraction (less than 0.01 percent) of the mapped farmland in the county, and a relatively small percentage of the overall size of the impacted parcels. Compensation to individual landowners for property impacts would be addressed and negotiated through the ROW process, as warranted.

No Build Alternative

The No Build Alternative would not impact farmlands.

Construction Impacts

Build Alternatives

Neither the Roundabout Alternative nor the Signalization Intersection Alternative would result in the temporary conversion of Important Farmland, as shown in Table 2.1-4 and Figures 2.1-3 and 2.1-4.

No Build Alternative

The No Build Alternative would not impact farmlands.

2.1.3.4 Avoidance, Minimization, and/or Mitigation Measures

Because adverse impacts to farmlands from the Build Alternatives would be extremely minor, no mitigation is proposed. Measure AMM COM-1 (discussed below in Section 2.1.4.4) will be implemented to minimize impacts to farmland conversion.

2.1.4 Relocations and Real Property Acquisition

2.1.4.1 Regulatory Setting

Caltrans' 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 CFR Part 24. The purpose of the Relocation Assistance Program is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole.

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

2.1.4.2 Affected Environment

This section summarizes the *Land Use and Community Impacts Memorandum* (December 2015). The project would require permanent acquisitions and temporary construction easements of some parcels adjacent to the project. Parcels potentially affected under the Roundabout Alternative or Signalized Intersection Alternative are located at:

- 23002 Arnold Drive (APN: 128-461-015): The Vineyard Inn
- 23003 Arnold Drive/55 Bonneau Road (APN: 128-451-047): 76 Gas Station, Carneros Deli, and Bonneaus Tire Auto Services Center
- 800 Arnold Drive (APN: 142-081-015): undeveloped agricultural land
- 60 Bonneau Road (APN: 142-101-023): Anaba Wines Vineyard
- 85 Fremont Drive (APN: 128-461-048): Big Toy Storage, LLC
- 105 Fremont Drive (APN: 128-461-012): Big Toy Storage, LLC
- 221 Fremont Drive (APN: 128-461-044): Kelleher Cooperation
- 75 Fremont Drive (APN: 128-461-047): Styles Tile & Stone
- 15 Fremont Drive (APN: 128-461-014): A L'Ancienne Imports
- 235 Fremont Drive (APN: 128-461-045): Kelleher Cooperation
- 249 Fremont Drive (APN: 128-461-046): Imperial Gas-Sonoma
- 155 Fremont Drive (APN: 128-461-083): Best Self Storage/U-Haul Neighborhood Dealer

2.1.4.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. Neither Build Alternative requires relocation of any households or businesses, nor do they require the acquisition of entire properties. Both Build Alternatives would require partial acquisitions along commercial and agricultural property frontages on SR 116 and SR 121. Permanent partial property acquisitions and temporary construction easements are shown in Figures 2.1-5 and 2.1-6 and identified in Tables 2.1-5 and 2.1-6. Temporary construction easements are further discussed in the next section.

Partial acquisitions of commercial properties would be required under both Build Alternatives. This would entail permanently acquiring small portions along property frontages from the Vineyard Inn; 76 Gas Station; Carneros Deli; Bonneaus Tire Auto Services Center; Big Toy Storage, LLC; and Styles Tile & Stone, under the Roundabout Alternative. Under the Signalization Intersection Alternative, land would be acquired from all of the aforementioned commercial properties except for Styles Tile & Stone. These acquisitions would not affect business operations because they do not include the acquisition of any structures or buildings necessary for business operation.



Figure 2.1-5: Preliminary Property Acquisitions – Roundabout Alternative



Figure 2.1-6: Preliminary Property Acquisitions – Signalization Intersection Alternative

**Table 2.1-5: Preliminary Permanent Partial Property Acquisitions
by Alternative**

APN	Address	Type of Property	Total (acres)
Roundabout Alternative			
128-461-015	23002 Arnold Drive	Recreation/Visitor-Serving Commercial	0.070
128-461-012	105 Fremont Drive	Limited Commercial	0.001
128-451-047	23003 Arnold Drive 55 Bonneau Road	Limited Commercial	0.050
142-081-015	800 Arnold Drive	Land Intensive Agriculture	4.260
142-101-023	60 Bonneau Road	Diverse Agriculture	0.040
128-461-047	75 Fremont Drive	Limited Commercial	0.001
128-461-048	85 Fremont Drive	Limited Commercial	0.001
Total			4.423
Signalization Intersection Alternative			
128-461-012	105 Fremont Drive	Limited Commercial	0.001
128-461-015	23002 Arnold Drive	Recreation/Visitor-Serving Commercial	0.290
128-451-047	23003 Arnold Drive 55 Bonneau Road	Limited Commercial	0.070
142-081-015	800 Arnold Drive	Land Intensive Agriculture	4.330
142-101-023	60 Bonneau Road	Diverse Agriculture	0.030
128-461-048	85 Fremont Drive	Limited Commercial	0.001
Total			4.722

Source: Land Use and Community Impacts Memorandum, 2016.

Table 2.1-6: Preliminary Temporary Construction Easements by Alternative

APN	Address	Type of Property	Total (Acres)
Roundabout Alternative			
128-451-047	23003 Arnold Drive 55 Bonneau Road	Limited Commercial	0.050
128-461-012	105 Fremont Drive	Limited Commercial	0.040
128-461-015	23002 Arnold Drive	Recreation/Visitor-Serving Commercial	0.010
128-461-048	85 Fremont Drive	Limited Commercial	0.004
142-101-023	60 Bonneau Road	Diverse Agriculture	0.020
Total			0.124

Table 2.1-6: Preliminary Temporary Construction Easements by Alternative

APN	Address	Type of Property	Total (Acres)
Signalization Intersection Alternative			
128-461-015	23002 Arnold Drive	Recreation/Visitor-Serving Commercial	0.070
128-451-047	23003 Arnold Drive 55 Bonneau Road	Limited Commercial	0.020
142-101-023	60 Bonneau Road	Diverse Agriculture	0.020
128-461-012	105 Fremont Drive	Limited Commercial	0.008
128-461-014	15 Fremont Drive	Limited Commercial	0.020
128-461-044	221 Fremont Drive	Limited Commercial	0.020
128-461-045	235 Fremont Drive	Limited Commercial	0.010
128-461-046	249 Fremont Drive	Limited Commercial	0.003
128-461-047	75 Fremont Drive	Limited Commercial	0.030
128-461-048	85 Fremont Drive	Limited Commercial	0.002
128-461-083	155 Fremont Drive	Limited Commercial	0.008
Total			0.211

Source: Land Use and Community Impacts Memorandum 2016.

Two parcels classified as agricultural land would also be affected by both Build Alternatives. One, Anaba Wines, is a vineyard. A very small amount of land would be acquired along the property frontage under both Build Alternatives. The Build Alternatives would require widening Bonneau Road to accommodate tapers and intersection improvements. The widening would not impact the Anaba Wines operations, but it would require relocation of fences, signs, and landscaping. Anaba Wines recently constructed leach mounds, which were installed as part of a mitigation requirement for water treatment of their bottling and processing facility expansion. The Build Alternatives maintain a minimum clearance of 20 feet from the leach mounds so as to not impact operations. The final analysis for any modification to the Anaba Wines property will be evaluated during the design phase.

The second agricultural parcel affected is a large undeveloped parcel in the northeast quadrant of the study area. Under the Roundabout Alternative, this parcel would be needed for the relocated Park-and-Ride lot. Under the Signalization Intersection Alternative, this parcel would be needed for the additional turn lanes and a bus stop.

No Build Alternative

No residential or nonresidential uses would be subject to property acquisition or relocations for the No Build Alternative.

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. Temporary construction easements would be required under both Build Alternatives from some commercial and agricultural parcels to construct the project. These temporary acquisitions are identified in Table 2.1-6 and shown in Figures 2.1-5 and 2.1-6. All temporary construction easements would be from property frontages; no buildings or structures would be acquired.

No Build Alternative

No residential or nonresidential uses would be subject to property acquisition or relocations for the No Build Alternative.

2.1.4.4 Avoidance, Minimization, and/or Mitigation Measures

Property acquisition will be conducted in compliance with Title VI of the Civil Rights Act (42 U.S.C. 2000d, *et seq.*), the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended), and Title 49 CFR Part 24. Compensation for property to be acquired would be based on fair market value and would be part of the ROW acquisition phase. The following avoidance and minimization measure will be implemented for either Build Alternative to minimize the effects of property acquisition on property owners:

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

2.1.5 Utilities/Emergency Services

2.1.5.1 Affected Environment

The study area for utilities and emergency services is the same as for land use and is shown in Figure 2.1-1. There are multiple utility lines and utility providers within the study area. Overhead utility poles operated by Pacific Gas and Electric (PG&E) are located along all four intersection legs and provide electricity service in the study area. AT&T also operates overhead lines along all four intersection legs, located on the PG&E poles, and underground lines close to the SR 116/121 intersection, providing telephone, television, and Internet services. Storm drain facilities are located underground along the intersection legs. There are

no Comcast or Sonoma County Water Agency facilities within the study area. In addition, there are no sewer facilities in the study area; all properties use septic systems.

Fire protection for the project area is provided by the Schell-Vista Fire Protection District, which is part of the Sonoma County Fire and Emergency Services Department. The Schell-Vista Fire Protection District also provides emergency medical response. The district has one station located near the study area, at 22950 Broadway, Sonoma, CA 95476. The Sonoma County Sheriff's Department provides law enforcement services to unincorporated areas of the county, including the project area. The California Highway Patrol provides law enforcement along all state routes within California, including SR 116 and SR 121 within the project vicinity, and assists local governments during emergencies when requested.

2.1.5.2 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. Both Build Alternatives would require utility relocations for PG&E utility poles and underground storm drain facilities. A total area of approximately 100 square feet would be excavated for utility pole relocation, and the depth of these excavations would range from approximately 5 to 13 feet below grade. The relocated utility poles would be placed along the new ROW line under both Build Alternatives. New and extended storm drains would tie into the existing storm drain system, and the depth of these excavations would generally be at the same depth as existing storm drain facilities. Locations of utilities to be relocated would be finalized during the design phase and detailed in the contract plans. Utility boxes (pull boxes) would also be required at each curb return, which are located at the curved section of the curb at the corner of an intersection. They would be a maximum of 3 feet deep.

Under the Roundabout Alternative, there may not be sufficient space for an emergency vehicle to pass other vehicles queued to enter the roundabout and could result in some increase to emergency response times. According to FHWA's "Roundabouts: An Informational Guide," drivers should be educated about how to properly respond when an emergency vehicle is approaching the roundabout to minimize potential delays to emergency response (NCHRP, 2010). The guide includes the following advice for drivers:

“Do not enter a roundabout when an emergency vehicle is approaching on another leg. This will allow traffic within the roundabout to clear in front of the emergency vehicle. When an emergency vehicle is approaching, be sure to proceed beyond the splitter island of your approach leg to ensure

the emergency vehicle has adequate room to turn and exit the roundabout at any approach.”

To minimize delays to emergency response, a minimization measure for driver education has been included below. With implementation of this measure, no permanent impacts to emergency services would occur.

No Build Alternative

The No Build Alternative would not impact existing utilities or emergency service operations.

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be the same as one another. Caltrans would coordinate with all utility providers during the design phase of the project to incorporate effective design treatments and construction procedures to avoid adverse impacts to existing utilities and traffic during construction. Nonetheless, the potential exists during construction activities to encounter previously unknown utilities within the area of roadway improvements. In addition, utility relocations may require short-term, limited interruptions of service.

Project construction would be staged to maintain through traffic at the SR 116/121 intersection, although temporary lane closures would occur. These lane closures could interfere with emergency service providers; however, the impact can be minimized with the measures discussed below.

No Build Alternative

The No Build Alternative would not impact existing utilities or emergency service providers.

2.1.5.3 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures will be implemented:

- **AMM UT-1:** Caltrans will coordinate relocation work with the affected utility companies to minimize disruption of services to customers in the area during construction. If previously unknown underground utilities are encountered, Caltrans will coordinate with the utility provider to develop plans to address the utility conflict, protect the utility if needed, and limit service interruptions. Any short-term, limited service interruptions of known utilities will be scheduled well in advance, and appropriate notification will be provided to users.
- **AMM UT-2:** Caltrans will coordinate with emergency service providers and through the public information program to avoid emergency service delays by ensuring that all

providers are aware well in advance of lane closures. A Traffic Management Plan will also be developed as part of the project to address traffic impacts from staged construction, lane closures, and specific traffic handling concerns such as emergency access during project construction.

- **AMM UT-3:** If the Roundabout Alternative is selected as the preferred alternative, a public education campaign will be implemented to inform area drivers and residents about the new roundabout to minimize potential accidents and disruptions to emergency service providers, and it will include information on how drivers should respond when emergency vehicles are approaching the roundabout. The campaign will include measures such as:
 - Holding public meetings prior to opening the roundabout to traffic and/or giving presentations at local organization meetings;
 - Preparing news releases detailing what motorists and pedestrians can expect during and after construction; and
 - Distributing an informational brochure to residents explaining how to navigate roundabouts (both in a vehicle and as a pedestrian).

2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

2.1.6.1 Regulatory Setting

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

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

2.1.6.2 Affected Environment

The information in this section is from the *Traffic Operations Analysis Report*, SR 116/121 Intersection Improvements Project (November 2015) and the *Intersection Control Evaluation* (January 2016).

Roadways, Pedestrian/Bicycle Facilities, and Public Transportation Facilities

SR 116 and SR 121 are conventional two-lane highways with posted speed limits of 50 mph. Traveling north along SR 121/Arnold Drive, SR 121 has a northbound free right-turn lane that bypasses the intersection. Bonneau Road is a local two-lane County road that has a posted speed limit of 30 mph. Currently, the intersection is a four-way stop.

The intersection has limited facilities for pedestrians and no bicycle facilities. There is one existing sidewalk at the southwest corner of the intersection along SR 121/Arnold Drive and one existing crosswalk, which crosses SR 121/Arnold Drive at the south end of the intersection. This crosswalk connects the Park-and-Ride lot to the bus stop on the west side of the highway. The transit stops located adjacent to the intersection lack a pedestrian refuge or designated patron waiting area.

In the southeast corner of the SR 116/121 intersection, there is a Caltrans-operated Park-and-Ride lot with 47 spaces. It serves two bus stops for Sonoma County Transit Line 38, located just south of the intersection. Sonoma County Transit Line 32 also passes through this intersection, with a stop to the east on South Temelec Circle.

Traffic Operations Analysis Study Area and Years

The study area for the traffic operations analysis includes the SR 116/121 intersection and the adjacent intersection of SR 121/SR 12 (Broadway), located approximately 4,600 feet east of the study intersection. The operational analysis evaluated existing and future traffic conditions. Existing conditions represent the year 2014. Opening year traffic forecasts were projected for the year 2020, interim year traffic forecasts were developed for 2030, and design year traffic forecasts were developed for 2040.

Existing queue lengths were observed at the intersection in July 2015 during morning and evening hours (7:15 to 8:15 a.m. and 4:15 to 5:15 p.m.) for the northbound, southbound, and westbound approaches. Additional evening peak-hour queue lengths were observed on Wednesdays and Thursdays in August 2015. The August 2015 queue lengths were found to be significantly longer than the queue lengths observed in July 2015.

Existing morning and evening peak-hour intersection traffic counts were collected on April 8, 2014, for a 3-hour morning (6:00 to 9:00 a.m.) period and a 3-hour evening (3:00 to 6:00 p.m.) period. The morning and evening peak hours for intersection traffic were observed to be 7:30 to 8:30 a.m. and 4:30 to 5:30 p.m., respectively. For the purposes of the traffic operations analysis, to account for field-observed queue volumes, it was agreed that year 2014 and year 2020 volumes would be increased by 15 percent.

Existing and Future Year Traffic Conditions (No Build Alternative)

Existing and future intersection delay and LOS were analyzed for the years 2014, 2020, 2030, and 2040 under no-build conditions. LOS is an indicator of the operating performance of a road or intersection. It rates congestion and varies on a scale from LOS A to LOS F, where LOS A represents stable flow, very slight delay and LOS E represents unstable flow, poor progression, and long cycle lengths. At LOS F, an intersection is considered over capacity and operates at forced-flow, jammed conditions. In accordance with Caltrans criteria, the traffic analysis used LOS D or better (LOS A, B, C, or D) to indicate intersections that function or will function in the future at an “acceptable” level of performance, while LOS E or F indicate an “unacceptable” level of congestion. Figure 2.1-7 shows the LOS scale for an unsignalized intersection, which has the same delay categories as a four-way stop intersection.

LEVELS OF SERVICE Unsignalized Intersections <small>Four-Way Stop</small>			
Level of Service	Flow Conditions	Delay per Vehicle (seconds)	Technical Descriptions
A		<10	Highest quality of service. Free flow with few restrictions on maneuverability or speed. Very short delays
B		10-15	Stable traffic flow. Speed becoming slightly restricted. Low restriction on maneuverability. Short delays
C		16-25	Stable traffic flow, but less freedom to select speed, change lanes or pass. Minimal delays
D		26-35	Traffic flow becoming unstable. Speeds subject to sudden change. Passing is difficult. Minimal delays
E		36-50	Unstable traffic flow. Speeds change quickly and maneuverability is low. Significant delays
F		>50	Heavily congested traffic. Demand exceeds capacity and speeds vary greatly. Considerable delays

Source: 2000 HCM, Exhibit 17-22, Level of Service Criteria for AWSC Intersections

Figure 2.1-7: LOS for Unsignalized Intersections

As indicated in Table 2.1-7, the study intersection is currently operating at unacceptable LOS E and F under existing year 2014. The wait time for traffic to cross the intersection is approximately 5 minutes in the morning peak hour and approximately 6 minutes in the evening peak hour. For future years, the no-build condition operations are projected to worsen, based on the overall intersection delay and the corresponding LOS. The wait time for traffic to cross the intersection worsens from approximately 5 minutes to approximately 10 minutes in the morning peak hour (7:30 to 8:30 a.m.), and from approximately 6 minutes to approximately 12 minutes in the evening peak hour (4:30 to 5:30 p.m.) by 2040.

**Table 2.1-7: Existing and No-Build Conditions:
Intersection Delay and Level of Service**

Intersection Analysis Year	SR 121/116/ Bonneau Road Approach	Control Type ¹	AM Peak Hour (7:30 – 8:30 a.m.)			PM Peak Hour (4:30 – 5:30 p.m.)		
			Delay		LOS	Delay		LOS
			Min	Sec		Min	Sec	
Existing Conditions (2014) 15% Increase	Eastbound	AWSC	1	21	F	0	44	E
	Westbound		4	19	F	8	34	F
	Northbound		0	43	E	4	28	F
	Southbound		6	29	F	4	58	F
	Overall		5	0	F	6	8	F
Opening Year No-Build Conditions (2020) 15% Increase	Eastbound	AWSC	1	16	F	0	54	F
	Westbound		6	29	F	9	59	F
	Northbound		0	51	F	6	1	F
	Southbound		8	33	F	6	58	F
	Overall		6	49	F	7	50	F
Interim Year No Build Conditions (2030)	Eastbound	AWSC	1	4	F	1	3	F
	Westbound		7	29	F	10	48	F
	Northbound		0	54	F	7	2	F
	Southbound		9	27	F	8	17	F
	Overall		7	38	F	8	55	F
Design Year No-Build Conditions (2040)	Eastbound	AWSC	1	9	F	1	32	F
	Westbound		10	7	F	14	6	F
	Northbound		1	14	F	9	36	F
	Southbound		12	20	F	12	1	F
	Overall		10	6	F	12	13	F

¹ AWSC = All Way Stop Control

Source: Traffic Operations Analysis Report, 2015.

2.1.6.3 Environmental Consequences

Project-Level Impacts

Roadways, Pedestrian/Bicycle Facilities, and Public Transportation Facilities

Roundabout Alternative

The Roundabout Alternative would include construction of a Class I shared use 10-foot-wide path for pedestrians and bicyclists that would surround the roundabout at each roadway crossing. Each roadway crossing would include a striped crosswalk, pedestrian-scale lighting, and signage to alert motorists to the presence of pedestrians and bicyclists. All paths and crossings would meet current Americans with Disabilities Act standards. A 5-foot-wide strip separating the path from the roundabout traffic lanes would be constructed along all four legs of the intersection to provide a division between the traffic lanes, bicyclists, and pedestrians. Within the study area, bicyclists would have the option of using the Class II bicycle lanes along the highway shoulders while approaching and after exiting the roundabout. In lieu of merging with the circulating traffic at the roundabout approaches, the bicyclists would have the option to leave the Class II bicycle lanes via bicycle ramps and instead use the 10-foot-wide shared-use path; therefore, the path would serve as a shared pedestrian/bicyclist facility for the approach, passage through, and exit of the roundabout.

The Roundabout Alternative would relocate the Park-and-Ride lot to the northeast quadrant of the intersection while maintaining the same number of spaces. The existing bus stops would also be relocated north along SR 116, adjacent to the new Park-and-Ride lot. Operation of the Park-and-Ride lot and bus stops would not be affected by this shift because the layout and function of each would remain the same.

Signalized Intersection Alternative

The Signalized Intersection Alternative would include construction of new 6-foot-wide pedestrian sidewalks between the four intersection legs. All sidewalks and crossings would be Americans with Disabilities Act compliant. On the SR 116/Arnold Drive, SR 121/Arnold Drive, and SR 121/Fremont Drive intersection legs, bikeways would be Class II compliant. Bicyclists would use the highway shoulders on the intersection approach. Through the intersection, bicyclists would have their own dedicated lane.

In the Signalized Intersection Alternative, the Park-and-Ride lot would remain in the southeast quadrant of the intersection, but it would be reconfigured. Access to the reconfigured Park-and-Ride lot would be from northbound SR 121/Arnold Drive, south of the intersection. To accommodate the 6-foot width requirement of the Class II bicycle lanes and not displace any of the existing properties along SR 121/Arnold Drive, the number of spaces in the Park-and-Ride lot would be reduced to 42 spaces, which is a reduction of 5 parking stalls.

No Build Alternative

The No Build Alternative would have no effect on existing pedestrian facilities or public transportation facilities, nor would it create any new pedestrian, bicycle, or public transportation facilities within the study area.

Traffic Operations

Tables 2.1-8, 2.1-9, 2.1-10, and 2.1-11 present the Roundabout Alternative and Signalized Intersection Alternative morning and evening peak-hour intersection delay, LOS, and queuing analysis for opening year 2020, interim year 2030, and design year 2040. To highlight the improved operations that can be expected with the two Build Alternatives, the tables also present the operations associated with the current intersection control and geometry for year 2014 conditions. As shown in the tables, both Build Alternatives significantly improve operations over the current configuration.

Queuing is the study of traffic behavior near a certain section where demand exceeds available capacity. Queues can occur at red lights, stop signs, bottlenecks, or any design-based or traffic-based flow constriction. This queuing analysis evaluated whether the through lanes and right- and left turn-pockets would be of sufficient length to accommodate all vehicles traveling or turning right or left.

Delay was estimated using the 2010 Highway Capacity Manual, incorporating appropriate heavy vehicle adjustment factors, peak-hour factors, and signal lost-time factors. See the Traffic Operations Analysis for a more detailed discussion on how intersection delay is estimated.

Roundabout Alternative

As shown in Tables 2.1-8 and 2.1-9, under the Roundabout Alternative, the study intersection is projected to operate at acceptable LOS under all conditions for the morning and evening peak hours. As shown in Tables 2.1-10 and 2.1-11, the queuing analysis indicates that the right- and left turn-pockets are of sufficient length to accommodate all vehicles turning right or left for all conditions except during the design year 2040 evening peak-hour conditions, in which the southbound left queue would exceed the required length of 237 feet by approximately 15 feet (less than a vehicle length). This is not expected to cause major delays to the through or left-turn movements. When compared to existing conditions, the following delay reductions during the morning peak hour (Table 2.1-8) are expected for the Roundabout Alternative:

- For 2020 opening year conditions: The Roundabout Alternative is expected to reduce the delay by approximately 4 minutes, 50 seconds per vehicle.

- For 2030 interim year conditions: The Roundabout Alternative is expected to reduce the delay by approximately 4 minutes, 50 seconds per vehicle.
- For 2040 design year conditions: The Roundabout Alternative is expected to reduce the delay by approximately 4 minutes, 51 seconds per vehicle.

When compared to existing conditions, the following delay reductions are expected for the evening peak hour (Table 2.1-9) for the Roundabout Alternative:

- For 2020 opening year conditions: The Roundabout Alternative reduces the delay by approximately 5 minutes, 57 seconds per vehicle.
- For 2030 Interim Year Conditions: The Roundabout Alternative reduces the delay by approximately 5 minutes, 56 seconds per vehicle.
- For 2040 Design Year Conditions: The Roundabout Alternative reduces the delay by approximately 5 minutes, 56 seconds per vehicle.

Overall, the Roundabout Alternative improves congestion and minimizes queues. On average, the Roundabout Alternative is expected to reduce congestion, queue length, and delay by 20 seconds per vehicle more than the Signalized Intersection Alternative during the morning peak hour. During the evening peak hour, on average, the Roundabout Alternative is expected to reduce congestion, queue lengths, and delay by 25 seconds per vehicle more than the Signalized Intersection Alternative.

If the Roundabout Alternative is selected as the preferred alternative, the Interim Roundabout would be implemented first, prior to implementation of the ultimate roundabout configuration. This design option would be implemented first to allow drivers to become familiar with a roundabout and because roundabouts with fewer lanes have fewer accidents. Only one quadrant of the Interim Roundabout would have two lanes, but two quadrants of the ultimate roundabout configuration would have two lanes. Under the Interim Roundabout, the LOS would stay at acceptable levels until approximately year 2030. At that time, the Annual Average Daily Traffic would exceed 31,500, at which point the National Cooperative Highway Research Program requires the roundabout to have two lanes to operate sufficiently. With this increase in traffic, consideration should be given to expand to the ultimate roundabout configuration. According to the projections, the 2040 Ultimate Roundabout Alternative would have a lower delay time than the 2030 Interim Roundabout. This is because the Interim Roundabout would not be able to handle the additional capacity as well as the ultimate roundabout configuration.

**Table 2.1-8: Morning Peak Hour (7:30–8:30 a.m.) Summary –
Intersection Delay and Level of Service**

Intersection Analysis Year	SR 121/116/ Bonneau Road Approach	No Build Alternative		Roundabout Alternative			Signalized Intersection Alternative				
		Type of Facility ¹	LOS	Type of Facility ¹	Delay ²		LOS	Type of Facility ¹	Delay ²		LOS
					Min	Sec			Min	Sec	
Existing Conditions (2014) 15% Increase	Eastbound	AWSC	F	AWSC	1	21	F	AWSC	1	21	F
	Westbound		F		4	19	F		4	19	F
	Northbound		E		0	43	E		0	43	E
	Southbound		F		6	29	F		6	29	F
	Overall		F		5	0	F		5	0	F
Opening Year Conditions (2020) 15% Increase	Eastbound	AWSC	F	RNDBT	0	13	B	Signal	0	33	C
	Westbound		F		0	8	A		0	30	C
	Northbound		F		0	9	A		0	28	C
	Southbound		F		0	14	B		0	27	C
	Overall		F		0	11	B		0	28	C
Interim Year Conditions (2030)	Eastbound	AWSC	F	RNDBT	0	14	B	Signal	0	34	C
	Westbound		F		0	8	A		0	31	C
	Northbound		F		0	10	A		0	26	C
	Southbound		F		0	15	B		0	29	C
	Overall		F		0	11	B		0	29	C
Design Year Conditions (2040)	Eastbound	AWSC	F	RNDBT	0	12	B	Signal	0	43	D
	Westbound		F		0	8	A		0	41	D
	Northbound		F		0	5	A		0	32	C
	Southbound		F		0	13	B		0	42	D
	Overall		F		0	9	A		0	39	D

¹ AWSC = All Way Stop Control; Signal = Signalized Intersection; RNDBT = Roundabout
² Overall LOS = Delay based on worst street approach for signalized intersections or the average of all approaches for the roundabout.

Source: Traffic Operations Analysis Report, 2015.

**Table 2.1-9: Evening Peak Hour (4:30 – 5:30 p.m.) Summary –
Intersection Delay and Level of Service**

Intersection Analysis Year	SR 121/116/ Bonneau Road Approach	No Build Alternative		Roundabout Alternative			Signalized Intersection Alternative				
		Type of Facility ¹	LOS	Type of Facility ¹	Delay ²		LOS	Type of Facility ¹	Delay ²		LOS
					Min	Sec			Min	Sec	
Existing Conditions (2014) 15% Increase	Eastbound	AWSC	E	AWSC	0	44	E	AWSC	0	44	E
	Westbound		F		8	34	F		8	34	F
	Northbound		F		4	28	F		4	28	F
	Southbound		F		4	58	F		4	58	F
	Overall		F		6	8	F		6	8	F
Opening Year Conditions (2020) 15% Increase	Eastbound	AWSC	F	RNDBT	0	14	B	Signal	0	38	D
	Westbound		F		0	10	A		0	36	D
	Northbound		F		0	8	A		0	24	C
	Southbound		F		0	13	B		0	28	C
	Overall		F		0	11	B		0	30	C
Interim Year Conditions (2030)	Eastbound	AWSC	F	RNDBT	0	14	B	Signal	0	38	D
	Westbound		F		0	10	B		0	43	D
	Northbound		F		0	9	A		0	28	C
	Southbound		F		0	17	B		0	35	C
	Overall		F		0	12	B		0	36	D
Design Year Conditions (2040)	Eastbound	AWSC	F	RNDBT	0	17	B	Signal	0	58	E
	Westbound		F		0	12	B		1	62	E
	Northbound		F		0	7	A		0	45	D
	Southbound		F		0	17	B		0	52	D
	Overall		F		0	12	B		0	54	D

¹ AWSC = All Way Stop Control; Signal = Signalized Intersection; RNDBT = Roundabout
² Overall LOS = Delay based on worst street approach for signalized intersections or the average of all approaches for the roundabout.

Source: Traffic Operations Analysis Report, 2015.

Table 2.1-10: Queuing Analysis for the Roundabout Alternative

Intersection Analysis Year	SR 121/116/ Bonneau Road Approach	Total Storage (ft) ¹	Queue Length (ft) ²	
			AM Peak Hour (7:30–8:30 a.m.)	PM Peak Hour (4:30 – 5:30 p.m.)
Opening Year Conditions (2020) 15% Increase	Eastbound Left/Through/Right	-	30.3	29.6
	Westbound Left/Through	-	80.7	118.4
	Westbound Right	250	54.5	104.4
	Northbound Left/Through	-	37.9	95.6
	Northbound Right	240	149.6	167.5
	Southbound Left	237	184.3	181.4
	Southbound Through/Right	-	181.2	151.2
Interim Year Conditions (2030)	Eastbound Left/Through/Right	-	32.8	34.4
	Westbound Left/Through	-	87.2	156.4
	Westbound Right	250	61.6	104.5
	Northbound Left/Through	-	39.1	103.8
	Northbound Right	240	206.4	207.8
	Southbound Left	237	212.2	199.4
	Southbound Through/Right	-	193.8	250.5
Design Year Conditions (2040)	Eastbound Left/Through/Right	-	30.6	50.0
	Westbound Left	224	56.5	113.9
	Westbound Left/Through	-	50.8	99.3
	Westbound Right	250	90.5	204.1
	Northbound Left/Through	-	50.0	184.6
	Northbound Right	240	0.0	0.0
	Southbound Left	237	175.5	252.2
	Southbound Through/Right	-	180.7	201.1

Bolded entries indicate queues exceed available storage.

¹ Storage length is the length of the right or left turn lane. Storage length of “-” represents a through lane, which exceeds 800 feet.

² Queue length is the measure (in feet) of the length of cars that are in the through lanes or right and left turn lanes. Queue length is based on the maximum queue of the approach. This queuing analysis evaluated whether the through lanes and right- and left-turn pockets would be of sufficient length to accommodate all vehicles passing through or turning right or left.

Source: Traffic Operations Analysis Report, 2015.

Table 2.1-11: Queuing Analysis for the Signalized Intersection Alternative

Intersection Analysis Year	SR 121/116/ Bonneau Road Approach	Total Storage (ft)	Queue Length (ft) ³				
			AM Peak Hour (7:30–8:30 a.m.)	PM Peak Hour (4:30 – 5:30 p.m.)			
Opening Year Conditions (2020) 15% Increase	Eastbound Left/Through/Right	-	83	89			
	Westbound Left	600	298	298			
	Westbound Left/Through	-	303	295			
	Westbound Right	400	40	44			
	Northbound Left	50	24	16			
	Northbound Through	-	154	351			
	Northbound Right	600	44	40			
	Southbound Left	600	198	230			
Interim Year Conditions (2030)	Eastbound Left/Through/Right	-	86	93			
	Westbound Left	600	337	372			
	Westbound Left/Through	-	340	380			
	Westbound Right	400	43	44			
	Northbound Left	50	30	14			
	Northbound Through	-	156	395			
	Northbound Right	600	47	44			
	Southbound Left	600	204	263			
Design Year Conditions (2040)	Eastbound Left/Through/Right	-	110	154			
	Westbound Left	600	417	543			
	Westbound Left/Through	-	440	574			
	Westbound Right	400	46	48			
	Northbound Left	50	38	27			
	Northbound Through	-	190	580			
	Northbound Right	600	52	51			
	Southbound Left	600	285	389			
<p>Southbound Through/Right</p>					-	714	481

Bolded entries indicate queues exceed available storage.

¹ Storage length is the length of the right or left turn lane. Storage length of “-” represents a through lane, which exceeds 800 feet.

Table 2.1-11: Queuing Analysis for the Signalized Intersection Alternative

² Queue length is the measure (in feet) of the length of cars that are in the through lanes or right and left turn lanes. Queue length is based on the maximum queue of the approach. This queuing analysis evaluated whether the through lanes and right- and left-turn pockets would be of sufficient length to accommodate all vehicles passing through or turning right or left.

Source: *Traffic Operations Analysis Report, 2015.*

Signalized Intersection Alternative

As shown in Tables 2.1-8 and 2.1-9, under the Signalized Intersection Alternative, the study intersection is projected to operate at acceptable LOS under all conditions, overall. Although the eastbound and westbound approaches operate at unacceptable LOS during the design year 2040 evening conditions, this would not cause major delays to the overall operation and function of the intersection. As shown in Tables 2.1-10 and 2.1-11, the queuing analysis indicates that the turn pockets are of sufficient length to accommodate all vehicles turning right or left for all conditions. When compared to existing conditions, the following delay reductions during the morning peak hour (Table 2.1-8) are expected for the Signalized Intersection Alternative:

- For 2020 opening year conditions: The Signalized Intersection Alternative is expected to reduce the delay by 4 minutes, 31 seconds per vehicle.
- For 2030 interim year conditions: The Signalized Intersection Alternative is expected to reduce the delay by 4 minutes, 31 seconds per vehicle.
- For 2040 design year conditions: The Signalized Intersection Alternative is expected to reduce the delay by 4 minutes, 22 seconds per vehicle.

When compared to existing conditions, the following delay reductions are expected for the evening peak hour (Table 2.1-9) for the Signalized Intersection Alternative:

- For 2020 opening year conditions: The Signalized Intersection Alternative reduces the delay by 5 minutes, 38 seconds per vehicle.
- For 2030 Interim Year Conditions: The Signalized Intersection Alternative reduces the delay by 5 minutes, 32 seconds per vehicle.
- For 2040 Design Year Conditions: The Signalized Intersection Alternative reduces the delay by 5 minutes, 14 seconds per vehicle.

The Signalized Intersection Alternative improves congestion and minimizes queues, but not as much as the improvements under the Roundabout Alternative.

No Build Alternative

Future traffic conditions for the No Build Alternative are shown in Table 2.1-7. Under future no-build conditions, intersection delay and LOS would continue to worsen. By 2040, the wait time for traffic to cross the intersection worsens from approximately 5 minutes to approximately 10 minutes in the morning peak hour, and from approximately 6 minutes to approximately 12 minutes in the evening peak hour.

Sensitivity Analysis

A sensitivity analysis was completed to test if the proposed geometry can accommodate variations in traffic as observed in increased traffic volumes from the 2015 counts and 2014 counts. This was done by increasing the traffic volumes for year 2030 and year 2040 by 6.4 and 4.6 percent for morning and evening peak hours, respectively. The percentage increases applied were based on the observed increases in traffic volumes from the 2015 counts and 2014 counts. With these increased volumes, the study intersection is projected to operate at LOS B under all conditions for the Roundabout Alternative. The queuing portion of this analysis indicated that the turn pockets are of sufficient length to accommodate all vehicles turning right or left for all conditions except for the following:

- In the 2030 interim year, the northbound right and southbound left queues exceed the turn pocket length by no more than 38 and 59 feet, respectively (approximately two vehicles). The analysis indicates that the northbound right-turn and southbound left-turn lanes reach the queue capacity during 2030 conditions. Consideration for expanding the roundabout to its ultimate configuration should be given at that time.
- In the 2040 design year, the southbound left queue exceeds the queue length by no more than 26 feet (approximately one vehicle). These queue lengths are not expected to cause major delays or spillbacks to the through or left-turn movements; therefore, the impacts are considered minimal. The Roundabout Alternative has a free northbound right turn, which mitigates the queue projected in the 2030 interim year.

Under the Signalized Intersection Alternative, the study intersection is projected to operate at LOS D under 2030 interim year conditions and LOS D and E during morning and evening peak periods under 2040 design year conditions, respectively. The queuing portion of this analysis indicated that the turn pockets are of sufficient length to accommodate all vehicles turning right or left for all conditions.

Benefit/Cost Performance

The *Intersection Control Evaluation* (January 2016) evaluated the benefit/cost ratio for the Build Alternatives. The benefit/cost ratio factors in collision costs of predicted crashes, delay costs, fuel and greenhouse gas costs, and overall project costs, including operations and maintenance for each Build Alternative. The benefit/cost ratio for the Roundabout

Alternative compared to the Signalized Intersection Alternative is 13.3. This value factors in \$23.9 million in savings for the Roundabout Alternative versus the Signalized Intersection Alternative when considering collision costs of predicted crashes, delay costs, and fuel costs. The roundabout is \$1.8 million more expensive to construct and maintain over 20 years, but it has greater expected savings over the long term.

Access for Residents and Businesses

Build Alternatives

The Roundabout Alternative and Signalized Intersection Alternative would modify the access of one commercial parcel within the study area – 15 Fremont Drive. Left turns would be prohibited into and out of this parcel. To travel westbound along SR 121/Fremont Drive from 15 Fremont Drive, users would be required to make a right turn out of the property, head eastbound along SR 121/Fremont Drive, and then make a u-turn at a break in the median. Users traveling westbound on SR 121/Fremont Drive who want to access this property would also no longer be able to turn left into the property. They would need to continue westbound to the intersection and either travel around the roundabout or make a u-turn at the signal. Approximate additional travel distances and times under both of these scenarios are presented in Table 2.1-10. This property would be affected by both Build Alternatives, particularly if patrons decide not to frequent the business due to the access modification. However, this is not anticipated because the approximate time to complete the access modification is less than 30 seconds for each scenario, which is not a significant amount of time. In addition, while access would be modified for this parcel, it would not be eliminated. Patrons of 15 Fremont Drive would still be able to access this property. Therefore, a substantial impact to this property is not anticipated from either Build Alternative.

Table 2.1-10: Access Modifications

Scenario	Roundabout Alternative		Signalized Intersection Alternative	
	Distance (feet)	Time to Complete Access Modification* (seconds)	Distance (feet)	Time to Complete Access Modification* (seconds)
Turning from 15 Fremont Drive (Trying to head westbound on SR 121/Fremont Drive)	200	10	500	14
Turning into 15 Fremont Drive from westbound SR 121/ Fremont Drive	1,000	27	800	22

* This time is based on the minimum amount of time it would take to complete the access modification, assuming no congestion. Completing this access modification during the peak hour would take longer.

No Build Alternative

Under the No Build Alternative, existing access for residents and businesses in the study area would not change.

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. Construction work for either Build Alternative would be done primarily during daylight hours from 7:00 a.m. to 6:00 p.m.; however, there may be some work during night-time hours to avoid temporary highway closures for tasks that could interfere with traffic or create safety hazards. Examples of these tasks include striping operations, traffic control setup, installation of storm drain crossings, and asphalt pavement mill and overlay. The entire intersection would not be closed during construction; however, temporary lane closures would occur. It is anticipated that temporary closure of existing transit or pedestrian facilities would occur at times and may require temporary rerouting of transit service due to intersection work. In addition, any bicyclists traveling along SR 116/121 could also be rerouted due to construction activities. These temporary lane closures could cause confusion, inconvenience, and minor additional delay for users of the intersection.

The existing Park-and-Ride lot would be partially, and potentially fully, closed during construction. Approximately 60 percent of the lot would remain open during portions of the construction period while the remaining portion of the lot is used as a construction staging area; however, full closure of the Park-and-Ride lot may be necessary at times due to construction activities in the southeast quadrant of the intersection.

No Build Alternative

The No Build Alternative would have no effect on the transportation system during construction.

2.1.6.4 Avoidance, Minimization, and/or Mitigation Measures

The public has been involved with the project through an informational meeting that was held in November 2014. The public, including pedestrian and bicycle advocates, will also have the opportunity to learn about the impacts and proposed measures during circulation of this Initial Study/Environmental Assessment (IS/EA). The following avoidance and minimization measures will be implemented:

- **AMM T-1:** A Transportation Management Plan will be developed and implemented as part of the project construction planning phase. The Transportation Management Plan will address these potential impacts to circulation of all modes (i.e., transit, bicycles,

pedestrians, and private vehicles). Highway and/or pedestrian access to all occupied residences and businesses and respective parking lots will be maintained during project construction. The Transportation Management Plan may provide for contracting with local agencies for traffic personnel, especially for special event traffic through or near the construction zone. It will also include a public awareness campaign to notify users of the intersection of potential lane closures.

- **AMM T-2:** If a full closure of the Park-and-Ride lot is required, Caltrans will redirect patrons to other associated lots, such as the Petaluma, Lakeville Highway Park-and-Ride lot, located at Highway 101 and SR 116; South Petaluma Park-and-Ride lot, located at Highway 101 and South Petaluma Boulevard; or the Novato, Black Point Park-and-Ride lot, located at Route 37 and Atherton Avenue.

2.1.7 Visual/Aesthetics

2.1.7.1 Regulatory Setting

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 U.S.C. 4331[b][2]). To further emphasize this point, FHWA in its implementation of NEPA (23 U.S.C. 109[h]) directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

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

2.1.7.2 Affected Environment

The information in this section is from the *Visual Impact Assessment* (March 2016). The visual analysis followed FHWA’s publication entitled *Visual Impact Assessment for Highway Projects* (FHWA, 1981). The analysis includes visual quality criteria, landscape units, visual character, viewer exposure, and viewer sensitivity. The study area for visual/aesthetics is the same as the study area for land use, shown in Figure 2.1-1. The regional landscape of the project corridor is characterized by rolling hills and valleys with oak savanna-type vegetation in the dryer locations and more heavily forested hillsides in wetter locations. Most of the valley locations are a mix of agricultural lands and development. Specific to the project area, the southern side of the intersection is a mix of commercial development, while the northern side is more generally agricultural. These agricultural areas have been designated as Scenic Landscape Units by Sonoma County. In addition, both SR 116 and SR 121 are designated Scenic Routes by the County.

The types of viewers within the study area are highway users and highway neighbors, including business owners and employees, and customers, residents, and tourists. Existing viewer sensitivity is expected to be high in the study area because the Sonoma County General Plan 2020 has indicated a high degree of sensitivity to the visual environment. Particularly sensitive groups to changes in the visual environment would be local residents, business owners, employees and customers, and tourists.

A viewshed is the area normally visible from an observer's location and is limited by the screening/obstruction effects of any vegetation or structures or enhanced by vistas. For the SR 116/121 intersection, the viewshed for highway travelers is one of a rural area with fields and vineyards and clusters of commercial development. Trees may also be seen along the fence lines. More distant views would include the rolling hills in the background. For those viewers on adjacent properties, views into the project area are that of a large intersection, including the existing Park-and-Ride facility. Due to congestion at this intersection, lines of traffic are frequent elements of the view. Mid- and background views include the surrounding fields and more distant hillsides.

Caltrans evaluates visual quality by assessing three characteristics of the project viewshed: vividness, intactness, and unity. Vividness is the visual power or memorability of landscape components as they combine in distinctive visual patterns. Intactness is the visual integrity of the natural and man-built landscape and its freedom from encroaching elements. Unity is the visual coherence and compositional harmony of the landscape considered as a whole. Along the study area roadways, the existing rural character gives this view a moderately high visual quality, with high vividness and moderately high intactness and unity. From the perspective of the commercial areas, the existing visual quality of this landscape unit, in general, is moderate, with moderate vividness, intactness, and unity due to the presence of low buildings, parking facilities, and vegetation. From the perspective of the agricultural areas in the northern portion of the study area, the visual quality is high, with high vividness and unity and moderately high intactness due to the scenic nature of the views.

FHWA analysis methodology recommends selecting key viewpoints that represent the potential visual effects of the project. The key viewpoints include a representation of all critical visual elements of the proposed project and viewer group types, and they represent views that might be potentially affected by the project. One key view was selected within the project area:

- **Key Viewpoint, Northbound SR 121/Arnold Drive, south of the intersection:** This viewpoint is from the perspective of the highway traveler from the northbound lanes of SR 121/Arnold Drive, looking north towards the intersection. The view shows the approach to the intersection, with the free right-turn lane splitting off in front of the

Vineyard Inn Hotel, and commercial development in the foreground. The overall visual quality of the view is moderate, with moderate vividness, intactness, and unity.

2.1.7.3 Environmental Consequences

Visual impacts are determined by assessing changes to the visual resources and predicting viewer response to those changes. These impacts can be beneficial or detrimental. A generalized visual impact assessment process is illustrated in Figure 2.1-8. Table 2.1-13 provides a reference for determining levels of visual impact by combining resource change and viewer response. The viewer response definitions include:

- **Low:** Minor adverse change to the existing visual resource, with low viewer sensitivity to any change.
- **Moderate-Low:** Low adverse change to the visual resource with a moderate viewer response, or moderate negative change to the resource with a low viewer response.
- **Moderate:** Adverse change cannot be described as minor or viewer response is thought to be greater.
- **Moderate-High:** Moderate adverse change in the visual resource with high viewer response or high adverse change with a moderate viewer response.
- **High:** High level of adverse change in character or a high level of sensitivity to the change such that architectural design and landscape treatments cannot mitigate impacts. An alternative project design may be required to avoid adverse impacts.

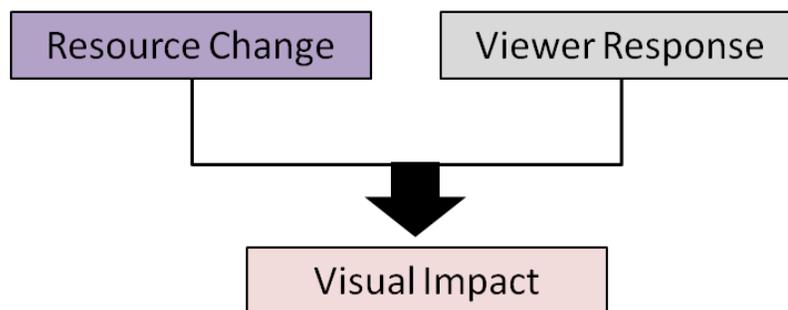


Figure 2.1-8: Visual Impact Assessment Process Concept Diagram

**Table 2.1-13: Visual Impact Ratings using Viewer Response
and Resource Change**

		Viewer Response				
		Low (L)	Moderate-Low (ML)	Moderate (M)	Moderate-High (MH)	High (H)
Resource Change	Low (L)	L	ML	ML	M	M
	Moderate-Low (ML)	ML	ML	M	M	MH
	Moderate (M)	ML	M	M	MH	MH
	Moderate-High (MH)	M	M	MH	MH	H
	High (H)	M	MH	MH	H	H

Project-Level Impacts

Roundabout Alternative

As the traveler approaches the intersection, the proposed Roundabout Alternative would generally widen the existing intersection area from its current size and shift the configuration slightly to the northeast from its current location to accommodate the roundabout. Some of this extra width would be taken up with medians, which potentially could have an accent paving that would form a visual break to the roadway surface on either side. In addition, based on the proposed design, approximately 106 trees would be removed under this alternative from along the intersection legs.

In addition to the roadway paving, a new Park-and-Ride facility would be constructed in the corner of the existing field in the northeast quadrant of the intersection. The ROW for the new parking facility would be approximately 50 feet wide along portions of SR 116/Arnold Drive and SR 121/Fremont Drive. Islands would separate the highway from the parking area, and trees would be replanted around the new Park-and-Ride lot. This new parking area would be within the area designated as a Scenic Landscape Unit by the County. Additional elements brought into the intersection include a shared-use path for bicyclists and pedestrians. These would be new elements to the intersection’s visual environment because no paths currently exist.

Lighting of the new highways is not expected to substantially increase glare because the new intersection and approach roads would be lit in a similar fashion to the existing. In addition to the street lights, the Roundabout Alternative would add warning beacons on the approaches to the intersection to warn motorists of the upcoming intersection. These flashing lights would add new elements of glare on the highway. The Roundabout Alternative would also add additional street lights in the area of the Park-and-Ride lot, which is currently an unlit field.

These visual changes are demonstrated through the effects on the key viewpoint, described in Section 2.1.7.2, Affected Environment. Photographs were taken of the existing view for the key viewpoint and are compared to rendered simulations developed for the key viewpoint. Descriptions of potential changes to the visual quality are as follows:

- **Key Viewpoint, Northbound SR 121/Arnold Drive, south of the intersection:** The overall intersection area would be larger than the current layout, including the Park-and-Ride facility. The new, larger Park-and-Ride facility in the northeast quadrant would also add additional paving within the intersection area; however, the inclusion of plantings, particularly replacement of the row of trees currently found along the fence line of the field with a new row of trees, would help to keep a similar visual character to the intersection area. It is anticipated that viewers, including local businesses owners, highway and transit commuters, and tourists to the area, would be very sensitive to the changes in the area because both the highways and the fields/vineyards are considered scenic by Sonoma County, as stated in General Plan 2020. The resulting changes to the views within the intersection are not expected to be substantial with the Roundabout Alternative. The addition of plantings and elements, such as decorative paving, would break up the areas of paving and provide the viewer a way to process what they see in conjunction with a known element.

Figure 2.1-9 shows the existing view and post-construction view of the key viewpoint. Due to these changes in the visual environment, the changes in visual character and quality would be low, but the viewer response to these changes would be moderately high; therefore, the overall visual impact of the Roundabout Alternative would be moderate.



Minimization measures depicted in the simulation include replacement plantings. Aesthetic treatments to structures are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect during the design phase.

**Figure 2.1-9: Roundabout Alternative –
Key Viewpoint, Northbound SR 121/Arnold Drive, South of the Intersection**

Signalized Intersection Alternative

Under the Signalized Intersection Alternative, the existing intersection would be considerably widened to accommodate additional turn lanes. The existing free right turn in front of the Vineyard Inn Hotel would be removed, although the paving would stay as part of the Park-and-Ride facility. A total of 138 trees, from each of the 4 legs of the interchange would be removed under this alternative. Some of these trees would be replanted within the newly proposed ROW, primarily along the northern and eastern legs of the intersection.

Compared to current conditions, the Signalized Intersection Alternative would increase the amount of paving at the intersection, which would be built out from the edge of ROW on all four intersection legs. There would be no medians within the intersection that could accommodate plantings or accent/decorative paving to break up the large expanses of concrete. The intersection would appear much more urban in character and width than its rural setting would suggest, creating a visual imbalance for viewers.

The Park-and-Ride lot would remain in its existing location, and the existing free right turn at SR 121/Fremont Drive would be removed. The area of paving for the Park-and-Ride lot would remain essentially the same. A new bus stop would be located north of the intersection, along SR 116/Arnold Drive, which would require the Park-and-Ride users to cross SR 121/Fremont Drive, similar to what is currently required. Except for the bus stop, no additional paving would be associated with the Park-and-Ride facility under this alternative.

As with the Roundabout Alternative, Class II bicycle lanes would be constructed along the highway shoulders. In addition, 6-foot sidewalks for pedestrians are additional features that would be brought into the intersection as new elements to the study area's visual environment because no sidewalks currently exist. New signal poles and lights would also be required as part of this alternative to accommodate the new lanes. Lighting of the new highways is not expected to substantially increase glare because the new intersection and approach roads would be lit in a similar fashion to the existing. In addition to the street lights, the Signalized Intersection Alternative would add warning beacons on the approaches to the intersection to warn motorists of the upcoming intersection and signal poles and lights. These flashing lights and signals would add new elements of glare on the highway. The Signalized Intersection Alternative would also have additional lights at the new bus pad; however, this area is much smaller than the Park-and-Ride lot, so the expected increase in glare would be less than under the Roundabout Alternative.

These visual impacts are demonstrated through the effects on the key viewpoint, described in Section 2.1.7.2, Affected Environment. Photographs were taken of the existing view and are compared to rendered simulations developed for the key viewpoint. Descriptions of potential changes to the visual quality are as follows:

- **Key Viewpoint, Northbound SR 121/Arnold Drive, south of the intersection:** The overall intersection and intersection legs would appear much wider than the existing; therefore, they would appear much more urban in character than the current intersection. It is anticipated that viewers, including local businesses owners, highway and transit commuters, and tourists to the area would be very sensitive to the changes in the area because both the highways and the fields/vineyards are considered scenic by Sonoma County, as stated in General Plan 2020. The resulting changes to the views within the intersection are not expected to be substantial; however, there are large changes to the visual character of the intersection due to its more urban character.

Figure 2.1-10 shows the existing view and post-construction view of the key viewpoint. Due to these changes in the visual environment, the changes in visual character and quality would be moderately low, but the viewer response to these changes would be moderately high;

therefore, the overall visual impact of the Signalized Intersection Alternative would be moderate.



Minimization measures depicted in the simulation include replacement plantings. Aesthetic treatments to structures are representative only. Actual types of treatments and landscaping would be designed in collaboration with Caltrans' District Landscape Architect during the design phase.

**Figure 2.1-10: Signalized Intersection Alternative –
Key Viewpoint, Northbound SR 121/Arnold Drive, South of the Intersection**

No Build Alternative

Activities that would occur under the No Build Alternative include routine maintenance of the project corridor. The intersection would not be expanded, so the views would remain essentially the same as the current views both on and off the corridor. The increase in traffic congestion would be expected to change the overall visual quality of the corridor over time, with views that reflect more traffic queues than current views.

Construction Impacts

Build Alternatives

The visual impacts of both Build Alternatives would be the same as one another. Construction of the Build Alternatives is anticipated to last approximately 12 months. The visual environment would be disturbed during this period. Most of the disturbance would

include the presence of construction vehicles, storage of materials, construction signage, demolition of the existing paving, and construction of the new project elements. Depending on the location of the viewer, these impacts could range from no impact to a moderate impact during demolition and reconstruction of the Build Alternatives.

No Build Alternative

There would be no visual impact associated with the No Build Alternative during the construction period. The intersection would not be expanded, and there would be no construction equipment or activities present at the intersection.

2.1.7.4 Avoidance, Minimization, and/or Mitigation Measures

To address the adverse visual changes associated with the proposed Build Alternatives, the following avoidance and minimization measures are recommended. The measures proposed below would aid in reducing the adverse visual impacts of the project.

Vegetation and Landscape Plantings

- **AMM V-1:** Beginning with preliminary design and continuing through final design and construction, save and protect as many existing trees in the project area as feasible.
- **AMM V-2:** Survey exact locations for trees and include in plan set during the design phase.
- **AMM V-3:** Plant parkway strips, where feasible, using rows of trees to replace in-kind the removed trees and to break up the areas of paving.
- **AMM V-4:** To the extent feasible, use California native species as part of the planting palette to replace the removed trees.
- **AMM V-5:** If the Roundabout Alternative is selected, plant trees in the new Park-and-Ride area to replace in-kind the removed trees.
- **AMM V-6:** Include an extended 3-year maintenance period as part of the construction period, either through the construction contract or a separate contract, to provide a single source of maintenance through the establishment period. This will provide consistency to ensure that the replanted trees have the best chance of succeeding.

Decorative Paving and Fencing and Barriers

- **AMM V-7:** Provide decorative paving in all medians and parkway strips either too narrow to plant, or where planting is not easily maintained, to break up the areas of paving. Decorative paving shall consist of a texture and color that contrasts with adjacent sidewalk or roadway paving.
- **AMM V-8:** To the extent feasible, design replacement fencing to comply with Sonoma County Fencing Solutions Guidelines.

- **AMM V-9:** If the Roundabout Alternative is selected, the center of the roundabout will be designed in collaboration with Caltrans' District Landscape Architect during the design phase in order to block the line of sight through the roundabout. The center of the roundabout could include decorative paving, a large boulder, or a similar visual element.

Stormwater Treatment Facilities

- **AMM V-10:** Beginning with preliminary design and continuing through final design and construction, use drainage and water quality elements, where required, that maximize the allowable landscape so that additional trees and/or decorative paving can be used.
- **AMM V-11:** Design infiltration/detention basins so that they appear to be a natural landscape feature, such as a dry streambed or a riparian pool, to break up areas of paving. They should be shaped in an informal, curvilinear manner to the greatest extent possible.
- **AMM V-12:** Basin slope grading should incorporate slope rounding, variable gradients, and be similar to the surrounding topography to de-emphasize the edge. If a wall or hard feature is necessary, it should be worked into the overall design concept.
- **AMM V-13:** Basins should be designed so that chain-link perimeter fencing is not required.
- **AMM V-14:** Design all visible concrete structures and surfaces to visually blend with the adjacent landscaping and natural plantings to reduce the effect of additional paving.
- **AMM V-15:** Limit the use of bioswales within corridor landscape areas. If they must be used, locate them in nonobtrusive areas and design should appear natural to the greatest extent possible.

2.1.8 Cultural Resources

2.1.8.1 Regulatory Setting

The term “cultural resources” as used in this document refers to all “built environment” resources (e.g., structures, bridges, railroads, water conveyance systems), 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 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. Section 106 of the National Historic Preservation Act 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 Programmatic Agreement between the Advisory Council, FHWA, State Historic Preservation Officer, and Caltrans went into effect for

Caltrans projects, both state and local, with FHWA involvement. The Programmatic Agreement implements the Advisory Council's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. FHWA's responsibilities under the Programmatic Agreement have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 U.S.C. 327).

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

Historical resources are considered under 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 Caltrans to inventory state-owned structures in its ROWs. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks.

2.1.8.2 Affected Environment

This section summarizes the *Archaeological Survey Report* (February 2016), the *Historic Resources Evaluation Report* (February 2016), the *Historic Property Survey Report* (February 2016), and the *Finding of No Adverse Effect* (April 2016) prepared for this project.

The study areas for cultural resources are referred to as the area of potential effects. The area of potential effects was established to include all potential direct and indirect effects to cultural resources that may result from the proposed project and includes built environment and archaeological resources. Separate area of potential effects boundaries were established for archaeological resources and the built environment, which may include buildings, structures, objects, and cultural landscapes. The area of potential effects was signed on February 1 and 4, 2016, by the Caltrans Project Manager, Archaeologist, and Architectural Historian.

The area of potential effects for archaeology is defined horizontally and vertically. In some cases, this includes parcels immediately adjacent to the existing ROW. The horizontal area of potential effects consists of an irregularly shaped area that encompasses the SR 116/121 intersection and extends from the intersection approximately 1,400 feet north along SR 116/Arnold Drive; 1,125 feet west along Bonneau Road; 1,500 feet south along SR 116; and 2,190 feet east along SR 121. On the southeast side of the intersection, the area of potential

effects includes the road shoulder and the Park-and-Ride lot, as well as approximately 190 feet of Maffei Road. Northeast of the intersection, the area of potential effects extends into an undeveloped agricultural field to a maximum width of 500 feet from the road edge. Southwest of the intersection, the area of potential effects encompasses the road shoulder. Northwest of the intersection, the area of potential effects includes the road shoulder along Bonneau Road and extends west of the intersection approximately 100 feet onto private property. The vertical area of potential effects ranges between 4 feet within the proposed highway realignment, 6 feet in areas of utility and drainage work, and 5 to 13 feet for utility pole replacement.

The architectural area of potential effects consists of an irregularly shaped area that encompasses the SR 116/121 intersection and extends from the intersection approximately 1,700 feet north along SR 116/Arnold Drive; 1,500 feet west along Bonneau Road; 1,500 feet south along SR 116; and 3,400 feet east along SR 121, as well as parcels with buildings or structures adjacent to the existing and proposed ROW that could be directly or indirectly affected by project construction or operation. On the southeast side of the intersection, the architectural area of potential effects includes all properties adjacent to the road, extending between 400 and 1,000 feet from the road edge. On the northeast side of the intersection and north of SR 121, the architectural area of potential effects includes agricultural fields and buildings adjacent to the road extending 1,100 feet north of SR 121. Northwest of the intersection, the architectural area of potential effects includes the commercial, residential, and agricultural parcels adjacent to SR 116 and Bonneau Road, extending 1,100 feet west of SR 116. Southwest of the intersection, the architectural area of potential effects includes portions of properties adjacent to Bonneau Road and SR 116, extending between 1,000 and 1,550 feet west of SR 116.

Archaeological Resources

A records and information search was conducted in February 2014 to identify previous cultural resources investigations and previously recorded cultural resources in and within a 1-mile study area around the archaeological area of potential effects and to assess sensitivity for intact buried historic and prehistoric archaeological resources. This search included a review of the National Register of Historic Places, California Register of Historical Resources, California Inventory of Historic Resources, California Historical Landmarks, California Points of Historical Interest listing, Office of Historic Preservation Historic Property Data File, Caltrans Cultural Resources Database, and Caltrans State and Local Bridge Survey. No archaeological resources were previously recorded within the archaeological area of potential effects.

The records search identified seven previous studies that were conducted within the archaeological area of potential effects. The search identified the Big Bend Farm Complex (60 Bonneau Road) as the only previously documented historic period resource within the archaeological area of potential effects. The Big Bend Farm Complex was determined ineligible for both the National Register of Historic Places and the California Register of Historic Resources. In addition, six other resources were identified within the 1-mile study area but outside of the area of potential effects.

Archaeological field surveys of the archaeological area of potential effects were conducted on February 13 and May 26, 2015. One parcel, 800 Arnold Drive, was unable to be surveyed due to lack of access. Survey of this parcel will be done at a later date once access is granted. No prehistoric or historic period archaeological sites were identified in the archaeological area of potential effects during the surveys. Two historic period concrete bridges, both spanning Yellow Creek, were observed during surveys, one along (north-south) Bonneau Road between the properties at 55 and 75 Bonneau Road and the other along Arnold Drive at 23150 Arnold Drive.

The buried sites analysis, based on detailed soil maps, indicates that the types of soil present within the archaeological area of potential effects have a low potential for buried archaeological resources; therefore, additional subsurface investigations are not required.

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 Native American Heritage Commission, which will then notify the Most Likely Descendent. At this time, the person who discovered the remains will also contact the District 4 Cultural Resources Studies Office so that they may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Built Environment Resources

A record search was conducted in February 2015 for an area within a 0.25-mile radius around the architectural area of potential effects. In addition, field surveys and evaluations were completed in March 2015 to establish the physical history of the buildings and structures. The built environment contains a combination of more-recently constructed commercial

properties, industrial and warehouse properties, and older houses, some of which currently serve business purposes. Most of the properties in the architectural area of potential effects older than 50 years have been modified over the years.

Surveys of the built environment within the architectural area of potential effects identified 10 properties with buildings constructed on or before 1967. These 10 properties were formally evaluated for inclusion in the National Register of Historic Places and the California Register of Historical Resources. Eight properties were found ineligible for inclusion in the National Register of Historic Place because they do not possess sufficient historical significance and/or integrity to be considered eligible for listing in either of these 2 registers. One property, the Big Bend Farm Complex, was previously determined ineligible for the National Register, and the current investigation found that it still appears ineligible for both the National Register of Historic Places and the California Register of Historical Resources. Of the last property, the Vineyard Inn Hotel, the northern triangular-shaped portion of the parcel is eligible for inclusion in the National Register at the local level of significance under Criterion C as a distinctive and intact example of the Spanish Revival style. It is also a historical resource for purposes of CEQA. This portion of the parcel can be seen in Figures B-1 and B-2 in Appendix B. Elements of the Vineyard Inn that contribute to its historic significance include the following:

- Connected 14 lodging units and their Spanish Revival character-defining features;
- Combined manager's/check-in office;
- Meeting/dining room;
- A concrete island, located between the manager's office and the motel units, containing a lawn area and two mature date palms;
- Two additional mature date palms, one located on the western edge of the property, outside of the entrance gate into the motel property from SR 121 (Arnold Drive) and the other on the property's northeast edge (Fremont Drive), outside the other gate; and
- A thick grove of tall eucalyptus trees forming a windbreak on the property's eastern boundary, behind the motel units.

Noncontributing elements include contemporary hotel signage, the pool/spa, and walls constructed parallel to the units on either end of the complex, built for purposes of blocking headlight glare, which appear to be of more recent origin.

Consultation

On February 10, 2015, letters were sent to local historical societies requesting information on historic period resources within the project area of potential effects. The letters were sent to the Sonoma County Historical Society and Sonoma Valley Historical Society and included a

brief project description and a request for information on the history of the project area. To date, no response has been received.

A search of the Sacred Lands File was conducted by the Native American Heritage Commission in February 2015. The search failed to indicate the presence of cultural resources in the immediate project area. Based on a list provided by the Native American Heritage Commission, letters were also sent to four tribal groups or individuals who may have knowledge of cultural resources in the area of potential effects or may have an interest in the project. Written and telephone responses were received from the Sacred Sites Protection Committee of The Federated Indians of Graton Rancheria. Table 2.1-14 summarizes the consultation to date.

Table 2.1-14: Summary of Consultation

Contact Name and/or Group	Date of Initial Letter	Date of Follow-up Phone Call/E-mail	Date(s) Reply Received
Native American Heritage Commission - Cynthia Gomez	1/20/15	None	2/6/15
Sonoma County Historical Society	2/10/15	None	None received
Sonoma Valley Historical Society	2/10/15	None	None received
The Federated Indians of Graton Rancheria - Gene Buvelot	2/17/15	3/10/15, phone message	3/11/15 (by Nick Tipon)
The Federated Indians of Graton Rancheria - Greg Saris, Chairperson	2/17/15	11/30/15, letter (from Brett Rushing, Caltrans)	3/11/15 (by Nick Tipon)
The Federated Indians of Graton Rancheria - Nick Tipon	2/17/15	None	3/11/15
Pomo, Lake Miwok - Stephanie L. Reyes	2/17/15	3/10/15, phone message; 3/24/15, phone message	3/13/15, phone message
Coast Miwok, Pomo - Suki Waters	2/17/15	3/10/15, no voicemail available, sent follow-up e-mail	None received

Source: Historic Property Survey Report, 2016.

2.1.8.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. Archaeological resources would not be affected during operation of the Build Alternatives. The nine built environment resources evaluated and determined ineligible for inclusion in the National

Register of Historic Places are not considered historic properties/historical resources; therefore, there would be No Adverse Effect as a result of the project.

As described above, only the northern triangular shaped portion of the Vineyard Inn Hotel parcel is eligible for inclusion on the National Register, as shown in Figure B-1 and B-2. This analysis only discusses potential impacts to this northern triangular shaped portion, not impacts to the entire parcel. Under both Build Alternatives, a permanent and temporary acquisition of a portion of the Vineyard Inn Hotel would occur, and the existing free right turn in front of the hotel would be removed. A permanent physical acquisition of a sliver of the historic property would occur – 0.0097 acre under the Roundabout Alternative and 0.0244 acre under the Signalized Intersection Alternative. The project would not result in removal of any of the motel building units or any other associated character-defining features of the historic property. No physical buildings or structures would be directly impacted. It is unlikely that the small sliver acquisitions required under either alternative would fundamentally affect the historic property to the point that its significance would be diminished.

Under the Signalized Intersection Alternative, one contributor to its historic significance, a single mature California date palm standing on the western edge of the property, located immediately south of the driveway leading from SR 121/Arnold Drive, would be impacted. Under a condition that will be imposed as part of the Secretary of the Interior's Standards for the Treatment of Historic Properties Action Plan prepared for this property, the palm tree will be relocated a short distance away (fewer than 10 feet) to the southeast. None of the other three mature date palms associated with the historic property, and considered to be contributors, would be affected. These partial permanent acquisitions from the historic property would not directly physically impact any of the three historic motel buildings situated on the parcel. The date palms are considered contributing elements to the historic property but not major character-defining features associated with the property, as compared to the motel units, manager's office, or building used for special events. While these changes would result in minor permanent visual and setting changes in the area, the visual setting of the property was previously modified by earlier transportation improvements, including development of the Caltrans Park-and-Ride lot approximately 25 years ago.

The permanent acquisition and temporary construction easement of a portion of the historic property would not change the character of the property or physical features within the property's setting that contributes to its historic significance. Under both Build Alternatives, access to the historic property would not be changed, and internal circulation within the historic motel courtyard parking area would be maintained; therefore, neither Build Alternative would adversely affect the Vineyard Inn Hotel.

A letter was sent to the State Historic Preservation Officer on February 11, 2016, to confirm the eligibility determinations of the Vineyard Inn Hotel and the eight other previously unevaluated properties in the area of potential effects. On March 21, 2016, they concurred with the findings that the Vineyard Inn Hotel is eligible for the National Register of Historic Places under Criterion C at the local level of significance and that the eight additional properties evaluated are not eligible for the National Register of Historic Places. An additional letter will be sent to the State Historic Preservation Officer to confirm a finding of No Adverse Effect on the Vineyard Inn Hotel and any unidentified archaeological resources that may be present within the area of potential effects.

Because the Vineyard Inn Hotel is eligible for inclusion in the National Register of Historic Places, it is also considered a Section 4(f) resource. There are no other historic properties that would be considered a Section 4(f) resource in the project vicinity. This is discussed in more detail in Appendix B Section 4(f) *De Minimis* Determination.

No Build Alternative

The No Build Alternative would not affect cultural resources because no improvements would be implemented.

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. The existing Park-and-Ride lot would be relocated under the Roundabout Alternative to the northeast quadrant of the intersection. This site was not surveyed due to access restrictions; therefore, archaeological surveys will take place once access is available.

Archaeological surveys did not identify any cultural resources within the surveyed portion of the archaeological area of potential effects. In addition, the buried sites analysis indicates that the archaeological area of potential effects includes soil types that predate prehistoric human occupation in the area, thus there is a low potential for buried sites. If any prehistoric deposits are present, they would be found at or near the surface. Furthermore, much of the project area of potential effects has been highly disturbed by road construction and maintenance, residential and commercial development, and agricultural activities, which would have disturbed surface or near surface archaeological sites; however, if intact archaeological sites are discovered during construction, measures would be in place to avoid impacts. Therefore, the Build Alternatives would have no adverse effect on unidentified archaeological resources that may be present within the archaeological area of potential effects.

A temporary construction easement would be required from the Vineyard Inn Hotel under both Build Alternatives. The amount of acreage needed for the temporary construction

easement ranges from 0.02 acre with the Roundabout Alternative to 0.03 acre with the Signalized Intersection Alternative. The temporary work on the property would include access onto the property to construct project-related features, including relocating utilities and constructing drainage and a new pedestrian facility between 6 and 10 feet in width. All existing private property owner walls and landscaping in the interior courtyard area and eastern property border would be unaffected. Impacts to the Vineyard Inn Hotel associated with the temporary construction easements would not be permanent because the parcel would be restored to conditions appropriate to the property. As discussed in the project impacts section above, neither of the Build Alternatives would adversely affect the historic property.

An additional letter will be sent to the State Historic Preservation Officer to confirm a finding of No Adverse Effect on the Vineyard Inn Hotel and any unidentified archaeological resources that may be present within the area of potential effects.

No Build Alternative

The No Build Alternative would not affect cultural resources during construction because there would be no ground-disturbing activities.

2.1.8.4 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance, minimization, and/or mitigation measures will be implemented under both Build Alternatives:

- **AMM CUL-1:** Cultural resources will be avoided to the greatest extent practicable. Further investigations may be needed if the site[s] cannot be avoided by the project. As soon as feasible, additional surveys will be required for the portions of the archaeological area of potential effects that were not surveyed due to access restrictions.
- **AMM CUL-2:** The Secretary of the Interior's Standards for the Treatment of Historic Properties Action Plan will be implemented during construction. It describes the actions to be taken to protect the Vineyard Inn Hotel during project construction.
- **AMM CUL-3:** The Phased Identification Plan will be implemented for archaeological resources in the unsurveyed northeast parcel. It describes the additional identification efforts that will be taken prior to construction and efforts that will be made to avoid effects on any newly identified resources.
- **AMM CUL-4:** 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.
- **AMM CUL-5:** 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 Native American Heritage Commission, which will then notify the Most Likely Descendent. At this time, the person who discovered the remains will also contact the District 4 Cultural Resources Studies Office so that they may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

2.2 Physical Environment

2.2.1 Hydrology and Floodplains

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. FHWA requirements for compliance are outlined in 23 CFR 650 Subpart A.

To comply, the following must be analyzed:

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

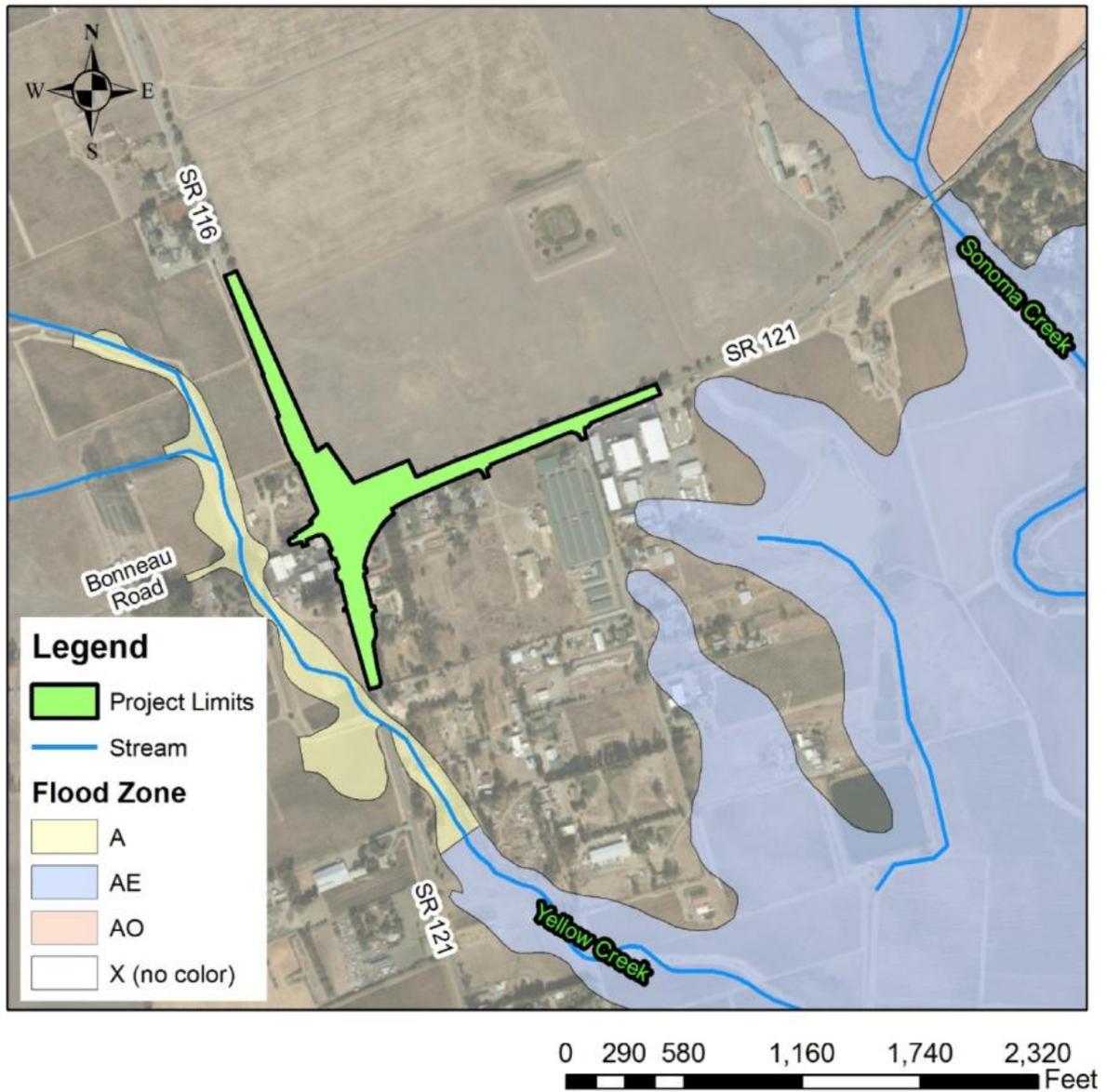
The base floodplain is defined as “the area subject to flooding by the flood or tide having a 1 percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

2.2.1.2 Affected Environment

This section summarizes the *Floodplain Encroachment Technical Memorandum* (February 2016) prepared for this project. Sonoma Creek and Yellow Creek are the two receiving water bodies that cross SR 116 and/or SR 121 near the study area, shown below in Figure 2.2-1. Sonoma Creek is a natural, unlined channel and crosses SR 121 at approximately 0.65 mile east of the project intersection. Yellow Creek is unlined and channelized and crosses Bonneau Road at approximately 430 feet west of the project intersection and crosses SR 121 at approximately 960 feet south of the project intersection.

Natural and beneficial floodplain values include, but are not limited to, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge. The Federal Emergency Management Agency Flood Insurance Rate Map (Map Number 06097C1030E; December 2, 2008) shows that the project is within Zone X (unshaded), which can be seen in Figure 2.2-1. This area represents areas of minimal flood hazard and is outside the limits of the 0.2-percent-annual-chance flood. The 0.2-percent-annual-chance flood means that there is a chance of 0.002 of a flood occurring in a given year. The Sonoma Creek and Yellow Creek crossings at SR 116, SR 121, and Bonneau Road are not within the study area. There are also no identified 100-year floodplains within the project limits, as

shown in Figure 2.2-1. The project limits are defined as the limits of the proposed improvements for the Build Alternatives.



**Figure 2.2-1: Receiving Water Bodies
and Federal Emergency Management Agency Flood Insurance Rate Map**

2.2.1.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be the same as one another. A significant encroachment is defined in 23 CFR 650.105 as a highway encroachment and any direct support of likely base floodplain development that would involve one or more of the following construction- or flood-related impacts: (1) significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route, (2) a significant risk to life or property with change in land use, fill inside the floodplain, or change in water surface elevation, or (3) a significant adverse impact on the natural and beneficial floodplain values.

The risk associated with the Build Alternatives is from the consequences associated with the probability of flooding due to encroachment into the base floodplain. The Build Alternatives are not located within the base floodplain; therefore, there would be no change in land use, and the risk to life or property associated with the Build Alternatives would be minimal. There would also be no fill inside the base floodplain as a result of the Build Alternatives. The Roundabout Alternative would result in a net gain of 0.5 acre of impervious surface, while the Signalized Intersection Alternative would result in a net gain of 1.53 acres of impervious surface. Compared to the Sonoma Creek watershed or Yellow Creek watershed in the vicinity of the study area, the added impervious area is approximately 0.005 and 0.49 percent of the Sonoma Creek and Yellow Creek watersheds, respectively. The added runoff is anticipated to be minimal; therefore, a risk for changes in the 100-year water surface elevation is not anticipated.

The Build Alternatives are located at an existing intersection and are not intended to encourage additional development in the project area; therefore, the Build Alternatives would not support incompatible floodplain development. In addition, because the project is not located within the base floodplain, there would be no impacts to natural and beneficial floodplain values and no significant encroachment or longitudinal encroachment to the base floodplain.

No Build Alternative

The No Build Alternative would have no impact on hydrology and floodplains.

Construction Impacts

Build Alternatives

There would be no construction impacts from the Build Alternatives because the project is not located within the base floodplain.

No Build Alternative

The No Build Alternative would have no impact on hydrology and floodplains.

2.2.1.4 Avoidance, Minimization, and/or Mitigation Measures

The Build Alternatives would not impact the existing floodplain nor affect any beneficial floodplain values; therefore, no avoidance, minimization, and/or mitigation measures are required. Avoidance and minimization measures for the addition of impervious surface area are provided in Section 2.2.2.4.

2.2.2 Water Quality and Stormwater 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 United States (U.S.) from any point source¹ unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System permit. This act and its amendments are known today as the Clean Water Act. Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the National Pollutant Discharge Elimination System permit scheme. The following are important Clean Water Act sections:

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

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

The goal of the Clean Water Act is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The U.S. Army Corps of Engineers 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 U.S. Army Corps of Engineers’ Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the U.S. Army Corps of Engineers’ decision to approve is based on compliance with U.S. Environmental Protection Agency’s (U.S. EPA) 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 (Guidelines) were developed by U.S. EPA in conjunction with the U.S. Army Corps of Engineers and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative that would have less adverse effects. The Guidelines state that the U.S. Army Corps of Engineers may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent² 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 U.S. Army Corps of Engineers, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements (see 33 CFR 320.4). A discussion of the least environmentally damaging practicable alternative determination, if any, for the document is included in Section 2.3.2, Wetlands and Other Waters.

State Requirements: Porter-Cologne Water Quality Control Act

California’s Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the Clean Water Act

² U.S. EPA defines “effluent” as “wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall.”

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 Clean Water Act definition of “pollutant.” Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the Clean Water Act.

The State Water Resources Control Board and Regional Water Quality Control Boards are responsible for establishing the water quality standards (objectives and beneficial uses) required by the Clean Water Act 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 Regional Water Quality Control Board 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 State Water Resources Control Board identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with Clean Water Act 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 (National Pollutant Discharge Elimination System permits or Waste Discharge Requirements), the Clean Water Act requires the establishment of Total Maximum Daily Loads. Total maximum daily loads 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 State Water Resources Control Board administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, total maximum daily loads, and National Pollutant Discharge Elimination System permits. Regional Water Quality Control Boards are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- **National Pollutant Discharge Elimination System Program**

Municipal Separate Storm Sewer Systems

Section 402(p) of the Clean Water Act requires the issuance of National Pollutant Discharge Elimination System permits for five categories of stormwater discharges, including Municipal Separate Storm Sewer Systems. A Municipal Separate Storm

Sewer System is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over stormwater, that is designed or used for collecting or conveying stormwater.” The State Water Resources Control Board has identified Caltrans as an owner/operator of a Municipal Separate Storm Sewer System under federal regulations. Caltrans’ Municipal Separate Storm Sewer System permit covers all Department ROWs, properties, facilities, and activities in the state. The State Water Resources Control Board or the Regional Water Quality Control Board issues National Pollutant Discharge Elimination System permits for 5 years, and permit requirements remain active until a new permit has been adopted.

Caltrans’ Municipal Separate Storm Sewer System Permit (Order No. 2012-0011-DWQ as amended by 2014-0077-DWQ) was adopted on September 19, 2012, became effective on July 1, 2013, and was amended on May 20, 2014. The permit has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);
2. Caltrans must implement a year-round program in all parts of the State to effectively control stormwater and non-stormwater discharges; and
3. Caltrans stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices, to the Maximum Extent Practicable, and other measures as the State Water Resources Control Board determines to be necessary to meet the water quality standards.

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

Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ), adopted on September 2, 2009, became effective on July 1, 2010, and was amended on November 16, 2010, and July 17, 2012. The permit regulates stormwater discharges from construction sites that result in a disturbed soil area of 1 acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least 1 acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than 1 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 Regional Water Quality Control Board. Operators of regulated construction sites are required to develop stormwater pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. 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 all projects subject to the permit, applicants are required to develop and implement an effective Stormwater Pollution Prevention Plan. In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan is necessary for projects with disturbed soil area less than 1 acre.

Section 401 Permitting

Under Section 401 of the Clean Water Act, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are Clean Water Act Section 404 permits issued by the U.S. Army Corps of Engineers. The 401 permit certifications are obtained from the appropriate Regional Water Quality Control Board, dependent on the project location, and are required before the U.S. Army Corps of Engineers issues a 404 permit.

In some cases, the Regional Water Quality Control Board may have specific concerns with discharges associated with a project. As a result, the Regional Water Quality Control Board may issue a set of requirements known as Waste Discharge Requirements under the State Water Code (Porter-Cologne Act) that define activities,

such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. Waste Discharge Requirements can be issued to address both permanent and temporary discharges of a project.

2.2.2.2 Affected Environment

Surface Water

The following summarizes the findings of the *Water Quality Assessment Report* (April 2016) and the *Stormwater Data Report* (October 2015). The study area is within the Sonoma Creek watershed, which is approximately 170 square miles and includes all of Sonoma Valley. The project is entirely within an undefined hydrologic sub-area (Hydrologic Sub-Area # 206.40) in the San Pablo Hydrologic Unit in the San Francisco Bay Hydrologic Region. The watershed area for the undefined hydrologic sub-area is 106,593 acres.

Surface drainage and drainage features within the study area are shown in Figure 2.2-2. There are six drainage crossings along SR 116 and SR 121 and one waterway, Yellow Creek, within the project study area. Yellow Creek receives runoff directly from the site on Bonneau Road to the east and along SR 121 to the south of the project site. Sonoma Creek is an indirect receiving water of the project, 1.16 miles south of the project area along Yellow Creek. The San Francisco Bay Basin (Region 2) Water Quality Control Plan (2013) identifies beneficial uses for Sonoma Creek and its tributaries, including cold freshwater habitat, fish migration, preservation of rare and endangered species, fish spawning, warm freshwater habitat, wildlife habitat, commercial and sport fishing, contact water recreation, and noncontact water recreation. These beneficial uses are presumed to apply to Yellow Creek and to the unnamed ponds in the study area.

In general, runoff in the project vicinity is collected and conveyed along the shoulders of and under SR 121, SR 116, and Bonneau Road through various drainage ditches, underdrains, pipes, and culverts. The general drainage pattern west and south of the intersection is to convey flow into Yellow Creek, which crosses Bonneau Road and SR 121 en route to Sonoma Creek. Sonoma Creek drains to San Pablo Bay, located approximately 9 miles south of the project area. The general drainage pattern north and east of the intersection is to convey flow easterly and southeasterly into two small unnamed ponds south of SR 121 between Maffei Road and Sonoma Creek.

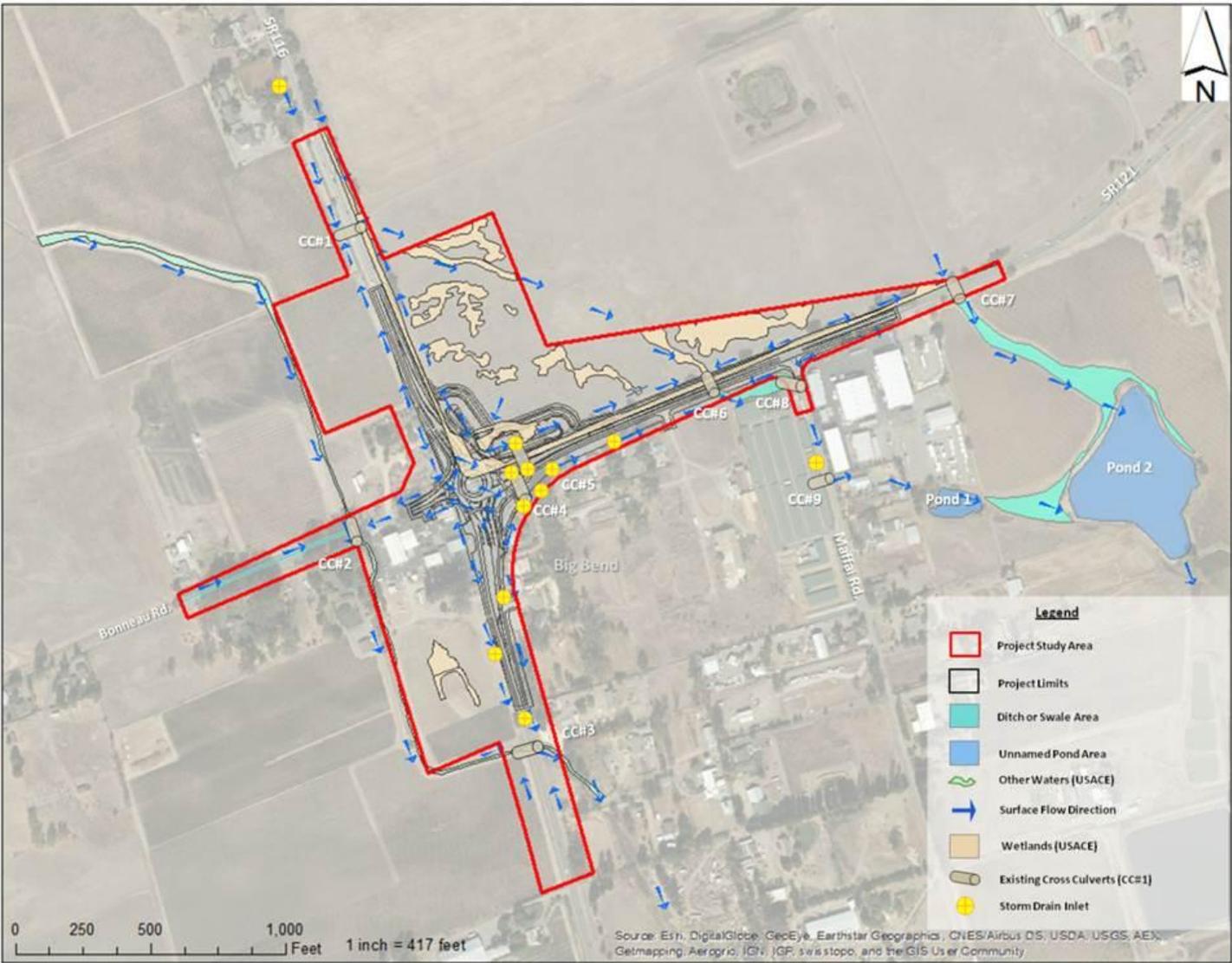


Figure 2.2-2: Surface Drainage and Drainage Features

Groundwater

The project is located within the Napa-Sonoma Valley groundwater basin, Sonoma Valley sub-basin. Depth to groundwater across the project site footprint ranges between 10 and 20 feet below ground surface at elevations ranging from 5 to 15 feet above sea level. The Basin Plan includes the Sonoma Valley groundwater basin as having the existing beneficial uses of municipal and domestic water supply and agricultural water supply and the potential beneficial uses of industrial process and service water supply; however, the Caltrans *District 4 Work Plan* (2013b), which describes how Caltrans plans to implement stormwater requirements in local projects, does not identify any drinking water reservoir or recharge facilities within the vicinity of the project site in Sonoma County.

Groundwater contamination has been reported within the study area due to two leaking underground storage tanks. These sites are undergoing cleanup and are discussed in more detail in Section 2.2.5, Hazardous Waste/Materials.

Existing Water Quality

Commonly found pollutants in roadway runoff are total suspended solids, nitrate nitrogen, nitrogen, phosphorous, orthophosphate, copper, lead, and zinc. 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.

Sonoma Creek is listed as a Category 5 impaired water body in the 2012 Integrated Report by pollutants such as nutrients, pathogens, and sedimentation/siltation from construction, land development, and urban runoff/storm sewers (State Water Resources Control Board, 2012). A water body is assigned Category 1-5 based on beneficial uses and pollutant concentrations. A Category 5 water body is a water segment where Clean Water Act standards are not being met and a Total Maximum Daily Load is required but not yet completed for at least one of the pollutants being listed for the segment. Regional Water Quality Control Board staff recently determined that the nontidal portions of Sonoma Creek are not impaired by nutrients; therefore, they should be “delisted” or removed from this list. The project site discharges indirectly to a non-tidal portion of Sonoma Creek.

2.2.2.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. Both Build Alternatives would preserve existing surface drainage at each offsite discharge location, located outside the study area farther north, south, or east along the intersection legs. Modifications to existing drainage features and new drainage improvements would be

required to collect and convey the additional runoff generated by the proposed widening in both the Roundabout Alternative and the Signalized Intersection Alternative. As shown in Table 2.2-1, the Roundabout Alternative would result in a net gain of 0.5 acre of impervious surface, while the Signalized Intersection Alternative would result in a net gain of 1.53 acres of impervious surface. The increase in runoff due to the additional impervious surface area has the potential to impact downstream erosion and water quality. It could also result in the direct discharge of sediment-laden flow from the highway into receiving water bodies. This potential increase in runoff would need to be detained in a designed hydromodification system to mimic the existing drainage patterns or conditions. Hydromodification is the alteration of the natural flow of water through a landscape and often takes the form of channel modification or channelization.

Both Build Alternatives could also potentially result in increased deposition of pollutants resulting from increased traffic volumes throughout the corridor. The project would not impact groundwater recharge in the project vicinity due to the relatively small area of new impervious surface relative to the size of the regional watershed groundwater basin.

No Build Alternative

The No Build Alternative may have potential permanent water quality impacts due to increasing congestion, leading to a greater deposition of particulates from exhaust and heavy metals from braking.

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. There would be no direct impacts to Yellow Creek or Sonoma Creek during construction of either Build Alternative because no construction activities are proposed within or adjacent to either creek. During construction, sediment-laden flow can result from runoff over disturbed soil areas and enter storm drainage facilities or directly discharge into Yellow Creek, increasing the turbidity and decreasing the clarity and beneficial uses of the receiving water body. As shown in Table 2.2-1, the total disturbed soil area would be 9.36 acres for the Roundabout Alternative and 9.09 acres for the Signalized Intersection Alternative. Additional sources of sediment that could result in increases in turbidity include uncovered or improperly covered active and nonactive stockpiles and construction staging areas, and construction equipment not properly maintained or cleaned. Temporary drainage facilities may be required to redirect runoff from work areas. These would include runoff detainment devices placed at storm drain inlets that would catch runoff from construction activities.

Table 2.2-1: Net Impervious Surface and Disturbed Soil Area

Alternative	Net Impervious Surface (acres)	Disturbed Soil Area (acres)
Roundabout Alternative	0.50	9.36
Signalized Intersection Alternative	1.53	9.09
No Build Alternative	0	0

Source: Water Quality Assessment Report, 2016.

No Build Alternative

The No Build Alternative would not affect water quality or stormwater runoff.

2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures

Both Build Alternative footprints overlap potential waters of the U.S. or waters of the State; therefore, a 404 permit from the U.S. Army Corps of Engineers and a 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board are required for the proposed project. Because a Section 404 Permit is required, the Caltrans District Biologist must document that the following sequence of avoidance and minimization measures have been followed.

Impacts to surface water and groundwater as a result of stormwater runoff will be avoided or minimized through implementation of design features, or best management practices, which will be developed and incorporated into the project design and operations prior to commencement of construction. A risk assessment performed in accordance with the Construction General Permit determined the project risk level, which is based on potential erosion and transport to receiving waters, described in Section 2.2.2.1, Regulatory Setting. The project has a medium sediment risk and a high receiving water risk, resulting in a Risk Level 2 classification; therefore, stormwater sampling will be required at all discharge locations for the Build Alternatives. The following avoidance and minimization measures will be implemented for both Build Alternatives:

- **AMM WQ-1:** Stormwater sampling will be required at all discharge locations during construction.
- **AMM WQ-2:** A Notice of Intent will be filed with the State Water Resources Control Board’s Stormwater Multiple Application and Report Tracking System. A Stormwater Pollution Prevention Plan will also need to be implemented to address the temporary water quality impacts resulting from construction activities.

- **AMM WQ-3:** Environmentally sensitive areas will be delineated on project plans and will be avoided during construction.
- **AMM WQ-4:** Treatment best management practices will be incorporated into the project and are permanent devices and facilities that treat stormwater runoff. Caltrans has an approved list of treatment best management practices that have been studied and verified to remove targeted design constituents and provide general pollutant removal. Local county guidance will also be followed. The project will include stormwater runoff treatment measures designed not only to treat stormwater, but also to provide hydromodification to offset the increase in volume and rate of discharge created by the project. Preliminary evaluation of data on surface and subsoil texture, structure, and composition, as well as groundwater depth, indicates no real limits to the range of hydromodification options available to the project.
- **AMM WQ-5:** Best management practices will be incorporated into the contract documents of the project to reduce the discharge of pollutants temporarily, during construction, and permanently to the maximum extent practicable. Construction site best management practices will be implemented during construction activities to reduce pollutants in stormwater discharges throughout construction. These include the measures of soil stabilization, sediment control, tracking control, non-stormwater management, waste management/materials pollution control and jobsite management.
- **AMM WQ-6:** Design pollution prevention best management practices are permanent measures to improve stormwater quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. The following design pollution prevention best management practices will be incorporated into the project design:
 - Conserve natural areas, to the extent feasible, including existing trees, vegetation, and soils;
 - Install concentrated flow conveyance systems, such as ditches, berms, swales, flared end sections, outlet protection, and velocity dissipation devices to protect drainages.
 - Minimize the impervious footprint of the project;
 - Minimize disturbances to natural drainages;
 - Design and construct pervious areas to effectively receive runoff from impervious areas, taking into consideration the pervious area's soil conditions, slope, and other pertinent factors;
 - Implement landscape and soil-based best management practices, such as compost-amended soils and vegetated strips and swales;
 - Use locally appropriate landscaping that minimizes irrigation and runoff, promotes surface infiltration, and minimizes the use of pesticides and fertilizers; and

- Design all landscapes to comply with the California Department of Water Resources Water Efficient Landscape Ordinance.

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 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. Caltrans Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. Structures are designed using Caltrans Seismic Design Criteria. The Seismic Design Criteria provides the minimum seismic requirements for highway bridges designed in California. A bridge’s category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see Caltrans’ Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

2.2.3.2 Affected Environment

This section summarizes the *Preliminary Geotechnical Report* (August 2015). The study area is located in the Sears Point U.S. Geological Survey quadrangle in the Sonoma Valley. The area has a relatively flat landscape, ranging from 20 feet elevation in the northwest quadrant to 15 feet elevation in the southeast quadrant. Sonoma Valley is a narrow valley filled with alluvium and terrace deposits, bordered by two mountain ranges on the east and west sides. The study area is underlain by alluvial deposits of sand, silt, and gravel deposited in fan, valley fill, terrace, or basin environments of Holocene and late Pleistocene age (approximately 12,000 years old). The western and extreme northern portions of the study area are underlain by alluvial fan deposits consisting of moderately to poorly sorted and moderately to poorly bedded sand, gravel, silt, and clay deposited where streams emanate from upland regions onto more gently sloping valley floors or plains. Quaternary alluvial deposits, as well as the Glen Ellen formation, Huichica formation, and Sonoma volcanic, are known to be the main water-bearing geologic units in the area. Groundwater depths ranged from 4 to 23 feet below ground surface between July 30 and August 1, 2008. Figure 2.2-3 shows the soil types in the study area.



Figure 2.2-3: Soil Types in the Study Area

Soil in the study area is primarily Haire clay loam. This soil unit is located on uplands and uplifted terraces, and it consists of alluvium derived from sedimentary rocks. The shrink-swell potential of this soil unit is moderate. The natural drainage class is moderately well-drained, and surface runoff is high. A portion of the southern extent of the study area along SR 121 near the Yellow Creek Bridge is underlain by Zamora silty clay loam. Zamora silty clay loam is located on alluvial fans in river valleys, and it consists of alluvium derived from sedimentary rocks. The shrink-swell potential of this soil unit is moderate. This soil unit is well-drained, and surface runoff is medium.

The study area is located in the seismically active San Francisco Bay area, which has experienced many severe earthquakes in recent history. The nearest fault to the study area is the Rodgers Creek fault zone, which is located approximately 2.4 miles to the west of the study area in the Sonoma Mountains. The Browns Valley section of the West Napa fault zone is the second closest fault to the study area, located approximately 8.3 miles to the east. Lastly, the study area is approximately 22.5 miles east of the San Andreas fault zone. The study area is not within an Alquist-Priolo earthquake fault zone.

Susceptibility to liquefaction in the study area is very low; the risk increases nearer to Sonoma Creek, where susceptibility to liquefaction is rated as high to very high. In addition, due to relatively flat topography, seismically induced landslides, rockfall, or debris flows are not potential hazards affecting the study area.

2.2.3.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be the same as one another. During operation of the Build Alternatives, impacts on users of the intersection could result from seismic hazards. Both the San Andreas and Rodgers Creek faults have potential to create seismic hazards within the study area. The highest magnitude earthquakes to be expected for these faults are 8.0 for the San Andreas Fault and 7.3 for the Rodgers Creek Fault. The largest hypothetical earthquake that could affect the study area would come from the Rodgers Creek Fault, resulting in strong ground shaking (0.650 g) during a seismic event. As described above, the risk of secondary seismic hazards to affect users of the intersection (i.e., liquefaction, seismically induced landslides, rock falls, settlement, and subsidence) is low within the study area due to existing soil conditions and topography. Additionally, operation of the Build Alternatives would not impact geology or soils.

No Build Alternative

The No Build Alternative would have the same potential impacts as described for the Build Alternatives.

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be the same as one another. Construction of the Build Alternatives would require excavations between 5 and 13 feet. Shallow excavations (i.e., less than 5 feet) for highway or parking lot construction are unlikely to encroach into the groundwater table; however, excavations of up to 13 feet for utility pole foundations could encroach into the shallow groundwater aquifer during construction. In addition, construction could expose workers to seismic hazards, such as earthquakes. Measures would be included in the project to provide for construction worker safety.

Project construction for both Build Alternatives is unlikely to result in extensive soil erosion of the surrounding area because the study area is situated in relatively flat terrain. The geology of the area would not be impacted by construction activities.

No Build Alternative

The No Build Alternative would have the same potential impacts as described for the Build Alternatives.

2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures will be implemented for both Build Alternatives:

- **AMM GEO-1:** To minimize potential impacts from seismic events, the project will be constructed in accordance with all applicable Caltrans standards and regulations, and will be designed for the maximum possible earthquake. All construction activities will adhere to current engineering practices and recommendations provided by a Geotechnical Engineer/Engineering Geologist.
- **AMM GEO-2:** In the event that groundwater is encountered in excavations during construction, groundwater could be managed with typical pumping operations to maintain a dry work area. If groundwater pumping is necessary within an excavation, groundwater will be collected in low points (called sumps). These low points will be equipped with a sump pump, and the water will be pumped out of the excavation. Groundwater shall be pumped into storage tanks, and either treated, disposed, or discharged based on groundwater testing results. If groundwater pumping is required, a Section 402 Caltrans National Pollutant Discharge Elimination System Permit will be obtained from the State Water Resources Control Board.

- **AMM GEO-3:** To minimize the potential for soil instability from shrink-swell potential, soils with shrink-swell potential shall be compacted at the highest moisture content possible and not be allowed to dry out prior to covering with other material.
- **AMM GEO-4:** A geotechnical investigation is necessary to determine the engineering characteristics of native soil in undeveloped areas. Special treatments could be required to increase the suitability of native soils for highway construction, or excavated material from obliterated highway embankments (e.g., intersection bypass lane on northbound SR 121) may be used. Otherwise, imported soil may be required. Imported soil for highway embankments shall have a minimum R-value (measure of thermal resistance/insulation) of 15 and shall have the appropriate environmental certifications to ensure contaminated soil is not used onsite.

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.

16 U.S.C. 461-467 (the National Registry of Natural Landmarks) establishes the National Natural Landmarks program. Under this program, property owners agree to protect biological and geological resources such as paleontological features. Federal agencies and their agents must consider the existence and location of designated National Natural Landmarks, and of areas found to meet the criteria for national significance, in assessing the effects of their activities on the environment under NEPA.

16 U.S.C. 470aaa (the Paleontological Resources Preservation Act) prohibits the excavation, removal, or damage of any paleontological resources located on federal land under the jurisdiction of the Secretaries of the Interior or Agriculture without first obtaining an appropriate permit. The statute establishes criminal and civil penalties for fossil theft and vandalism on federal lands.

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

23 U.S.C. 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 U.S.C. 431-433 above and state law.

Under California law, paleontological resources are protected by CEQA.

2.2.4.2 Affected Environment

This section summarizes the *Paleontological Identification/Evaluation Report* (March 2016). The project site is underlain by alluvial deposits of sand, silt, and gravel deposited in fan, valley fill, terrace, or basin environments of Holocene and late Pleistocene age (approximately 12,000 years old), which can be seen in Figure 2.2-4. The Huichica formation underlies these Holocene and late Pleistocene deposits. The Huichica formation consists of massive yellow siltstone, well-sorted quartz-lithic sandstone, and poorly consolidated gravel and is of early Pleistocene to Pliocene age (approximately 3 million years old).

Paleontological records searches determined that there are no known Pleistocene-age fossils within the project site or a 1-mile radius of the project. The nearest known fossils are located near Petaluma in Petaluma formation geology and are approximately 5 million years old. The literature search indicates that, except for Holocene deposits (on the surface), all deposits within the study area have been known to contain significant nonrenewable paleontological resources in the San Francisco Bay region, and fossils near to the study area are located within bedrock units 2.3 million years and older. These deposits include Pleistocene-aged flora and fauna, including fossils of mammoths, fresh water mollusks, and invertebrates.

Assessments of paleontological sensitivity (i.e., potential to contain scientifically important paleontological resources) follow standard Caltrans criteria. The Caltrans criteria identify three categories to describe the likelihood that a geologic unit contains significant fossil materials: high potential, low potential, and no potential, as indicated in Table 2.2-2. Pleistocene deposits are assigned a high paleontological sensitivity rating.

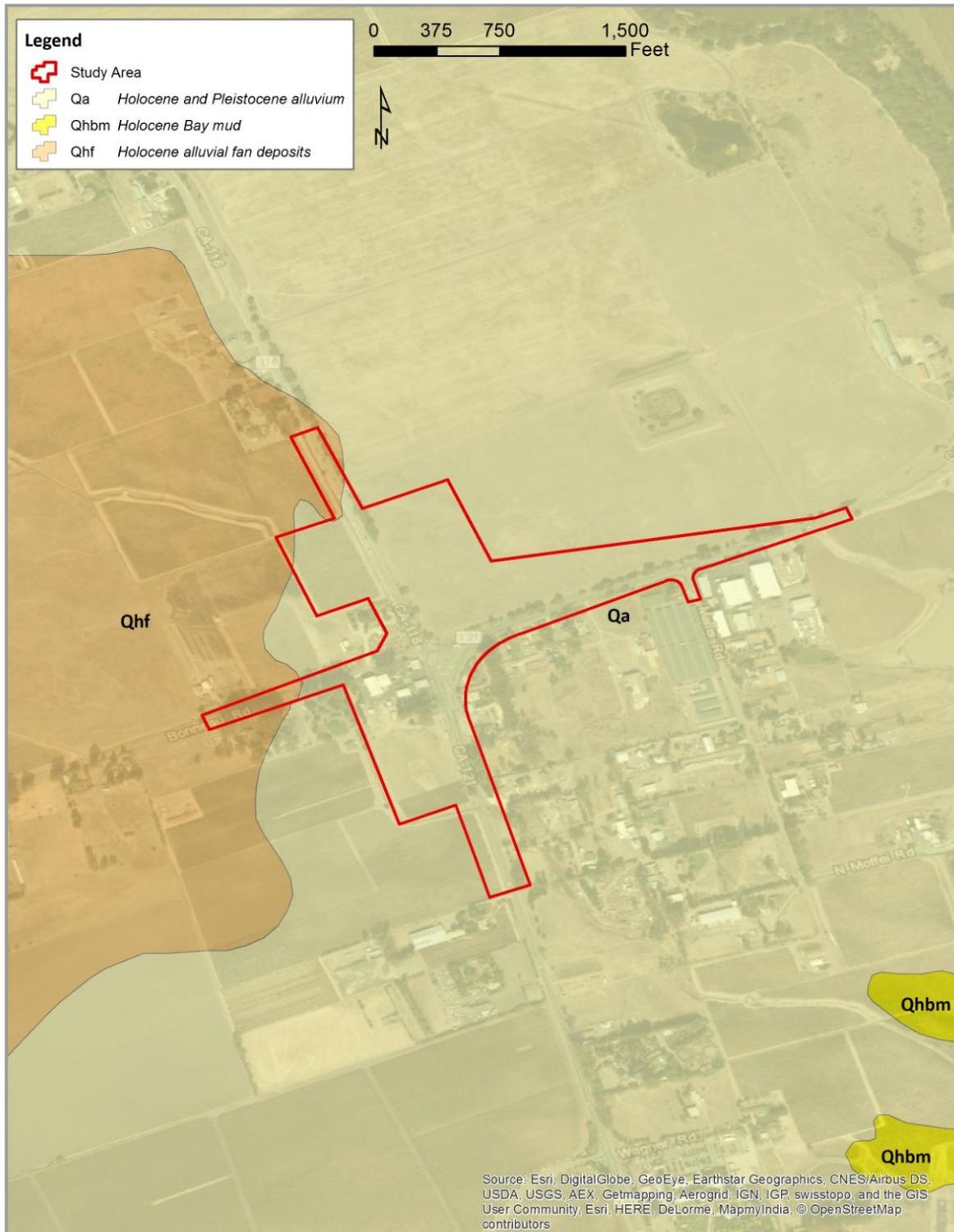


Figure 2.2-4: Geologic Map of the Project Study Area

Table 2.2-2: Paleontological Sensitivity

Caltrans Sensitivity Designation	Characteristics of Geologic Units in this Category
<p>High Potential (High Sensitivity)</p> <ul style="list-style-type: none"> • Pleistocene deposits – Qof 	<p>This category consists of rock units known to contain significant vertebrate, invertebrate, or plant fossils anywhere within their geographic extent, including sedimentary rock units that are suitable for the preservation of fossils, as well as some volcanic and low-grade metamorphic rock units. This category includes rock units with the potential to contain:</p> <ul style="list-style-type: none"> • Abundant vertebrate fossils; • A few significant vertebrate, invertebrate, or plant fossils that may provide new and significant taxonomic, phylogenetic, ecological, and/or stratigraphic data; • Areas that may contain datable organic remains older than Recent; • Areas that may contain unique new vertebrate deposits, traces, and/or trackways; and • Fossiliferous deposits with very limited geographic extent or an uncommon origin (e.g., tar pits and cave deposits).
<p>Low Potential (Low Sensitivity)</p> <ul style="list-style-type: none"> • No units within the project are considered to be Low Potential 	<p>This category includes sedimentary rock units that:</p> <ul style="list-style-type: none"> • Are potentially fossiliferous, but have not yielded significant fossils in the past; • Have not yet yielded fossils, but have the potential to contain fossil remains; or • Contain common and/or widespread invertebrate fossils of species whose taxonomy, phylogeny, and ecology are well understood.
<p>No Potential (No Sensitivity)</p> <ul style="list-style-type: none"> • Holocene fan deposits – Qhf 	<p>This category includes rock units of intrusive igneous origin, most extrusive igneous rocks, and moderate- to high-grade metamorphic rocks.</p>

Source: *Paleontological Identification/Evaluation Report, 2016.*

2.2.4.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

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

No Build Alternative

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

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be the same as one another. Pleistocene alluvium is the only paleontologically sensitive deposit within the project study area that may be affected by project activities. Ground-disturbing activities for both Build Alternatives would impact native material up to 3 feet below ground surface within the project study area, with some locations requiring excavations up to 13 feet for utility poles and storm drain systems. Earthwork to these depths would impact sensitive geological deposits (i.e., Late Pleistocene alluvium), but it is unlikely to affect significant paleontological resources due to historical and current land uses and associated activities.

No Build Alternative

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

2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures

The project includes avoidance and minimization measures for impacts to paleontological resources, as described below. These avoidance and minimization measures are required to reduce the potential for construction activities to harm or impact paleontological resources that could be discovered during construction.

- **AMM PAL-1:** A project-specific Paleontological Mitigation Plan will be prepared by a qualified principal paleontologist (as defined in the Caltrans Standard Environmental Reference) during the design phase once adequate project design information regarding subsurface disturbance location, depth, and lateral extent is available.
- **AMM PAL-2:** The qualified principal paleontologist will be present at preconstruction meetings to confer with contractors who will be performing ground-disturbing activities.
- **AMM PAL-3:** The qualified principal paleontologist will conduct a preconstruction training to inform construction personnel on the types of material and fossils that may be encountered in sensitive geologic formations.
- **AMM PAL-4:** Paleontological monitors, under the direction of the qualified principal paleontologist, will be onsite to inspect cuts for fossils at all times during original ground disturbance involving sensitive geologic formations.
- **AMM PAL-5:** When fossils are discovered, the paleontologist (or paleontological monitor) will recover them. Construction work in these areas may be halted or diverted by the Resident Engineer to allow the prompt recovery of fossils.
- **AMM PAL-6:** Fossils collected during the monitoring and salvage portion of the mitigation program will be prepared to the point of identification, sorted, and cataloged.

- **AMM PAL-7:** Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will be deposited in a scientific institution with paleontological collections.
- **AMM PAL-8:** A Paleontological Mitigation Report will be completed that outlines the results of the mitigation program.

A preliminary cost estimate has been prepared for implementing these avoidance and minimization measures per alternative. The cost estimate for the Roundabout Alternative is approximately \$60,000, while the cost estimate for the Signalized Intersection Alternative is approximately \$65,000.

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

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

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

California regulates hazardous materials, waste, and substances under the authority of the CA Health and Safety Code and is also authorized by the federal government to implement the Resource Conservation and Recovery Act 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 cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and cleanup 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 information in this section is from the *Initial Site Assessment* (November 2015) prepared for the project. The *Initial Site Assessment* includes a review of federal, state, and local regulatory records for reports of hazardous waste, as well as a visual inspection of the project site from publicly accessible sidewalks and streets to check for evidence of potential environmental concerns such as debris piles, leaks or stains, monitoring wells or evidence of ongoing environmental work, chemical storage, poor housekeeping, active underground storage tanks, aboveground storage tanks, or dry cleaners with onsite storage of solvents.

Adjacent land uses include agriculture (i.e., vineyard and pasture), automotive services and gas station, a Park-and-Ride lot, commercial (i.e., deli, motel, retail, and wine tasting), and residential. The study area could contain lead contamination in the soil from motor vehicle exhaust, asbestos-containing materials in structures, and groundwater contamination. Historical pesticide usage is a potential source of environmental contamination on agricultural lands where there has been intense cropping (e.g., orchards or row crops). Most agricultural lands within the study area do not appear to have been historically used for these purposes. The land appears to have been pasture with some relatively recent conversions to vineyards.

The study area, shown in Figure 2.2-5, contains three sites with confirmed historical releases of hazardous materials: Bonneau's Shell, 23003 Arnold Drive; Vineyard Inn Hotel, 23000 Arnold Drive; and Spanier Property, 105 Fremont Drive (2015), which can be seen in Figure 2.2-5. These three sites were also identified as facilities that use hazardous materials or generate hazardous waste.



Figure 2.2-5: Location of Sites with Confirmed Historical Releases of Hazardous Materials

Bonneau's Shell (23003 Arnold Drive) is associated with multiple current and historic automotive service businesses in addition to Bonneau's Shell gas station. Regulatory records indicate that the facility is an active groundwater remediation site due to a past leak of fuel from an underground storage tank. The primary hazardous materials of concern in groundwater are petroleum hydrocarbons, including gasoline and benzene. According to records reviewed at the time of the *Initial Site Assessment*, the owner plans to conduct an additional sulfate injection procedure to further reduce petroleum hydrocarbon concentrations in the groundwater.

Spanier Property (105 Fremont Drive) is occupied by Big Toy Storage. In three monitoring wells onsite, groundwater sample results from 2006 indicate that chlorinated solvents above drinking water standards are present in the groundwater. According to records reviewed at the time of the *Initial Site Assessment*, the site is inactive, but it is subject to regulatory action and oversight if development is planned.

The Vineyard Inn Hotel (23000 Arnold Drive) formerly contained three underground fuel storage tanks. At least one of the tanks had leaked and released petroleum hydrocarbons into soil and groundwater. The leaking tank was located approximately 50 feet from the highway in front of the Inn's office and conference building where the free right turn begins on SR 121/Arnold Drive. The tanks were removed in 2000 and 2001, and an ozone sparging system³ was installed at the site in 2009 and operated for approximately 18 months. Reportedly, the treatment system significantly reduced the hydrocarbon mass in groundwater. This case was closed by the oversight agency in 2012 because it concurred that the level of remaining contamination posed no significant risk to human health or the environment.

These locations, along with the entire study area, will be further investigated during the design phase of the project to determine the extent of hazardous materials present. Property owners will be contacted if required. Depending on the nature and extent of contamination observed, if any, the California Environmental Protection Agency, Department of Toxic Substances Control, State Water Resources Control Board, and/or Sonoma County Department of Health Services may need to be notified and become involved.

³ Ozone Sparging System remediates organic matter in groundwater. The ozone-sparging process involves the injection of air-encapsulated ozone into groundwater to provide onsite treatment. The sparging apparatus is designed to produce "micro-bubbles" sized at 0.002 inch. This small air bubble size provides a high surface area to volume ratio to maximize treatment efficiency.

2.2.5.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be the same as one another. During operation of the Build Alternatives, the potential for encountering hazardous materials and waste would be low. If remediation activities at Bonneau's Shell and Spanier Property are not completed by the time the project is constructed, there is potential for an accidental release of hazardous waste and/or hazardous materials to occur. The implementation of avoidance, minimization, and/or mitigation measures identified in Section 2.2.5.4 would reduce this impact.

No Build Alternative

The No Build Alternative would have no impact on hazardous waste or materials because ground-disturbing activities would not occur.

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be the same as one another. Impacts from lead contamination in the soil could occur where construction or maintenance of the highway involves disturbing or exposing surface soils adjacent to the existing highway. Direct contact with contaminated soil and subsequent hand-to-mouth activities (e.g., smoking, drinking, or eating) could result in the inadvertent ingestion of contaminated soil. Construction or maintenance activities could produce dust, which could expose workers or nearby residents and business occupants to lead via inhalation.

Project activities in the vicinity of Bonneau's Shell and Spanier Property could expose construction crews to groundwater contamination due to subsurface activities that would encounter groundwater or make contact with soils. Bonneau's Shell appears to be nearing completion of remediation activities and may be remediated and closed by the time the project tentatively begins construction in 2019. The extent and nature of the contamination at Spanier Property is not well described in available regulatory documents.

Bonneau's Shell in the southwest quadrant of the SR 116/121 intersection is paved, and the soil surface is not visible. Because a gas station has been present at this location since the 1920s and the site may not have been paved throughout its history, historical releases of materials associated with automotive repairs, fueling of vehicles, and other vehicle maintenance activities may be present beneath the paved surface. Project activities would require the removal of pavement and the disturbance of underlying soil on this site, and impacts could occur from exposure to hazardous materials below the paved surface.

Unreported releases or spills at businesses that use or store hazardous materials are also sources of environmental contamination. With the exception of the commercial area in the southwest quadrant of the SR 116/121 intersection, however, the area of direct impact does not intrude substantially beyond the property boundaries of the businesses that adjoin the highways. No significant staining, debris piles, drums, or other evidence of environmental releases were observed along the frontages of commercial businesses within the area of direct impact during the visual survey. Based on the lack of visual evidence of environmental releases in these areas and the limited intrusion of the Build Alternatives into these properties, impacts are not expected to occur from unreported releases or spills.

The potential for environmental contamination from pesticide usage in agricultural lands is possible but low because the land appears to have been pasture with some relatively recent conversions to vineyards. The property occupied by the Anaba tasting room was formerly a residence with a small orchard that was present from at least the 1940s until 1998 based on the available aerial photographs for the project study area. In addition, the field at 800 Arnold Drive, while currently fallow and undeveloped, may have been used as agricultural land in the past. Project activities would require disturbance and handling of soils on these properties; therefore, pesticide contamination could be encountered during construction.

A previous Caltrans report analyzed hazardous materials within the existing Park-and-Ride lot (Caltrans, 2009). The primary objective of the investigation was to evaluate whether impacts due to metals, total petroleum hydrocarbons (e.g., gasoline, diesel, and motor oil), or volatile organic compounds are present in soil and groundwater at the Park-and-Ride lot. Tables 2.2-3 and 2.2-4 present the information from this study. Based on the metals, chromium, and lead concentrations, soil excavated from the Park-and-Ride lot was not considered a hazardous waste; however, diesel and motor oil concentrations exceeded their respective standards, which means offsite disposal of soil may be restricted. Groundwater at the Park-and-Ride lot was determined to have elevated levels of diesel and motor oil, which indicates contaminated groundwater at the Park-and-Ride lot.

Table 2.2-3: Summary of Organics Results – Soil

Sample ID	Sample Depth (ft)	Gasoline (mg/kg)	Diesel (mg/kg)	Motor Oil (mg/kg)	BTEX (µg/kg)	MTBE (µg/kg)	VOCs (µg/kg)
BH1-0	0	--	110	560	--	--	--
BH1-3	3	<1.0	<1.0	<1.0	ND	<5.0	ND
BH1-6	6	<1.0	<1.0	<1.0	ND	<5.0	ND
BH1-10	10	<1.0	<1.0	<1.0	ND	<5.0	ND
BH2-0	0	--	23	69	--	--	--
BH2-3	3	<1.0	2.1	1.5	ND	<5.0	1,2,4- Trimethylbenzene=9.7 1,3,5- Trimethylbenzene=5.1
BH2-6	6	<1.0	<1.0	<1.0	ND	<5.0	ND
BH3-0	0	--	3.0	2.6	--	--	--
BH3-3	3	<1.0	1.2	1.1	ND	<5.0	ND
BH3-6	6	<1.0	<1.0	<1.0	ND	<5.0	ND
BH3-10	10	<1.0	1.5	2.8	ND	<5.0	ND
BH4-0	0	--	15	55	--	--	--
BH4-3	3	<1.0	<1.0	<1.0	ND	<5.0	ND
Environmental Screening Levels							
Shallow Soils							
Residential		83	83	370	--	23	--
Commercial/Industrial		83	83	2,500	--	23	--
Notes:							
mg/kg = milligrams per kilogram							
µg/kg = micrograms per kilogram							
BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes							
MTBE = Methyl-tert-butyl ether							
ND = Not Detected above laboratory reporting limit							
-- = Not Analyzed or Not Applicable							
Environmental Screening Levels, Table A, SFRWQCB, Revised May 2008.							

Source: Caltrans, 2009.

Table 2.2-4: Summary of Organics Results – Groundwater

Sample ID	Gasoline (mg/L)	Diesel (mg/L)	Motor Oil (mg/L)	BTEX (µg/L)	MTBE (µg/L)	VOCs (µg/L)
BH2-GW	<0.050	0.130	0.150	ND	<5.000	Naphthalene=0.72
BH4-GW	<0.050	0.086	0.100	ND	<5.000	ND
WQOs						
Municipal Supply	--	--	--	--	5.0	--
California MCLs						
Primary Standards	--	--	--	--	13	--
ESLs						
GW IS Current/Potential						
Source of Drinking Water	0.1	0.1	0.1	--	5	Naphthalene=17
Surface Water Bodies						
Freshwater	0.1	0.1	0.1	--	5	Naphthalene=17
Marine/Estuarine	0.21	0.21	0.21	--	180	Naphthalene=21
Notes:						
mg/L = milligrams per liter						
µg/L = micrograms per liter						
BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes						
MTBE = Methyl-tert-butyl ether						
ND = Not Detected above laboratory reporting limit						
--- = Not Analyzed or Not Applicable						
< = Not detected above the stated laboratory reporting limit						
MCL = Maximum containment level						
WQOs = water quality objectives						
ESLs = Environmental Screening Levels, Tables A and F, SFRWQCB, Revised May 2008.						

Source: Caltrans, 2009.

Encountering hazardous materials during construction could also impact the project's scope, schedule, and cost for each Build Alternative. It could expand the project's scope, add significant cost to the project, and cause delays to the schedule. This is further discussed in Section 2.2.5.4, Avoidance, Minimization and/or Mitigation Measures.

A preliminary site investigation will be conducted during the design phase to gain further information on the location and extent of hazardous materials. Postponing this investigation until the design phase will allow the preferred alternative to be 100 percent designed, which will increase the accuracy of testing for hazardous materials.

No Build Alternative

The No Build Alternative would have no impact on hazardous waste or materials because ground-disturbing activities would not occur.

2.2.5.4 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures are recommended to address the potential to encounter hazardous waste during construction:

- **AMM HAZ-1:** A preliminary site investigation will be conducted by Caltrans during the design phase of the project and will include the collection and analysis of soil samples for lead in areas near the roadway or painted structures where surface soil will be disturbed. Areas of particular focus should include swales, ditches, and other low areas where runoff may have carried lead-contaminated particles from either aerially deposited vehicle emissions or the weathering of painted structures. Soil samples will also be collected and analyzed for petroleum hydrocarbons, pesticides, and arsenic (near the Anaba tasting room).
- **AMM HAZ-2:** At Bonneau's Shell and Spanier Property, if groundwater is encountered, Caltrans will contact the lead agencies for the sites as part of the preliminary site investigation, which is conducted during the design phase of the project. This will determine the site's current status and whether intrusive investigation, such as the collection of groundwater or soil samples, is warranted at that time.
- **AMM HAZ-3:** If soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums, or other hazardous materials or wastes are encountered), work shall cease in the vicinity of the suspect material, the area shall be secured as necessary, and Caltrans shall take all appropriate measures to protect human health and the environment. Appropriate measures shall include notification of regulatory agency(ies), such as the California Environmental Protection Agency, Department of Toxic Substances Control, State Water Resources Control Board, and/or Sonoma County Department of Health Services, and compliance with the various regulatory agencies' laws, regulations, and policies.
- **AMM HAZ-4:** Caltrans and the contractor shall stockpile soil generated by construction activities onsite in a secure and safe manner. All contaminated soils determined to be hazardous or nonhazardous waste shall be adequately profiled (i.e., sampled and analyzed) prior to acceptable reuse or disposal at an appropriate offsite facility. Specific sampling and handling and transport procedures for reuse or disposal shall be in accordance with applicable local, state, and federal agencies' laws, in particular, the Regional Water Quality Control Board, the Department of Toxic Substances Control, and County of Sonoma Department of Health Services, Environmental Health and Safety. Groundwater pumped from the subsurface shall be contained onsite in a secure and safe manner, prior to treatment and disposal, to ensure environmental and health issues are resolved pursuant to applicable local, state, and federal laws, regulations, and policies. Material from existing roadway elements that is removed or modified by the project will be handled and disposed of in accordance with all local, state, and federal requirements.

The preliminary site investigation would cost between \$20,000 and \$100,000, depending on if groundwater sampling will be required, the number of samples and locations, and the types of analyses, and it would take 3 to 6 months to complete. Depending on the nature and extent of contamination observed, if any, the California Environmental Protection Agency, Department of Toxic Substances Control, State Water Resources Control Board, and/or Sonoma County Department of Health Services may need to be notified and become involved. Responsibility for cleanup costs would be determined during the design phase. Project staff will coordinate with the property owners regarding these cleanup costs.

For remediation and waste disposal, cleanup costs would range from \$50,000 for soil cleanup only, to \$100,000 or more if groundwater is affected. Cleanup would take 3 to 6 months if just soil is involved and longer if groundwater is affected.

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 U.S. EPA and California Air Resources Board, set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards. National Ambient Air Quality Standards 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 (NO₂), ozone (O₃), particulate matter, which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM₁₀) and particles of 2.5 micrometers and smaller (PM_{2.5}), and sulfur dioxide (SO₂). In addition, national and state standards exist for lead, and state standards exist for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. The National Ambient Air Quality Standards and state standards are set at levels that protect public health with a margin of safety, and they are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (i.e., air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

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

Conformity

The conformity requirement is based on Federal Clean Air Act Section 176(c), which prohibits the U.S. Department of Transportation and other federal agencies from funding,

authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan for attaining the National Ambient Air Quality Standards.

“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 National Ambient Air Quality Standards, and only for the specific National Ambient Air Quality Standards 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 National Ambient Air Quality Standards 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 National Ambient Air Quality Standards for CO, NO₂, O₃, PM₁₀, PM_{2.5}, and in some areas (although not in California) SO₂. California has attainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO₂, 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 Regional Transportation Plans and Federal Transportation Improvement Programs that include all transportation projects planned for a region over a period of at least 20 years for the Regional Transportation Plan and 4 years for the Federal Transportation Improvement Program. Regional Transportation Plan and Federal Transportation Improvement Program 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 State Implementation Plan are met. If the conformity analysis is successful, the Metropolitan Planning Organization, FHWA, and Federal Transit Administration make determinations that the Regional Transportation Plan and Federal Transportation Improvement Program are in conformity with the State Implementation Plan for achieving the goals of the Federal Clean Air Act. Otherwise, the projects in the Regional Transportation Plan and/or Federal Transportation Improvement Program 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 Regional Transportation Plan and Federal Transportation Improvement Program, 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 CO and/or particulate matter (PM₁₀ or PM_{2.5}). A region is

“nonattainment” if one or more of the monitoring stations in the region measures a violation of the relevant standard and 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

The following section is summarized from the *Air Quality Study Report* (January 2016).

Climate, Meteorology, and Topography

Sonoma Valley is a long, narrow valley in southeastern Sonoma County aligned from north to south between the Sonoma Mountains to the west and the taller Mayacamas Mountains to the east. The project site is located in level terrain at an elevation of approximately 20 feet above mean sea level. The climate of the project area is relatively mild, with average maximum summer temperatures approaching 90 degrees Fahrenheit (°F) and average minimum winter temperatures below 40°F. Rainfall in southern Sonoma Valley averages approximately 29 inches per year, with most of the rain falling from November through March. Sheltered from the winds flowing through the Petaluma Gap, the Sonoma Valley winds are lighter than in the western portions of Sonoma County, and they tend to be from the south during the day and from the north during the night. The air pollution potential in Sonoma Valley is high. Prevailing winds can transport locally and regionally generated pollutants northward into the narrow valley, which often traps and concentrates the pollutants under stable conditions.

Air Quality Pollutants of Concern and Attainment Status

Air quality studies generally focus on six pollutants that are most commonly measured and regulated: CO, O₃, NO₂, SO₂, PM₁₀, and PM_{2.5}. The National Ambient Air Quality Standards and California Ambient Air Quality Standards have been established for criteria pollutants and are summarized in Table 2.2-5. The California Ambient Air Quality Standards are more stringent than the National Ambient Air Quality Standards; both the federal and state standards are used in the air quality analysis for this project. Health effects, typical sources, and the state and federal attainment status of each criteria pollutant for the Bay Area Air Basin are also identified in Table 2.2-5.

Table 2.2-5: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State ¹ Standard	Federal ² Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Ozone (O ₃)	1 hour	0.090 ppm ³	--- ⁴	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic volatile organic compounds may also contribute.	Low-altitude O ₃ is almost entirely formed from reactive organic gases (ROG)/volatile organic compounds and nitrogen oxides (NO _x) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.	Nonattainment	N/A
	8 hours	0.070 ppm	0.070 ppm (4 th highest in 3 years)			Nonattainment	Nonattainment
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical O ₃ . Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Attainment	Attainment
	8 hours	9 ppm	9 ppm			Attainment	Attainment
	8 hours (Lake Tahoe)	6 ppm	---			Attainment	Attainment
Respirable Particulate Matter (PM ₁₀) ⁵	24 hours	50 µg/m ³ ⁶	150 µg/m ³ (expected number of days above standard < or equal to 1)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic & other aerosol and solid compounds are part of PM ₁₀ .	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.	Nonattainment	Unclassified
	Annual	20 µg/m ³	--- ⁵			Nonattainment	N/A

Table 2.2-5: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State ¹ Standard	Federal ² Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Fine Particulate Matter (PM _{2.5}) ⁵	24 hours	---	35 µg/m ³	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the PM _{2.5} size range. Many toxic and other aerosol and solid compounds are part of PM _{2.5} .	Combustion, including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NO _x , sulfur oxides, ammonia, and ROG.	N/A	Nonattainment
	Annual	12 µg/m ³	12 µg/m ³			Nonattainment	Unclassified/Attainment
Nitrogen Dioxide (NO ₂)	1 hour	0.180 ppm	0.100 ppm ³	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain and nitrate contamination of stormwater. Part of the “NO _x ” group of O ₃ precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.	Attainment	Unclassified
	Annual	0.030 ppm	0.053 ppm			Attainment	Attainment
Sulfur Dioxide (SO ₂)	1 hour	0.250 ppm	0.075 ppm ⁹ (99 th percentile over 3 years)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Attainment	Attainment
	3 hours	---	0.500 ppm ¹⁰			Attainment	Attainment
	24 hours	0.040 ppm	0.140 ppm (for certain areas)			Attainment	Attainment
	Annual	---	0.030 ppm (for certain areas)			Attainment	Attainment

Table 2.2-5: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State ¹ Standard	Federal ² Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Lead ¹¹	Monthly	1.500 µg/m ³	---	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.	Attainment	N/A
	Calendar Quarter	---	1.500 µg/m ³ (for certain areas)			N/A	Attainment
	Rolling 3-month average	---	0.150 µg/m ³ ¹²			N/A	Attainment
Sulfate	24 hours	25 µg/m ³	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	Attainment	N/A
Hydrogen Sulfide	1 hour	0.030 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes, such as refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.	Unclassified	N/A
Vinyl Chloride ¹¹	24 hours	0.010 ppm	---	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes.	No Data	N/A

Table 2.2-5: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State ¹ Standard	Federal ² Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
<p>¹ State standards are “not to exceed” or “not to be equaled or exceeded” unless stated otherwise.</p> <p>² Federal standards are “not to exceed more than once a year” or as described above.</p> <p>³ ppm = parts per million</p> <p>⁴ Prior to 6/2005, the 1-hour O₃ National Ambient Air Quality Standard was 0.12 ppm. Emission budgets for 1-hour O₃ are still in use in some areas where 8-hour O₃ emission budgets have not been developed, such as the San Francisco Bay Area.</p> <p>⁵ Annual PM₁₀ National Ambient Air Quality Standards revoked October 2006; was 50 µg/m³. 24-hour PM_{2.5} National Ambient Air Quality Standard tightened October 2006; was 65 µg/m³. Annual PM_{2.5} National Ambient Air Quality Standard tightened from 15 µg/m³ to 12 µg/m³ December 2012 and secondary annual standard set at 15 µg/m³.</p> <p>⁶ µg/m³ = micrograms per cubic meter</p> <p>⁷ The 65 µg/m³ PM_{2.5} (24-hour) National Ambient Air Quality Standard was not revoked when the 35 µg/m³ National Ambient Air Quality Standard was promulgated in 2006. The 15 µg/m³ annual PM_{2.5} standard was not revoked when the 12 µg/m³ standard was promulgated in 2012. The 0.08 ppm 1997 O₃ standard is revoked FOR CONFORMITY PURPOSES ONLY when area designations for the 2008 0.75 ppm standard become effective for conformity use (7/20/2013). Conformity requirements apply for all National Ambient Air Quality Standards, including revoked National Ambient Air Quality Standards, until emission budgets for newer National Ambient Air Quality Standards are found adequate, State Implementation Plan amendments for the newer National Ambient Air Quality Standards are approved with an emissions budget, U.S. EPA specifically revokes conformity requirements for an older standard, or the area becomes attainment/unclassified. State Implementation Plan-approved emission budgets remain in force indefinitely unless explicitly replaced or eliminated by a subsequent approved State Implementation Plan amendment. During the “Interim” period prior to availability of emission budgets, conformity tests may include some combination of build versus no build, build versus baseline, or compliance with prior emission budgets for the same pollutant.</p> <p>⁸ Final 1-hour NO₂ National Ambient Air Quality Standards published in the <i>Federal Register</i> on 2/9/2010, effective 3/9/2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause redesignation to nonattainment in some areas after 2016.</p> <p>⁹ U.S. EPA finalized a 1-hour SO₂ standard of 75 parts per billion (thousand million) in June 2010. Nonattainment areas have not yet been designated as of 3/2016.</p> <p>¹⁰ Secondary standard, set to protect public welfare rather than health. Conformity and environmental analysis address both primary and secondary National Ambient Air Quality Standards.</p> <p>¹¹ The Air Resources Board has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM₁₀ and, in larger proportion, PM_{2.5}. Both the Air Resources Board and U.S. EPA have identified lead and various organic compounds that are precursors to O₃ and PM_{2.5} as toxic air contaminants. There are no exposure criteria for adverse health effects due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.</p> <p>¹² Lead National Ambient Air Quality Standards are not considered in Transportation Conformity analysis.</p>							

Air Quality Study Report, 2016.

The project area is located within the Bay Area Air Basin. Within the project vicinity, air quality is monitored, evaluated, and controlled by U.S. EPA, Air Resources Board, and the Bay Area Air Quality Management District. These three agencies develop rules and regulations to attain the goals or directives imposed by legislation. The major elements of the air quality regulatory framework are summarized in Section 2.2.6.1, Regulatory Setting, above.

U.S. EPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether the National Ambient Air Quality Standards have been achieved. An area is designated unclassified when insufficient air quality data are available on which to base an attainment or nonattainment designation. U.S. EPA classified the Bay Area Air Basin as nonattainment for O₃ for the federal 8-hour standard and PM_{2.5} for the federal 24-hour standard.

The Air Resources Board regulates mobile emissions sources and oversees the activities of county and regional air quality management districts. The Air Resources Board regulates local air quality indirectly by establishing vehicle emission standards through its planning, coordinating, and research activities. California has adopted ambient standards that are more stringent than the national standards for the criteria air pollutants. Under the California Clean Air Act, areas are also designated as being in attainment, in nonattainment, or unclassified with respect to the California Ambient Air Quality Standards. The California Clean Air Act requires that districts design a plan to achieve an annual reduction of 5 percent or more in districtwide emissions for each nonattainment criteria pollutant or its precursor(s).⁴ The Bay Area Air Basin is in nonattainment for O₃ for the state 1- and 8-hour standard, PM₁₀ for the state 24-hour and annual standard, and PM_{2.5} for the state annual standard.

The Bay Area Air Quality Management District has jurisdiction over air quality in the Bay Area Air Basin and regulates most air pollutant sources except for motor vehicles, locomotives, aircraft, agriculture equipment, and marine vessels. In 1996, the Bay Area Air Quality Management District published its CEQA Guidelines (revised in 1999), which advises local jurisdictions on procedures for addressing air quality in environmental documents. The Bay Area Air Quality Management District coordinates with the Association of Bay Area Governments and the Metropolitan Transportation Commission in the development and implementation of transportation plans required by the federal and state Clean Air Acts.

⁴ A precursor is a compound that chemically reacts with another to form a criteria pollutant. For example, organic compounds are precursors for O₃.

Existing Air Quality

The project site is located in a rural area of southern Sonoma County. The air quality monitoring station closest to the project site is located approximately 10 miles to the east in Napa, and the second-closest monitoring station is located approximately 20 miles to the northwest in Santa Rosa. Both of these monitoring stations are located in urban areas far from the project site, separated from it by substantial topography. Air quality data collected at these urban sites is not representative of air quality conditions at the rural project site. Air pollutant concentrations at the project site are assumed to be lower than at the Napa and Santa Rosa monitoring stations. Monitoring data for these sites can be seen in Tables 4-1 and 4-2 of the *Air Quality Study Report*.

2.2.6.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be the same as one another. Generally, a transportation project is not a project of concern unless it changes capacity or alignment of a road with more than 125,000 average annual daily traffic and 8 percent trucks (more than 10,000 truck average annual daily traffic [8 percent of 125,000]), or otherwise may substantially increase or concentrate diesel exhaust emissions. Interagency consultation concurrence is required for determinations that a project is not a "Project of Air Quality Concern."

This project does not change the alignment of or increase the capacity of SR 116 or SR 121 in the project area. The project was determined to not be a Project of Air Quality Concern after interagency consultation was completed in December 2015. A copy of this agency correspondence is included in Appendix G.

Transportation Conformity with Air Quality Plans

This project is exempt from regional (40 CFR 93.127) conformity requirements. Separate listing of the project in the Regional Transportation Plan and Transportation Improvement Program, and their regional conformity analyses, is not necessary. The project will not interfere with timely implementation of Transportation Control Measures identified in the applicable State Implementation Plan and regional conformity analysis.

However, the proposed project is listed in *Plan Bay Area 2040*, adopted in 2013 by the Metropolitan Transportation Commission (Regional Transportation Plan ID No. 22190), and the financially constrained Regional Transportation Plan, which was found to conform by the Metropolitan Transportation Commission on July 18, 2013 (Metropolitan Transportation Commission Resolution No. 4076) (Metropolitan Transportation Commission, 2013). FHWA

and the Federal Transit Administration made a regional conformity determination on August 12, 2013. The project is also included in the Metropolitan Transportation Commission's *2015 Transportation Improvement Program*, which was adopted by the Metropolitan Transportation Commission on September 24, 2014 (Transportation Improvement Program ID No. SON150009). FHWA and the Federal Transit Administration approved the 2015 Transportation Improvement Program on December 15, 2014. The design concept and scope of the proposed project is consistent with the project description in the 2013 Regional Transportation Plan and the 2015 Transportation Improvement Program, and the open to traffic assumptions of the Metropolitan Transportation Commission's regional emissions analysis. Caltrans will request that FHWA issue a project-level conformity determination for this project, confirming that the project conforms to the purpose of the State Implementation Plan for achieving the National Ambient Air Quality Standards.

Evaluation of Potential for Traffic-Related Carbon Monoxide Impacts

A CO hot-spot analysis is required for this project because the project area is in a CO maintenance area. This analysis followed the procedures in *Transportation Project-Level Carbon Monoxide Protocol*, prepared by the University of California, Davis, Institute of Transportation Studies (1998). This protocol applies screening procedures, based on the attainment status of the area in which the project is planned, to evaluate potential CO impacts of the project and assess the need for any further detailed analysis. Based on the CO Protocol, the screening procedure in "Level 7" was followed to screen the alternatives for the following criteria:

- a) **The project would not significantly increase the percentage of vehicles operating in cold-start mode.** Given its nature, the project – converting a stop-controlled intersection to a roundabout or to a signalized intersection – would have no direct or measurable effect on the percentage of vehicles operating in the cold-start mode.
- b) **The project would not significantly increase traffic volumes.** The nature of the project is such that it would not affect local traffic volumes. Intersection improvement projects do not generate traffic, and regional traffic modeling has demonstrated that the project would not induce additional regional traffic. Traffic modeling results can be seen in Section 2.1.6 of this Initial Study/Environmental Assessment (IS/EA) or in the *Traffic Operations Analysis Report*.
- c) **The project would not worsen traffic flow.** Both Build Alternatives would improve traffic flow through the intersection, resulting in significantly reduced average delay. Either a roundabout or a signalized intersection would have greater hourly traffic capacity than a stop-controlled intersection. Estimated LOS and intersection delay for the No Build Alternative and Build Alternatives are provided in Sections 2.1.6.2 and 2.1.6.3.

Based on the CO Protocol, neither Build Alternative would result in an exceedance of the federal or state CO standards.

Particulate Matter “Hot Spot” Analysis

A particulate matter “hot spot” analysis is required because the area is nonattainment for the federal PM_{2.5} standard. U.S. EPA specifies in 40 CFR 93.123(b)(1) that only “projects of air quality concern” are required to undergo a PM_{2.5} and PM₁₀ hot-spot analysis. U.S. EPA defines projects of air quality concern as certain highway and transit projects that involve significant levels of diesel traffic or any other project that is identified in the PM_{2.5} State Implementation Plan as a local air quality concern.

Based on the recent interagency consultation with the Air Quality Conformity Task Force, completed in December 2015, this project does not fit the definition of a Project of Air Quality Concern as defined by 40 CFR 93.123(b)(1); therefore, a quantitative PM_{2.5} hot-spot analysis is not required. A copy of this agency correspondence is included in Appendix G.

Operational Air Quality Impacts from Criteria Pollutants

The Build Alternatives would modify the SR 116/121 intersection to improve vehicle flow and reduce delays. Intersection improvement projects do not generate new vehicle trips, but they may increase or decrease exhaust emissions of criteria air pollutants, including CO, PM₁₀, PM_{2.5}, and the O₃ precursors reactive organic gases (ROG) and nitrogen oxides (NO_x), due to changes in vehicle speeds, queuing, and delay times. In addition to vehicle exhaust, dust is carried by vehicles traveling on paved roads. Intersection modifications are not anticipated to result in substantial changes in the amount of entrained dust, however, so these emissions were not included in the emissions calculations for the project.

Intersection improvement projects also may change the level of exposure of sensitive receptors to air pollutants. Sensitive receptors are areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants. Caltrans defines sensitive receptors, or sensitive land uses, as schools, medical centers and facilities, health care facilities, child care facilities, parks, and playgrounds. Residential land uses also are considered to be sensitive receptors. The area adjacent to the project site consists primarily of agricultural lands, a few rural residences, and, adjacent to the highways, a gas station, motel, and other service retail uses. Of these land uses, only the rural residential use meets Caltrans’ definition of a sensitive land use. The closest residence is located along SR 121 east of the SR 116/121 intersection, and approximately 300 feet from its center.

Under the No Build Alternative, the number of vehicles queuing at the stop-controlled intersection would increase, with increased idling time and exhaust emissions. Under the

Roundabout Alternative, vehicles would not queue and would pass through the intersection at speeds between 15 and 25 mph. Under the Signalized Intersection Alternative, some vehicles would pass through the intersection without stopping, while other vehicles would be delayed, with the length of delay depending on signal timing and vehicle volumes. These minor differences in vehicle operations at the intersection are reflected in incremental differences in amounts of exhaust air pollutant emissions.

Criteria air pollutant exhaust emissions within 0.5 mile of the SR 116/121 intersection were estimated for the existing stop-controlled intersection and the Build Alternatives for 2014, 2020, and 2040 conditions using CT-EMFAC with EMFAC2011 emissions factors (carbon dioxide is discussed in Section 2.5, Climate Change). These annual emissions estimates assumed a uniform reduction in vehicle speed as vehicles approached and a uniform increase in vehicle speed as vehicles departed the intersection. The average vehicle idling times at the intersection were based on delay durations calculated for the *Traffic Operations Analysis Report* (2015). Vehicle speeds through the roundabout were also provided by the traffic study. The results are presented in Table 2.2-6.

Table 2.2-6: Annual Emissions of Criteria Air Pollutants and Precursors

Alternative / Year		Pollutant Emissions (tons per year)				
		ROG	CO	NO _x	PM ₁₀	PM _{2.5}
No Build Alternative	2015	7.3	74.5	12.8	1.5	0.7
	2020	4.7	44.9	8.4	1.5	0.7
	2040	4.0	36.5	6.2	1.8	0.7
Roundabout Alternative	2020	4.0	39.8	7.3	1.5	0.7
	2040	3.3	32.1	5.1	1.8	0.7
Signalized Intersection Alternative	2020	4.7	44.2	8.0	1.5	0.7
	2040	4.0	35.0	5.8	1.8	0.7

Source: Air Quality Study Report, 2016.

The emissions calculations indicate that neither of the Build Alternatives would increase emissions of criteria air pollutants or precursors relative to the No Build Alternative in the vicinity of the SR 116/121 intersection. A much greater reduction would occur under the Roundabout Alternative. Although the calculations are based on average daily emissions, these results are expected to be generally representative of peak-hour conditions as well. Under the Roundabout Alternative, vehicle idling emissions at the intersection would be eliminated or substantially reduced, along with vehicle start-up and low speed emissions. The

Roundabout Alternative would provide greater reductions in air pollutant emissions relative to the No Build Alternative than would the Signalized Intersection Alternative. Future PM₁₀ and PM_{2.5} emissions would be approximately the same among the three alternatives, and CO, NO_x, and ROG emissions would be lower than under the No Build Alternative. Future PM₁₀ emissions are projected to increase under the Build Alternatives and No Build Alternative due to the projected increase in traffic volumes.

Regional Air Pollutant Cumulative Impact Analysis

Projects included in the cumulative scenario include local projects whose effects may be individually distinguishable and general growth within the region. The greatest source of cumulative air pollutant emissions within the study area is vehicular traffic generated by new development within the region; therefore, local air quality is heavily influenced by cumulative traffic growth generated outside of the study area. Air pollutant emissions from the project, combined with all other emissions in the region, may have an indirect or cumulative effect on a regional scale. The SR 116/121 project is included in the Regional Transportation Plan and has demonstrated regional conformity, and it would not have a cumulatively significant adverse impact on regional air quality.

Mobile Source Air Toxics

In addition to the criteria air pollutants for which standards exist, U.S. EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources. Mobile source air toxics are a subset of the air toxics defined by the federal 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 from impurities in oil or gasoline.

Mobile source air toxics emissions were evaluated using a combination of FHWA's *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents* (FHWA, 2012) and California-specific guidance found in California Air Resources Board's *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB, 2005). FHWA's interim guidance recommends a tiered approach to how mobile source air toxics should be addressed in NEPA documents for highway projects. FHWA has identified three levels of analysis: (1) No analysis for exempt projects or projects with no potential for meaningful mobile source air toxics effects; (2) Qualitative analysis for projects with low potential mobile source air toxics effects; and (3) Quantitative analysis to differentiate alternatives for projects with higher potential mobile source air toxics effects. The project appears to qualify as a project with low potential mobile source air toxic effects; therefore, a qualitative analysis was completed.

California's vehicle emissions control and fuel standards are more stringent than federal standards and are effective sooner, so the effect on air toxics of combined state and federal regulations is expected to result in greater emission reductions, more quickly, than the FHWA analysis shows. The FHWA analysis, with modifications related to use of the California-specific EMFAC model rather than the MOBILE model, would be conservative. Note that California also does not use the MOBILE model but instead uses the latest version of the EMFAC model.

The amounts of mobile source air toxics emitted would normally be proportional to the vehicle miles traveled generated by the project, assuming that other variables, such as vehicle speed, LOS, or fleet mix, are the same for each alternative. Operation of the Build Alternatives would not generate vehicle miles traveled. Instead, the Build Alternatives would improve intersection operations compared to those under the No Build Alternative, and these improved operations would result in fewer emissions of mobile source air toxics and other air pollutants. The reduction in mobile source air toxics emissions would be roughly proportional to the reduction in traffic congestion, as measured by the change in LOS.

Regardless of the alternative selected, mobile source air toxics emissions in the horizon year (2040) are expected to be lower than at present as a result of U.S. EPA's national control programs, which are projected to reduce annual mobile source air toxics emissions by more than 80 percent between 2010 and 2050. Local conditions may differ from national projections due to differences in fleet mix, fleet turnover, regional vehicle miles traveled growth rates (due to other development/transportation projects), and local control measures; however, the magnitude of the U.S. EPA-projected reductions is so great – even after accounting for regional vehicle miles traveled growth – that mobile source air toxics emissions in the study area are expected to be lower in the future.

In summary, under the Build Alternatives in the design year (2040), mobile source air toxics emissions in the study area are expected to be similar to those under the No Build Alternative and lower than at present due to U.S. EPA's mobile source air toxics reduction programs.

Air Quality CEQA Compliance

In accordance with CEQA, compliance with California Ambient Air Quality Standards was reviewed to evaluate the potential to violate State air quality standards or contribute substantially to an existing or projected air quality violation.

As shown in Table 2.2-5, the project area is in attainment for State CO, NO₂, and SO₂ standards and in nonattainment for State standards for O₃, PM₁₀, and PM_{2.5}. Based on the CO protocol procedures described above (see discussion under the heading Evaluation of Potential for Traffic-Related Carbon Monoxide Impacts) the Build Alternatives and No Build

Alternative are not expected to cause an exceedance of the State CO standards. With regard to potential operational impacts for PM₁₀, PM_{2.5}, and O₃ for the Build Alternatives and No Build Alternative, the amount of the respective pollutants emitted is due to changes in vehicle speeds, queuing, and delay times. As previously indicated in the section “Operational Air Quality Impacts from Criteria Pollutants,” the emissions calculations indicate that neither of the Build Alternatives would increase emissions of criteria air pollutants or precursors relative to the No Build Alternative in the vicinity of the SR 116/121 intersection. Future PM₁₀ and PM_{2.5} emissions would be approximately the same among the three alternatives, and CO, NO_x, and ROG emissions would be lower than under the No Build Alternative.

No Build Alternative

As shown above in Table 2.2-6, air quality would continue to worsen in the study area under the No Build Alternative due to worsening congestion, slower speeds, queuing, and delay times.

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. Construction activities for both Build Alternatives would not last for more than 5 years at one general location, so construction-related emissions do not need to be included in regional and project-level conformity analysis (40 CFR 93.123(c)(5)).

Project construction would generate fugitive (airborne) dust and exhaust emissions that would have direct temporary effects on local air quality. These emissions would result from earthmoving and use of heavy equipment, as well as from land clearing, ground excavation, and construction of the highway. Dust emissions can vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing weather. The largest source of dust emissions during construction would likely be from construction traffic in temporary construction areas.

Construction emissions were estimated with the Sacramento Metropolitan Air Quality Management District’s *Road Construction Emissions Model*. Inputs to this Excel-based spreadsheet model include project type; construction year; project footprint and maximum disturbed area; construction schedule and duration; soil type; materials transported to and from the site; and whether the site will be watered to control dust. The model uses EMFAC2011, which calculates air pollution emissions factors for passenger cars, trucks, motorcycles, motor homes, and buses. The model outputs estimated tons of criteria air pollutants and carbon dioxide for the construction period. Estimates of the total project construction emissions are presented in Table 2.2-7.

Table 2.2-7: Total Construction Emissions

Alternative	Pollutant Emissions (tons)					
	ROG	CO	NO _x	PM ₁₀	PM _{2.5}	CO ₂
Roundabout Alternative	0.9	4.6	10.1	5.0	1.4	1,060
Signalized Intersection Alternative	1.0	4.9	10.6	5.6	1.6	1,107
ROG – reactive organic gases, CO – carbon monoxide, NO _x – nitrogen oxides, PM ₁₀ – particulates 10 microns and under, PM _{2.5} – particulates 2.5 microns and under, CO ₂ – carbon dioxide.						

Source: Air Quality Study Report, 2016.

No Build Alternative

The No Build Alternative would not contribute to air quality impacts during construction because construction activities would not occur.

2.2.6.4 Avoidance, Minimization, and/or Mitigation Measures

No operational mitigation measures are required because the Build Alternatives would not result in significant adverse operational air quality impacts. Most of the temporary construction impacts on air quality are short term in duration; therefore, they would not result in long-term adverse conditions. The construction contractor must comply with the Caltrans Standard Specifications in Section 14-9 (2010). Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances. Section 14-9.03 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are described in Section 18. Implementation of the following avoidance and minimization measures would substantially reduce any air quality impacts resulting from construction activities:

- **AMM AQ-1:** Water or dust palliative (suppressant) will be applied to the site and equipment as often as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a “no visible dust” criterion either at the point of emissions or at the ROW line depending on local regulations. Trucks will be washed as they leave the ROW, as necessary, to control fugitive dust emissions.
- **AMM AQ-2:** Soil binder will be spread on any unpaved roads used for construction purposes and on all project construction parking areas. Soil binders are materials applied to the soil surface to temporarily prevent water-induced erosion of exposed soils on construction sites.

- **AMM AQ-3:** Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by California Code of Regulations Title 17, Section 93114.
- **AMM AQ-4:** A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- **AMM AQ-5:** Equipment and materials storage sites will be located as far away from residential uses as practicable. Construction areas will be kept clean and orderly.
- **AMM AQ-6:** Environmentally Sensitive Area-like areas or their equivalent will be established near sensitive air receptors. Within these areas, construction activities involving the extended idling of diesel equipment or vehicles will be prohibited, to the extent feasible.
- **AMM AQ-7:** Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, will be used. Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed with a street cleaning vehicle to decrease particulate matter.
- **AMM AQ-8:** All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust (particulate matter) during transportation.
- **AMM AQ-9:** To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
- **AMM AQ-10:** Mulch will be installed or vegetation planted as soon as practical after grading to reduce windblown particulate in the area. Be aware that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues and may need to use controls such as dampened straw.

2.2.6.5 Climate Change

Climate change is analyzed at the end of this chapter. Neither 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 (<http://www.fhwa.dot.gov/hep/climate/index.htm>), 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 it 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 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 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.

2.2.7 Noise

2.2.7.1 Regulatory Setting

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

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The 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 Caltrans, 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 that are used to determine when a noise impact would occur. The noise abatement criteria differ depending on the type of land use under analysis. For example, the noise abatement criterion for residences (67 A-weighted decibels [dBA]) is lower than the noise abatement criterion for commercial areas (72 dBA). Table 2.2-8 lists the noise abatement criteria for use in the NEPA 23 CFR 772 analysis.

Table 2.2-8: Noise Abatement Criteria

Activity Category	Noise Abatement Criteria, Hourly A-Weighted Noise Level, $L_{eq}(h)$	Description of Activity Category
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 noise abatement criteria—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (e.g., water resources, water treatment, electrical), and warehousing.
G	No noise abatement criteria—reporting only	Undeveloped lands that are not permitted.

¹ Includes undeveloped lands permitted for this activity category.

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

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

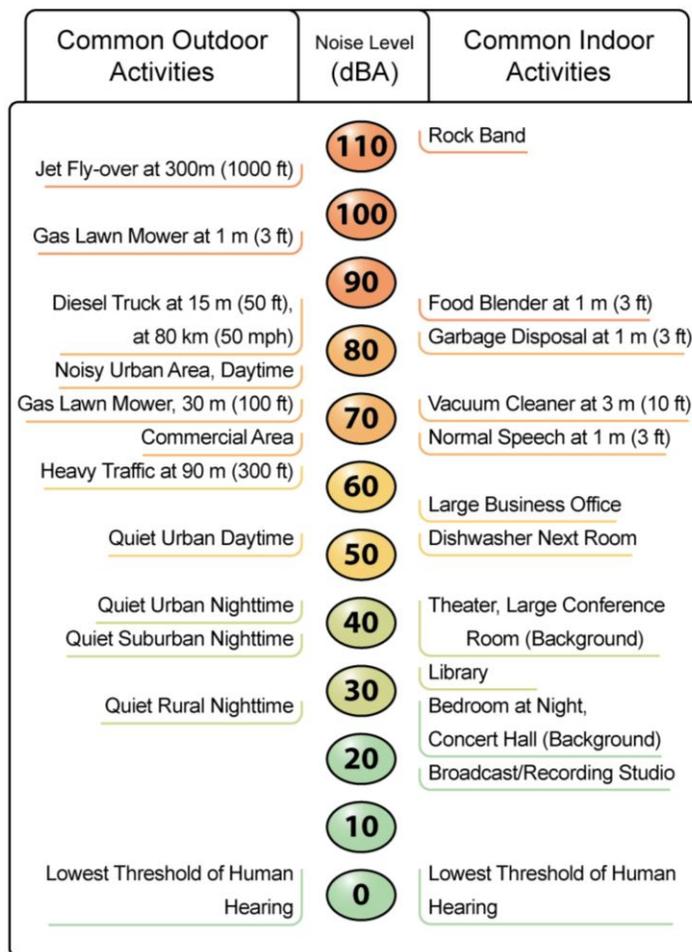


Figure 2.2-6: Noise Levels of Common Activities

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.

Caltrans' Traffic Noise Analysis Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction 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.

2.2.7.2 Affected Environment

The following summarizes the *Noise Study Report* (January 2016) and the *Noise Abatement Decision Report* (April 2016) and discusses anticipated noise effects of the Build Alternatives and recommended noise abatement measures. Layouts showing the location of noise-sensitive receptors and noise measurements are shown in Figures 2.2-7 and 2.2-8. Four outdoor noise measurements were conducted throughout the project study area to evaluate existing noise levels and to calibrate the FHWA Traffic Noise Model. Short-term noise measurements were conducted at two sites on May 5, 2015, for a duration of 20 minutes at each site. Long-term monitoring was conducted at two locations from May 4 to 5, 2015, for 24-hour periods. Although all developed land uses are evaluated, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as residential backyards, seating areas of commercial establishments, and the pool area of the hotel. The study area was divided into four areas for this analysis, which is shown in Figures 2.2-7 and 2.2-8:

- **Area A:** Area A is located north of Bonneau Road and west of SR 116/Arnold Drive. A winery (Activity Category E) with an outdoor seating area is located in this area. The seating area has exposure to SR 116 traffic. This area is generally flat, with no existing noise barrier or topographic shielding located between the highway and the winery.
- **Area B:** Area B is located north of SR 121/Fremont Drive and east of SR 116/Arnold Drive. The land use in this area is agricultural (Activity Category F). Area B is generally flat, with no existing noise barrier or topographic shielding located between the highway and the agricultural land use.
- **Area C:** Area C is located south of Bonneau Road and west of SR 121/Arnold Drive. A single-family residence (Activity Category B), which also serves as a winery (Activity Category E), is located in this area. In addition, there is a warehouse, a deli, a gas station, and agricultural land uses in Area C (Activity Category F). The outdoor use area of the single-family residence/winery (backyard) is shielded from traffic noise by the building. This area is generally flat, with no topographic shielding located between the highway and the land uses.
- **Area D:** Area D is located south of SR 121/Fremont Drive and east of SR 121/Arnold Drive. Three single-family residences (Activity Category B) and a hotel (Activity Category E) are located in this area. There are also commercial retail facilities and land used for livestock (Activity Category F). The outdoor use areas of two of the three single-family residences (backyards) are shielded from traffic noise by the residential buildings. The third single-family residence has full exposure to SR 121 traffic. The pool area of the hotel is shielded from traffic noise by an existing property wall. This area is generally flat, with no topographic shielding located between the highway and the land uses.

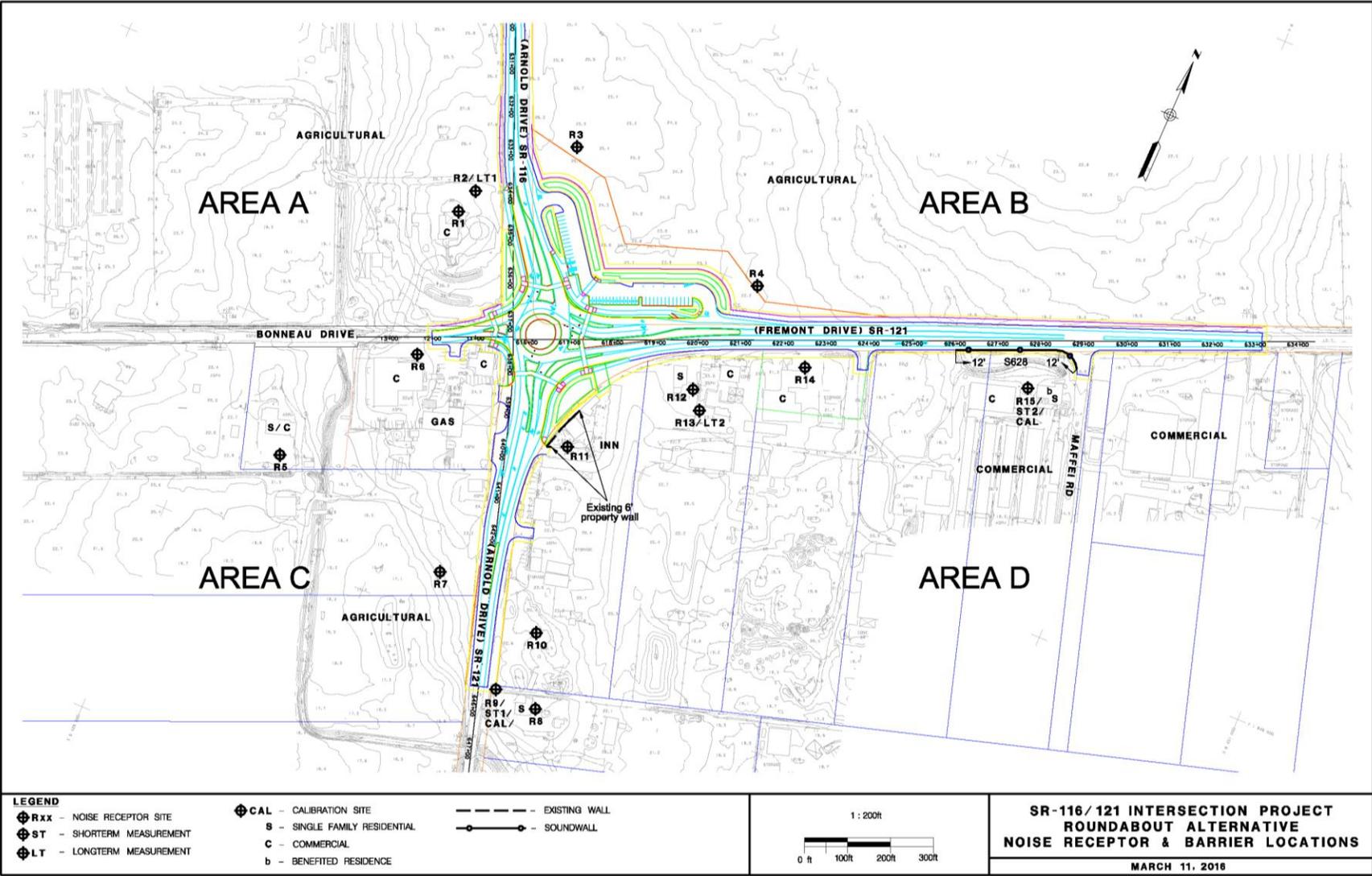


Figure 2.2-7: Noise Receptors and Measurement Locations for the Roundabout Alternative

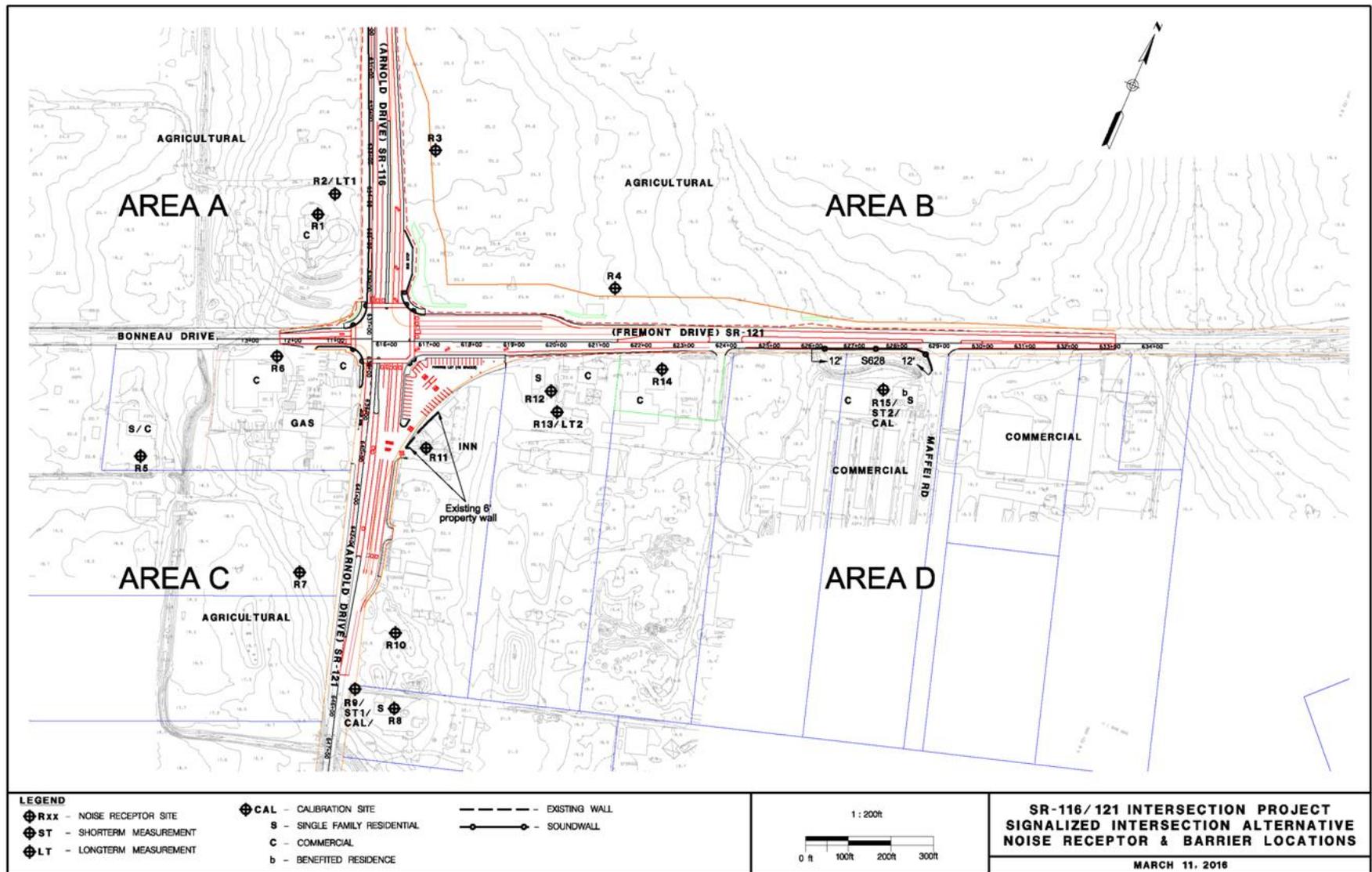


Figure 2.2-8: Noise Receptors and Measurement Locations for the Signalized Intersection Alternative

Following established methods for a traffic noise study, the short- and long-term measurements, together with the measured traffic conditions, vehicle mix, and site-specific geographical information, were then used to determine existing noise levels in the project area. Calculated and measured noise levels were compared to assess any differences, to calibrate or validate the FHWA Traffic Noise Model for use in determining noise levels with and without the project, and to consider any applicable noise abatement measures.

2.2.7.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. The proposed project is a Type 1 project. A Type 1 project is a project that involves construction of a highway on a new location, the physical alteration of an existing highway, the addition of through-traffic lanes, or restriping existing pavement. Under Title 23 CFR 772.11, noise abatement must be considered for Type 1 projects if the project is predicted to result in a traffic noise impact.

Noise modeling was completed to determine the future (2040) predicted noise levels at receptors in the study area. Table 2.2-9 shows the results of this modeling for both Build Alternatives. The location of noise receptors for both Build Alternatives is shown in Figures 2.2-7 and 2.2-8. If the predicted noise level approaches or exceeds the noise abatement criteria or is predicted to substantially exceed the existing noise level, an impact would occur and abatement measures for those locations are considered through the *Noise Abatement Decision Report*.

Under both Build Alternatives, results of the *Noise Study Report* indicate that predicted traffic noise levels ($L_{eq}[h]$) for the design year 2040 with-project conditions approach or exceed the noise abatement criteria of 67 dBA for Activity Category B land uses at one of the residences in the study area (Receptor 15). Therefore, traffic noise impacts are predicted to occur at Activity Category B land uses within the project area under both Build Alternatives. There were no substantial noise increases as a result of the project.

Table 2.2-9: Existing (2014) and Predicted Future (2040) Noise Levels

Area/ Receptor ID ¹	Existing 2014 Noise Level (dBA)	Predicted 2040 Noise Level with No Build Alternative (dBA)	Predicted 2040 Noise Level with Project (dBA) Roundabout/ Signalized Intersection	Activity Category (Noise Abatement Criteria)	Approach or Exceeds Noise Abatement Criteria? ²	Reasonable and Feasible
A / R 1	61	61	63 / 65	E (72)	No	-
A / R 2	63	63	66 / 68	E (72)	No	-
B / R 3	61	61	64 / 65	F (-)	No	-
B / R 4	63	64	67 / 67	F (-)	No	-
C / R 5	50	51	52 / 53	B (67)	No	-
C / R 6	62	62	62 / 65	F (-)	No	-
C / R 7	62	63	66 / 65	F (-)	No	-
D / R 8	57	58	60 / 60	B (67)	No	-
D / R 9	71	72	73 / 73	F (-)	No	-
D / R 10	63	63	66 / 66	F (-)	No	-
D / R 11	60	60	62 / 62	E (72)	No	-
D / R 12	60	61	63 / 63	B (67)	No	-
D / R 13	59	59	61 / 62	F (-)	No	-
D / R 14	70	71	71 / 72	F (-)	No	-
D / R 15	65	65	67 / 67	B (67)	Yes	No

Notes:

¹ Receptor locations are shown on the layout sheets in Appendix F of the Noise Study Report and are also included in Appendix H of this document.

² Locations that approach or exceed the noise abatement criteria require consideration of noise abatement measures. For residential land uses, 67 dBA is the level considered to approach or exceed the noise abatement criteria.

³ This noise measurement site was chosen for monitoring purposes and was not located at an outdoor use area; however, it was representative of nearby outdoor use areas.

Source: Noise Study Report, 2016.

CEQA Evaluation

For the purpose of evaluating noise impacts under CEQA, year 2014 traffic noise levels were identified as the baseline and were compared with year 2040 predicted traffic noise levels to evaluate the potential for a substantial permanent increase in ambient noise levels in the project vicinity. Caltrans does not have a set standard for making this determination but requires the limit to be established for each project. An increase of 5 decibels between

existing and design year with-project conditions was used for this project for evaluating noise impacts under CEQA for both Build Alternatives. This standard was used due to the rural setting of the project area, the low number of residences affected, and the relatively low existing noise level.

A 5-decibel increase would only occur between existing and design year conditions under the Signalized Intersection Alternative at Receptor R2. However, this receptor location was used for noise monitoring purposes only; it is not a frequent outdoor use area. Neither Build Alternative would result in a 5-decibel increase at any frequent outdoor use areas; therefore, noise impacts under CEQA are not anticipated.

No Build Alternative

Future noise levels under the No Build Alternative would remain similar to existing noise levels (within 1 dB) and would not approach or exceed the noise abatement criteria, as shown in Table 2.2-9; therefore, no noise impacts would occur.

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be the same as one another. During the construction phases of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction under both Build Alternatives. Table 2.2-10 summarizes noise levels produced by construction equipment commonly used on highway construction projects. As indicated, equipment involved in construction is expected to generate noise levels ranging from 80 to 89 dBA at a distance of 50 feet. Noise produced by construction equipment would be reduced over distance at a rate of approximately 6 decibels per doubling of distance.

Table 2.2-10: Construction Equipment Noise

Equipment	Maximum Noise Level (A-weighted decibels at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration, 2006.

Temporary construction noise impacts would be unavoidable at areas located immediately adjacent to the proposed project alignment. In addition, it is possible that certain construction activities could cause intermittent localized concern from vibration in the project area. Processes such as earth moving with bulldozers, the use of vibratory compaction rollers, or pavement breaking may cause construction-related vibration impacts such as human annoyance or, in some cases, minor architectural damage. There are cases where it may be necessary to use this type of equipment in close proximity to residential buildings; however, effective noise and vibration control during construction of a project means minimizing noise and vibration disturbances to the surrounding community. A combination of abatement techniques with equipment noise and vibration control and administrative measures would be selected to provide the most effective means to minimize effects of the construction activity on the surrounding community.

No Build Alternative

There would be no noise-related construction impacts under the No Build Alternative because construction activities would not occur.

2.2.7.4 Avoidance, Minimization, and/or Abatement Measures

Project-Level Avoidance, Minimization, and/or Abatement Measures

Noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. Potential noise abatement measures include the following:

- Construction of noise barriers, including acquisition of property rights, either within or outside the state ROW.
- Traffic management measures including, but not limited to, traffic control devices and signing for prohibition of certain vehicle types, time-use restrictions for certain vehicle types, modified speed limits, and exclusive lane designations.
- Alteration of horizontal and vertical alignments (i.e., moving the location of the highway away from the sensitive land use or changing the elevation of the project).
- Acquisition of real property or interests therein (predominantly unimproved property) to serve as a buffer zone to preempt development that would be adversely impacted by traffic noise.

A noise barrier is the only form of noise abatement considered for this project because the other potential noise abatement measures were not found to be practical. The noise barrier evaluated has been evaluated for feasibility based on an achievable noise reduction of 5 decibels or more. Caltrans' acoustical design goal must also be met for a noise barrier to be considered reasonable. The design goal is that a barrier must be predicted to provide at least

7 decibels of noise reduction at one or more benefited receptors. In addition, the estimated cost to build the noise barrier should be equal to or less than the total cost allowance of benefited receptors calculated for the barrier to be considered reasonable from a cost perspective. Furthermore, the viewpoints and opinions of the benefited receptors must be considered for a barrier to be considered reasonable. For example, if a benefited receptor does not want a barrier by their property, then the barrier may be considered not reasonable.

Because the noise abatement criterion was exceeded at one location, one noise barrier is analyzed. The analysis was conducted with barrier heights ranging from 6 to 16 feet. The barrier heights and locations were evaluated first to determine if a minimum 5-decibel noise reduction at the outdoor frequent use areas of the representative receptors could be achieved, then second, to determine if a minimum 7-decibel noise reduction at the receptor could be achieved. Table 2.2-11 summarizes the results of the noise barrier evaluation. The predicted noise levels are shown in the *Noise Study Report* (February 2016).

Table 2.2-11: Summary of Noise Barrier Evaluation

Barrier Number	Protected Receptor (Receptor Number)	Type and Number of Benefited Land Uses ¹	Barrier Location/ Highway Side	Barrier Height/ Total Length		Reasonable Allowance Cost per Barrier(s) ²
				Roundabout Alternative	Signalized Intersection Alternative	
S628	R15	1 SFR	Eastbound SR-121/ Fremont Drive along the shoulder	10-16 feet / 306 feet	8-16 feet / 312 feet	\$80,000
Notes: ¹ Land Use: SFR – single-family residence. ² Based on the base reasonable allowance of \$80,000 per benefited receptor.						

Source: *Noise Abatement Decision Report, 2016.*

Under both Build Alternatives, Soundwall S628 would be located on the shoulder and would wrap along the entrance to Maffei Road along eastbound SR 121/Fremont Drive. This soundwall would provide feasible noise abatement for the outdoor use area of one single-family residence represented by Receptor R15. Soundwall S628 would also meet the design goal by providing a 7-decibel traffic noise reduction at Receptor R15. Under the Roundabout Alternative, a height of 10 to 16 feet would provide the required noise reduction, while a height of 8 to 16 feet would provide the required noise reduction under the Signalized Intersection Alternative.

Soundwall S628 was determined to be feasible by achieving a 5 decibel or more noise reduction and reasonable based on meeting Caltrans design goal criteria of providing at least 7 decibels of noise reduction; therefore, a cost reasonableness calculation has been completed for this wall, as shown in Table 2.2-12.

Table 2.2-12: Preliminary Reasonableness Determination for Soundwall S628

Alternative	Type ¹ and Number of Benefited Land Uses	Barrier Height / Total Length	Reasonable Allowance ²	Preliminary Cost Estimate	Is Soundwall within Reasonable Allowance? Yes/No
Roundabout	1 SFR	10 - 16 feet / 306 feet	\$80,000	\$135,000	No
Signalized Intersection	1 SFR	8 - 16 feet / 312 feet	\$80,000	\$137,000	No
Notes					
¹ Land Use: SFR – single-family residence.					
² Based on the base reasonable allowance of \$80,000 per benefited receptor.					
³ Preliminary cost estimate is based on current costs at the time the cost estimates were prepared (2015).					

Source: Noise Abatement Decision Report, 2016.

Based on preliminary estimates, Soundwall S628 can be considered not reasonable from a cost perspective because the construction cost estimate is greater than the reasonable cost allowance; therefore, Soundwall S628 would not be constructed under either Build Alternative.

Construction Period Avoidance, Minimization, and/or Abatement Measures

Sound control shall conform to the provisions in Section 14-8.02, "Noise Control," of the Standard Specifications and 14-8.02, "Noise Control," of the Standard Special Provisions. According to requirements of these specifications, construction noise cannot exceed 86 dBA at 50 feet from the jobsite activities from 9:00 p.m. to 6:00 a.m. In addition, the following control measures will be implemented to minimize noise disturbances at sensitive receptors during periods of construction:

- **AMM NOI-1:** Noise monitoring, conducted by Caltrans, will ensure that contractors take all reasonable steps to minimize impacts when near sensitive areas.
- **AMM NOI-2:** Noise testing and inspection of equipment by the contractor will ensure that all equipment onsite is working properly, in good condition, and effectively muffled. All equipment will have sound-control devices no less effective than those provided on the original equipment. Each internal combustion engine used for any purpose on the job or related to the job shall be equipped with a muffler of a type recommended by the

manufacturer. No internal combustion engine should be operated on the jobsite without an appropriate muffler. Idling equipment will be turned off.

- **AMM NOI-3:** An active community liaison program will be established, which will keep residents informed about construction plans so they can plan around periods of particularly high noise or vibration levels, and allow for a conduit for residents to express any concerns or complaints.
- **AMM NOI-4:** Truck loading, unloading, and hauling operations will be minimized so that noise and vibration are kept to a minimum through the study area to the greatest possible extent.
- **AMM NOI-5:** Where feasible, temporary noise barriers should be used and relocated, as needed, to protect sensitive receptors against excessive noise from construction activities involving large equipment and by small items such as compressors, generators, pneumatic (air-powered) tools, and jackhammers. Noise barriers can be made of heavy plywood, moveable insulated sound blankets, or other best available control techniques.
- **AMM NOI-6:** Construction activities should be minimized in the study area during evening, nighttime, weekend, and holiday periods. Noise impacts are typically minimized when construction activities are performed during daytime hours; however, nighttime construction may be desirable (e.g., in commercial areas where businesses may be disrupted during daytime hours) or necessary to avoid major traffic disruption. Coordination with the County should occur before construction can be performed in noise-sensitive areas.

The following are some procedures that can be used to minimize the potential impacts from construction vibration:

- **AMM NOI-7:** Restrict the hours of vibration-intensive equipment or activities such as vibratory rollers so that impacts to study area users are minimal (e.g., restrict the hours to weekdays during daytime hours).
- **AMM NOI-8:** The owner of a building close enough to a construction vibration source that damage to that structure due to vibration is possible would be entitled to a preconstruction building inspection to document the preconstruction condition of that structure.
- **AMM NOI-9:** Conduct vibration monitoring during vibration-intensive activities.

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.

One regulation, State Senate Concurrent Resolution No. 17, is relevant to the oak woodlands discussed in this section. Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in Section 2.3.5, Threatened and Endangered Species. Wetlands and other waters are also discussed below in Section 2.3.2.

2.3.1.1 Affected Environment

The following is summarized from the *Natural Environment Study* (April 2016). A general reconnaissance of the study area, shown in Figure 2.3-1, was conducted on April 12, 2014, by project biologists. Additionally, botanical and wildlife surveys were conducted on February 11 and May 15, 2015, and tree surveys were conducted on April 9 and 14 and May 15, 2015. The study area is 70.2 acres and includes seven vegetation communities: urban, landscaped, vineyard, grassland, eucalyptus, wetland, and riverine. No critical habitat, wildlife corridors, or fish passages are present within the study area.

The urban habitat is primarily paved area and includes the Park-and-Ride lot and commercial areas in the southwest quadrant of the study area. Urban environments are unlikely to provide suitable habitat for special-status plants due to disturbed soil conditions and the predominance of exotic landscape species that successfully out-compete native vegetation for resources such as space, nutrients, and water. Wildlife, especially urban-adapted species such as squirrel (*Sciurus* sp.) and Virginia opossum (*Didelphis virginiana*), could use the paved areas and the highways to travel between habitats.

Landscaped areas include roadsides and a couple of planted strips in front of the businesses to the southwest of the intersection. Several species of trees line the highway and include non-native and domesticated species such as eucalyptus (*Eucalyptus globulus*), plum (*Prunus domestica*), and olive (*Olea europaea*) and native species such as coast live oak (*Quercus agrifolia*). The landscaped tree areas could provide foraging, roosting, and nesting habitat for birds and bats.

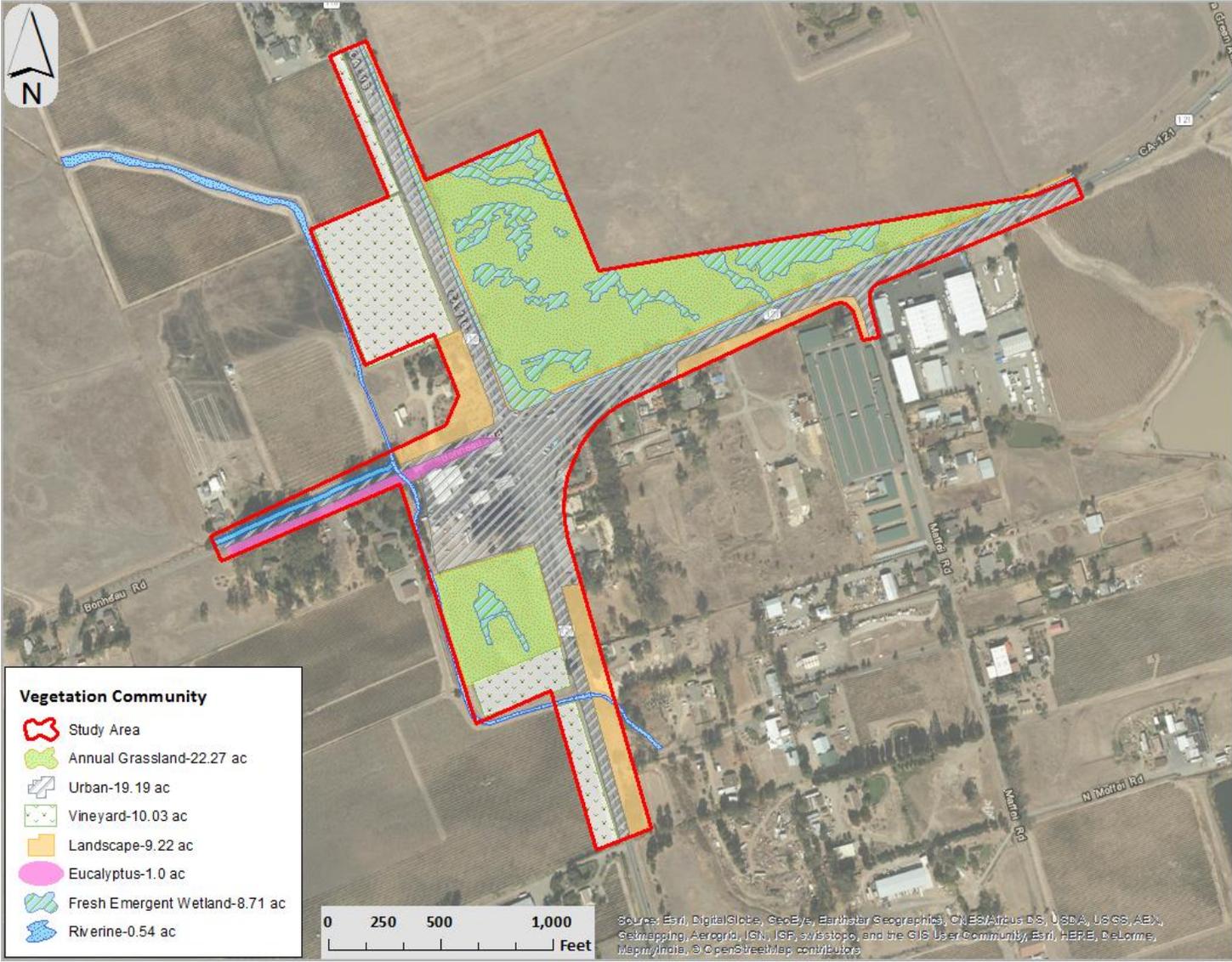


Figure 2.3-1: Vegetation Communities in the Study Area

Vineyards are present in and adjacent to the study area. Special-status wildlife species may forage in vineyards; however, they do not provide sufficient cover for breeding and protection from predators. Several species could occur adjacent to vineyard habitat, including acorn woodpecker (*Melanerpes formicivorus*), northern flicker (*Colaptes auratus*), and western scrub-jay (*Aphelocoma californica*). Special-status plant species are unlikely to occur in the vineyards in the study area due to intensive management practices and proximity to active highways and other urban habitat.

Two areas of grassland habitat are present within the study area – one as part of a larger field to the northeast of the intersection and one adjacent to vineyards to the southwest of the intersection. Annual grassland provides foraging, breeding, and resting areas for a wide variety of birds, mammals, and reptiles, such as brewer's blackbird (*Euphagus cyanocephalus*), western meadowlark (*Sturnella neglecta*), and northern mockingbird (*Mimus polyglottos*).

Numerous eucalyptus trees grow within the study area and, in some cases, are associated with small eucalyptus groves beyond the study area. Eucalyptus trees, although not native to the United States, provide roost, nest, and perch sites for birds of prey and some songbirds. It is not likely that special-status plants could occur within the eucalyptus vegetation community due to the suppression of growth from the trees. Special-status wildlife species, including the white-tailed kite (*Elanus leucurus*), could nest in the trees. The trees provide suitable nesting habitat for raptors and non-game birds protected by the Migratory Bird Treaty Act.

Wetland habitat is present within the study area; this is discussed further in Section 2.3.2, Wetlands and Other Waters of the United States. Vernal pools are also known to occur in the region. Vernal pools serve as important habitat for threatened or endangered wildlife, including California tiger salamander (*Ambystoma californiense*), vernal pool fairy shrimp (*Branchinecta lynchi*), and vernal pool tadpole shrimp (*Lepidurus packardi*), and various plants, including Sonoma sunshine (*Blennosperma bakeri*) and Sebastopol meadowfoam (*Limnanthes vinculans*). There is potential for vernal pool habitat in the field northeast of the intersection due to the presence of wetland habitat. The property consists of a large, open, fallow field, where occasional cattle grazing is evident. Based on observations from the roadside and historical aerial imagery dating back to 1993, several locations within the site appear to be inundated at various times throughout the year. These locations could be potential jurisdictional vernal pool features.

Riverine habitat occurs where channels are shaped by flowing water, such as rivers, creeks, and streams, such as in Yellow Creek. Plants observed within the study area along Yellow Creek consisted primarily of non-native species, including common wild oats (*Avena fatua*),

black mustard (*Brassica nigra*), and eucalyptus. Small populations of native vegetation consisted of coyote brush (*Baccharis pilularis*), coast live oak, and common bedstraw (*Galium aparine*). A variety of birds and raptors were also observed in this habitat.

2.3.1.2 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. Both Build Alternatives would require tree removal due to the expansion and reconfiguration of the highways. As shown in Table 2.3-1, of the 227 individual trees mapped within the study area, approximately 36 native and 74 non-native trees would be removed under the Roundabout Alternative, while 49 native and 89 non-native trees would be removed under the Signalized Intersection Alternative. Native trees affected would include coast live oak, valley oak (*Q. lobata*), sycamore (*Plantanus racemosa*), and redwood (*Sequoia sempervirens*). The average size of the trees to be removed under both Build Alternatives is 15.3 inches in diameter at breast height.

Table 2.3-1: Tree Removal

Tree Species	Roundabout Alternative Impacts		Signalized Intersection Alternative Impacts	
	Number	Average DBH	Average DBH	Average DBH
Native Trees				
Live Oak	17	16.3	13	20
Redwood	4	17.5	4	17.5
Sycamore	4	15.7	4	15.7
Valley Oak	11	21.4	28	20
Non-Native Trees	74	13.0	89	13.8
Total	110	15.6	138	15.0
DBH = diameter at breast height				

The project would also permanently impact habitat within the study area. Impacts per habitat type are shown below in Table 2.3-2. The Roundabout Alternative would permanently impact 8.76 acres of urban habitat, 3.09 acres of landscaped habitat, 4.40 acres of annual grassland, 0.06 acre of eucalyptus habitat, and 1.50 acre of wetlands, for a total of 17.81 acres. The Signalized Intersection Alternative would permanently impact 10.14 acres of

urban habitat, 3.57 acres of landscaped habitat, 3.90 acres of annual grassland, 0.10 acre of eucalyptus habitat, and 1.54 acre of wetlands, for a total of 19.25 acres. Permanent impacts under both alternatives would result from the expansion of the highway to accommodate additional lanes, shoulders, and pedestrian and bicycle facilities.

Neither Build Alternative would impact Yellow Creek within the study area because the limits of construction are not within any stream corridors. No wildlife corridors or fish passages would be affected.

Table 2.3-2: Permanent and Temporary Impacts to Habitat

Vegetation Community	Roundabout Alternative Impacts (Acreage)		Signalized Intersection Alternative Impacts (Acreage)	
	Permanent	Temporary	Permanent	Temporary
Urban	8.76	0.41	10.14	0.40
Landscaped	3.09	0.08	3.57	0.22
Vineyard	0	0	0	0
Annual Grassland	4.40	0.01	3.90	0
Eucalyptus	0.06	0.08	0.10	0.03
Wetland	1.50	0	1.54	0.22
Riverine	0	0	0	0
Total	17.81	0.58	19.25	0.87

No Build Alternative

The No Build Alternative would not affect natural communities because no highway improvements would occur.

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. Both alternatives would have temporary impacts to trees during construction, including minor pruning or trimming of branches and cutting of minor root systems.

Construction activities, such as land clearing, grading/excavation, and paving, and the installation of retention basins would temporarily impact 0.41 acre of urban habitat, 0.08 acre of landscaped habitat, 0.01 acre of annual grassland, and 0.08 acre of eucalyptus habitat, for a total of 0.58 acre under the Roundabout Alternative, as shown above in Table 2.3-2. The

Signalized Intersection Alternative would temporarily impact 0.4 acre of urban habitat, 0.22 acre of landscaped habitat, 0.03 acre of eucalyptus habitat, and 0.22 acre of wetland habitat, for a total of 0.87 acre.

No Build Alternative

The No Build Alternative would not affect natural communities because no construction activities would occur.

2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance, minimization, and/or mitigation measures will be implemented:

- **AMM NC-1:** Existing native vegetation will be preserved to the greatest extent feasible, and new landscaping will be planted within the ROW where feasible. Specific trees to be preserved will be identified during the permitting phase of the project.
- **MM NC-2:** It is anticipated that the Regional Water Quality Control Board would require mitigation for the removal of native trees associated with waters of the State. In addition, per State Senate Concurrent Resolution No. 17, mitigation of oak trees would occur at a 1:1 ratio (i.e., replacement of one native oak for every one removed). Replacement planting would occur onsite; a tree planting plan utilizing native trees would be developed.
- **AMM NC-3: Protect Environmentally Sensitive Areas:** Environmentally Sensitive Areas will be delineated by the Caltrans Biologist on the project plans to protect these areas from harm by construction and project personnel. In addition, the project limits will be delineated with high-visibility fencing to avoid ground disturbance adjacent to work and access areas and to prevent access to the work site from nonauthorized personnel. Trees will be preserved in place to the extent practicable, potentially with delineation of an Environmentally Sensitive Area. All spoils, excavated materials, and plant materials will be disposed of at a licensed and approved facility.
- **AMM NC-4: Implement Erosion Control Measures and Stormwater Pollution Prevention Plans:** Stormwater Pollution Prevention Plans and erosion control best management practices will be developed to minimize any wind- or water-related erosion. The Stormwater Pollution Prevention Plans provide guidance for design staff to include measures to protect sensitive areas and to prevent and minimize stormwater and non-stormwater discharges. Protective measures will include, but are not limited to, these restrictions:
 - No discharge of pollutants from vehicle and equipment cleaning will be allowed into any storm drains or watercourses.

- Vehicle and equipment fueling and maintenance operations will be at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facility.
- Dust control will include use of water trucks and dust palliatives to control dust in excavation and fill areas and covering temporary stockpiles when weather conditions require.
- Biodegradable coir rolls or straw wattles will be installed along or at the base of slopes during work to capture sediment.
- Graded areas will be protected from erosion using a combination of silt fences, biodegradable fiber rolls along toes of slopes or along edges of designated staging areas, and biodegradable erosion control netting (e.g., jute or coir) as appropriate on sloped areas.
- **AMM NC-5: Replant, Reseed, and Restore Disturbed Areas:** Upon completion of sediment removal activities (removal of sediments from water or stormwater), disturbed areas will be restored. All slopes or unpaved areas temporarily affected by the proposed project will be stabilized with effective erosion control materials. Slopes and bare ground will be re-seeded with native grasses to stabilize and prevent erosion. Where temporary disturbance includes the removal of trees or plants, native species will be replanted. Revegetated and replanted areas will be monitored and maintained under a plant establishment plan for a period of 5 years.
- **AMM NC-6: Provide Environmental Awareness Training:** Before the onset of sediment removal activities, a qualified biologist will conduct an education program for all project personnel. The program will include information on the protected species and their habitats likely to be found within the study area; requirements of federal and State laws pertaining to these species; identification of measures implemented to conserve the species and habitats within the project area; and distribution of a fact sheet conveying this information to the personnel who may enter the study area.
- **AMM NC-7: Implement Project Site Best Management Practices:**
 - Access routes and the number and size of staging and work areas will be limited to existing paved surfaces as practicable. Routes and boundaries will be clearly marked prior to initiating ground disturbance.
 - All food and food-related trash items will be enclosed in sealed trash containers and removed completely from the site at the end of each day.
 - No pets from project personnel will be allowed anywhere in the study area during work.
 - All equipment will be maintained such that there will be no leaks of automotive fluids, such as gasoline, oils, or solvents, and a Spill Response Plan will be prepared.

- Hazardous materials, such as fuels, oils, and solvents, will be stored in sealable containers in a designated location that is at least 100 feet from aquatic habitats.
- **AMM NC-8: Implement Project Schedule Windows:**
 - A qualified biologist will conduct a premobilization survey no less than 3 days before any ground-disturbing activities occur.
 - For protected resources and species, sediment removal actions will be scheduled to avoid effects on listed species and habitats to the extent practicable.
 - Work near trees that are to be preserved will be limited to times when soils are dry.

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 Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (33 U.S.C. 1344), is the primary law regulating wetlands and surface 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 U.S. 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 formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers with oversight by U.S. EPA.

The U.S. Army Corps of Engineers 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 U.S. Army Corps of Engineers' Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the U.S. Army Corps of Engineers decision to approve is based on compliance with U.S. EPA's

Section 404(b)(1) Guidelines (EPA 40 CFR Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by U.S. EPA in conjunction with the U.S. Army Corps of Engineers 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 U.S. Army Corps of Engineers 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 Executive Order states that a federal agency, such as FHWA and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board, the Regional Water Quality Control Boards, and the California Department of Fish and Wildlife. In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the California Department of Fish and Wildlife before beginning construction. If the California Department of Fish and Wildlife determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. California Department of Fish and Wildlife 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 U.S. Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the California Department of Fish and Wildlife.

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

2.3.2.2 Affected Environment

The following is summarized from the *Delineation of Waters of the U.S.* (March 2016) and the *Natural Environment Study* (April 2016). This delineation is subject to verification by the U.S. Army Corps of Engineers and, until such time, the following information is considered preliminary. Verification of the jurisdictional determination is required for the final environmental document.

A delineation of wetlands and other waters of the U.S. was conducted on February 11, 2015, by project biologists within the study area, in accordance with the methods defined by the U.S. Army Corps of Engineers. Field delineations were conducted throughout the study area with the exception of the parcel of land northeast of the intersection because it was inaccessible. Potential jurisdictional features for this parcel were interpreted using historical aerial imagery to search for potential wetlands. Observations were also made from outside of the property during multiple field surveys during the months of April 2014 and February 2015.

The field and aerial delineation identified approximately 9.03 acres of potential waters of the U.S. within the 70.2-acre study area, including 8.52 acres of wetlands and 0.51 acre of other waters (Yellow Creek and its tributary), which can be seen in Table 2.3-3 and Figure 2.3-2. These acreages are a best conservative estimate based on the fact that most of the wetlands were delineated using aerial imagery and visual observations.

Table 2.3-3: Potential Existing Jurisdictional Features in the Study Area

Potential Jurisdictional Features	Size (acres)	Length (linear feet)
Potential Waters of the U.S. (Wetlands)		
Property Southwest of Bonneau Road/SR 121 Intersection (field delineation)	0.29	--
Property Northeast of SR 116/121 Intersection (aerial delineation)	8.23	--
Total Potential Jurisdictional Wetlands	8.52	--
Potential other Waters of the U.S.		
Yellow Creek Tributary (field delineation)	0.06	860
Yellow Creek (field delineation)	0.45	1,050
Total Potential Jurisdictional Other Waters	0.51	1,910
Total Potential Jurisdictional Area	9.03	1,910

Source: *Natural Environmental Study*, 2016.



Figure 2.3-2: Potential Jurisdictional Features in the Study Area

Within the property southwest of the intersection, a potential seasonal wetland was delineated within an open field, mapped at 0.29 acre; this was delineated in the field. The field is bounded by Yellow Creek to the west, a residential house to the north, SR 121 to the east, and vineyards to the south. This area primarily receives water through roadside runoff and potential flood waters from Yellow Creek during high rain events. Within the northeast parcel of the study area, 8.23 acres of wetlands were mapped using historical aerial imagery. Once access to this property is obtained during the ROW acquisition phase of the project, a formal wetland delineation will be conducted.

Due to the potential for wetlands in the study area, vernal pool habitat could also occur in the field northeast of the intersection. While potential for their presence is considered low due to the occurrence of abundant invasive vegetation in the northeast parcel, they cannot be ruled out until surveys are completed.

Other waters of the U.S. in the study area include 0.45 acre of Yellow Creek and approximately 0.06 acre of a tributary to Yellow Creek. These areas contained a defined creekbed and creekbank, with distinct indicators of regular water flow. Visible signs of high flows were also observed, such as vegetation movement, scouring, and debris litter.

The potential functions and values of accessible wetlands were evaluated. A wetland is rated on a scale of low, moderate, or high with regard to its processes and interactions with the other functions; these ratings are given a numerical value of 1 (low), 2 (moderate), or 3 (high). A wetland can have a total function and value score from a low of 11 (a wetland with the least function and value) to a high of 33 (a wetland with the highest function and value). The functions and values can be seen below in Table 2.3-4. The property to the northeast was inaccessible at the time that the evaluation was conducted. All accessible wetlands are in close proximity and similar in nature; therefore, the ratings for all potential wetlands in the study area were combined.

The wetlands delineated on February 11, 2015, scored a rating of 19, which is above the mid-range. This would indicate that the overall functions and values of the wetlands in the southwest quadrant of the intersection are moderate to high.

Table 2.3-4: Potential Wetland Functions and Values

Function and Value	Rating	Comments
Groundwater Recharge	Moderate (2)	The natural drainage class is moderately well-drained, with alluvium soils derived from sedimentary rocks.
Groundwater Discharge	Low (1)	No evidence of groundwater discharge from springs or other aquifers.
Flood-flow Alteration	Moderate (2)	During heavy precipitation events, outflow is less than inflow.
Sediment Stabilization	Moderate (2)	Vegetation within the wetlands provides moderate soil stabilization.
Sediment/Toxicant Retention	Moderate (2)	Vegetation within the wetlands provides moderate sediment and toxicant retention capabilities during heavy precipitation events.
Nutrient Removal/Transformation	Moderate (2)	Vegetation within the wetlands provides moderate nutrient retention capabilities during heavy precipitation events.
Production Export	Low (1)	The wetlands provide low production export (flushing of organic material).
Wildlife Diversity/Abundance	Moderate (2)	The wetlands provide moderate wildlife diversity, especially when they contain water. Species could include birds, amphibians, and reptiles.
Aquatic Diversity/Abundance	Moderate (2)	The wetlands provide moderate to high diversity for aquatic species.
Recreation	Low (1)	The wetlands do not provide any recreational use. The wetlands are located on private property.
Uniqueness/Heritage	Moderate (2)	Although no special-status species have been observed, there is a potential for several special-status plants and animals to inhabit the wetland.
Total Numerical Rating	19	

2.3.2.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. Direct impacts to Yellow Creek would not occur under either Build Alternative because it is located 183 feet south of the project limits under the Signalized Intersection Alternative and 217 feet south under the Roundabout Alternative. Best Management Practices, described in Section 2.2.2.4, will be implemented to protect Yellow Creek from project impacts such as runoff from construction activities.

Both Build Alternatives would have permanent impacts to waters of the U.S. (wetlands). All affected wetlands are under the jurisdiction of the U.S. Army Corps of Engineers, State Water Resources Control Board, and Regional Water Quality Control Board. Site development activities within these potentially regulated areas would require a Section 404 Standard Individual Permit from the U.S. Army Corps of Engineers. All potential U.S. Army Corps of Engineers jurisdictional features would also be considered waters of the State. The proposed project is also potentially subject to State regulation by the Regional Water Quality Control Board through Section 401 of the Clean Water Act and the State Porter-Cologne Water Quality Control Act. These permits will be obtained during the design phase of the project. Additionally, coordination with the U.S. Army Corps of Engineers to verify the jurisdictional determination will be conducted after the draft environmental document circulates to the public. This is further discussed in Section 3.1.2.

The Roundabout Alternative is anticipated to result in permanent impacts to 1.5 acres of wetlands, as shown in Table 2.3-5 and Figure 2.3-3. This would be due to the relocation of the Park-and-Ride lot and the expansion of the highway to accommodate additional lanes, shoulders, and pedestrian and bicycle facilities.

The Signalized Intersection Alternative was estimated to result in permanent impacts to 1.54 acres of wetlands, as shown in Table 2.3-5 and Figure 2.3-4. This would be due to the expansion of the highway to accommodate additional lanes, shoulders, and pedestrian and bicycle facilities and because the study area extends farther north and east under this alternative.

Table 2.3-5: Potential Jurisdictional Impacts within the Study Area

Waters of the U.S. (Wetland) Impact¹	Roundabout Alternative Impacts (Acreage)	Signalized Intersection Alternative Impacts (Acreage)
Permanent	1.50	1.54
Temporary	0	0.22
Total	1.50	1.76
¹ Affected wetlands are under the jurisdiction of the U.S. Army Corps of Engineers, State Water Resources Control Board, and Regional Water Quality Control Board.		

Source: *Natural Environment Study, 2016.*

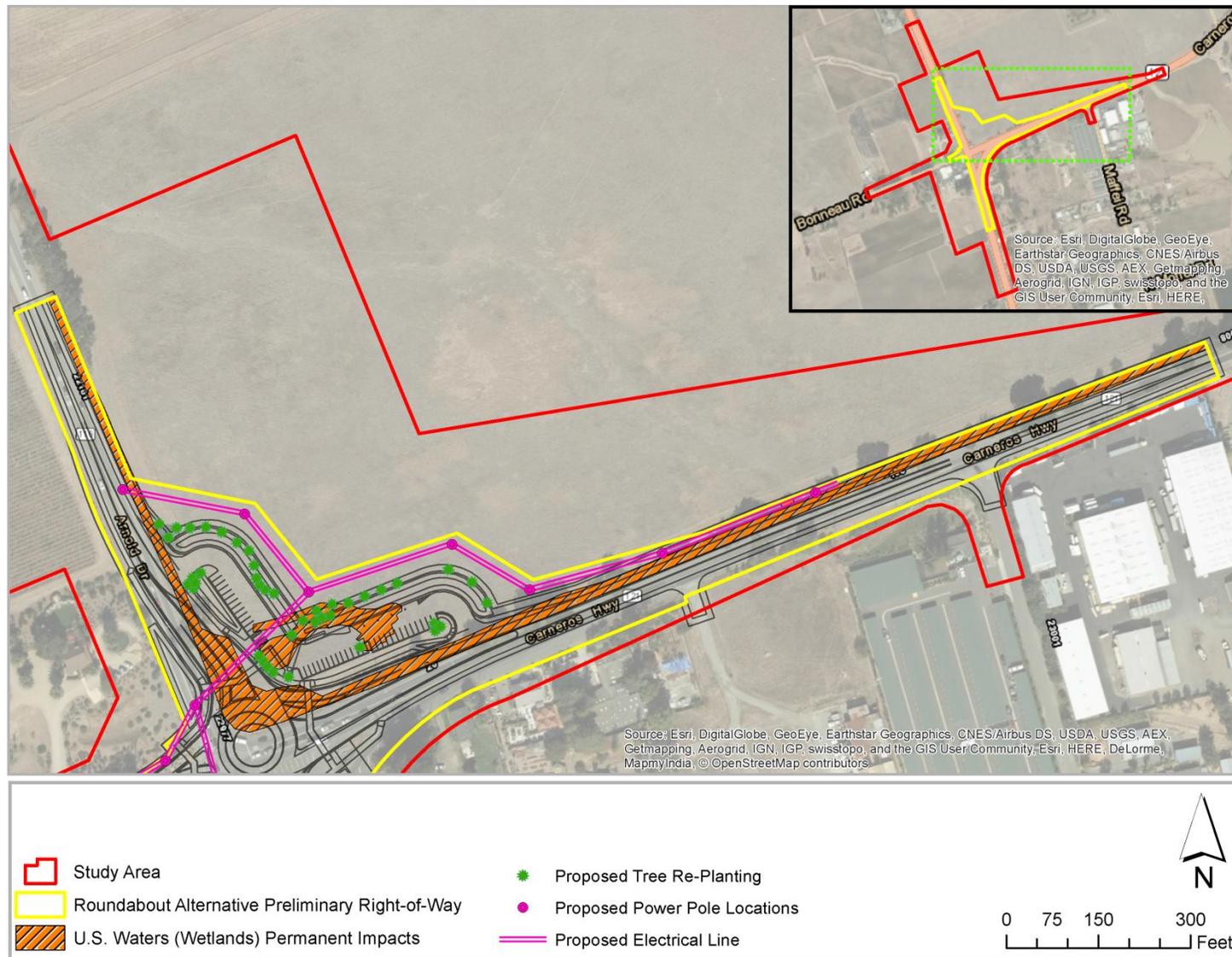


Figure 2.3-3: Potential Jurisdictional Impacts – Roundabout Alternative

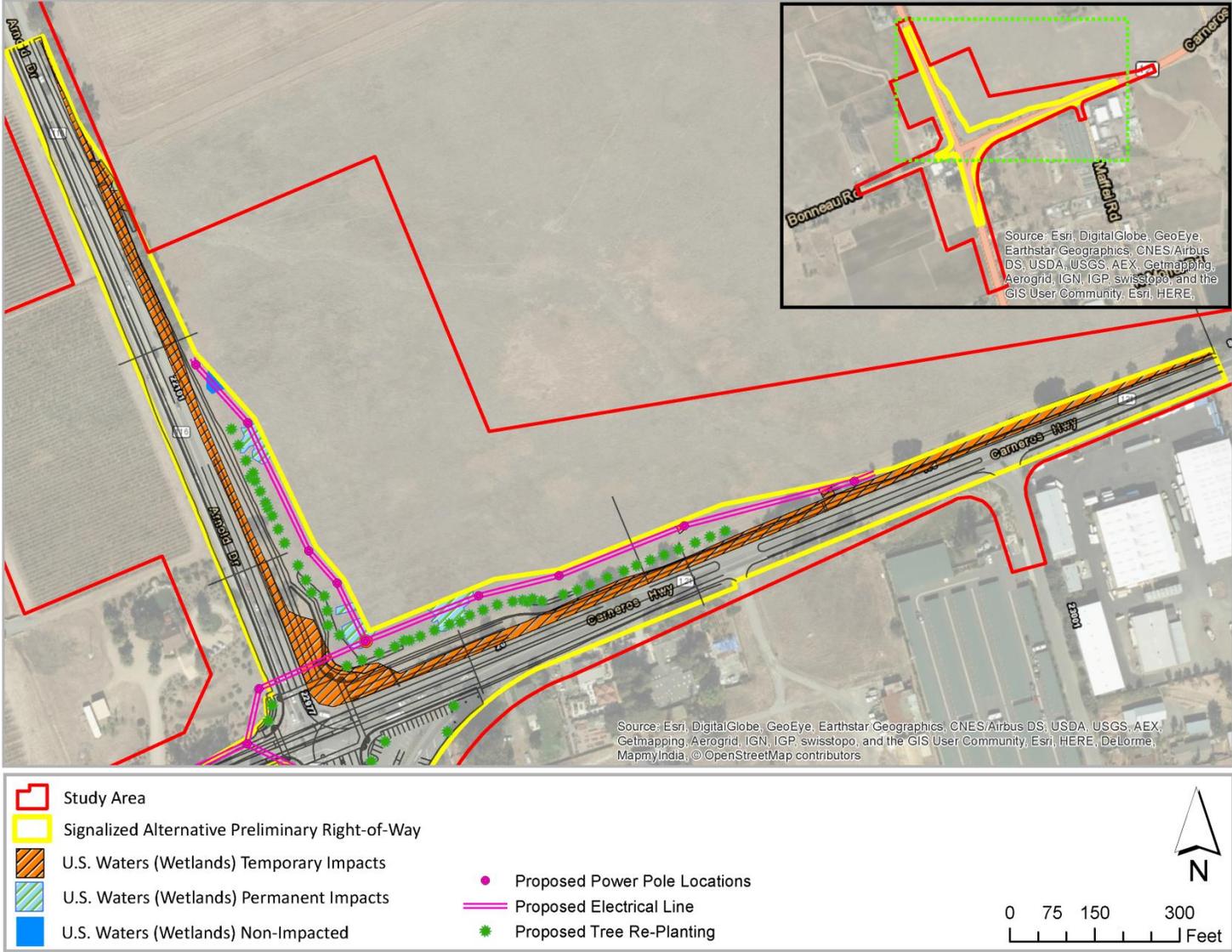


Figure 2.3-4: Potential Jurisdictional Impacts – Signalized Intersection Alternative

The impacts associated with both Build Alternatives could affect the functions and values of the wetlands by:

- Reducing groundwater recharge;
- Increasing flood-flow;
- Reducing sediment and nutrient retention areas;
- Reducing the diversity and/or abundance of aquatic species habitat; and
- Reducing uniqueness or potential habitat for special-status species.

Most of the permanent wetland impacts associated with the Build Alternatives consist of placing fill, such as pavement or asphalt, within wetlands, which would eliminate wetlands functions and values. Compensatory mitigation for wetland impacts, described in MM WL-1, can be carried out by purchasing mitigation bank wetland credits at a bank in the region, such as, but not limited to, Burdell Ranch Mitigation Bank. The anticipated cost of mitigating for wetlands impacts is approximately \$2 million for each Build Alternative. The functions and habitats at the offsite mitigation bank would be similar to the existing functions and habitats in the impacted wetlands. Success criteria for determining if the mitigation is successful would be developed after access is obtained to the northeast parcel, so that the quality and functions of those wetlands can be evaluated.

Vernal pool habitat and the vernal pool fairy shrimp could be present within these wetlands. Their presence is inferred in this area until surveys can confirm presence or absence. This is further discussed in Section 2.3.5.3.

No Build Alternative

The No Build Alternative would not impact wetlands or other waters of the U.S. because no highway improvements would occur.

Construction Impacts

Build Alternatives

The Roundabout Alternative would not have any temporary impacts on wetlands or other waters of the U.S. The Signalized Intersection Alternative would also not affect other waters of the U.S., but it would temporarily impact 0.22 acre of wetlands. Temporary impacts would be due to utility pole relocation activities. These temporary impacts under the Signalized Intersection Alternative would not impact the quality or functions of the wetlands because the impact is temporary in nature and the temporarily impacted portion of the wetland would be restored after construction is complete.

No Build Alternative

The No Build Alternative would not impact wetlands or other waters of the U.S. because construction activities would not occur.

2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures

Avoidance alternatives were analyzed to determine if the impacts to wetlands could be reduced to 0.5 acre or below. If the project impacts more than 0.5 acre of wetlands, then the provisions of Section 404 (b)(1) of the Clean Water Act would be triggered, which would require the project to complete an alternatives analysis and select the least environmentally damaging practicable alternative through the U.S. Army Corps of Engineers. A Standard Individual Section 404 Permit would also be required instead of a nationwide permit. These processes extend the time and complexity of a project; therefore, the following section analyzes the possibility of reducing wetland impacts through design modifications.

Avoidance Alternatives Analysis

Roundabout Alternative

To reduce the wetland impacts to less than 0.5 acre, a modified roundabout alternative was analyzed, which shifts the intersection footprint approximately 70 feet southwest of the original proposed configuration. The Park-and-Ride lot would be relocated to a different quadrant of the project outside the identified wetland area. The geometry of the center island and the approach legs was preserved to maintain traffic operations, sight distance, truck vehicle access, and control vehicle speeds within the roundabout. The shifting of the center island and approach legs does not change the design or call for any new design exceptions.

Shifting the roundabout footprint to the southwest would require additional ROW in the northwest and southwest quadrants of the SR 116/121 intersection. Under this modified roundabout alternative scenario, the existing Carneros Deli building and 76 gas station would be displaced and relocated to accommodate this modified roundabout alternative. This would impact approximately 13,000 square feet of existing development in the southwest quadrant.

In addition, approximately 14,000 square feet of ROW would be acquired from the existing Anaba Vineyard in the northwest quadrant. This would impact existing landscaping and utilities on the property.

Park-and-Ride Lot Relocation

Additional ROW to construct the Park-and-Ride lot would also be required. The amount of ROW required would vary based on the layout and feasible location within the project. The

only other potential location for relocating the Park-and-Ride lot within the existing study area is in the southwest quadrant.

During the project initiation phase, two locations were evaluated for the relocation of the Park-and-Ride lot, one in the northeast quadrant in grassland habitat and one in the southwest quadrant in grassland habitat south of the commercial properties. It was determined that the location in the southwest quadrant had many additional design, traffic, safety, and environmental concerns that were not applicable to the location in the northeast quadrant. In addition, Caltrans staff indicated that there should be no net loss of parking spaces due to the proposed project.

Traffic movements were studied for entering and exiting the proposed Park-and-Ride location in the southwest quadrant. Project team engineers were unable to design the proposed lot to include safe turning movements onto Arnold Drive/SR 121 from the proposed location in the southwest quadrant.

The southwest quadrant location is also much closer to a Federal Emergency Management Agency-designated flood zone and to Yellow Creek. If this location were chosen, there would be additional water quality impacts to Yellow Creek due to runoff from construction activities and additional impervious surface. There could also be an encroachment into the floodplain. Wetlands are present in the southwest quadrant and could be affected by construction of a Park-and-Ride lot in this location. Downstream of the study area, Yellow Creek also contains suitable breeding habitat for the western pond turtle (*Emys marmorata*). Additional impacts to Yellow Creek could adversely affect individual western pond turtles and their breeding habitat.

While the northeast quadrant does contain wetlands that would be impacted by the relocated Park-and-Ride lot, the environmental impacts associated with the southwest quadrant would be greater and more severe than the impacts associated with the northeast quadrant. Therefore, due to these additional environmental impacts and design and traffic operation policies associated with the southwest quadrant location, the Project Development Team selected the northeast quadrant as the location of the relocated Park-and-Ride lot.

Signalized Intersection Alternative

To reduce the wetland impacts to 0.5 acre or less, a modified signalized intersection alternative was created that shifts the entire intersection to the southwest by 50 feet and adds extra curves along the alignment. The curves follow standards for minimum radius, but two curves along SR 121/Fremont Drive (east leg) do not conform to the standards for curve length.

Impacts of this shift include additional ROW to be acquired along the south, west, and north legs of the intersection. The Carneros Deli and 76 gas station would be displaced and relocated. In addition, buildings located at 15 Fremont Drive and 75 Fremont Drive would be displaced and relocated. The Park-and-Ride lot would be reduced from 47 spaces to 32 spaces. In addition, the following design modifications would be required:

- Westbound – The width of all four lanes would be reduced from 12 feet to 11 feet, and shoulder widths would be reduced from 8 feet to 4 feet.
- Northbound – Both lanes would be reduced from 12 feet to 11 feet, and the bike lane width would be reduced from 6 feet to 4 feet.

These design modifications would trigger the need for mandatory Highway Design Manual Design Exceptions. A substandard lane width is dangerous due to vehicles in adjacent lanes being at closer distance, with potential for them to collide. Having a narrower shoulder is dangerous because there is less room for stalled vehicles and a higher potential for accidents if a stalled vehicle is protruding into the operational highway. In addition, having a narrow bike lane is not safe for bicyclists because they are more likely to be hit by vehicles. It is especially dangerous in the study area because of the high speed of adjacent traffic (50 mph) along SR 116/121.

Reducing Lane and Shoulder Widths Only

An additional modified roundabout alternative and signalized intersection alternative was created to evaluate how much the impacts to wetlands could be reduced using only reduced lane and shoulder widths and without the additional ROW acquisitions or relocations. Under both modified Build Alternatives, the same design modifications as described above for the signalized intersection would be required (for the modified roundabout, these design exceptions would only apply to the legs, not the roundabout itself, due to truck movements while undertaking turning maneuvers).

These design modifications would trigger the need for mandatory Highway Design Manual Design Exceptions. Implementing these design modifications would reduce the wetland impacts under the modified roundabout alternative to 1.21 acres. If the Park-and-Ride lot was also removed and relocated outside of the study area, the wetland impacts could be reduced to 0.96 acre.

Under the modified signalized intersection alternative, the design modifications could reduce the wetland impacts to 0.87 acre; however, the same safety issues described in the previous section would apply to these modified Build Alternatives. In addition, Caltrans staff has requested that the Park-and-Ride lot be retained in the study area to maintain commuter

access to the bus stops located near the intersection and additional parking for businesses in the vicinity of the intersection.

Conclusion

Modifying the configuration of the Build Alternatives to reduce the wetland impacts to 0.5 acre would require the displacement and relocation of commercial properties in the study area. In addition, if only lane and shoulder widths are modified, mandatory design exceptions would be required under both Build Alternatives, which would compromise the safety of motorists, bicyclists, and pedestrians in the study area. Therefore, the Project Development Team decided that the project move forward with the original design of the Build Alternatives, and the provisions and processes for Section 404 (b)(1) be carried out.

Avoidance, Minimization, and Mitigation Measures

The following avoidance, minimization, and mitigation measures will be implemented to protect waters of the U.S. throughout the project site:

- **MM WL-1:** Compensatory mitigation at a minimum 1:1 ratio is required for all permanent wetland impacts unless the U.S. Army Corps of Engineers District Engineer determines and states in writing that other forms of mitigation are more appropriate. Compensatory options include mitigation banks or separate project-specific activities such as onsite restoration. Offsite restoration is often approved by the U.S. Army Corps of Engineers if it is within the same watershed. Mitigation bank wetland credits could be used to fully mitigate wetland impacts. Final mitigation requirements will be established during the permitting phase of the project with U.S. Army Corps of Engineers. If necessary, a Compensatory Mitigation Proposal will be submitted to the U.S. Army Corps of Engineers prior to construction. In addition, a Section 404 Standard Individual Permit from the U.S. Army Corps of Engineers and a Section 401 Permit of the Clean Water Act and the State Porter-Cologne Water Quality Control Act from the Regional Water Quality Control Board will be obtained during final design.
- **AMM WL-2:** Environmentally Sensitive Area fencing will be installed along the entire project limits to avoid and minimize impacts beyond the project area.
- **AMM WL-3:** A water quality inspector will inspect the site after a rain event to ensure that the stormwater best management practices are adequately protecting water quality.
- **AMM WL-4:** The potential for adverse effects to water quality will be avoided by implementing temporary and permanent best management practices outlined in the Caltrans Stormwater Guide. Caltrans erosion-control best management practices will be used to minimize any wind- or water-related erosion. The State Water Resources Control Board has issued a National Pollutant Discharge Elimination System Stormwater Permit to Caltrans to regulate stormwater and non-stormwater discharges from Caltrans

facilities. A Stormwater Pollution Prevention Plan will be developed for the project, as one is required for all projects that have at least 1 acre of soil disturbance. The Stormwater Pollution Prevention Plan complies with the Caltrans Stormwater Management Plan. The Stormwater Pollution Prevention Plan would reference the Caltrans Construction Site Best Management Practice Manual. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges. It can be found at the following website:
<http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>.

Protective measures will be included in the contract, including, at a minimum:

- No discharge of pollutants from vehicles and equipment cleaning will be allowed into the storm drain or water courses.
- Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from water courses.
- Concrete wastes will be collected in washouts and water from curing operations will be collected and disposed of and not allowed into water courses.
- Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require.
- Coir rolls will be installed along or at the base of slopes during construction to capture sediment, and temporary organic hydromulching will be applied to all unfinished disturbed and graded areas.
- Work areas where temporary disturbance has removed the pre-existing vegetation will be restored and re-seeded with a native seed mix.
- Graded areas will be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting such as jute or coir, as appropriate.
- A Revegetation Plan will be prepared for restoration of temporary work areas. Pavement and base placed for construction purposes will be removed to restore the area; topography blended with the surrounding area; and topsoil salvaged from the new alignment area to be placed over the restored area, which will then be revegetated with native grassland species.
- All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 150 feet from any aquatic habitat, culvert, or drainage feature.
- **AMM WL-5:** A Restoration Plan will be developed to restore all wetlands temporarily impacted by the project. The restoration seed mix will contain native wetland species local to the area.

2.3.3 Plant Species

2.3.3.1 Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife have regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act and/or the California Endangered Species Act. Please see Section 2.3.5, Threatened and Endangered Species, in this document for detailed information about these species.

This section of the document discusses all of the other special-status plant species, including California Department of Fish and Wildlife species of special concern, USFWS candidate species, and California Native Plant Society rare and endangered plants.

The regulatory requirements for the Federal Endangered Species Act can be found at 16 U.S.C., Section 1531, *et seq.* See also 50 CFR Part 402. The regulatory requirements for the California Endangered Species Act can be found at California Fish and Game Code, Section 2050, *et seq.* Department projects are also subject to the Native Plant Protection Act, found at California Fish and Game Code, Section 1900-1913, and CEQA, CA PRC, Sections 2100-21177.

2.3.3.2 Affected Environment

The following is summarized from the *Natural Environment Study* (April 2016). Surveys for listed plant species were conducted by project biologists during the blooming period in all accessible areas of the study area in February and May 2015. Based on literature and database searches and botanical surveys, 46 plant species were initially evaluated, and 7 special-status plant species were determined to have the potential to occur within the study area. Listed plant species that have suitable habitat within the study area and California Natural Diversity Database occurrences within a 5-mile radius of the study area are shown in Table 2.3-6.

**Table 2.3-6: Special-Status Plant Species
Potentially Occurring or Known to Occur in the Study Area**

Species	Status	Habitat	Potential to Occur in the Study Area
Franciscan onion <i>Allium peninsulare</i> var. <i>franciscanum</i>	CNPS 1B.2	Cismontane woodland, valley and foothill grassland.	Low. The nearest California Natural Diversity Database record is for plants observed in 2006 in a mixed hardwood forest approximately 4 miles north of the project area.
Narrow-anthered California brodiaea <i>Brodiaea leptandra</i>	CNPS 1B.2	Broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland.	Low. The California Natural Diversity Database provides a vague record for this species that provides no date or site location other than an area that is approximately 4 miles northeast of the project area.
Pappose tarplant <i>Centromadia parryi</i> ssp. <i>parryi</i>	CNPS 1B.2	Chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, vernal mesic valley and foothill grassland.	Low. The only California Natural Diversity Database record is for plants observed in 1933 in a field that is approximately 1 mile south of the project area.
Dwarf downingia <i>Downingia pusilla</i>	CNPS 2	Mesic valley and foothill grassland, vernal pools.	Low. The nearest California Natural Diversity Database record is for plants observed in 1961 in a roadside ditch along SR 121 approximately 2 miles south of the project area. Suitable habitat may be present in the study area in inaccessible areas where impacts would not occur.
Fragrant fritillary <i>Fritillaria liliacea</i>	CNPS 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland often.	Not likely. The only recent California Natural Diversity Database record is for a 2003 observation of this species somewhere in Sonoma County Open Space land approximately 4.5 miles northwest of the project area.
Mt. Diablo cottonweed <i>Micropus amphibolus</i>	CNPS 3.2	Broadleaved upland forest, chaparral, cismontane woodland, valley and foothill grassland.	Not likely. No California Natural Diversity Database records for this species; however, there are a few records listed on the Calflora Web site in the vicinity of Sonoma.
Saline clover <i>Trifolium hydrophilum</i>	CNPS 1B	Marshes and swamps, valley and foothill grasslands, vernal pools.	Low. The nearest California Natural Diversity Database record is for a large population of plant in the Viansa wetlands approximately 1.6 miles south of the project area.

**Table 2.3-6: Special-Status Plant Species
Potentially Occurring or Known to Occur in the Study Area**

Status Codes:

California Native Plant Society (CNPS) Rare Plant Rank

1B = rare, threatened, or endangered in California and elsewhere

2 = rare, threatened, or endangered in California, but more common elsewhere

3 = Plants about Which More Information is Needed – A Review List

Threat Rank:

0.1 – Seriously threatened in California

0.2 – Moderately threatened in California

Source: *Natural Environment Study, 2016.*

None of the special-status plant species identified above were observed within the surveyed portions of the study area during February and May 2015 surveys. It should be noted that wetland and vernal pool plant surveys were conducted during drought years; during years of normal rainfall, these habitats could be present. When the inaccessible parcel northeast of the intersection becomes accessible to biologists, seasonally timed special-status plant surveys would occur prior to project construction. If protected species are discovered, appropriate agency coordination with the California Department of Fish and Wildlife and protective measures would be established, such as preserving existing populations and delineating environmentally sensitive areas with high-visibility fencing.

2.3.3.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

Because the special-status plant species identified in Table 2.3-6 were not observed in the study area during surveys, impacts during project operation are not anticipated under either Build Alternative. When the inaccessible parcel northeast of the intersection becomes accessible to biologists, seasonally timed special-status plant surveys would occur prior to project construction. It is possible, although unlikely, that special-status plant species may be found in the northeast parcel once surveys are completed.

No Build Alternative

The No Build alternative would not impact special-status plant species.

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be the same as one another. Because the special-status plant species identified in Table 2.3-6 were not observed in the surveyed portion of the study area during surveys, impacts are not anticipated. When the inaccessible parcel northeast of the intersection becomes accessible to biologists, seasonally timed special-status plant surveys would occur prior to project construction. If special-status plant species are observed during these surveys, potential direct impacts could occur during construction due to ground-disturbing activities and installation of impervious surfaces, primarily associated with work in the northeast quadrant. Because access is not available in the northeast parcel, potential impacts to special-status plant species cannot be quantified.

No Build Alternative

The No Build alternative would not impact special-status plant species.

2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures

The general avoidance and minimization measures identified in Section 2.3.1.3 will also avoid impacts to special-status plant species. In addition, the following avoidance and minimization measure will be implemented for both Build Alternatives:

- **AMM PS-1:** A qualified biologist will conduct preconstruction botanical surveys no less than 5 days before any ground-disturbing activities.
- **AMM PS-2:** Delineate Environmentally Sensitive Areas with high-visibility fencing.
- **AMM PS-3:** Preserve existing populations to the extent practicable.
- **AMM PS-4:** A qualified biologist will provide a worker environmental awareness training before the onset of construction activities.
- **AMM PS-5:** If the preconstruction botanical survey identifies special-status plant species within the project footprint, the appropriate agency (California Department of Fish and Wildlife or USFWS) will be contacted.

2.3.4 Animal Species

2.3.4.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. USFWS, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service, and the California Department of Fish and Wildlife are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5. All other

special-status animal species are discussed here, including California Department of Fish and Wildlife fully protected species and species of special concern, and USFWS or National Oceanic and Atmospheric Administration's National Marine Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- NEPA
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act
- Endangered Species Act

State laws and regulations relevant to wildlife include the following:

- CEQA
- Sections 1600 – 1603 of the California Fish and Game Code
- Sections 4150 and 4152 of the California Fish and Game Code
- California Endangered Species Act

2.3.4.2 Affected Environment

The following is summarized from the *Natural Environment Study* (April 2016). The habitats within the project study area and vicinity support a variety of wildlife species typical of the region. Wildlife, especially urban-adapted species such as squirrel and Virginia opossum, could use the paved areas and the highways to travel between habitats.

Special-status or protected wildlife species that could be present within the landscaped portion of the study area would include nesting birds and roosting bats. A variety of bird species was observed within the study area, including acorn woodpecker, western bluebirds (*Sialia mexicana*), red-tailed hawk (*Buteo jamaicensis*), and turkey vulture (*Cathartes aura*).

Surveys were conducted in February and May 2015 by project biologists to determine the presence of special-status wildlife species. Of the 27 wildlife species initially considered, 3 wildlife species have the potential to occur within the study area: western pond turtle; roosting bats, including the pallid bat (*Antrozous pallidus*); and migratory birds.

Western Pond Turtle

The western pond turtle is a California species of special concern, and USFWS is in the candidate assessment process for protection under the Federal Endangered Species Act. Western pond turtle occur in a variety of permanent and intermittent aquatic habitats, such as

ponds, marshes, rivers, streams, irrigation ditches, and vernal pools. They dig their nests in dry soils upland of streams in areas with sparse vegetation and southern exposure.

An adult western pond turtle was observed during the February 2015 survey. The turtle was observed outside of the study area in a pond 670 feet south of the study area. It is possible that the pond provides suitable breeding habitat; however, there is no breeding habitat within the study area due to the high degree of disturbance of the upland areas associated with vineyard management practices and the highly traveled highways. Suitable breeding habitat may be nearby in Yellow Creek downstream of the study area. There are also three California Natural Diversity Database records for western pond turtle in reservoirs and irrigation ponds within the study area vicinity. The nearest record is for turtles found in a pond near Schell Creek at a location approximately 1.7 miles northeast of the study area. There is a high potential for this species to disperse through or forage in creeks, ditches, and drainages in the project area.

Roosting Bats

Roosting bats have the potential to occur within the study area. They are typically found near aquatic features that provide foraging opportunities. They prefer open water, such as lakes and marshes where flying insects are abundant. Specifically, the pallid bat has been identified as having a moderate potential to occur within the study area. It is a California species of special concern and is most common in open, dry habitats with rocky areas for roosting. There is one California Natural Diversity Database record for a colony of pallid bats roosting beneath the Sonoma Creek Bridge on Watmaugh Road, which is approximately 2 miles north of the study area. Buildings and tall trees within the study area provide suitable day and night roosting habitat for special-status and nonlisted bats. No roosting bats were observed during field visits.

Migratory Birds

The federal Migratory Bird Treaty Act and California Fish and Game Code protect the occupied nests and eggs of migratory birds. Birds nest in a variety of places, including trees, shrubs, man-made structures, and the ground. Any proposed project must take measures to avoid the take of any migratory birds, nests, or eggs.

There is an abundance of potential nesting habitat within the study area. Great horned owl (*Bubo virginianus*), red-shouldered hawk (*Buteo lineatus*), and numerous other raptors were observed exhibiting breeding behavior during spring 2015 surveys; however, no active or inactive raptor nests were found within the study area. Other nonraptor birds were observed nesting in the study area during the site surveys, including killdeer (*Charadrius vociferus*), Brewer's blackbird, and acorn woodpecker.

2.3.4.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be very similar to one another. The Build Alternatives have the potential to permanently affect western pond turtle through removal of habitat (wetlands and vernal pools). The Roundabout Alternative would permanently impact 1.5 acres of wetland habitat, while the Signalized Intersection would permanently impact 1.54 acres of wetland habitat. This habitat removal could make it more difficult for western pond turtle to survive in and around the project area. There would be no effects to suitable breeding habitat because it is absent from the study area.

The removal of large trees within the project area that may provide suitable roosting habitat would impact roosting bats. As described in Section 2.3.1, Natural Communities, 36 native trees and 74 non-native trees would be removed under the Roundabout Alternative, while 49 native and 89 non-native trees would be removed under the Signalized Intersection Alternative. The onsite replacement of trees would restore roosting habitat over time.

The removal of trees and vegetation could also result in the loss of suitable nesting habitat for migratory birds and raptors. Replacement planting of trees onsite would re-establish nesting habitat over time.

No Build Alternative

The No Build Alternative would have no affect on animal species because habitat removal would not occur.

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be the same as one another. Direct impacts to individual western pond turtles may result from relocation efforts and earth-moving activities in potential habitat during construction of the Build Alternatives. Indirect impacts may result from water quality degradation from erosion or sediment loading due to construction activities. These direct and indirect impacts could cause mortality of individual western pond turtle or habitat degradation, which could make it more difficult for them to survive in and around the project area.

The proposed project activities under both Build Alternatives would have the potential to result in the removal of nests, eggs, young, or individuals of protected species of migratory birds and roosting bats. Construction-related disturbance during the breeding season could result in the loss of fertile eggs or nestlings or otherwise lead to the abandonment of nests.

During project-related construction, common migratory birds and roosting bats may be temporarily displaced by habitat alteration or noise from construction equipment. Avoidance and minimization measures would be implemented to avoid these impacts.

No Build Alternative

The No Build Alternative would have no effect on animal species because construction activities would not occur.

2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures

Western Pond Turtle

The following avoidance and minimization measures will be implemented to avoid impacts on western pond turtle:

- **AMM AS-1: Western Pond Turtle Monitoring.** An agency-approved biologist will be onsite during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the agency-approved biologist as specified in project permits. Through the Resident Engineer or designee, the agency-approved biologist will be given the authority to communicate verbally, by telephone, by e-mail, or by hard copy with all project personnel to ensure that take of western pond turtle is minimized and permit requirements are fully implemented. Through the Resident Engineer or designee, the agency-approved biologist will have the authority to stop project activities to minimize take of western pond turtle or if he or she determines that any requirements are not fully implemented. If the agency-approved biologist exercises this authority, the agencies shall be notified by telephone and e-mail within 48 hours.
- **AMM AS-2: Wildlife Exclusion Fencing.** A qualified biologist will delineate on the project plans where the wildlife exclusion fencing should be erected to protect against western pond turtle entering the work site. Prior to the commencement of construction, under the advice of a biological monitor, wildlife exclusion fencing will be installed.
- **AMM AS-3: Worker Environmental Awareness Training.** All construction-related personnel will attend a mandatory environmental education program delivered by the agency-approved biologist prior to working on the project.
- **AMM AS-4: Preconstruction Surveys.** Prior to ground disturbance, preconstruction surveys for western pond turtle will be conducted by an agency-approved biologist. These surveys will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The biologist will investigate all potential cover sites. Western pond turtles found within the project limits will be documented and relocated to a predetermined suitable habitat at a safe distance from the project limits.

- **AMM AS-5: Western Pond Turtle Onsite.** The Resident Engineer or designee will immediately contact the agency-approved project biologist if a western pond turtle is observed within a construction zone. Construction activities will be suspended within a 50-foot radius of the animal until the animal leaves the site voluntarily or an agency-approved protocol for removal has been established.

Pallid Bat and Other Roosting Bats

The following avoidance and minimization measure will be implemented to avoid impacts on roosting bats:

- **AMM AS-6:** To avoid impacts to roosting bats, a qualified biologist will conduct visual and acoustic surveys during the maternity season prior to permitting. The surveys will be conducted to determine if bats are utilizing the trees within the study area. If active roosting habitat is identified, minimization measures will be identified through consultation with California Department of Fish and Wildlife and bat specialists. If bats are found during the survey, a plan will be developed for passive relocation.

Migratory Birds

The following avoidance and minimization measures will be implemented to minimize impacts to migratory birds:

- **AMM AS-7:** During nest building, consistent (whenever they are built) removal of nests (with the exception of raptor nests) will be used to deter birds from nesting in the project area.
- **AMM AS-8:** Preconstruction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction for activities occurring during the breeding season (February 15 to August 31). If inactive bird nests (not occupied by eggs or birds) are identified in trees that are scheduled for removal by the project, Caltrans will consult with California Department of Fish and Wildlife.
- **AMM AS-9:** If an active nest of a raptor, game, or non-game bird is found during construction, a no work zone buffer will be established to minimize disturbance and potential harm to nesting raptor, game, or non-game bird. A 300-foot buffer will be erected around active raptor nests, and a 50-foot buffer will be erected around active game and non-game bird (nonraptor) nests. For any work to occur within a reduced buffer zone, the Caltrans biologist will need to provide a plan to California Department of Fish and Wildlife and USFWS proposing biological monitoring and the establishment of an adequate buffer based on the nest location, topography, cover, species' sensitivity to disturbance, and intensity/type of potential disturbance. If nests are present and active, biological monitoring will be required.

2.3.5 Threatened and Endangered Species

2.3.5.1 Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act: 16 U.S.C. Section 1531, *et seq.* See also 50 CFR Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as FHWA, are required to consult with USFWS and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of the Federal Endangered Species Act defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act, California Fish and Game Code Section 2050, *et seq.* The California Endangered Species Act 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 California Department of Fish and Wildlife is the agency responsible for implementing the California Endangered Species Act. Section 2081 of the 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 Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The California Endangered Species Act allows for take incidental to otherwise lawful development projects; for these actions, an incidental take permit is issued by the California Department of Fish and Wildlife. For species listed under both the Federal Endangered Species Act and California Endangered Species Act requiring a Biological Opinion under Section 7 of the Federal Endangered Species Act, the California Department of Fish and Wildlife may also authorize impacts to California Endangered Species Act 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 U.S., by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated

March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

2.3.5.2 Affected Environment

The following is summarized from the *Natural Environment Study* (April 2016). USFWS, the California Department of Fish and Wildlife, and National Oceanic and Atmospheric Administration's National Marine Fisheries Service are the primary agencies responsible for coordination and review involving special-status species.

The findings summarized in this section were based on extensive research and botanical and wildlife field surveys conducted by project biologists in February and May 2015 for special-status species in the study area and its vicinity. Additionally, a California red-legged frog habitat assessment and nighttime study was conducted in February 2015. Prior to the surveys, record searches of the USFWS species lists and the California Natural Diversity Database were conducted. It should be noted that access to the northeast parcel of the study area was inaccessible during surveys.

USFWS species records were reviewed at the outset of the biological studies for the project. A copy of the records list is included in Appendix F. On March 4, 2015, Caltrans met with USFWS at the project site to discuss the project and special-status species that could occur in the area. Based on this site visit, Caltrans initiated formal consultation with USFWS for California red-legged frog (*Rana draytonii*), vernal pool fairy shrimp, Sonoma sunshine, two-fork clover/showy rancheria clover (*Trifolium amoenum*), Contra Costa goldfields (*Lasthenia conjugens*), and Sebastopol meadowfoam under Section 7 of the Federal Endangered Species Act. Once a preferred alternative is selected, Caltrans will submit a Biological Assessment to USFWS discussing the studies performed to date and potential impacts to listed species. The National Oceanic and Atmospheric Administration's National Marine Fisheries Service was not consulted for this project because there are no barriers to fish passage or anadromous fish within the study area. The USFWS species list is included in Appendix F.

The following sections describe the listed species that have suitable habitat in the study area and/or California Natural Diversity Database records within a 5-mile radius of the study area.

Sonoma Sunshine

Sonoma sunshine is a federally endangered species and a state endangered species. Habitat for this species is in valley and foothill grasslands and in vernal pools. There are California Natural Diversity Database records for this species on the north side of Bonneau Road 700 feet west of the western study area boundary. It was also observed 0.5 mile north of the northern boundary of the study area. It was not observed during May 2015 botanical surveys,

although surveys were conducted at the end of the blooming season for this species and during a prolonged drought. It is not likely for this species to occur within the study area; however, due to access restrictions of the northeast parcel, surveys were not completed, and the potential for presence cannot be entirely ruled out.

Two-Fork Clover/Showy Rancharia Clover

Two-fork clover/showy rancharia clover is a federally endangered species. It prefers coastal bluff scrub and valley and foothill grassland habitats. The nearest record for this species is for plants found in 1952 at a location approximately 7 miles east of the project area. It was not observed during May 2015 botanical surveys. It is not likely for this species to occur within the study area; however, due to access restrictions of the northeast parcel, surveys were not completed, and the potential for presence cannot be entirely ruled out.

Contra Costa Goldfields

Contra Costa goldfields is a federally endangered species. Its habitat preferences include woodland, playas in alkaline soils, valley and foothill grassland, and vernal pools. The nearest record for this species is for a small population of plants observed in 2003 in vernal pool grasslands approximately 3 miles west of the study area. This species was not observed during May 2015 botanical surveys. It is not likely for this species to occur within the study area; however, due to access restrictions of the northeast parcel, surveys were not completed, and the potential for presence cannot be entirely ruled out.

Sebastopol Meadowfoam

Sebastopol meadowfoam is a federally endangered species and a state endangered species. Its habitat preferences include meadows and seeps, valley and foothill grasslands, and vernal pools. The nearest record for this species is for plants observed 1.4 miles west of the study area, although they may have been planted rather than naturally occurring. There are no other records within 10 miles of the study area, and this species was not observed during May 2015 botanical surveys. It is not likely for this species to occur within the study area; however, due to access restrictions of the northeast parcel, surveys were not completed, and the potential for presence cannot be entirely ruled out.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp are a federally threatened species. They inhabit vernal pools, specifically, small, clear-water sandstone-depression pools and grassed depression pools. The only California Natural Diversity Database record for this species is within Napa County in 2007 in one vernal pool at the Napa Airport. This location is approximately 10 miles east of the project area. Based on observations from the roadside and historical aerial imagery dating back to 1993, several locations within the inaccessible field in the northeast quadrant appear

to be inundated at various times throughout the year. These locations could be potential vernal pools. If vernal pools are present, there is a low potential for vernal pool fairy shrimp to be present, due to the closest known occurrence of this species being 10 miles away. Because surveys were not possible in the northeast quadrant, the species is inferred to be present, which means this species is assumed to be present in the study area until surveys of the northeast parcel are possible and presence/absence of this species can be confirmed.

California Red Legged Frog

California red-legged frog is a federally threatened species and a California species of special concern. They occur in a variety of ponds, sloughs, low-gradient streams, and low-salinity lagoons. Adults may forage in, and migrate through, terrestrial grasslands, riparian woodlands, and forests, but they require weedy, slow-moving or standing water that persists through most of the dry season for successful reproduction. There are two California Natural Diversity Database records approximately 2.4 miles west of the project area. One is for a frog observed in 2004 in a ponded area of Champlin Creek. The second is for frogs observed in 2002 in an abandoned leachate pond at the Sonoma Transfer Station. The study area is outside the USFWS-designated critical habitat for this species. Suitable dispersal habitat exists within the study area, but no suitable breeding habitat is present in any of the water features within the study area; therefore, there is a low potential for California red-legged frog to occur within the study area.

2.3.5.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

The following sections discuss the potential project-level impacts of the Build Alternatives on listed species. The impacts are the same under both Build Alternatives.

Sonoma Sunshine, Two-Fork Clover/Showy Rancharia Clover, Contra Costa Goldfields, Sebastopol Meadowfoam

These listed species were not observed within the surveyed portions of the study area. Due to the inaccessible parcel in the northeast quadrant of the intersection, presence of these listed plant species is inferred until surveys of that area are possible. Impacts to Sonoma sunshine, two-fork clover/showy rancharia clover, Contra Costa goldfields, and Sebastopol meadowfoam could occur within the study area due to the permanent removal of habitat. Under the Roundabout Alternative, this includes removal of 4.4 acres of annual grassland and 0.2 acre of vernal pool habitat. Under the Signalized Intersection Alternative, this includes removal of 3.9 acres of annual grassland and 0.2 acre of vernal pools. However, because it is not likely for these species to occur within the study area, impacts would be minimal.

Implementing the avoidance and minimization measures described below would minimize potential impacts to Sonoma sunshine, two-fork clover/showy rancheria clover, Contra Costa goldfields, and Sebastopol meadowfoam in the study area. Caltrans is seeking concurrence from USFWS that the project may affect, but is not likely to adversely affect, the Sonoma sunshine, two-fork clover/showy rancheria clover, Contra Costa goldfields, and Sebastopol meadowfoam. This determination is based on the lack of observation of these species during surveys and the distance between the project study area and the closest known occurrences.

Vernal Pool Fairy Shrimp

Due to the inaccessible parcel in the northeast quadrant of the intersection, presence of vernal pool fairy shrimp is inferred until surveys of that area are possible. If vernal pool fairy shrimp are present in the study area, the Roundabout Alternative would permanently remove 0.2 acre of habitat due to the installation of impervious pavement, while the Signalized Intersection Alternative would permanently remove 0.26 acre for the same reason. This could result in the attempted capture or kill of the species. Implementing the avoidance and minimization measures described below would minimize potential impacts to vernal pool fairy shrimp in the study area. Upon selection of the preferred alternative, Caltrans will consult with USFWS to determine if the project may affect, but is not likely to adversely affect, the vernal pool fairy shrimp. This determination is based on the lack of observation of this species during surveys and the distance between the project study area and the closest known occurrences.

California Red-Legged Frog

California red-legged frog could disperse through the drainages and terrestrial areas of the study area where there is suitable cover from predators. The Roundabout Alternative would add 1.64 acres of new pervious or impervious surface, while the Signalized Intersection Alternative would add 1.53 acres. These pervious or impervious surfaces would result in permanent impacts to California red-legged frog dispersal habitat, which could make it more difficult for the species to inhabit this area. There is no breeding habitat present within the study area; therefore, no permanent impacts to California red-legged frog breeding habitat are anticipated. In addition, direct impacts to individual California red-legged frogs are not anticipated during project operation.

Implementing the avoidance and minimization measures described below would minimize potential impacts to the California red-legged frog in the study area. Caltrans is seeking concurrence from USFWS that the project may affect, but is not likely to adversely affect, the California red-legged frog. This determination is based on the lack of observation of this species during surveys, the distance between the project study area and the closest known occurrences, and lack of breeding habitat in the study area.

No Build Alternative

The No Build Alternative would not affect listed species because project implementation and habitat removal would not occur.

Construction Impacts

Build Alternatives

The construction impacts are the same under both Build Alternatives. Sonoma sunshine, two-fork clover/showy rancheria clover, Contra Costa goldfields, and Sebastopol meadowfoam could be eradicated during grading of the project area. Potential direct impacts are associated with ground-disturbing activities during general project construction and installation of impervious surfaces, primarily associated with work in the northeast quadrant.

Vernal pool fairy shrimp and California red-legged frog could be captured, injured, or killed by construction-related personnel or equipment during project construction if they enter or are found in the work area. There would be no temporary impacts to vernal pool fairy shrimp or California red-legged frog habitat because all added impervious or pervious surfaces would be permanent. Avoidance and minimization measures will be implemented to minimize the chance of this.

No Build Alternative

The No Build Alternative would not affect listed species because construction activities would not occur.

2.3.5.4 Avoidance, Minimization, and/or Mitigation Measures

When the undeveloped field northeast of the intersection becomes accessible to biologists, seasonally timed special-status plant surveys and surveys for vernal pool fairy shrimp will be completed prior to project construction. If protected species are discovered, USFWS will be contacted and protective measures will be established. In addition, the avoidance and minimization measures identified in Section 2.3.1.3 will also avoid and minimize impacts to threatened and endangered species. The avoidance, minimization, and/or mitigation measures listed in this section will be incorporated into the Biological Assessment sent to USFWS as part of formal consultation. The project description described in Chapter 1 of this document will match the project description included in the Biological Assessment.

Sonoma Sunshine, Two-Fork Clover/Showy Rancheria Clover, Contra Costa Goldfields, Sebastopol Meadowfoam

The avoidance and minimization measures described in Section 2.3.3.4 (AMM PS-1 through AMM PS-5) also apply to these listed plant species.

Vernal Pool Fairy Shrimp

When access becomes available, surveys will be conducted and the presence of this species will be evaluated. If vernal pool fairy shrimp are discovered, appropriate agency coordination and protective measures will be established. Measures to avoid and minimize potential impacts to vernal pool fairy shrimp include:

- **AMM TE-1:** Conduct preconstruction surveys to determine the presence or absence of vernal pool fairy shrimp.
- **AMM TE-2:** If vernal pool fairy shrimp are observed, USFWS will be contacted to determine the appropriate measures.
- **AMM TE-3:** Caltrans will avoid effects to vernal pools beyond the project footprint by employing permanent and temporary best management practices, including a Stormwater Pollution Prevention Plan, and erosion control best management practices. In areas that flow hydrologically from the project footprint to vernal pool crustacean habitat, Caltrans will erect linear sediment barriers (e.g., silt fences or coir rolls) to prevent effects to vernal pools.

If vernal pool fairy shrimp are found in the study area during preconstruction surveys, additional avoidance and minimization may include:

- **AMM TE-4:** If preservation of vernal pools is not possible, the top 6 inches of soil within vernal pools containing vernal pool fairy shrimp will be removed and replaced within adjacent vernal pools.

California Red-Legged Frog

The following avoidance, minimization, and mitigation measures will be implemented to minimize impacts on California red-legged frogs:

- **MM TE-5:** USFWS may require compensatory mitigation for the potential permanent loss of 1.53 to 1.64 acres of California red-legged frog dispersal habitat. Due to this potential loss of dispersal habitat, which could make it more difficult for the species to inhabit this area, the amount and quality of habitat being impacted by the proposed project will be mitigated through the purchase of California red-legged frog credits from a USFWS approved mitigation bank.
- **AMM TE-6:** Caltrans will submit the names and qualifications of the biological monitors for USFWS approval prior to initiating construction activities for the proposed project.
- **AMM TE-7:** The Caltrans biologist will delineate on the project plans where the wildlife exclusion fencing should be erected to protect against California red-legged frog entering the work site. Prior to the commencement of construction, under the advice of the biological monitor, wildlife exclusion fencing will be installed.

- **AMM TE-8:** The USFWS and California Department of Fish and Wildlife-approved biologist will be onsite during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the approved biologist as specified in project permits. The biologist will keep copies of applicable permits in their possession when onsite. Through the Resident Engineer or designee, the agency-approved biologist will be given the authority to communicate verbally, by telephone, by e-mail, or by hard copy with all project personnel to ensure that take of California red-legged frog is minimized and permit requirements are fully implemented. Through the Resident Engineer or designee, the agency-approved biologist will have the authority to stop project activities to minimize take of California red-legged frog or if he or she determines that any permit requirements are not fully implemented. If the agency-approved biologist exercises this authority, the agencies shall be notified by telephone and e-mail within 48 hours.
- **AMM TE-9:** All construction-related personnel will attend a mandatory worker environmental awareness training program delivered by the agency-approved biologist prior to working on the project.
- **AMM TE-10:** Prior to ground disturbance, preconstruction surveys for California red-legged frog will be conducted by an agency-approved biologist. These surveys will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The biologist will investigate all potential cover sites. This includes thorough investigation of mammal burrows, appropriately sized soil cracks, and debris. California red-legged frog found within the project limits will be documented and relocated (if allowed by USFWS) to a predetermined suitable habitat at a safe distance from the project limits.
- **AMM TE-11:** To prevent inadvertent entrapment of California red-legged frog during construction, excavated holes or trenches more than 1 foot deep with walls steeper than 30 degrees will have escape ramps installed and will be covered at the close of each working day by plywood or similar materials. Before holes or trenches are filled, biological monitors will thoroughly inspect them for California red-legged frog. If at any time a trapped California red-legged frog is discovered, the onsite biologist will remove and relocate the frog if allowed by USFWS. USFWS will be notified of the incident by telephone and electronic mail within 48 hours. If California red-legged frog relocation is not preapproved, USFWS will be contacted by telephone for guidance.
- **AMM TE-12:** The Resident Engineer or designee will immediately contact the agency-approved project biologist if a California red-legged frog is observed within a construction zone. Construction activities will be suspended within a 50-foot radius of the animal until the animal leaves the site voluntarily or an agency-approved protocol for removal has been established with USFWS.

- **AMM TE-13:** To prevent harassment, injury, or mortality of California red-legged frog, no pets will be permitted on the project site.
- **AMM TE-14:** Plastic monofilament netting (i.e., erosion-control matting) or similar material will not be used for the project because California red-legged frog may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

2.3.6 Invasive Species

2.3.6.1 Regulatory Setting

On February 3, 1999, President William J. Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the U.S. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” FHWA guidance issued August 10, 1999, directs the use of the State’s invasive species list maintained by the California Invasive Species Council to define the invasive species that must be considered as part of NEPA analysis for a proposed project.

2.3.6.2 Affected Environment

This section summarizes the findings of the *Natural Environment Study* (April 2016). Surveys of the study area were conducted by project biologists in February and May 2015. The study area contains non-native, invasive species typical of disturbed areas along highways. These include pampas grass (*Cortaderia* spp.), Himalayan blackberry (*Rubus armeniacus*), sweet fennel (*Foeniculum vulgare*), and iceplant (*Carpobrotus edulis*).

2.3.6.3 Environmental Consequences

Project-Level Impacts

Build Alternatives

The impacts of both Build Alternatives would be the same as one another. None of the identified species on the California list of invasive species is currently used by Caltrans for erosion control or landscaping in order to stop the spread of invasive species. Avoidance and minimization measures would be implemented to prevent the introduction or spread of invasive species.

No Build Alternative

The No Build Alternative would not have the potential to affect or spread invasive species because the project would not be implemented.

Construction Impacts

Build Alternatives

The impacts of both Build Alternatives would be the same as one another. None of the identified species on the California list of invasive species is currently used by Caltrans for erosion control or landscaping; however, project construction activities could have the potential to inadvertently spread these species because they are already present in the study area. Construction equipment could pick up an invasive species in one location and move it to another location. Because invasive species are already present within the study area, avoidance and minimization measures would be implemented to reduce the potential for the spread of invasive species within the study area.

No Build Alternative

The No Build Alternative would not have the potential to affect or spread invasive species because the project would not be implemented.

2.3.6.4 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures will be implemented for both Build Alternatives:

- **AMM IS-1:** In compliance with the Executive Order on Invasive Species, Executive Order 13112, and subsequent guidance from FHWA, the landscaping and erosion control included in the project will not use species listed as invasive species. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or adjacent to the construction areas. The contractor will be required to use equipment that is cleaned and inspected for plant material prior to arrival and use at the project site. Areas subject to invasive species removal or disturbance will be replanted with fast-growing native grasses or a native erosion-control seed mix. Invasive, exotic plants will be controlled within the areas disturbed by the project to the maximum extent practicable, pursuant to Executive Order 13112.
- **AMM IS-2:** A wash station will be established or designated so that prior to the deployment of equipment onto the site it must be free of soil tracked from other sites that may harbor invasive plant seeds.

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 NEPA can be found in 40 CFR, Section 1508.7 of the Council on Environmental Quality Regulations.

2.4.2 Projects Considered for Cumulative Analysis

To evaluate the potential for cumulative impacts, a list of projects was defined through review of private development applications at the Sonoma County Permit and Resource Management Department and public works projects at the Department of Transportation and Public Works. The Governor's Office of Planning and Research CEQAnet database was also reviewed to identify projects for which notices of preparation or completion of an environmental document were filed with the State Clearinghouse. The study area for the cumulative impacts assessment varies based on the resource affected and considers planned, approved, and recently completed projects.

The following projects were considered in the analysis. The analysis is based on the environmental effects of the proposed projects as described in their approved CEQA documents, aerial photograph review, and general knowledge of the project site:

- **8th Street East/SR 121 Intersection Project:** The project would relieve congestion and make safety improvements at the 8th Street/SR 121 intersection.
- **Route 116 Stage Gulch Road Curve Improvement and Realignment Project:** The project improved 2.9 miles of SR 116 in Sonoma County from Adobe Road in the west to Arnold Drive (2 miles northwest of the SR 116/121 intersection). A Mitigated Negative Declaration was prepared and construction was completed in 2011.
- **Watmaugh Road Bridge Replacement:** The Sonoma County Transportation and Public Works Department is proposing to replace the Watmaugh Road Bridge over Sonoma Creek (2 miles northwest of the SR 116/121 intersection). This project was covered under a Mitigated Negative Declaration completed in 2012. The project is scheduled for construction in 2016.
- **North Bay Water Recycling Program – Phase 1:** This project is a joint venture between 10 municipal water and sanitation agencies in Marin, Napa, and Sonoma counties to install 153 miles of recycled wastewater pipeline and construct storage reservoirs. The project was covered under an Environmental Impact Report, which was completed in 2009. In the project vicinity, the pipeline would be installed along Arnold Drive to a point approximately 0.7 mile north of the SR 116/121 intersection, where it would be routed over land to eventually discharge into Schell Slough.
- **Chase Street Bridge Replacement Project at Nathanson Creek:** The City of Sonoma replaced the Chase Street Bridge in 2014 (3.4 miles north of the SR 116/121 intersection). This project was covered under a Mitigated Negative Declaration. The new bridge is a 30-foot-long single-span bridge.
- **Art Fichtenburg’s Tasting Room (15 Fremont Drive):** The project would convert an existing retail building into a tasting room on a 5.09-acre parcel. It is CEQA exempt and has been on hold since 2011.
- **Vineyard Inn (23000 Arnold Drive):** Requested a permit to locate retail space in their existing building. The permit is pending.
- **Anaba Winery (60 Bonneau Road):** Permit has been approved allowing a tasting room to remain onsite.
- **Wagner Road Vineyards (100 Wagner Road):** The project would include construction of a new building approximately 4,000 square feet in size to house a winery with barrel storage and agricultural promotional events. A Mitigated Negative Declaration for the project has been prepared.
- **Schug Winery (602 Bonneau Road):** The project would increase production at an existing winery from 10,000 cases per year to 30,000 cases per year and add a 6,300-square-foot tasting/hospitality building. A Mitigated Negative Declaration for the project is being prepared.

2.4.3 Environmental Consequences

The cumulative impacts analysis focuses on the resources that the project may affect. According to the Caltrans eight-step approach for developing a cumulative impact analysis, if the project would not result in impacts to a resource, it could not contribute to a cumulative impact. The Build Alternatives would only cause impacts requiring mitigation on wetlands, tree removal, and California red-legged frog. All other potential impacts will be minimized through the avoidance and minimization measures presented in Chapter 2.

The projects listed above were considered together with the proposed SR 116/121 Intersection Improvements Project for the potential for cumulative impacts. The potential impacts are described by resource area below.

2.4.3.1 Biological Resources

The cumulative resource study area for wetlands, tree removal, and California red-legged frog can be seen in Figure 2.5-1. A discussion of how this resource study area was chosen for each resource is included in the subsections below.

Wetlands

Resource Study Area

The cumulative resource study area for wetlands is the area within a 3.5-mile radius of the study area, as shown in Figure 2.5-1. This resource study area was chosen because this area could be reasonably affected by impacts resulting from the proposed project.

Historical Context/Current Status

The current health and historical context of wetlands in the resource study area are difficult to ascertain at this specific location. Historically, wetlands were lost with implementation of development and transportation projects. United States Army Corps of Engineers oversees wetland regulation through its Section 404 Nationwide Program to comply with the Clean Water Act. This permit-driven program implements a no-net-loss policy on Waters of the U.S., which includes wetlands, and furthermore requires impacts to be compensated based on prescribed ratios determined by the United States Army Corps of Engineers. Theoretically, fulfillment of permit requirements would tend to improve or sustain the overall health of wetlands and waters of the U.S. The Status and Trends of Wetlands in the Conterminous United States 2004 to 2009 indicates that, nationally, gains during this period contrast with losses recorded during previous periods since 1950. However, the State, at this time, has no current assessment of no-net-loss for the resource study area or elsewhere; therefore, precise trends cannot be established.

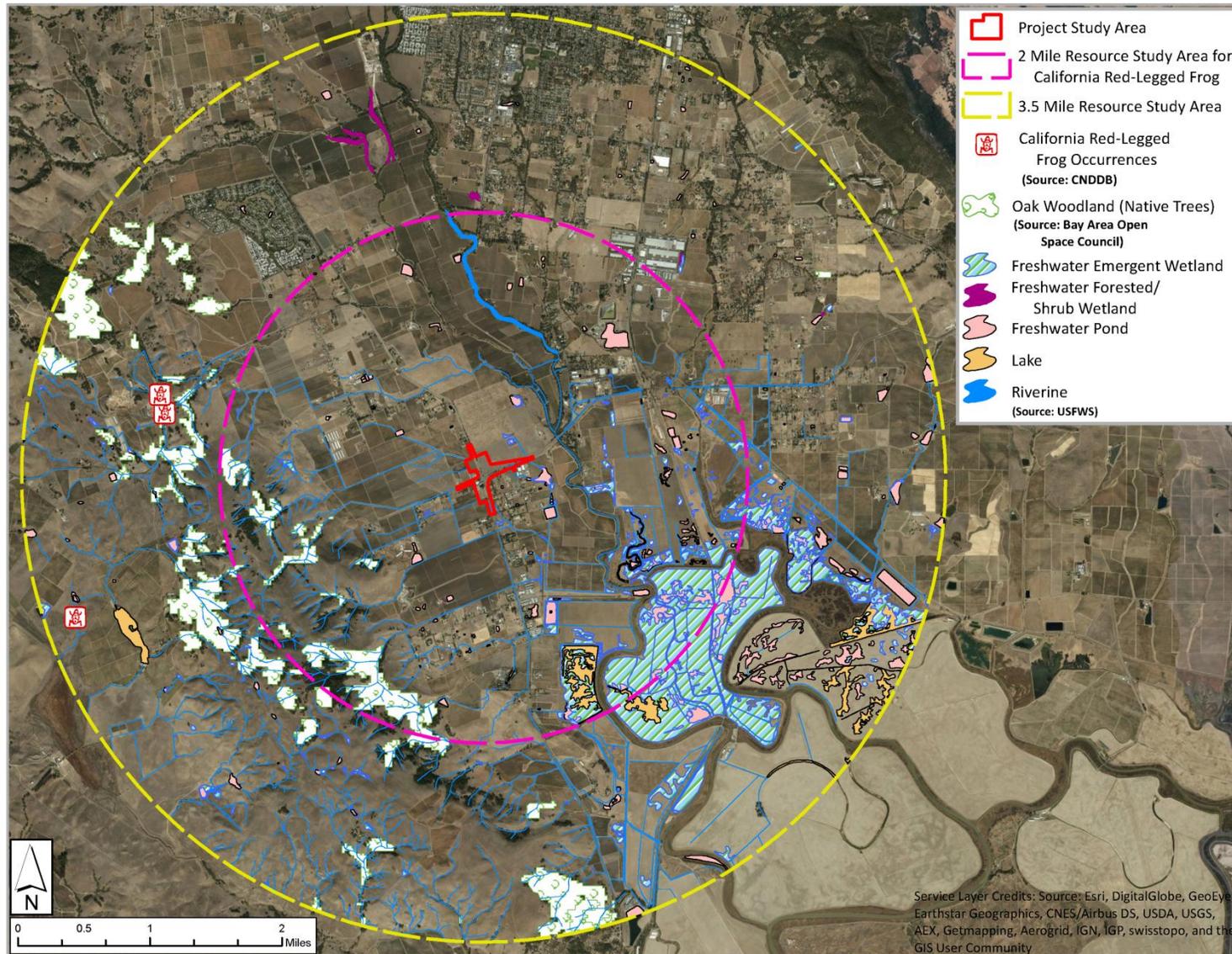


Figure 2.5-1: Cumulative Resource Study Area

In observing the current health of the wetlands in the resource study area, they appear to be in good condition, and it does not seem that past projects have greatly affected the wetlands because they are located on undeveloped private property.

Proposed Project Impacts

Table 2.3-4 in Section 2.3.3 shows the impacts to wetlands for both Build Alternatives. The Roundabout Alternative is anticipated to result in permanent impacts to 1.5 acres of wetlands due to relocation of the Park-and-Ride lot and expansion of the highway to accommodate additional lanes, shoulders, and pedestrian and bicycle facilities. The Signalized Intersection Alternative was estimated to result in permanent impacts to 1.54 acres of wetlands and temporary impacts to 0.22 acre of wetlands due to expansion of the highway to accommodate additional lanes, shoulders, and pedestrian and bicycle facilities and because the study area extends farther north and east under this alternative. The impacts associated with both Build Alternatives could affect the functions and values of the wetlands by reducing groundwater recharge, increasing flood flow, reducing sediment and nutrient retention areas, reducing the diversity and/or abundance of aquatic species habitat, and reducing uniqueness or potential habitat for special-status species. Most of the permanent wetland impacts associated with the Build Alternatives consist of placing fill, such as pavement or asphalt, within wetlands, which would eliminate wetland functions and values.

Reasonably Foreseeable Projects

Some of the projects identified in Section 2.4.2 would result in impacts to wetlands. They include the Route 116 Stage Gulch Road Curve Improvement and Realignment Project and the North Bay Water Recycling Program – Phase 1. These projects are reasonably foreseeable because they have either gone through or will go through the environmental review process and are assumed to be constructed in the future.

The Route 116 Stage Gulch Road Curve Improvement and Realignment Project resulted in 0.11 acre of permanent impacts and 0.23 acre of temporary impacts to U.S. Army Corps of Engineers jurisdictional wetlands or other waters. Minimization and mitigation measures in the Mitigated Negative Declaration describe best management practices that would be implemented to reduce impacts to wetlands and other waters. Compensatory mitigation for impacts to wetlands and other waters occurred through a combination of onsite wetlands and waters restoration and the purchase of wetland mitigation credits from the Burdell Ranch Wetland Mitigation Bank.

The North Bay Water Recycling Program – Phase 1 did not break down impacts to wetlands by region; however, many avoidance and minimization measures were proposed, including installing the pipeline via trenchless methods, hanging it from bridges, or installing beneath stream crossings via directional drilling or jack and bore methods. The pipeline would be

routed around wetlands for complete avoidance. If wetlands could not be avoided, compensatory mitigation would be provided as required by regulatory permits.

None of the other projects identified in Section 2.4.2 would impact wetlands.

Cumulative Impacts

Currently, there is not a cumulative impact to wetlands within the resource study area because past and future projects have or will have to mitigate for impacts to wetlands. These projects would not inhibit the health of wetlands and would not contribute to a cumulative impact of wetlands. In addition, the impacts to wetlands associated with the Build Alternatives would not contribute to a cumulative impact because appropriate avoidance, minimization, and mitigation measures will be implemented, which would reduce the impacts to less than significant. Based on this analysis and review, under CEQA, no considerable contributions to cumulative impacts to wetlands would result from the proposed Build Alternatives.

Tree Removal

Resource Study Area

The cumulative resource study area for tree removal is the area within a 3.5-mile radius of the study area, as shown in Figure 2.5-1. This resource study area was chosen based on the presence of similar native tree communities and potential effects of altered habitat values in these areas on similar plants and wildlife. Due to the lack of data showing the locations of existing native trees, only Oak Woodland in the resource study area could be mapped.

Historical Context/Current Status

Historically, native trees have been removed for development and transportation projects. In some cases, this has led to a reduction of native trees and an increase of non-native trees for the purpose of landscaping, primarily along roadways. There are few regulations in place to protect native trees. State Senate Concurrent Resolution No. 17 – Oak Woodlands (California State Assembly 1989) requests State agencies having land use planning duties and responsibilities to assess and determine the effects of their decision or actions within any oak woodlands containing blue, Engelmann, valley, or coast live oaks. In addition, the County of Sonoma Permit and Resource Management Department protects some tree species, including valley oaks. These limited regulations help to preserve and protect existing native tree species and require replacement if any are removed. Past projects in the study area have not affected the trees to a significant degree because there has been little development work along the tree line.

Proposed Project Impacts

Both Build Alternatives would require tree removals, as shown in Table 2.3-1 in Section 2.3.1.2. Approximately 36 native and 74 non-native trees would be removed under the Roundabout Alternative, while 49 native and 89 non-native trees would be removed under the Signalized Intersection Alternative. Native trees affected would include coast live oak, valley oak, sycamore, and redwood. The average size of the trees to be removed under both Build Alternatives is 15.3 inches in diameter at breast height. Both alternatives would also have temporary impacts to trees during construction, including minor pruning or trimming of branches and cutting of minor root systems.

Reasonably Foreseeable Projects

Tree removals are unlikely for the development projects identified in Section 2.4.2 because they primarily involve changing the use of an existing building or constructing a new building, which would not involve a substantial expansion of their existing footprint; however, the transportation projects would involve tree removal in the area. These projects are reasonably foreseeable because they have either gone through or will go through the environmental review process and are assumed to be constructed in the future.

The Route 116 Stage Gulch Road Curve Improvement and Realignment Project required the removal of a significant number of trees. Native trees were replanted at a 5:1 ratio, and non-native trees were replanted at a 1:1 ratio at onsite and offsite locations. The Watmaugh Road Bridge Replacement required the removal of riparian trees. Replacement plantings for native trees will be installed, irrigated, and maintained within the public ROW along Watmaugh Road and Sonoma Creek.

The North Bay Water Recycling Program – Phase 1 included avoidance and minimization measures to reduce impacts to heritage or other significant trees. The avoidance and minimization measures included a preconstruction tree inventory and possible design change to avoid trees. For trees that required removal, replacement trees were proposed to be replanted, irrigated, and monitored for a minimum of 2 years. The Chase Street Bridge Replacement Project at Nathanson Creek required the removal of 9 trees. Three methods of compensation were proposed, which included (1) tree replacement at a 1:1 ratio onsite, (2) tree replacement at a 1:1 ratio offsite, or (3) an in-lieu payment of \$100 per tree provided that payments would be used for educational projects and/or planting programs.

Cumulative Impacts

Currently, there is no cumulative impact resulting from tree removal within the resource study area because all projects have or will have to mitigate for tree removal. These projects would not inhibit the health of native trees and would not contribute to the cumulative impact of native trees. In addition, the impacts to native trees associated with the Build Alternatives

would not contribute to a cumulative impact because the trees being impacted by the Build Alternatives will be mitigated through replanting onsite at a 1:1 ratio, which would reduce the impacts to less than significant. Based on this analysis and review, under CEQA, no considerable contributions to cumulative impacts to native trees would result from either Build Alternative.

California Red-Legged Frog

Resource Study Area

The cumulative resource study area for California red-legged frog is the area within a 2-mile radius of the study area, as shown in Figure 2.5-1. This resource study area is based on the maximum distance at which an individual California red-legged frog could disperse and the reasonable potential for cumulative effects to the species.

Historical Context/Current Status

The California red-legged frog requires habitat that consists of both aquatic and riparian elements. Habitat loss and alteration, combined with over-exploitation and introduction of exotic predators, were important factors in the decline of the California red-legged frog in the early to mid-1900s. Continuing threats to the California red-legged frog include direct habitat loss due to stream alteration and loss of aquatic habitat, indirect effects of expanding urbanization, and competition or predation from non-native species. Chytrid fungus (*Batrachochytrium dendrobatidis*) is a waterborne fungus that can decimate amphibian populations and is considered a threat to California red-legged frog populations.

There is a low potential for California red-legged frog to occur within the resource study area. There is suitable dispersal habitat within the resource study area, but no suitable breeding habitat is present. As past projects have added paving in the study area, the health of the dispersal habitat has decreased over time, which has made it more difficult for the species to survive in the resource study area.

Proposed Project Impacts

Both Build Alternatives would result in permanent impacts to California red-legged frog dispersal habitat: the Roundabout Alternative would add 1.64 acres of new pervious or impervious surface, while the Signalized Intersection Alternative would add 1.53 acres. These pervious or impervious surfaces would result in permanent impacts to California red-legged frog dispersal habitat, which could make it more difficult for the species to inhabit this area. Mitigation for this impacted habitat will be required at a mitigation bank.

There is no breeding habitat present within the study area; therefore, no permanent impacts to California red-legged frog breeding habitat are anticipated. Direct impacts to individual California red-legged frogs are not anticipated during project operation; however, California

red-legged frog could be captured, injured, or killed by construction-related personnel or equipment during project construction if they enter or are found in the work area.

Reasonably Foreseeable Projects

The development projects identified would not impact California red-legged frog dispersal habitat because they primarily involve changing the use of an existing building, which would not involve a substantial expansion of their existing footprint. However, the development projects that require construction of a new building have the potential to impact dispersal habitat; although there is not sufficient information to determine if they would impact California red-legged frog. Three of the transportation projects identified in Section 2.4.2 are within the 2-mile resource study area and have the potential to affect California red-legged frog. These projects are reasonably foreseeable because they have either gone through or will go through the environmental review process and are assumed to be constructed in the future.

The Route 116 Stage Gulch Road Curve Improvement and Realignment Project included mitigation for impacts to California red-legged frog habitat at a 3:1 mitigation ratio for permanent impacts and a 1:1 ratio of temporary effects. Mitigation bank credits were purchased from a USFWS-approved conservation bank. The Watmaugh Road Bridge Replacement Project included avoidance and minimization measures to reduce impacts to California red-legged frog. These included construction outside of the California red-legged frog breeding season, biological monitoring, and relocation by an agency-approved biologist. There is no discussion of compensatory mitigation to California red-legged frog habitat in the CEQA document. The North Bay Water Recycling Program – Phase 1 included avoidance and minimization measures to reduce impacts to California red-legged frog. These included construction outside of the California red-legged frog breeding season and worker awareness training.

Cumulative Impacts

Currently, there is no cumulative impact on California red-legged frog within the resource study area because all projects have or will have to mitigate for impacts on California red-legged frog. With implementation of these measures, these projects would not inhibit the health of California red-legged frog or its habitat and would not contribute to the cumulative impact of the species.

Under the proposed project, the amount and quality of habitat being impacted by the Build Alternatives will be mitigated through the purchase of California red-legged frog credits from a mitigation bank such as Ridge Top Ranch or North Bay Highlands. Because the Build Alternatives will mitigate for adverse impacts to California red-legged frog, the Build Alternatives would not contribute to a cumulative impact to California red-legged frog, which would reduce the impacts to less than significant. Based on this analysis and review,

under CEQA, no considerable contributions to cumulative impacts to California red-legged frog would result from the proposed Build Alternatives.

2.4.4 Avoidance, Minimization, and/or Mitigation Measures

The Build Alternatives will implement the avoidance, minimization, and mitigation measures specific to avoid and minimize effects on wetlands, native trees, and California red-legged frog as stated in Section 2.3. Current and past projects compensated for their impacts to these resource areas or implemented avoidance and minimization measures. It is assumed that these projects would follow through with avoidance and minimization measures. No significant cumulative impacts would occur; therefore, additional avoidance, minimization, and/or mitigation measures are not required.

2.5 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to greenhouse gas emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of greenhouse gases generated by human activity, including carbon dioxide, methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of greenhouse gas 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 greenhouse gas-emitting sources. The dominant greenhouse gas emitted is carbon dioxide, 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 greenhouse gas emissions to reduce or “mitigate” the impacts of climate change. “Adaptation” refers to the effort of planning for and adapting to impacts resulting from climate change, such as adjusting transportation design standards to withstand more intense storms and higher sea levels⁵.

There are four primary strategies for reducing greenhouse gas emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity, (3) transitioning to lower greenhouse gas-emitting fuels, and (4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued cooperatively.⁶

⁵ http://climatechange.transportation.org/ghg_mitigation/

⁶ http://www.fhwa.dot.gov/environment/climate_change/mitigation/

2.5.1 Regulatory Setting

2.5.1.1 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 greenhouse gas emissions and climate change.

Assembly Bill 1493, Pavley, Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board to develop and implement regulations to reduce automobile and light truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009 model year.

Executive Order S-3-05 (June 1, 2005): The goal of this Executive Order is to reduce California's greenhouse gas 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 Assembly Bill 32.

Assembly Bill 32, Núñez and Pavley, The Global Warming Solutions Act of 2006: Assembly Bill 32 sets the same overall greenhouse gas emissions reduction goals as outlined in Executive Order S-3-05, while further mandating that the California Air Resources Board 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 and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order set forth the low carbon fuel standard for California. Under this Executive Order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 97 Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor's Office of Planning and Research to develop recommended amendments to the CEQA Guidelines for addressing greenhouse gas emissions. The amendments became effective on March 18, 2010.

Senate Bill 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board 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 Chapter 585, 2009 California Transportation Plan: This bill requires the State’s long-range transportation plan to meet California’s climate change goals under Assembly Bill 32.

2.5.1.2 Federal

Although climate change and greenhouse gas reduction are a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing greenhouse gas emissions reductions and climate change at the project level. Neither U.S. EPA nor FHWA has issued explicit guidance or methods to conduct project-level greenhouse gas analysis.⁷ 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 it 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.

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 a 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 Executive Order 13514 – *Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 (October 5, 2009) is focused on reducing greenhouse gases internally in federal agency missions, programs, and operations, but it 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 greenhouse gas emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that greenhouse gases 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

⁷ To date, no national standards have been established regarding mobile source greenhouse gases, nor has U.S. EPA established any ambient standards, criteria, or thresholds for greenhouse gases resulting from mobile sources.

2009. Based on scientific evidence, it found that six greenhouse gases constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and U.S. EPA's assessment of the scientific evidence that form the basis for U.S. EPA's regulatory actions. U.S. EPA, in conjunction with the National Highway Traffic Safety Administration, issued the first of a series of greenhouse gas emission standards for new cars and light-duty vehicles in April 2010.⁸

U.S. EPA and the National Highway Traffic Safety Administration are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced greenhouse gas emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever greenhouse gas regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle greenhouse gas 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 greenhouse gas 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 the National Highway Traffic Safety Administration 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 4 billion barrels of oil and 2 billion metric tons of greenhouse gas emissions.

The complementary U.S. EPA and National Highway Traffic Safety Administration standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and 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 carbon dioxide emissions by approximately 270 million metric tons and save approximately 530 million barrels of oil over the life of model year 2014 to 2018 heavy-duty vehicles.

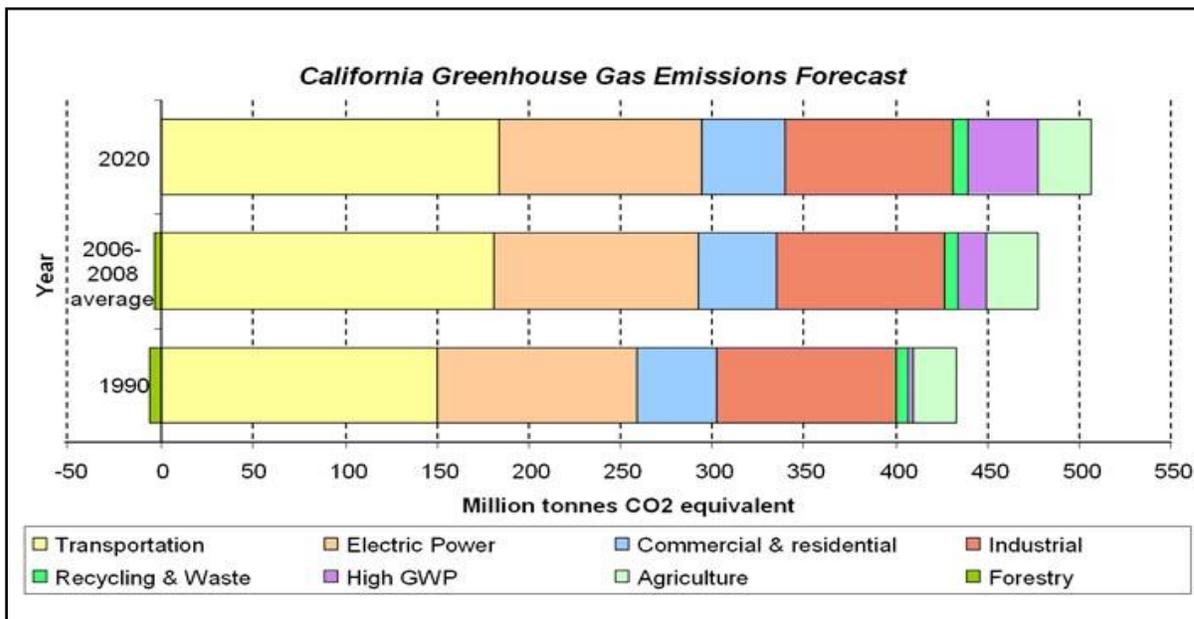
2.5.2 Project Analysis

An individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This

⁸ <http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq>

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 greenhouse gas.⁹ 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 Assembly Bill 32 Scoping Plan mandated by Assembly Bill 32 includes the main strategies California will use to reduce greenhouse gas emissions. As part of its supporting documentation for the Draft Scoping Plan, the California Air Resources Board released the greenhouse gas inventory for California (forecast last updated: October 28, 2010) (see Figure 2.6-1. 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. The base year used for forecasting emissions is the average of statewide emissions in the greenhouse gas inventory for 2006, 2007, and 2008.



Source: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>.

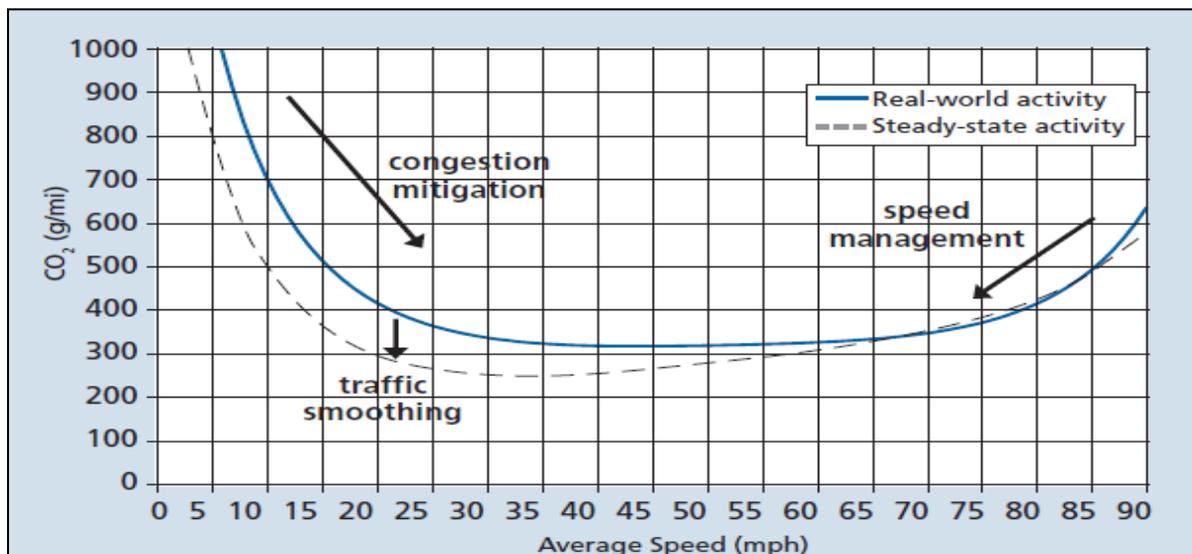
Figure 2.6-1: California Greenhouse Gas Forecast

⁹ This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the U.S. Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

Caltrans and its parent agency, the Transportation Agency, have taken an active role in addressing greenhouse gas emission reduction and climate change. Recognizing that 98 percent of California's greenhouse gas emissions are from the burning of fossil fuels and 40 percent of all human-made greenhouse gas emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans, which was published in December 2006.¹⁰

Congestion-Relief Projects

One of the main strategies in the Caltrans Climate Action Program to reduce greenhouse gas emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (zero to 25 mph) and speeds over 55 mph; the most severe emissions occur from zero to 25 mph (see Figure 2.6-2). To the extent that a project relieves congestion by enhancing operations and improving travel times in high-congestion travel corridors, greenhouse gas emissions, particularly carbon dioxide, may be reduced.



Source: *Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010)* <<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>>

Figure 2.6-2: Possible Effect of Traffic Operation Strategies in Reducing On-Road Carbon Dioxide Emission

¹⁰ 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

This project focuses on improving operations for all modes of transportation at the SR 116/121 intersection. Current traffic operations are limited through the study area due to the stop-controlled intersection, which contributes to long queues along SR 116/Arnold Drive, SR 121/Arnold Drive, and SR 121/Fremont Drive. The Build Alternatives would improve operations along all intersection legs, reduce congestion and delay, and reduce vehicle queue lengths. When comparing existing conditions to future build conditions, the *Traffic Operations Analysis Report* estimates that by 2040, the Roundabout Alternative would reduce delay by 4 minutes, 51 seconds per vehicle in the morning peak period and by 5 minutes, 56 seconds per vehicle in the evening peak period. It also estimates that by 2040, the Signalized Intersection Alternative would reduce delay by 4 minutes, 22 seconds per vehicle in the morning peak period and by 5 minutes, 14 seconds per vehicle in the evening peak period. Reductions in delays would also reduce emissions of pollutants, including carbon dioxide. The project is also included in the 2013 Regional Transportation Plan/Sustainable Communities Strategy and 2015 Transportation Improvement Program, which contain adopted strategies for greenhouse gas emissions from transportation sources. Lastly, the project design would maintain the Park-and-Ride lot and provide pedestrian and bicycle facilities in the study area, further encouraging alternative modes of transportation.

To evaluate potential greenhouse gas impacts of the Build Alternatives, future conditions with and without the project were modeled using the CT-EMFAC11 emissions prediction model. Table 2.6-1 demonstrates the potential influence of changes in vehicle speeds and idling time within the project study area on carbon dioxide emissions within that area.

Table 2.6-1: Predicted Carbon Dioxide Emissions from Motor Vehicles Traveling within the Project Study Area

Alternative / Year		Predicted Emissions of Carbon Dioxide (tons per year)
No Build	2015	15,330
	2020	17,155
	2040	23,725
Roundabout	2020	13,505
	2040	17,885
Signalized Intersection	2020	16,790
	2040	22,265

Air Quality Study Report, 2016.

Table 2.6-1 focuses on carbon dioxide emissions. The carbon dioxide emissions values presented in Table 2.6-1 are only useful for a comparison between Build and No Build Alternatives. The estimated emission values are not necessarily an accurate reflection of what the true carbon dioxide emissions will be because carbon dioxide emissions are dependent on other factors that are not part of the model, such as the fuel mix, rate of acceleration, and the aerodynamics and efficiency of the vehicles. However, the general trend shown in Table 2.6-1 – decreases in carbon dioxide emissions under both Build Alternatives when compared to the No Build Alternative under future conditions – is consistent with the pattern of estimated differences in vehicle speeds and idling time applied as inputs to the emissions analyses.

2.5.3 Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction greenhouse gas emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. Total carbon dioxide emissions during the construction period were estimated with the Sacramento Metropolitan Air Quality Management District's *Road Construction Emissions Model*, and are anticipated to be 1,060 tons under the Roundabout Alternative and 1,107 tons under the Signalized Intersection Alternative.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the greenhouse gas 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, Air Quality, 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 the Build Alternatives would result in a slight increase in greenhouse gas emissions during construction, it is anticipated that any increase in greenhouse gas emissions would be offset by the reduction of greenhouse gas emissions from the operational improvements of the Build Alternatives. Measures to help reduce greenhouse gas emissions are outlined in the following section.

2.5.4 Greenhouse Gas Reduction Strategies

Caltrans continues to be involved on the Governor's Climate Action Team as the California Air Resources Board works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in Assembly Bill 32. Many of the strategies Caltrans is using to help meet the targets in Assembly Bill 32 come from former 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 greenhouse gas emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain carbon dioxide reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, intelligent transportation systems, operational improvements, and system completion and expansion, as shown in Figure 2.6-3.



Figure 2.6-3: Mobility Pyramid

Caltrans 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. Caltrans works closely with local jurisdictions on planning activities, but it does not have local land use planning authority. Caltrans assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars and light- and heavy-duty trucks; Caltrans 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 U.S. EPA and the California Air Resources Board.

Caltrans 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 375 (Steinberg 2008), Senate Bill 391(Liu 2009) requires the State’s long-range transportation plan to meet California’s climate change goals under Assembly Bill 32.

The California Transportation Plan is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas emissions. The California Transportation Plan 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 California Transportation Plan 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 California Transportation Plan 2040 will identify the statewide transportation system needed to achieve maximum feasible greenhouse gas emission reductions while meeting the State’s transportation needs.

Table 2.6-2 summarizes Caltrans and statewide efforts that Caltrans is implementing to reduce greenhouse gas emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Table 2.6-2: Climate Change/Carbon Dioxide Reduction Strategies

Strategy	Program	Partnership		Method/ Process	Estimated Carbon Dioxide Savings (million metric tons)	
		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 and 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

Table 2.6-2: Climate Change/Carbon Dioxide Reduction Strategies

Strategy	Program	Partnership		Method/ Process	Estimated Carbon Dioxide Savings (million metric tons)	
		Lead	Agency		2010	2020
Operational Improvements & Intelligent Transportation System Deployment	Strategic Growth Plan	Caltrans	Regions	State Intelligent Transportation System; Congestion Management Plan	0.07	2.17
Mainstream Energy & Greenhouse Gas 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, California EPA, Air Resources Board, California Energy Commission		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	California Environmental Protection Agency, Air Resources Board, Business Transportation and Housing Agency, Metropolitan Planning Organizations		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)¹¹ provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

The following measures will also be included in the project to reduce the greenhouse emissions and potential climate change impacts from the project:

1. Landscaping reduces surface warming, and through photosynthesis, decreases carbon dioxide. The project will include landscaping, as described in Section 2.1.7, Visual/Aesthetics. The landscaping will help to offset potential carbon dioxide emissions.
2. The project will utilize energy-efficient lighting, which will be defined during final design.
3. According to the Caltrans Standard Specifications, the contractor must comply with all local Air Pollution Control District's rules, ordinances, and regulations in regards to air quality restrictions, as described in Section 2.2.6, Air Quality.
4. To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times, as described in Section 2.2.6, Air Quality.
5. Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by California Code of Regulations Title 17, Section 93114, as described in Section 2.2.6, Air Quality.

2.5.5 Adaptation Strategies

“Adaptation strategies” refer to how Caltrans and others can plan for the effects of climate change on the state’s transportation infrastructure and strengthen or protect the facilities from damage. 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.

¹¹ http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality, the Office of Science and Technology Policy, and the National Oceanic and Atmospheric Administration, released its interagency task force progress report on October 28, 2011¹², 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. Efforts are underway on a statewide level to develop strategies to cope with impacts to habitat and 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, former Governor Arnold Schwarzenegger signed Executive Order S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This Executive Order 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 (December 2009)¹³, which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to Executive Order 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.

¹² <http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation>

¹³ <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report¹⁴ 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 (e.g., roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems.
- 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 Caltrans, as a method to initiate action and discussion of potential risks to the state's infrastructure due to projected sea level rise. Subsequently, the Coastal Ocean Climate Action Team updated the Sea Level Rise guidance to include information presented in the National Academies 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.

All projects that have filed a Notice of Preparation as of the date of Executive Order S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. A Notice of Preparation was not required for this project. However, the San Francisco Bay area includes approximately 1,000 miles of shoreline and thus is vulnerable to a range of natural hazards, including storms, extreme high tides, and projected sea level rise. According to several sea level rise projection maps¹⁵, sea level rise in the next century may potentially inundate the land uses and roadway infrastructure within the Bay. The potential for projected sea level rise within the proposed project vicinity in the 2050 and 2100 years may exacerbate existing natural hazards within the project area. A comprehensive planning and adaptation

¹⁴ *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.

¹⁵ Pacific Institute Map, San Francisco Bay Conservation and Development Commission 2008, San Francisco Bay Conservation and Development Commission 2010.

plan approach will be required through collaboration efforts between Caltrans and local agencies with land use authority to ensure future plans for infrastructure and the surrounding land uses consider sea level rise. In addition, Caltrans will continue to collaborate with Sonoma County, the Metropolitan Transportation Commission, and other regional planning agencies to develop a sea level rise adaptation plan to address future sea level rise.

Caltrans reviewed the most recent available maps from the Pacific Institute, San Francisco Bay Conservation and Development Commission, and the U.S. Geological Survey of the project area and the projected shorelines due to sea level rise. As shown in Figure 2.6-4, the existing intersection is outside the area of direct impacts from flooding potential or projected sea level rise inundation.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency (now California Transportation Agency) to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, Caltrans 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, Caltrans 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, Caltrans will be able to 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. Caltrans is an active participant in the efforts being conducted in response to Executive Order S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.



Figure 2.6-4: Potential for Sea Level Rise in the Study Area

Chapter 3 **Comments and Coordination**

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and 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 information meetings. This chapter summarizes the results of Caltrans' efforts to fully identify, address, and resolve project-related issues through early and continuing coordination. Copies of agency correspondence are included in Appendix G.

3.1 Agency Consultation

This section summarizes the results of contact and consultation with other public agencies during project development. These include specific consultation with federal, State, and local agencies listed below. Copies of written consultation with agencies are included in Appendix G unless otherwise noted.

3.1.1 U.S. Fish and Wildlife Service

Caltrans will conduct formal consultation with USFWS. USFWS reviews projects consistent with Section 7 of the Federal Endangered Species Act, focusing on identified or potential impacts to protected plant and wildlife species for both Build Alternatives as described in Section 2.3.5, Threatened and Endangered Species. Consultation with USFWS is also required under the Federal Fish and Wildlife Coordination Act for any impacts to a stream or water body. Coordination on this project began with a request for, and review of, any information on endangered and threatened species in the project region. On March 4, 2015, project staff, Caltrans, and USFWS met at the project site to discuss the project and special-status species that could occur in the area. It was determined that, because a portion of the study area was unable to be surveyed, potential sensitive plant and wildlife species and habitats discovered in the database searches are inferred to be present in that portion of the study area until more information becomes available. Caltrans will request formal consultation on the California red-legged frog, vernal pool fairy shrimp, Sonoma sunshine, two-fork clover/showy rancheria clover, Contra Costa goldfields, and Sebastopol meadowfoam.

3.1.2 U.S. Army Corps of Engineers

Any filling of wetlands or impacts to the waters of the U.S. or navigable waters requires permit review and approval by the U.S. Army Corps of Engineers consistent with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Impacts to wetlands are anticipated under both Build Alternatives, as described in Section 2.3.2, Wetlands and Other Waters of the U.S, which would require the project to obtain an Individual Permit under Section 404 from the U.S. Army Corps of Engineers. The *Delineation of Waters of the U.S.* will be submitted to the U.S. Army Corps of Engineers for their review and verification of the presence of jurisdictional waters prior to completion of the environmental process.

3.1.3 Federal Highway Administration

FHWA's plans, programs, and projects are required to conform to the applicable State Implementation Plan for achieving National Ambient Air Quality Standards. This applies to transportation plans, transportation improvement programs, and projects funded or approved by FHWA or the Federal Transit Administration in areas that do not meet or previously have not met air quality standards for O₃, CO, particulate matter, or NO₂. The project area is exempt from regional conformity analysis requirements, as described in Section 2.2.6, Air Quality. Caltrans will request that FHWA issue a project-level conformity determination for this project prior to completion of the environmental process, confirming that the project conforms to the purpose of the State Implementation Plan for achieving the National Ambient Air Quality Standards.

3.1.4 State Historic Preservation Officer

Federally funded transportation projects must follow FHWA and Caltrans procedures for historic preservation. A Programmatic Agreement for compliance with Section 106 of the National Historic Preservation Act would apply to this project. One resource was identified as being eligible for the National Register of Historic Places – the Vineyard Inn Hotel. The Vineyard Inn Hotel would not be adversely affected by the proposed project activities under either Build Alternative because the project would not change the character of the property's use of or physical features within the property's setting that contribute to its historic significance. A letter was sent to the State Historic Preservation Officer on February 11, 2016, to confirm the eligibility determinations of the Vineyard Inn Hotel and the eight other previously unevaluated properties in the area of potential effects. On March 21, 2016, they concurred with the findings that the Vineyard Inn Hotel is eligible for the National Register of Historic Places under Criterion C at the local level of significance and that the eight additional properties evaluated are not eligible for the National Register of Historic Places. An additional letter will be sent to the State Historic Preservation Officer after circulation of

the Draft Environmental Document to confirm a finding of No Adverse Effect on the Vineyard Inn Hotel and any unidentified archaeological resources that may be present within the area of potential effects.

3.1.5 State Water Resources Control Board

Projects that disturb 1 acre or more of land must obtain coverage under the statewide Construction General Permit (State Water Resources Control Board Order No. 2009-0009-DWQ, amended by 2010-0014-DWQ and 2012-0006-DWQ). To obtain coverage, a Notice of Intent and a Stormwater Pollution Prevention Plan will be filed with the State Water Resources Control Board prior to the commencement of construction.

3.1.6 Regional Water Quality Control Board

The project will obtain a Section 401 permit from the Regional Water Quality Control Board during the final design phase of the project. Under Section 401 of the Clean Water Act, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are Clean Water Act Section 404 permits issued by the U.S. Army Corps of Engineers. The 401 permit certifications are obtained from the appropriate Regional Water Quality Control Board, dependent on the project location, and are required before the U.S. Army Corps of Engineers issues a 404 permit.

3.2 Public Participation

3.2.1 Early Informational Meeting

SCTA conducted an early informational meeting with the public on November 5, 2014, at the Schell-Vista Fire Station at 22950 Broadway Street in Sonoma County. The purpose of the meeting was to provide early consultation with the public and project stakeholders for this proposed project. An informational postcard mailer was sent to all properties located within 0.5 mile of the project intersection, and owners and occupants of properties in the Temelec community located approximately 3 miles north of the intersection. The mailing included approximately 1,400 addresses. Approximately 50 attendees signed in, many of whom were residents and owners of adjacent and nearby properties and businesses.

Seven informational stations were set up, allowing members of the public to speak directly with project staff. Some common questions and comments received informally by members of the project team during their conversations with meeting attendees included support for making improvements to the intersection and concern that traffic congestion has substantially increased in the project vicinity. Other comments included safety concerns about the speed of

cars entering the free right turn at Fremont Drive, access concerns at adjacent properties, and inadequate signage.

3.2.2 Public Meeting

The project team will provide an open house meeting with the release of the Draft Environmental Document. It will be held on Wednesday, July 13, 2016, at the Finnish American Home Association, 197 West Verano Avenue, Sonoma County, from 5:00 to 7:00 p.m. Caltrans and SCTA staff will be present to discuss the proposed project's design features and environmental aspects and to answer questions. Notification will be sent out in advance of the meeting to all residents and businesses within 0.5 mile of the SR 116/121 intersection, including the residents of Temelec.

Members of the public will have the opportunity to comment on the project during public circulation of the Draft Environmental Document. Comments can be submitted via post mail to Arnica MacCarthy, Associate Environmental Planner at the Department of Transportation, Office of Environmental Analysis, P.O. Box 23660, MS 8B, Oakland, CA 94623, or via e-mail to Arnica.MacCarthy@dot.ca.gov. Comments must be submitted by August 2, 2016.

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 was responsible for oversight of the project and consists of representatives from Caltrans, SCTA, and the Parsons team.

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- David Guevara, Highway Operations, Caltrans District 4
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The following key consulting team staff members were responsible for preparation of the environmental technical studies and the environmental document:

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WRECO

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Appendix A CEQA Environmental Checklist

4-SON-116

46.0/46.7

3G900

4-SON-121

5.8/R7.4

3G900

Dist.-Co.-Rte.

P.M/P.M.

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	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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 Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 Caltrans 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 Caltrans determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans 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.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
X. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Explanation of Significance Determinations for “Less Than Significant with Mitigation”

Biological Resources (checklist question a)

The affected species is the California red-legged frog. The affected environment of the study area is described in Section 2.3.5.2. California red-legged frog could disperse through the drainages and terrestrial areas of the study area where there is suitable cover from predators. The Roundabout Alternative would add 1.64 acres of new pervious or impervious surface, while the Signalized Intersection Alternative would add 1.53 acres. These pervious or impervious surfaces would result in permanent impacts to California red-legged frog dispersal habitat, which could make it harder for the species to inhabit this area. For these reasons, this impact would be potentially significant.

To reduce this potentially significant impact, the following mitigation measure will be implemented:

- **MM TE-5:** USFWS may require compensatory mitigation for the potential permanent loss of 1.53 to 1.64 acres of California red-legged frog dispersal habitat. Due to this potential loss of dispersal habitat, which could make it harder for the species to inhabit this area, the amount and quality of habitat being impacted by the proposed project will be mitigated through the purchase of California red-legged frog credits from a mitigation bank such as Ridge Top Ranch or North Bay Highlands.

This mitigation measure, in coordination with the other avoidance and minimization measures identified in Section 2.3.5.4, will help this species survive and continue to inhabit this general vicinity. This benefits not only this species, but other species and habitats in the same ecosystem. With implementation of this mitigation measure, the impact would be reduced to less than significant.

Biological Resources (checklist question b)

The affected resource is native oak trees in the study area. The affected environment of the study area is described in Section 2.3.1.1. As shown in Table 2.3-1, approximately 17 live oaks and 11 valley oaks would be removed under the Roundabout Alternative, while 13 live oaks and 28 valley oaks would be removed under the Signalized Intersection Alternative. This tree removal is a potentially significant impact under the California Environmental Quality Act (CEQA) due to the provisions of State Senate Concurrent Resolution No. 17, which requires the 1:1 replacement of removed oak trees.

To reduce this potentially significant impact, the following mitigation measure will be implemented:

- **MM NC-2:** It is anticipated that the Regional Water Quality Control Board would require mitigation for the removal of native trees associated with waters of the State. In addition, per State Senate Concurrent Resolution No. 17, mitigation of oak trees would occur at a 1:1 ratio (i.e., replacement of one native oak for every one removed). Replacement planting would occur onsite; a tree planting plan utilizing native trees would be developed.

This mitigation measure, in coordination with the other avoidance and minimization measures identified in Section 2.3.1.3, will ensure no net loss of oak trees in the study area. This benefits birds, bats, and other species that may use oak trees as potential habitat. With implementation of this mitigation measure, the impact would be reduced to less than significant.

Biological Resources (checklist question c)

The affected resource is wetlands in the study area. The affected environment of the study area is described in Section 2.3.2.2. Both Build Alternatives would have permanent impacts to waters of the U.S. (wetlands). The Roundabout Alternative is anticipated to result in permanent impacts to 1.5 acres of wetlands, as shown in Table 2.3-4 and Figure 2.3-3. This would be due to the relocation of the Park-and-Ride lot and the expansion of the highway to accommodate additional lanes, shoulders, and pedestrian and bicycle facilities.

The Signalized Intersection Alternative was estimated to result in permanent impacts to 1.54 acres of wetlands, as shown in Table 2.3-4 and Figure 2.3-4. This would be due to the expansion of the highway to accommodate additional lanes, shoulders, and pedestrian and bicycle facilities and because the study area extends farther north and east under this alternative.

Due to the potential loss of wetland habitat, the impact would be potentially significant under CEQA. To reduce this potentially significant impact, the following mitigation measure will be implemented:

- **MM WL-1:** Compensatory mitigation at a minimum 1:1 ratio is required for all permanent wetland impacts unless the U.S. Army Corps of Engineers District Engineer determines and states in writing that other forms of mitigation are more appropriate. Compensatory options include mitigation banks or separate project-specific activities such as onsite restoration. Offsite restoration is often approved by the U.S. Army Corps of Engineers if it is within the same watershed. Mitigation bank wetland credits could be used to fully mitigate wetland impacts. Final mitigation requirements will be established during the permitting phase of the project with U.S. Army Corps of Engineers. If necessary, a Compensatory Mitigation Proposal will be submitted to the U.S. Army Corps of Engineers prior to construction. In addition, a Section 404 Standard Individual Permit from the U.S. Army Corps of Engineers and a Section 401 Permit of the Clean Water Act and the State Porter-Cologne Water Quality Control Act from the Regional Water Quality Control Board will be obtained during final design.

This mitigation measure, in coordination with the other avoidance and minimization measures identified in Section 2.3.2.4, will ensure no net loss of wetland habitat. This benefits plants and animal species that use wetlands as potential habitat. With implementation of this mitigation measure, the impact would be reduced to less than significant.

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

Introduction

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (U.S.C.) 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 is also needed.

Section 4(f) *De Minimis* Impact Evaluation Requirements

Section 6009(a) of SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users) amended Section 4(f) legislation at 23 U.S.C. 138 and 49 U.S.C. 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 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. The Federal Highway Administration’s (FHWA) 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 California Department of Transportation (Caltrans) pursuant to 23 U.S.C. 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 Description

The project is located in Sonoma County at the intersection of Arnold Drive/Bonneau Road/ State Route (SR) 116/SR 121. The purpose of this project is to improve operations for vehicles, bicycles, and pedestrians where SR 116 and SR 121 intersect, consequently reducing congestion and the occurrence of accidents. Additionally, where possible, the project would maintain and enhance access to adjacent properties and parking for public transit and carpool users.

Three project alternatives are proposed for consideration. Two Build Alternatives – the Roundabout Alternative and the Signalized Intersection Alternative – and the No Build Alternative. The Roundabout Alternative includes construction of a hybrid multilane roundabout with 180 degrees of the circulatory roadway having two lanes, a full right-turn bypass lane in the northbound direction, and a partial right-turn bypass lane (yield control at the exit) in the westbound direction. The Interim Roundabout design option would also include construction of a hybrid multilane roundabout, which would be a phased version of the Roundabout Alternative and may be implemented initially, prior to implementation of the full Roundabout Alternative. Under the Interim Roundabout design option, 90 degrees of the circulatory roadway would have two lanes (instead of 180 degrees). Two partial right-turn bypass lanes would be provided, one in the southeast (instead of a full right-turn bypass) and one in the northeast quadrants. The Signalized Intersection Alternative proposes to introduce a four-way traffic signal to the project intersection.

Both Build Alternatives include construction of new pedestrian and bicycle facilities, utility relocations, and modifications to existing landscape, drainage systems, and access/maintenance. The Roundabout Alternative would relocate the Park-and-Ride lot to the northeast quadrant of the intersection, while the Signalized Intersection Alternative would reconfigure the existing Park-and-Ride lot in its current location. See Chapter 1 of the Initial Study/Environmental Assessment (IS/EA) for more information about the purpose and need and project description.

Description of the Section 4(f) Resource

The Vineyard Inn Hotel, located in the southeast quadrant of the SR 116/121 intersection at 23002 Arnold Drive, is privately owned and operated and sits on a 3.39-acre parcel. The portion of the parcel found to be eligible for inclusion in the National Register of Historic

Places is the northern triangular-shaped portion of the parcel, which can be seen in Figures B-1 and B-2. The Vineyard Inn Hotel is configured as 14 connected one-story motel units, arranged in a semicircular wing around the edges of an asphalt-paved driveway, which separate themselves from parking spaces, a central court, and the manager's office. All buildings reflect the Spanish Colonial Revival architectural style, which is typified by smooth stucco siding, clay tile roofs, and exposed rafters. Other contributing elements to the property include mature landscaping in the interior court area, including a small landscaped area on a concrete island in front of the manager's office; several date palms on the property; and a thick grove of tall eucalyptus trees on the property's eastern boundary. The northern portion of the Vineyard Inn Hotel was found eligible for inclusion in the National Register of Historic Places at the local level of significance under Criterion C as a distinctive and intact example of the motor court building type designed in the Spanish Colonial Revival style, an architectural style prevalent in California and elsewhere in the 1930s. It is therefore a Section 4(f) property as a historic site.

Potential Impacts to Section 4(f) Resource

The use of the Vineyard Inn Hotel under Section 4(f) would include permanent incorporation of land (permanent acquisition) and temporary occupancy for a temporary construction easement. A permanent physical acquisition of a sliver of the 3.39-acre parcel would occur – 0.0097 acre under the Roundabout Alternative and 0.0244 acre under the Signalized Intersection Alternative (see Figures B-1 and B-2). These small strips would be required for widening the highway to standard widths and for construction of the pedestrian and bicycle facilities. Most of the character-defining features of the historic property would not be affected because they are set back from the proposed highway construction.

Neither of the Build Alternatives would result in the removal of any of the motel building units or any other associated character-defining features of the historic property. No physical buildings or structures would be directly impacted. Some ornamental non-native trees (one California date palm) and other non-native landscaping on the outer edge of the property along SR 121/Arnold Drive would be permanently removed under the Signalized Intersection Alternative, but not under the Roundabout Alternative. The date palms are considered contributing elements to the historic property but not major character-defining features. While these changes would result in minor permanent visual and setting changes in the area due to the removal of landscaping, portions of the property have been previously modified by earlier transportation improvements, including development of the Caltrans Park-and-Ride lot, which involved taking a portion of the hotel property parcel.

The permanent and temporary acquisition of land would not change the character of the property or the physical features within the property's setting that contributes to its historic

significance. Access to the historic property would not change, and internal circulation within the historic motel courtyard parking area would be maintained. The visual effects are also considered to be not adverse because neither Build Alternative would substantially alter the existing visual character or quality associated with the existing SR 116/121 intersection. Additionally, traffic noise modeling indicated that the traffic noise associated with the highway facility would not approach or exceed the required noise abatement criterion at the historic Vineyard Inn Hotel.

A temporary construction easement would be required from the historic property under both project alternatives. The amount of acreage needed for the temporary construction easement would be 0.02 acre under the Roundabout Alternative to 0.03 acre under the Signalized Intersection Alternative. The temporary work on the property would include access onto the property to construct project-related features, including relocating utilities, constructing drainage, and a new pedestrian facility between 6 and 10 feet in width. All existing private property owner walls and landscaping in the interior courtyard area and eastern property border would be unaffected.

The small sliver acquisition required under both alternatives would not fundamentally affect the Vineyard Inn Hotel to the point that its significance would be diminished. It has been determined that the Build Alternatives would not adversely affect the activities, features, or attributes qualifying the Vineyard Inn Hotel as a historic property for protection under Section 4(f). Therefore, it is Caltrans' preliminary determination that the project would have a *de minimis* impact on the Vineyard Inn Hotel. The final determination will be made following the public comment period and concurrence from the State Historic Preservation Officer.

Avoidance, Minimization, and/or Mitigation Measures

Native trees will be replaced at a 1:1 ratio. Medians and parkway strips too narrow to plant will include decorative paving. To the extent feasible, fencing at the edge of the right-of-way (ROW) will be designed to comply with Sonoma County Fencing Solutions Guidelines. The Secretary of the Interior's Standards for the Treatment of Historic Properties Action Plan will be implemented during construction. This plan describes the actions to be taken to protect the Vineyard Inn Hotel during project construction.

Coordination

The agency with official jurisdiction for the historic property is the State Historic Preservation Officer. Through the Section 106 process, Caltrans will consult with the State Historic Preservation Officer to seek their concurrence that the proposed project would have *de minimis* impacts on the Vineyard Inn Hotel. This process would occur when seeking concurrence from the State Historic Preservation Officer that the project would have no

adverse effect on the Vineyard Inn Hotel, after public circulation of the Draft Environmental Document. The State Historic Preservation Officer will then provide their concurrence with this evaluation.

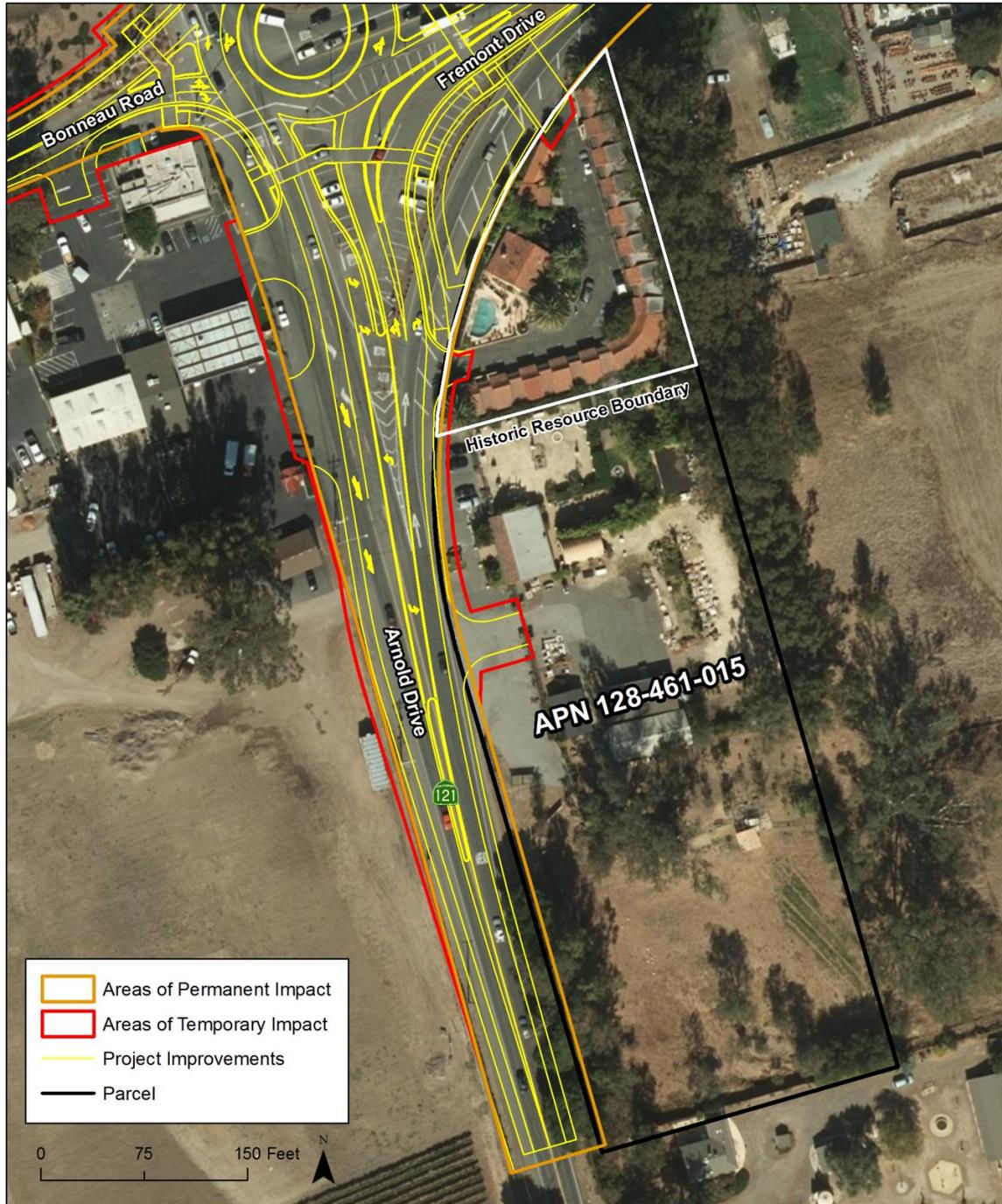


Figure B-1: Section 4(f) Resource under the Roundabout Alternative

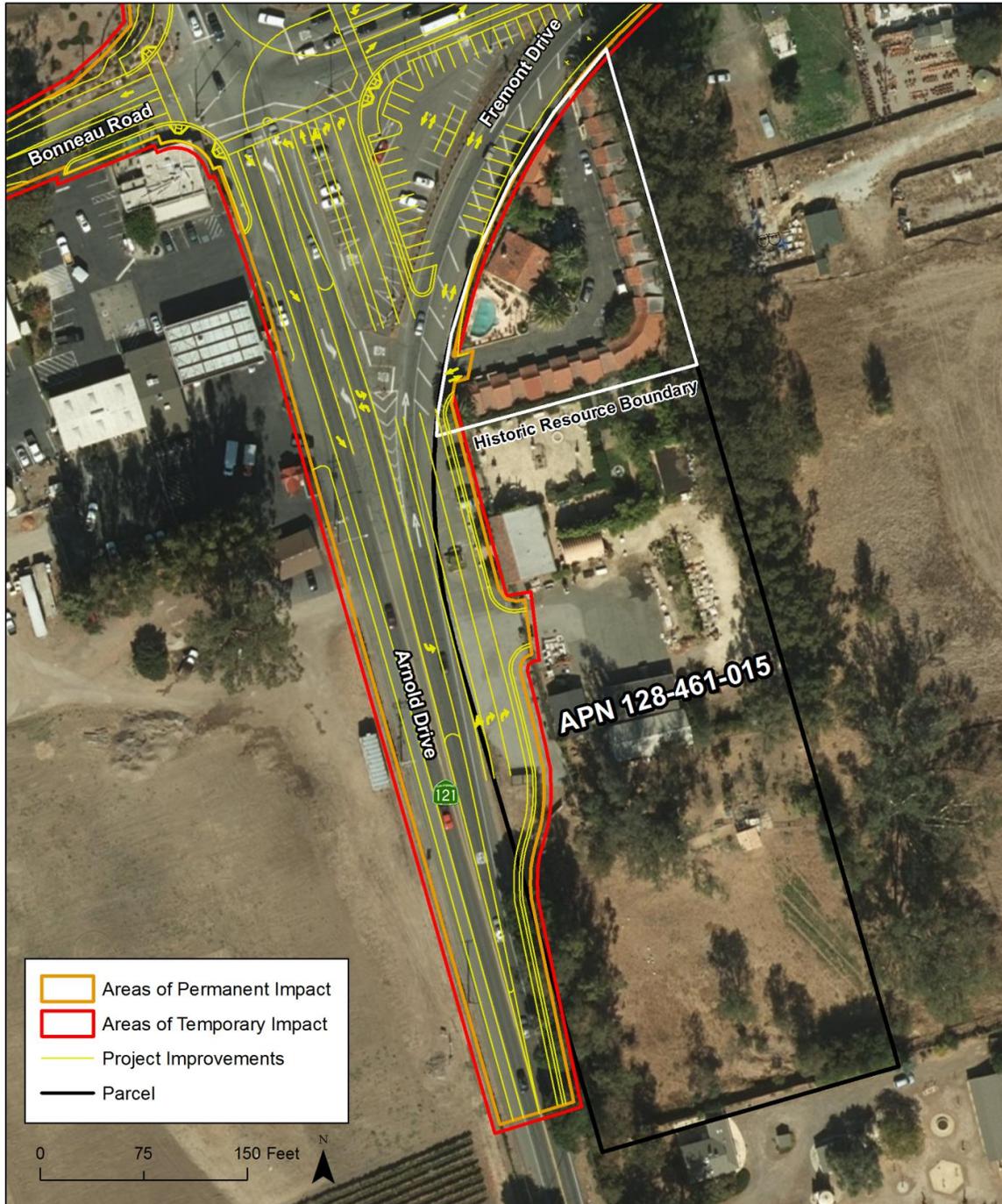


Figure B-2: Section 4(f) Resource under the Signalized Intersection Alternative

Appendix C Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION
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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.

A handwritten signature in blue ink, appearing to read "Malcolm Dougherty".

MALCOLM DOUGHERTY
Director

"Caltrans improves mobility across California"

Appendix D Glossary of Technical Terms

This appendix briefly explains the technical terms and names used in this Initial Study/ Environmental Assessment (IS/EA).

Alluvial Fans/ Fluvial Deposits	A fan- or cone-shaped deposit of sediment crossed and built up by streams.
Best Management Practice	Any program, technology, process, operating method, measure, or device that controls, prevents, removes, or reduces pollution.
Basin Plan	A specific plan for control of water quality within one of the nine hydrologic basins of the State under the regulation of a Regional Water Quality Control Board.
Beneficial Uses	Use of a natural water resource that enhances the social, economic, and environmental well-being of the user. Twenty-one (21) beneficial uses are defined for the waters of California and are protected against degradation. Beneficial uses range from municipal and domestic supply to fisheries and wildlife habitat.
Cumulative Effects	Project effects that are related to other actions with individually insignificant but cumulatively significant impacts.
Decibel	A numerical expression of the relative loudness of a sound.
Design Exceptions	The method required by Caltrans to approve all nonstandard conditions.
Encroachment (floodplain)	An action within the limits of the 100-year floodplain.
Endangered	Plant or animal species that are in danger of extinction throughout all or a significant portion of its range.
Erosion	The wearing away of the land surface by running water, wind, ice, or other geological agents.
<i>Federal Register</i>	Federal publication that provides official notice of Federal administrative hearings and issuance of proposed and final Federal administrative rules and regulations.

Floodplain (100-year)	The area subject to flooding by a flood or tide that has a 1 percent chance of being exceeded in any given year.
Habitat	The place or type of site where a plant or animal naturally or normally lives and grows.
Initial Study (IS)	Environmental review document prepared to comply with the California Environmental Quality Act (CEQA). Its purpose is to determine whether the project may have a significant effect on the environment and to identify measures that mitigate project impacts to a less than significant level.
Initial Site Assessment	A California Department of Transportation (Caltrans) term for an initial study to determine hazardous waste issues on a project.
Independent Utility	A requirement that highway projects be a reasonable expenditure even if no additional transportation improvements in the area are made. The Federal Highway Administration (FHWA) states that “as long as a project will serve a significant function by itself (i.e., it has independent utility), there is no requirement to include separate but related projects in the same analysis.”
L_{eq}	A unit used for evaluation of sound impacts, L_{eq} is the measurement of the fluctuating sound level received by a receptor averaged over a time interval (usually 1 hour).
Lead Agency	Public agency that has primary responsibility for carrying out or approving a project subject to environmental review and for preparing the environmental document.
Level of Service (LOS)	A measurement of capacity of a roadway. It is a rating of traffic congestion and varies on a scale from LOS A to LOS F, where LOS A represents uncongested, free-flow conditions and LOS E represents very congested conditions. At LOS F, a roadway segment is considered over capacity and operates at stop-and-go conditions.

Liquefaction	The process by which water-saturated, unconsolidated sediments are transformed into a substance that acts like a liquid, often in an earthquake. By undermining the foundations and base courses of infrastructure, liquefaction can cause serious damage.
Logical Termini	A requirement that highway projects have rational end points for a transportation improvement and rational end points for a review of environmental impacts.
Mitigation	Compensation for an impact by replacement or provision of substitute resources or environments. Mitigation can include avoiding an impact by not taking a certain action, minimizing impacts by limiting the degree of an action, or rectifying an impact by repairing or restoring the affected environment.
Negative Declaration	Issued upon approval of the environmental review process under CEQA. It states that upon completion of an initial study, there is no substantial evidence that the project may have a significant effect on the environment.
Nonattainment Area	Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.
Nonstandard Conditions	Any roadway condition that deviates from the accepted standard condition needs special approval from Caltrans.
National Pollutant Discharge Elimination System	A national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements under various sections of the Clean Water Act. The statewide Construction General Permit is a National Pollutant Discharge Elimination System general permit issued by the State Water Resources Control Board that applies to projects that disturb 1 acre or more of land. One condition of this permit is that the contractor must develop and implement a Stormwater Pollution Prevention Plan, which is similar to the Water Pollution Control Plan required by Caltrans' Standard Specification 7-1.01G.
Project Development Team	A multidisciplinary technical advisory group assembled to review and provide direction on project development.

Peak Hour	The period during which traffic volume is at its highest.
Project Study Report	A Caltrans document establishing consensus among state and local decision makers in the viability and appropriateness of a project. The Project Study Report initiates the preliminary engineering and environmental review phase of project development.
Receptors	Term used in air quality and noise studies that refers to houses or businesses that could be affected by a project.
Regulatory Agency	An agency that has jurisdiction by law.
Responsible Agency	A public agency other than the Lead Agency that has responsibility for carrying out or approving a project under CEQA.
Right-of-way	A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes.
Riparian	Pertaining to the banks and other adjacent terrestrial (as opposed to aquatic) environs of freshwater bodies, watercourses, estuaries, and surface-emergent aquifers, whose transported freshwater provides soil moisture sufficient in excess of that available through local precipitation to potentially support the growth of vegetation.
Regional Transportation Plan	A plan prepared by the Metropolitan Transportation Commission, the regional agency responsible for transportation planning and funding.

Significance	CEQA defines a “significant effect on the environment” as “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant” (CEQA Guidelines Section 15382). CEQA requires that the lead agency identify each “significant effect on the environment” resulting from the project and avoid or mitigate it.
Special-Status Species	Plant or animal species that are either (1) federally listed, proposed for, or a candidate for listing as threatened or endangered; (2) bird species protected under the federal Migratory Bird Treaty Act; (3) protected under State endangered species laws and regulations, plant protection laws and regulations, Fish and Game codes, or species of special concern listings and policies; or (4) recognized by national, State, or local environmental organizations (e.g., California Native Plant Society).
State Transportation Improvement Program	The State Transportation Improvement Program, updated every 2 years, is the California Transportation Commission’s priorities for improvements on and off the State highway system.
Stormwater Pollution Prevention Plan	A Stormwater Pollution Prevention Plan is prepared to evaluate sources of discharges and activities that may affect stormwater runoff and implement measures or practices to reduce or prevent such discharges.
Threatened	A species that is likely to become endangered in the foreseeable future in the absence of special protection.
Vehicle Miles Traveled	A measure of the extent of motor vehicle operation; the total number of vehicle miles traveling within a specific geographic area over a given period of time.

Waters of the United States

As defined by the U.S. Army Corps of Engineers in 33 *Code of Federal Regulations* (CFR) 328.3(a):

1. All waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce, including any such waters:
 - (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 - (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - (iii) Which are used or could be used for industrial purposes by industries in interstate commerce;
4. All impoundment of waters otherwise defined as waters of the United States under this definition;
5. Tributaries of waters identified in paragraphs 1-4;
6. The territorial seas;
7. Wetlands adjacent to waters (waters that are not wetlands themselves) identified in paragraphs 1-6.

Wetlands

When used in a formal context, such as in this IS/EA, wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances will support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas [33 CFR 328.3(b)].

Appendix E Minimization and/or Mitigation Summary

This appendix summarizes the avoidance, minimization, and/or mitigation measures discussed in Chapter 2.

Property Acquisition
AMM COM-1: Access to all properties for property owners and users will be maintained by the contractor during construction.
Utilities/Emergency Services
AMM UT-1: Caltrans will coordinate relocation work with the affected utility companies to minimize disruption of services to customers in the area during construction. If previously unknown underground utilities are encountered, Caltrans will coordinate with the utility provider to develop plans to address the utility conflict, protect the utility if needed, and limit service interruptions. Any short-term, limited service interruptions of known utilities will be scheduled well in advance, and appropriate notification will be provided to users.
AMM UT-2: Caltrans will coordinate with emergency service providers and through the public information program to avoid emergency service delays by ensuring that all providers are aware well in advance of lane closures. A Traffic Management Plan will also be developed as part of the project to address traffic impacts from staged construction, lane closures, and specific traffic handling concerns such as emergency access during project construction.
AMM UT-3: If the Roundabout Alternative is selected as the preferred alternative, a public education campaign will be implemented to inform area drivers and residents about the new roundabout to minimize potential accidents and disruptions to emergency service providers, and it will include information on how drivers should respond when emergency vehicles are approaching the roundabout. The campaign will include measures such as: <ul style="list-style-type: none"> • Holding public meetings prior to opening the roundabout to traffic and/or giving presentations at local organization meetings; • Preparing news releases detailing what motorists and pedestrians can expect during and after construction; and • Distributing an informational brochure to residents explaining how to navigate roundabouts (both in a vehicle and as a pedestrian).
Traffic and Transportation/Pedestrian and Bicycle Facilities
AMM T-1: A Transportation Management Plan will be developed and implemented as part of the project construction planning phase. The Transportation Management Plan will address these potential impacts to circulation of all modes (i.e., transit, bicycles, pedestrians, and private vehicles). Highway and/or pedestrian access to all occupied residences and businesses and respective parking lots will be maintained during project construction. The Transportation Management Plan may provide for contracting with local agencies for traffic personnel, especially for special event traffic through or near the construction zone. It will also include a public awareness campaign to notify users of the intersection of potential lane closures.
AMM T-2: If a full closure of the Park-and-Ride lot is required, Caltrans will redirect patrons to other associated lots, such as the Petaluma, Lakeville Highway Park-and-Ride lot, located at Highway 101 and SR 116; South Petaluma Park-and-Ride lot, located at Highway 101 and South Petaluma Boulevard; or the Novato, Black Point Park-and-Ride lot, located at Route 37 and Atherton Avenue.

Visual/Aesthetics
AMM V-1: Beginning with preliminary design and continuing through final design and construction, save and protect as many existing trees in the project area as feasible.
AMM V-2: Survey exact locations for trees and include in plan set during the design phase.
AMM V-3: Plant parkway strips, where feasible, using rows of trees to replace in-kind the removed trees and to break up the areas of paving.
AMM V-4: To the extent feasible, use California native species as part of the planting palette to replace the removed trees.
AMM V-5: If the Roundabout Alternative is selected, plant trees in the new Park-and-Ride area to replace in-kind the removed trees.
AMM V-6: Include an extended 3-year maintenance period as part of the construction period, either through the construction contract or a separate contract, to provide a single source of maintenance through the establishment period. This will provide consistency to ensure that the replanted trees have the best chance of succeeding.
AMM V-7: Provide decorative paving in all medians and parkway strips either too narrow to plant, or where planting is not easily maintained, to break up the areas of paving. Decorative paving shall consist of a texture and color that contrasts with adjacent sidewalk or roadway paving.
AMM V-8: To the extent feasible, design replacement fencing to comply with Sonoma County Fencing Solutions Guidelines.
AMM V-9: If the Roundabout Alternative is selected, the center of the roundabout will be designed in collaboration with Caltrans' District Landscape Architect during the design phase in order to block the line of sight through the roundabout. The center of the roundabout could include decorative paving, a large boulder, or a similar visual element.
AMM V-10: Beginning with preliminary design and continuing through final design and construction, use drainage and water quality elements, where required, that maximize the allowable landscape so that additional trees and/or decorative paving can be used.
AMM V-11: Design infiltration/detention basins so that they appear to be a natural landscape feature, such as a dry streambed or a riparian pool to break up areas of paving. They should be shaped in an informal, curvilinear manner to the greatest extent possible.
AMM V-12: Basin slope grading should incorporate slope rounding, variable gradients, and be similar to the surrounding topography to de-emphasize the edge. If a wall or hard feature is necessary, it should be worked into the overall design concept.
AMM V-13: Basins should be designed so that chain-link perimeter fencing is not required.
AMM V-14: Design all visible concrete structures and surfaces to visually blend with the adjacent landscaping and natural plantings to reduce the effect of additional paving.
AMM V-15: Limit the use of bioswales within corridor landscape areas. If they must be used, locate them in nonobtrusive areas and design should appear natural to the greatest extent possible.
Cultural Resources
AMM CUL-1: Cultural resources will be avoided to the greatest extent practicable. Further investigations may be needed if the site[s] cannot be avoided by the project. As soon as feasible, additional surveys will be required for the portions of the archaeological area of potential effects that were not surveyed due to access restrictions.
AMM CUL-2: The Secretary of the Interior's Standards for the Treatment of Historic Properties Action Plan will be implemented during construction. It describes the actions to be taken to protect the

Vineyard Inn Hotel during project construction.
AMM CUL-3: The Phased Identification Plan will be implemented for archaeological resources in the unsurveyed northeast parcel. It describes the additional identification efforts that will be taken prior to construction and efforts that will be made to avoid effects on any newly identified resources.
AMM CUL-4: 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.
AMM CUL-5: 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 Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendent. At this time, the person who discovered the remains will also contact the District 4 Cultural Resources Studies Office so that they may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.
Water Quality and Stormwater Runoff
AMM WQ-1: Stormwater sampling will be required at all discharge locations during construction.
AMM WQ-2: A Notice of Intent will be filed with the State Water Resources Control Board's Stormwater Multiple Application and Report Tracking System. A Stormwater Pollution Prevention Plan will also need to be implemented to address the temporary water quality impacts resulting from construction activities.
AMM WQ-3: Environmentally sensitive areas will be delineated on project plans and will be avoided during construction.
AMM WQ-4: Treatment best management practices will be incorporated into the project and are permanent devices and facilities that treat stormwater runoff. Caltrans has an approved list of treatment best management practices that have been studied and verified to remove targeted design constituents and provide general pollutant removal. Local county guidance will also be followed. The project will include stormwater runoff treatment measures designed not only to treat stormwater, but also to provide hydromodification to offset the increase in volume and rate of discharge created by the project. Preliminary evaluation of data on surface and subsoil texture, structure, and composition, as well as groundwater depth, indicates no real limits to the range of hydromodification options available to the project.
AMM WQ-5: Best management practices will be incorporated into the contract documents of the project to reduce the discharge of pollutants temporarily, during construction, and permanently to the maximum extent practicable. Construction site best management practices will be implemented during construction activities to reduce pollutants in stormwater discharges throughout construction. These include the measures of soil stabilization, sediment control, tracking control, non-stormwater management, waste management/materials pollution control and jobsite management.
AMM WQ-6: Design pollution prevention best management practices are permanent measures to improve stormwater quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. The following design pollution prevention best management practices will be incorporated into the project design: <ul style="list-style-type: none"> • Conserve natural areas, to the extent feasible, including existing trees, vegetation, and soils; • Install concentrated flow conveyance systems, such as ditches, berms, swales, flared end sections, outlet protection, and velocity dissipation devices to protect drainages. • Minimize the impervious footprint of the project; • Minimize disturbances to natural drainages; • Design and construct pervious areas to effectively receive runoff from impervious areas, taking into

<p>consideration the pervious area's soil conditions, slope, and other pertinent factors;</p> <ul style="list-style-type: none"> • Implement landscape and soil-based best management practices, such as compost-amended soils and vegetated strips and swales; • Use locally appropriate landscaping that minimizes irrigation and runoff, promotes surface infiltration, and minimizes the use of pesticides and fertilizers; and • Design all landscapes to comply with the California Department of Water Resources Water Efficient Landscape Ordinance.
<p>Geology/Soils/Seismic/Topography</p>
<p>AMM GEO-1: To minimize potential impacts from seismic events, the project will be constructed in accordance with all applicable Caltrans standards and regulations, and will be designed for the maximum possible earthquake. All construction activities will adhere to current engineering practices and recommendations provided by a Geotechnical Engineer/Engineering Geologist.</p>
<p>AMM GEO-2: In the event that groundwater is encountered in excavations during construction, groundwater could be managed with typical pumping operations to maintain a dry work area. If groundwater pumping is necessary within an excavation, groundwater will be collected in low points (called sumps). These low points will be equipped with a sump pump, and the water will be pumped out of the excavation. Groundwater shall be pumped into storage tanks, and either treated, disposed, or discharged based on groundwater testing results. If groundwater pumping is required, a Section 402 Caltrans National Pollutant Discharge Elimination System Permit will be obtained from the State Water Resources Control Board.</p>
<p>AMM GEO-3: To minimize the potential for soil instability from shrink-swell potential, soils with shrink-swell potential shall be compacted at the highest moisture content possible and not be allowed to dry out prior to covering with other material.</p>
<p>AMM GEO-4: A geotechnical investigation is necessary to determine the engineering characteristics of native soil in undeveloped areas. Special treatments could be required to increase the suitability of native soils for highway construction, or excavated material from obliterated highway embankments (e.g., intersection bypass lane on northbound SR 121) may be used. Otherwise, imported soil may be required. Imported soil for highway embankments shall have a minimum R-value (measure of thermal resistance/insulation) of 15 and shall have the appropriate environmental certifications to ensure contaminated soil is not used onsite.</p>
<p>Paleontology</p>
<p>AMM PAL-1: A project-specific Paleontological Mitigation Plan will be prepared by a qualified principal paleontologist (as defined in the Caltrans Standard Environmental Reference) during the design phase once adequate project design information regarding subsurface disturbance location, depth, and lateral extent is available.</p>
<p>AMM PAL-2: The qualified principal paleontologist will be present at preconstruction meetings to confer with contractors who will be performing ground-disturbing activities.</p>
<p>AMM PAL-3: The qualified principal paleontologist will conduct a preconstruction training to inform construction personnel on the types of material and fossils that may be encountered in sensitive geologic formations.</p>
<p>AMM PAL-4: Paleontological monitors, under the direction of the qualified principal paleontologist, will be onsite to inspect cuts for fossils at all times during original ground disturbance involving sensitive geologic formations.</p>
<p>AMM PAL-5: When fossils are discovered, the paleontologist (or paleontological monitor) will recover them. Construction work in these areas may be halted or diverted by the Resident Engineer to allow the prompt recovery of fossils.</p>
<p>AMM PAL-6: Fossils collected during the monitoring and salvage portion of the mitigation program</p>

will be prepared to the point of identification, sorted, and cataloged.
AMM PAL-7: Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will be deposited in a scientific institution with paleontological collections.
AMM PAL-8: A Paleontological Mitigation Report will be completed that outlines the results of the mitigation program.
Hazardous Waste/Materials
AMM HAZ-1: A preliminary site investigation will be conducted by Caltrans during the design phase of the project and will include the collection and analysis of soil samples for lead in areas near the roadway or painted structures where surface soil will be disturbed. Areas of particular focus should include swales, ditches, and other low areas where runoff may have carried lead-contaminated particles from either aerially deposited vehicle emissions or the weathering of painted structures. Soil samples will also be collected and analyzed for petroleum hydrocarbons, pesticides, and arsenic (near the Anaba tasting room).
AMM HAZ-2: At Bonneau's Shell and Spanier Property, if groundwater is encountered, Caltrans will contact the lead agencies for the sites as part of the preliminary site investigation, which is conducted during the design phase of the project. This will determine the site's current status and whether intrusive investigation, such as the collection of groundwater or soil samples, is warranted at that time.
AMM HAZ-3: If soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums, or other hazardous materials or wastes are encountered), work shall cease in the vicinity of the suspect material, the area shall be secured as necessary, and Caltrans shall take all appropriate measures to protect human health and the environment. Appropriate measures shall include notification of regulatory agency(ies), such as the California Environmental Protection Agency, Department of Toxic Substances Control, State Water Resources Control Board, and/or Sonoma County Department of Health Services, and compliance with the various regulatory agencies' laws, regulations, and policies.
AMM HAZ-4: Caltrans and the contractor shall stockpile soil generated by construction activities onsite in a secure and safe manner. All contaminated soils determined to be hazardous or nonhazardous waste shall be adequately profiled (i.e., sampled and analyzed) prior to acceptable reuse or disposal at an appropriate offsite facility. Specific sampling and handling and transport procedures for reuse or disposal shall be in accordance with applicable local, state, and federal agencies' laws, in particular, the Regional Water Quality Control Board, the Department of Toxic Substances Control, and County of Sonoma Department of Health Services, Environmental Health and Safety. Groundwater pumped from the subsurface shall be contained onsite in a secure and safe manner, prior to treatment and disposal, to ensure environmental and health issues are resolved pursuant to applicable local, state, and federal laws, regulations, and policies. Material from existing roadway elements that is removed or modified by the project will be handled and disposed of in accordance with all local, state, and federal requirements.
Air Quality
AMM AQ-1: Water or dust palliative (suppressant) will be applied to the site and equipment as often as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion either at the point of emissions or at the ROW line depending on local regulations. Trucks will be washed as they leave the ROW, as necessary, to control fugitive dust emissions.
AMM AQ-2: Soil binder will be spread on any unpaved roads used for construction purposes and on all project construction parking areas. Soil binders are materials applied to the soil surface to temporarily prevent water-induced erosion of exposed soils on construction sites.
AMM AQ-3: Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by California Code of Regulations Title 17,

Section 93114.
AMM AQ-4: A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
AMM AQ-5: Equipment and materials storage sites will be located as far away from residential uses as practicable. Construction areas will be kept clean and orderly.
AMM AQ-6: Environmentally Sensitive Area-like areas or their equivalent will be established near sensitive air receptors. Within these areas, construction activities involving the extended idling of diesel equipment or vehicles will be prohibited, to the extent feasible.
AMM AQ-7: Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, will be used. Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed with a street cleaning vehicle to decrease particulate matter.
AMM AQ-8: All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust (particulate matter) during transportation.
AMM AQ-9: To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
AMM AQ-10: Mulch will be installed or vegetation planted as soon as practical after grading to reduce windblown particulate in the area. Be aware that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues and may need to use controls such as dampened straw.
Noise
AMM NOI-1: Noise monitoring, conducted by Caltrans, will ensure that contractors take all reasonable steps to minimize impacts when near sensitive areas.
AMM NOI-2: Noise testing and inspection of equipment by the contractor will ensure that all equipment onsite is working properly, in good condition and effectively muffled. All equipment will have sound-control devices no less effective than those provided on the original equipment. Each internal combustion engine used for any purpose on the job or related to the job shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine should be operated on the jobsite without an appropriate muffler. Idling equipment will be turned off.
AMM NOI-3: An active community liaison program will be established, which will keep residents informed about construction plans so they can plan around periods of particularly high noise or vibration levels, and allow for a conduit for residents to express any concerns or complaints.
AMM NOI-4: Truck loading, unloading, and hauling operations will be minimized so that noise and vibration are kept to a minimum through the study area to the greatest possible extent.
AMM NOI-5: Where feasible, temporary noise barriers should be used and relocated, as needed, to protect sensitive receptors against excessive noise from construction activities involving large equipment and by small items such as compressors, generators, pneumatic (air powered) tools, and jackhammers. Noise barriers can be made of heavy plywood, moveable insulated sound blankets, or other best available control techniques.
AMM NOI-6: Construction activities should be minimized in the study area during evening, nighttime, weekend, and holiday periods. Noise impacts are typically minimized when construction activities are performed during daytime hours; however, nighttime construction may be desirable (e.g., in commercial areas where businesses may be disrupted during daytime hours) or necessary to avoid major traffic disruption. Coordination with the County should occur before construction can be

performed in noise-sensitive areas.
AMM NOI-7: Restrict the hours of vibration-intensive equipment or activities such as vibratory rollers so that impacts to study area users are minimal (e.g., restrict the hours to weekdays during daytime hours).
AMM NOI-8: The owner of a building close enough to a construction vibration source that damage to that structure due to vibration is possible would be entitled to a preconstruction building inspection to document the preconstruction condition of that structure.
AMM NOI-9: Conduct vibration monitoring during vibration-intensive activities.
Natural Communities
AMM NC-1: Existing native vegetation will be preserved to the greatest extent feasible, and new landscaping will be planted within the ROW where feasible. Specific trees to be preserved will be identified during the permitting phase of the project.
MM NC-2: It is anticipated that the Regional Water Quality Control Board would require mitigation for the removal of native trees associated with waters of the State. In addition, per State Senate Concurrent Resolution No. 17, mitigation of oak trees would occur at a 1:1 ratio (i.e., replacement of one native oak for every one removed). Replacement planting would occur onsite; a tree planting plan utilizing native trees would be developed.
AMM NC-3: Protect Environmentally Sensitive Areas: Environmentally Sensitive Areas will be delineated by the Caltrans Biologist on the project plans to protect these areas from harm by construction and project personnel. In addition, the project limits will be delineated with high-visibility fencing to avoid ground disturbance adjacent to work and access areas and to prevent access to the work site from nonauthorized personnel. Trees will be preserved in place to the extent practicable, potentially with delineation of the Environmentally Sensitive Area. All spoils, excavated materials, and plant materials will be disposed of at a licensed and approved facility.
AMM NC-4: Implement Erosion Control Measures and Stormwater Pollution Prevention Plans: Stormwater Pollution Prevention Plans and erosion control best management practices will be developed to minimize any wind- or water-related erosion. The Stormwater Pollution Prevention Plans provide guidance for design staff to include measures to protect sensitive areas and to prevent and minimize stormwater and non-stormwater discharges. Protective measures will include, but are not limited to, these restrictions: <ul style="list-style-type: none"> • No discharge of pollutants from vehicle and equipment cleaning will be allowed into any storm drains or watercourses. • Vehicle and equipment fueling and maintenance operations will be at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facility. • Dust control will include use of water trucks and dust palliatives to control dust in excavation and fill areas and covering temporary stockpiles when weather conditions require. • Biodegradable coir rolls or straw wattles will be installed along or at the base of slopes during work to capture sediment. • Graded areas will be protected from erosion using a combination of silt fences, biodegradable fiber rolls along toes of slopes or along edges of designated staging areas, and biodegradable erosion control netting (e.g., jute or coir) as appropriate on sloped areas.
AMM NC-5: Replant, Reseed, and Restore Disturbed Areas: Upon completion of sediment removal activities (removal of sediments from water or stormwater), disturbed areas will be restored. All slopes or unpaved areas temporarily affected by the proposed project will be stabilized with effective erosion control materials. Slopes and bare ground will be re-seeded with native grasses to stabilize and prevent erosion. Where temporary disturbance includes the removal of trees or plants, native species will be replanted. Revegetated and replanted areas will be monitored and maintained

<p>under a plant establishment plan for a period of 5 years.</p>
<p>AMM NC-6: Provide Environmental Awareness Training: Before the onset of sediment removal activities, a qualified biologist will conduct an education program for all project personnel. The program will include information on the protected species and their habitats likely to be found within the study area; requirements of federal and State laws pertaining to these species; identification of measures implemented to conserve the species and habitats within the project area; and distribution of a fact sheet conveying this information to the personnel who may enter the study area.</p>
<p>AMM NC-7: Implement Project Site Best Management Practices:</p> <ul style="list-style-type: none"> • Access routes and the number and size of staging and work areas will be limited to existing paved surfaces as practicable. Routes and boundaries will be clearly marked prior to initiating ground disturbance. • All food and food-related trash items will be enclosed in sealed trash containers and removed completely from the site at the end of each day. • No pets from project personnel will be allowed anywhere in the study area during work. • All equipment will be maintained such that there will be no leaks of automotive fluids, such as gasoline, oils, or solvents, and a Spill Response Plan will be prepared. • Hazardous materials, such as fuels, oils, and solvents, will be stored in sealable containers in a designated location that is at least 100 feet from aquatic habitats.
<p>AMM NC-8: Implement Project Schedule Windows:</p> <ul style="list-style-type: none"> • A qualified biologist will conduct a premobilization survey no less than 3 days before any ground-disturbing activities occur. • For protected resources and species, sediment removal actions will be scheduled to avoid effects on listed species and habitats to the extent practicable. • Work near trees that are to be preserved will be limited to times when soils are dry.
<p>Wetlands and Other Waters of the U.S.</p>
<p>MM WL-1: Compensatory mitigation at a minimum 1:1 ratio is required for all permanent wetland impacts unless the U.S. Army Corps of Engineers District Engineer determines and states in writing that other forms of mitigation are more appropriate. Compensatory options include mitigation banks or separate project-specific activities such as onsite restoration. Offsite restoration is often approved by the U.S. Army Corps of Engineers if it is within the same watershed. Mitigation bank wetland credits could be used to fully mitigate wetland impacts. Final mitigation requirements will be established during the permitting phase of the project with U.S. Army Corps of Engineers. If necessary, a Compensatory Mitigation Proposal will be submitted to the U.S. Army Corps of Engineers prior to construction. In addition, a Section 404 Standard Individual Permit from the U.S. Army Corps of Engineers and a Section 401 Permit of the Clean Water Act and the State Porter-Cologne Water Quality Control Act from the Regional Water Quality Control Board will be obtained during final design.</p>
<p>AMM WL-2: Environmentally Sensitive Area fencing will be installed along the entire project limits to avoid and minimize impacts beyond the project area.</p>
<p>AMM WL-3: A water quality inspector will inspect the site after a rain event to ensure that the stormwater best management practices are adequately protecting water quality.</p>
<p>AMM WL-4: The potential for adverse effects to water quality will be avoided by implementing temporary and permanent best management practices outlined in the Caltrans Stormwater Guide. Caltrans erosion-control best management practices will be used to minimize any wind- or water-related erosion. The State Water Resources Control Board has issued a National Pollutant Discharge Elimination System Stormwater Permit to Caltrans to regulate stormwater and non-stormwater discharges from Caltrans facilities. A Stormwater Pollution Prevention Plan will be developed for the project, as one is required for all projects that have at least 1 acre of soil disturbance. The Stormwater</p>

Pollution Prevention Plan complies with the Caltrans Stormwater Management Plan. The Stormwater Pollution Prevention Plan would reference the Caltrans Construction Site Best Management Practice Manual. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges. It can be found at the following website: <http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>.

Protective measures will be included in the contract, including, at a minimum:

- No discharge of pollutants from vehicles and equipment cleaning will be allowed into the storm drain or water courses.
- Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from water courses.
- Concrete wastes will be collected in washouts and water from curing operations will be collected and disposed of and not allowed into water courses.
- Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require.
- Coir rolls will be installed along or at the base of slopes during construction to capture sediment, and temporary organic hydromulching will be applied to all unfinished disturbed and graded areas.
- Work areas where temporary disturbance has removed the pre-existing vegetation will be restored and re-seeded with a native seed mix.
- Graded areas will be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting such as jute or coir, as appropriate.
- A Revegetation Plan will be prepared for restoration of temporary work areas. Pavement and base placed for construction purposes will be removed to restore the area; topography blended with the surrounding area; and topsoil salvaged from the new alignment area to be placed over the restored area, which will then be revegetated with native grassland species.
- All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 150 feet from any aquatic habitat, culvert, or drainage feature.

AMM WL-5: A Restoration Plan will be developed to restore all wetlands temporarily impacted by the project. The restoration seed mix will contain native wetland species local to the area.

Plant Species

AMM PS-1: A qualified biologist will conduct preconstruction botanical surveys no less than 5 days before any ground-disturbing activities.

AMM PS-2: Delineate Environmentally Sensitive Areas with high-visibility fencing.

AMM PS-3: Preserve existing populations to the extent practicable.

AMM PS-4: A qualified biologist will provide a worker environmental awareness training before the onset of construction activities.

AMM PS-5: If the preconstruction botanical survey identifies special-status plant species within the project footprint, the appropriate agency (California Department of Fish and Wildlife or United States Fish and Wildlife Service [USFWS]) will be contacted.

Animal Species

AMM AS-1: Western Pond Turtle: Western Pond Turtle Monitoring. An agency-approved biologist will be onsite during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the agency-approved biologist as specified in project permits. Through the Resident Engineer or designee, the agency-approved biologist will be given the authority to communicate verbally, by telephone, by e-mail, or by hard copy with all project personnel to ensure that take of western pond

<p>turtle is minimized and permit requirements are fully implemented. Through the Resident Engineer or designee, the agency-approved biologist will have the authority to stop project activities to minimize take of western pond turtle or if he or she determines that any requirements are not fully implemented. If the agency-approved biologist exercises this authority, the agencies shall be notified by telephone and e-mail within 48 hours.</p>
<p>AMM AS-2: Western Pond Turtle: Wildlife Exclusion Fencing. A qualified biologist will delineate on the project plans where the wildlife exclusion fencing should be erected to protect against western pond turtle entering the work site. Prior to the commencement of construction, under the advice of a biological monitor, wildlife exclusion fencing will be installed.</p>
<p>AMM AS-3: Western Pond Turtle: Worker Environmental Awareness Training. All construction-related personnel will attend a mandatory environmental education program delivered by the agency-approved biologist prior to working on the project.</p>
<p>AMM AS-4: Western Pond Turtle: Preconstruction Surveys. Prior to ground disturbance, preconstruction surveys for western pond turtle will be conducted by an agency-approved biologist. These surveys will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The biologist will investigate all potential cover sites. Western pond turtles found within the project limits will be documented and relocated to a predetermined suitable habitat at a safe distance from the project limits.</p>
<p>AMM AS-5: Western Pond Turtle: Western Pond Turtle Onsite. The Resident Engineer or designee will immediately contact the agency-approved project biologist if a western pond turtle is observed within a construction zone. Construction activities will be suspended within a 50-foot radius of the animal until the animal leaves the site voluntarily or an agency-approved protocol for removal has been established.</p>
<p>AMM AS-6: Pallid Bat and Other Roosting Bats: To avoid impacts to roosting bats, a qualified biologist will conduct visual and acoustic surveys during the maternity season prior to permitting. The surveys will be conducted to determine if bats are utilizing the trees within the study area. If active roosting habitat is identified, minimization measures will be identified through consultation with California Department of Fish and Wildlife and bat specialists. If bats are found during the survey, a plan will be developed for passive relocation.</p>
<p>AMM AS-7: Migratory Birds: During nest building, consistent (whenever they are built) removal of nests (with the exception of raptor nests) will be used to deter birds from nesting in the project area.</p>
<p>AMM AS-8: Migratory Birds: Preconstruction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction for activities occurring during the breeding season (February 15 to August 31). If inactive bird nests (not occupied by eggs or birds) are identified in trees that are scheduled for removal by the project, Caltrans will consult with California Department of Fish and Wildlife.</p>
<p>AMM AS-9: Migratory Birds: If an active nest of a raptor, game, or non-game bird is found during construction, a no work zone buffer will be established to minimize disturbance and potential harm to nesting raptor, game, or non-game bird. A 300-foot buffer will be erected around active raptor nests, and a 50-foot buffer will be erected around active game and non-game bird (nonraptor) nests. For any work to occur within a reduced buffer zone, the Caltrans biologist will need to provide a plan to California Department of Fish and Wildlife and USFWS proposing biological monitoring and the establishment of an adequate buffer based on the nest location, topography, cover, species' sensitivity to disturbance, and intensity/type of potential disturbance. If nests are present and active, biological monitoring will be required.</p>
<p>Threatened and Endangered Species</p>
<p>AMM TE-1: Vernal Pool Fairy Shrimp: Conduct preconstruction surveys to determine the presence or absence of vernal pool fairy shrimp.</p>
<p>AMM TE-2: Vernal Pool Fairy Shrimp: If vernal pool fairy shrimp are observed, USFWS will be</p>

<p>contacted to determine the appropriate measures.</p>
<p>AMM TE-3: Vernal Pool Fairy Shrimp: Caltrans will avoid effects to vernal pools beyond the project footprint by employing permanent and temporary best management practices, including a Stormwater Pollution Prevention Plan, and erosion control best management practices. In areas that flow hydrologically from the project footprint to vernal pool crustacean habitat, Caltrans will erect linear sediment barriers (e.g., silt fences or coir rolls) to prevent effects to vernal pools.</p>
<p>AMM TE-4: Vernal Pool Fairy Shrimp: If preservation of vernal pools is not possible, the top 6 inches of soil within vernal pools containing vernal pool fairy shrimp will be removed and replaced within adjacent vernal pools.</p>
<p>MM TE-5: California Red-Legged Frog: USFWS may require compensatory mitigation for the potential permanent loss of 1.53 to 1.64 acres of California red-legged frog dispersal habitat. Due to this potential loss of dispersal habitat, which could make it more difficult for the species to inhabit this area, the amount and quality of habitat being impacted by the proposed project will be mitigated through the purchase of California red-legged frog credits from a USFWS approved mitigation bank.</p>
<p>AMM TE-6: California Red-Legged Frog: Caltrans will submit the names and qualifications of the biological monitors for USFWS approval prior to initiating construction activities for the proposed project.</p>
<p>AMM TE-7: California Red-Legged Frog: The Caltrans biologist will delineate on the project plans where the wildlife exclusion fencing should be erected to protect against California red-legged frog entering the work site. Prior to the commencement of construction, under the advice of the biological monitor, wildlife exclusion fencing will be installed.</p>
<p>AMM TE-8: California Red-Legged Frog: The USFWS and California Department of Fish and Wildlife-approved biologist will be onsite during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the approved biologist as specified in project permits. The biologist will keep copies of applicable permits in their possession when onsite. Through the Resident Engineer or designee, the agency-approved biologist will be given the authority to communicate verbally, by telephone, by e-mail, or by hard copy with all project personnel to ensure that take of California red-legged frog is minimized and permit requirements are fully implemented. Through the Resident Engineer or designee, the agency-approved biologist will have the authority to stop project activities to minimize take of California red-legged frog or if he or she determines that any permit requirements are not fully implemented. If the agency-approved biologist exercises this authority, the agencies shall be notified by telephone and e-mail within 48 hours.</p>
<p>AMM TE-9: California Red-Legged Frog: All construction-related personnel will attend a mandatory worker environmental awareness training program delivered by the agency-approved biologist prior to working on the project.</p>
<p>AMM TE-10: California Red-Legged Frog: Prior to ground disturbance, preconstruction surveys for California red-legged frog will be conducted by an agency-approved biologist. These surveys will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The biologist will investigate all potential cover sites. This includes thorough investigation of mammal burrows, appropriately sized soil cracks, and debris. California red-legged frog found within the project limits will be documented and relocated (if allowed by USFWS) to a predetermined suitable habitat at a safe distance from the project limits.</p>
<p>AMM TE-11: California Red-Legged Frog: To prevent inadvertent entrapment of California red-legged frog during construction, excavated holes or trenches more than 1 foot deep with walls steeper than 30 degrees will have escape ramps installed and will be covered at the close of each working day by plywood or similar materials. Before holes or trenches are filled, biological monitors will thoroughly inspect them for California red-legged frog. If at any time a trapped California red-legged frog is discovered, the onsite biologist will remove and relocate the frog if allowed by USFWS. USFWS will be notified of the incident by telephone and electronic mail within 48 hours. If California red-legged frog relocation is not preapproved, USFWS will be contacted by telephone for guidance.</p>

AMM TE-12: California Red-Legged Frog: The Resident Engineer or designee will immediately contact the agency-approved project biologist if a California red-legged frog is observed within a construction zone. Construction activities will be suspended within a 50-foot radius of the animal until the animal leaves the site voluntarily or an agency-approved protocol for removal has been established with USFWS.

AMM TE-13: California Red-Legged Frog: To prevent harassment, injury, or mortality of California red-legged frog, no pets will be permitted on the project site.

AMM TE-14: California Red-Legged Frog: Plastic monofilament netting (i.e., erosion-control matting) or similar material will not be used for the project because California red-legged frog may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.

Invasive Species

AMM IS-1: In compliance with the Executive Order on Invasive Species, Executive Order 13112, and subsequent guidance from FHWA, the landscaping and erosion control included in the project will not use species listed as invasive species. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or adjacent to the construction areas. The contractor will be required to use equipment that is cleaned and inspected for plant material prior to arrival and use at the project site. Areas subject to invasive species removal or disturbance will be replanted with fast-growing native grasses or a native erosion-control seed mix. Invasive, exotic plants will be controlled within the areas disturbed by the project to the maximum extent practicable, pursuant to Executive Order 13112.

AMM IS-2: A wash station will be established or designated so that prior to the deployment of equipment onto the site it must be free of soil tracked from other sites that may harbor invasive plant seeds.

Appendix F U.S. Fish and Wildlife Service Species List

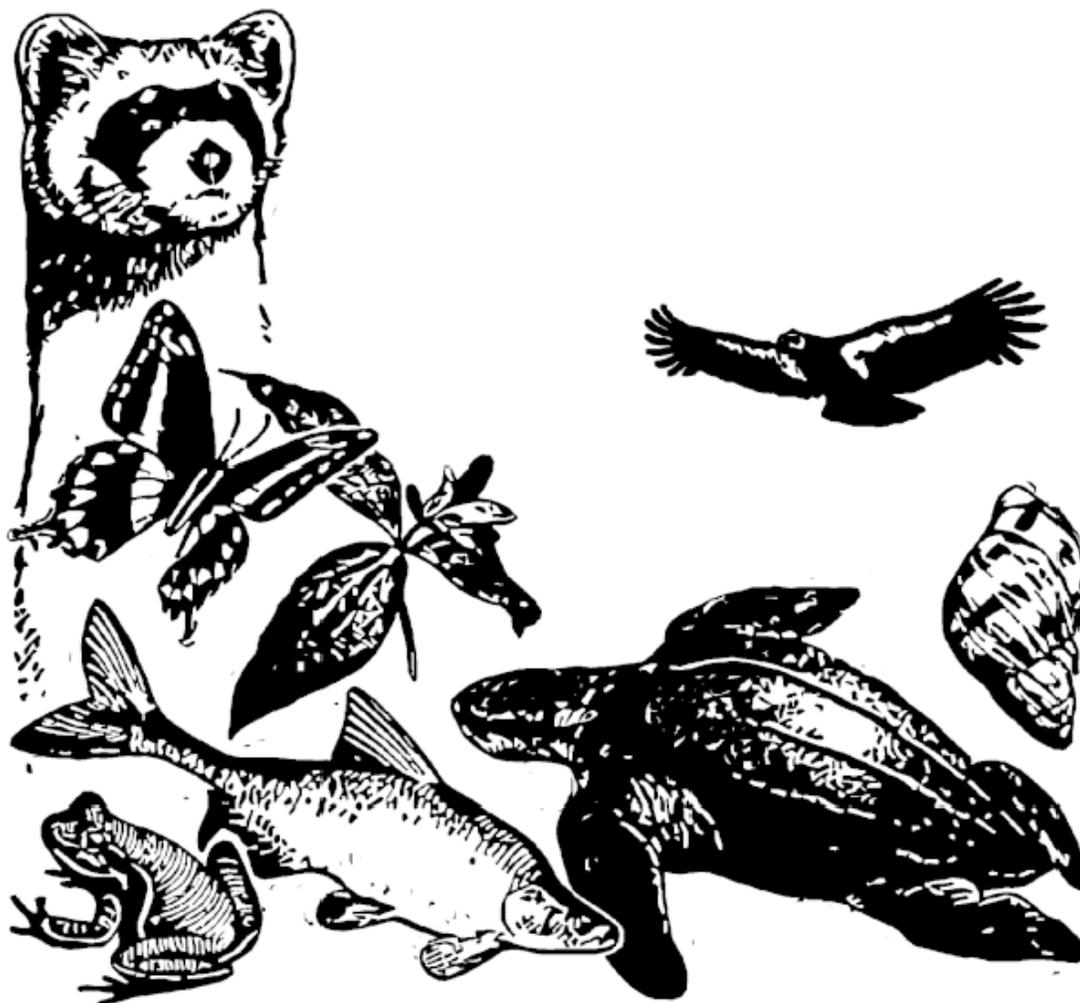
U.S. Fish & Wildlife Service

116/121 Intersection

IPaC Trust Resources Report

Generated May 18, 2016 10:27 AM MDT, IPaC v3.0.7

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



IPaC - Information for Planning and Conservation (<https://ecos.fws.gov/ipac/>): A project planning tool to help streamline the U.S. Fish & Wildlife Service environmental review process.

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U.S. Fish & Wildlife Service

IPaC Trust Resources Report



NAME

116/121 Intersection

LOCATION

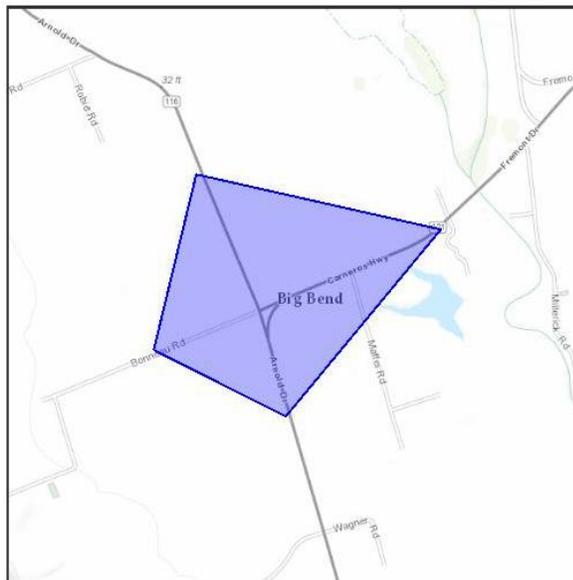
Sonoma County, California

DESCRIPTION

SR 116/121 Intersection Improvement Project

IPAC LINK

<https://ecos.fws.gov/ipac/project/IDKMX-TJ23B-D4DKK-L3BJT-TYHLPQ>



U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

Sacramento Fish And Wildlife Office

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

IPaC Trust Resources Report
Endangered Species

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the [Endangered Species Program](#) of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

[Section 7](#) of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Amphibians

California Red-legged Frog *Rana draytonii*

Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=D02D

IPaC Trust Resources Report
Endangered Species

Birds

California Clapper Rail *Rallus longirostris obsoletus* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B04A

California Least Tern *Sterna antillarum browni* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B03X

Northern Spotted Owl *Strix occidentalis caurina* Threatened

CRITICAL HABITAT

There is final critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B08B

Western Snowy Plover *Charadrius alexandrinus nivosus* Threatened

CRITICAL HABITAT

There is final critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B07C

Crustaceans

California Freshwater Shrimp *Syncaris pacifica* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=K01W

Fishes

Delta Smelt *Hypomesus transpacificus* Threatened

CRITICAL HABITAT

There is final critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=E070

Steelhead *Oncorhynchus (=Salmo) mykiss* Threatened

CRITICAL HABITAT

There is final critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=E08D

Tidewater Goby *Eucyclogobius newberryi* Endangered

CRITICAL HABITAT

There is final critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=E071

IPaC Trust Resources Report
Endangered Species

Flowering Plants

Sebastopol Meadowfoam *Limnanthes vinculans* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=Q1Y1

Soft Bird's-beak *Cordylanthus mollis* ssp. *mollis* Endangered

CRITICAL HABITAT

There is final critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=Q0GT

Sonoma Sunshine *Blennosperma bakeri* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=Q1TO

Insects

Callippe Silverspot Butterfly *Speyeria callippe callippe* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=I019

Myrtle's Silverspot Butterfly *Speyeria zerene myrtleae* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=I00N

San Bruno Elfin Butterfly *Callophrys mossii bayensis* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=I00Q

Mammals

Salt Marsh Harvest Mouse *Reithrodontomys raviventris* Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=A03Y

Critical Habitats

There are no critical habitats in this location

IPaC Trust Resources Report
Migratory Birds

Migratory Birds

Birds are protected by the [Migratory Bird Treaty Act](#) and the [Bald and Golden Eagle Protection Act](#).

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.^[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
<http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Conservation measures for birds
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Year-round bird occurrence data
<http://www.birdscanada.org/birdmon/default/datasummaries.jsp>

The following species of migratory birds could potentially be affected by activities in this location:

Allen's Hummingbird <i>Selasphorus sasin</i>	Bird of conservation concern
Season: Breeding http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0L1	
Bald Eagle <i>Haliaeetus leucocephalus</i>	Bird of conservation concern
Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B008	
Bell's Sparrow <i>Amphispiza belli</i>	Bird of conservation concern
Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0HE	
Black Oystercatcher <i>Haematopus bachmani</i>	Bird of conservation concern
Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0KJ	

IPaC Trust Resources Report
Migratory Birds

Black Rail <i>Laterallus jamaicensis</i>	Bird of conservation concern
Season: Breeding http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B09A	
Black Skimmer <i>Rynchops niger</i>	Bird of conservation concern
Season: Breeding http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EQ	
Burrowing Owl <i>Athene cunicularia</i>	Bird of conservation concern
Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0NC	
Common Yellowthroat <i>Geothlypis trichas sinuosa</i>	Bird of conservation concern
Season: Breeding http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B080	
Fox Sparrow <i>Passerella iliaca</i>	Bird of conservation concern
Season: Wintering	
Least Bittern <i>Ixobrychus exilis</i>	
Season: Breeding http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B092	
Lesser Yellowlegs <i>Tringa flavipes</i>	Bird of conservation concern
Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MD	
Lewis's Woodpecker <i>Melanerpes lewis</i>	Bird of conservation concern
Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HQ	
Long-billed Curlew <i>Numenius americanus</i>	Bird of conservation concern
Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06S	
Marbled Godwit <i>Limosa fedoa</i>	Bird of conservation concern
Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0JL	
Mountain Plover <i>Charadrius montanus</i>	Bird of conservation concern
Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B078	
Nuttall's Woodpecker <i>Picoides nuttallii</i>	Bird of conservation concern
Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HT	
Oak Titmouse <i>Baeolophus inornatus</i>	Bird of conservation concern
Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MJ	

IPaC Trust Resources Report
Migratory Birds

Olive-sided Flycatcher <i>Contopus cooperi</i> Season: Breeding http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0AN	Bird of conservation concern
Peregrine Falcon <i>Falco peregrinus</i> Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU	Bird of conservation concern
Rufous-crowned Sparrow <i>Aimophila ruficeps</i> Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MX	Bird of conservation concern
Short-billed Dowitcher <i>Limnodromus griseus</i> Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0JK	Bird of conservation concern
Short-eared Owl <i>Asio flammeus</i> Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD	Bird of conservation concern
Snowy Plover <i>Charadrius alexandrinus</i> Season: Breeding	Bird of conservation concern
Tricolored Blackbird <i>Agelaius tricolor</i> Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06P	Bird of conservation concern
Western Grebe <i>aechmophorus occidentalis</i> Year-round http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EA	Bird of conservation concern
Whimbrel <i>Numenius phaeopus</i> Season: Wintering http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0JN	Bird of conservation concern

IPaC Trust Resources Report
Refuges & Hatcheries

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in this location

IPaC Trust Resources Report
Wetlands

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

This location overlaps all or part of the following wetlands:

Freshwater Emergent Wetland

[PEM1Ch](#)

Freshwater Pond

[PUBHh](#)

[PUBHx](#)

IPaC Trust Resources Report
Wetlands

Riverine

[R4SBAx](#)

[R4SBC](#)

[R4SBCx](#)

A full description for each wetland code can be found at the National Wetlands Inventory website: <http://107.20.228.18/decoders/wetlands.aspx>

Appendix G Agency Correspondence

U.S. Department of Agriculture						
FARMLAND CONVERSION IMPACT RATING						
PART I (To be completed by Federal Agency)			Date Of Land Evaluation Request June 2, 2015			
Name of Project SR 116/121 Intersection Improvement Project			Federal Agency Involved FHWA/Caltrans			
Proposed Land Use Transportation			County and State Sonoma County, California			
PART II (To be completed by NRCS)			Date Request Received By NRCS June 8, 2015		Person Completing Form: Maddie Sepulveda	
Does the site contain Prime, Unique, Statewide or Local Important Farmland? <i>(If no, the FPPA does not apply - do not complete additional parts of this form)</i>			YES <input type="checkbox"/>	NO <input type="checkbox"/>	Acres Irrigated 78,265	Average Farm Size 155
Major Crop(s) Winegrapes, Milk, Poultry		Farmable Land In Govt. Jurisdiction Acres: 13.3 % 134,418		Amount of Farmland As Defined in FPPA Acres: 15.9 % 160,339		
Name of Land Evaluation System Used California Storie Index		Name of State or Local Site Assessment System None		Date Land Evaluation Returned by NRCS June 24, 2015		
PART III (To be completed by Federal Agency)			Alternative Site Rating			
			Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly			3.43	2.91		
B. Total Acres To Be Converted Indirectly			0	0		
C. Total Acres In Site			3.43	2.91		
PART IV (To be completed by NRCS) Land Evaluation Information						
A. Total Acres Prime And Unique Farmland						
B. Total Acres Statewide Important or Local Important Farmland			2.9	2.6		
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted			85%	89%		
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value			n/a	n/a		
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)			39	39		
PART VI (To be completed by Federal Agency) Site Assessment Criteria <i>(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)</i>			Maximum Points	Site A	Site B	Site C
1. Area In Non-urban Use			(15)	13	13	
2. Perimeter In Non-urban Use			(10)	6	6	
3. Percent Of Site Being Farmed			(20)	12	12	
4. Protection Provided By State and Local Government			(20)	0	0	
5. Distance From Urban Built-up Area			(15)	0	0	
6. Distance To Urban Support Services			(15)	0	0	
7. Size Of Present Farm Unit Compared To Average			(10)	10	10	
8. Creation Of Non-farmable Farmland			(10)	4	4	
9. Availability Of Farm Support Services			(5)	5	5	
10. On-Farm Investments			(20)	9	9	
11. Effects Of Conversion On Farm Support Services			(10)	0	0	
12. Compatibility With Existing Agricultural Use			(10)	0	0	
TOTAL SITE ASSESSMENT POINTS			160	59	59	0
PART VII (To be completed by Federal Agency)						
Relative Value Of Farmland (From Part V)			100	39	39	0
Total Site Assessment (From Part VI above or local site assessment)			160	59	59	0
TOTAL POINTS (Total of above 2 lines)			260	98	98	0
Site Selected:			Date Of Selection		Was A Local Site Assessment Used? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
Reason For Selection:						
Name of Federal agency representative completing this form:						Date:
<i>(See Instructions on reverse side)</i>						Form AD-1006 (03-02)

Andersen, Jennifer

From: Fund Management System [fms@mtc.ca.gov]
Sent: Thursday, December 03, 2015 1:22 PM
To: sgause@sctainfo.org
Cc: Fund Management System; Harold Brazil
Subject: FMS POAQC Project TIP ID SON150009 (Highway 116/121 Intersection Improvement Project) 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 SON150009 (FMS ID:6098.00) 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):
https://urldefense.proofpoint.com/v2/url?u=http-3A_www.fhwa.dot.gov_environment_air-5Fquality_conformity_reference_fags_pm25fags.cfm&d=BQIFAg&c=Nwf-pp4xtYRe0sCRVM8_LWH54joYF7EKmrYIdfxIq10&r=oXSkXmEDrSh5onPmmzQQrhwnZKYvBH5Zv9bQ1HBUTrY&m=DM3HSQEKixVSzDLwmdp-maQKuXGdkwRIkPeKyMB4Cw&s=Vp4qgJHD-e16HjQ0EvQesM8WZ-jr_ES1SPJ56Qflm2g&e=

If you have any questions, please direct them to Harold Brazil at hbrazil@mtc.ca.gov or by phone at (510) 817-5747

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY

EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION

111 GRAND AVENUE
 P.O. BOX 23660
 MAIL STATION 8-A
 OAKLAND, CA 94623-0660
 PHONE (510) 622-1697
 FAX (510) 286-6374
 TTY 711
 www.dot.ca.gov



*Serious drought.
 Help save water!*

February 11, 2016

Ms. Julianne Polanco
 State Historic Preservation Officer
 Office of Historic Preservation
 1725 23rd Street, Suite 100
 Sacramento, CA 95816

Dear Ms. Polanco:

Subject: Request for Concurrence on Eligibility Determinations for the Proposed State Route 116/121 Arnold Drive Intersection Improvement Project, Sonoma County, California, EA 04-3G900 (04-SON-116-PM 46.5/47.1, 04-SON-121-PM 6.5/7.0)

The California Department of Transportation (Caltrans), acting as the lead agency under the delegated authority of the Federal Highway Administration (FHWA), is requesting consultation with the State Historic Preservation Officer (SHPO) regarding the proposed SR 116/121 Arnold Drive Intersection Improvement Project, Sonoma County, California. This consultation is undertaken in accordance with Stipulation VIII.C of the January 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* (hereafter, the PA).

With this project, the Sonoma County Transportation Authority (SCTA) proposes, in cooperation with Caltrans, to improve the intersection of State Route (SR) 116, SR 121, Arnold Drive (Dr.) and Bonneau Road (Rd.). A complete project description can be found in Section 1 of the Historic Property Survey Report (HPSR).

Enclosed you will find one copy of the HPSR, with attached Archaeological Survey Report (ASR) and Historical Resources Evaluation Report (HREER) for the proposed undertaking. The HPSR summarizes: 1) the determination of the Area of Potential Effect (APE); 2) an identification of historic properties located within the Undertaking's APEs; and, 3) an evaluation of historic properties for inclusion on the National Register of Historic Places (NRHP).

One property, El Bend Grande Motel/Vineyard Inn (23002 Arnold Drive, APN 128-461-015) has been found eligible for the NRHP under Criterion C at the local level of significance as a distinctive example of a late 1930s motor court commercial building type designed in the Spanish Colonial Revival architectural style. The period of significance is its construction period, 1937-38.

*"Provide a safe, sustainable, integrated and efficient transportation system
 to enhance California's economy and livability"*

116/121 Arnold Drive Intersection Improvement
February 11, 2016
Page 2

The following eight properties were found to be ineligible for the NRHP:

Name	Address	APN	OHP Status Code
Martin Property	22695 Arnold Drive, Sonoma	142-101-006	6Z
Stormont Property	150 Bonneau Road, Sonoma	142-101-004	6Z
Caltrans Storage Yard	101-105 Bonneau Road, Sonoma	128-451-006	6Z
Carneros Deli & Complex	23003 Arnold Drive, Sonoma	128-451-047	6Z
Bonneau/Bambury House	20065 Arnold Drive, Sonoma	128-451-036	6Z
Fitchenberg Property	15 Fremont Drive, Sonoma	128-461-014	6Z
Toy Storage (Quonset)	155 Fremont Drive, Sonoma	128-461-083	6Z
Green Acres Ranch	800 Arnold Drive, Sonoma	142-081-015	6Z

In accordance with Stipulation VIII.C.6 of the PA, Caltrans is requesting your concurrence that El Bend Grande Motel/Vineyard Inn is *eligible* for the National Register of Historic Places under Criterion C. Caltrans is further requesting your concurrence that the eight properties listed in the table above are *not eligible* for the National Register of Historic Places.

Identification efforts for archaeological properties are documented in the attached ASR. Due to access restrictions, a portion of the APE was not surveyed. As per Stipulation XII.B of the 2014 PA, Caltrans District 4 requested and was granted approval by the Caltrans Headquarters Cultural Studies Office (CSO) for the use of a Phased Identification approach (see Exhibit C of the HPSR).

We look forward to receiving your response within 30 days of your receipt of this submittal, in accordance with Stipulation VIII.C.6.a of the PA. In accordance with Section 106 Programmatic Agreement Stipulation X, Caltrans will continue consultation with CSO and/or SHPO on the assessment of effects.

We thank you for comments regarding this project and look forward to consulting with you in the future. If you need any additional information, please do not hesitate to contact Noah M. Stewart, Branch Chief, Built Resources/Architectural History, at (510) 286-5370 or Noah.Stewart@dot.ca.gov

Sincerely,



Brett Rushing
Chief, Office of Cultural Resource Studies
California Department of Transportation
District 4

*"Provide a safe, sustainable, integrated and efficient transportation system
to enhance California's economy and livability"*

STATE OF CALIFORNIA – THE NATURAL RESOURCES AGENCY

EDMUND G. BROWN, JR., Governor

**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



March 21, 2016

Brett Rushing
Chief, Office of Cultural Resource Studies
Caltrans District 4
111 Grand Avenue
P.O. Box 23660 MS 8-A
Oakland, CA 94623-0660

Re: Determinations of Eligibility for the Proposed State Route 116/121 Arnold Drive Intersection Improvement Project, Sonoma County, California

Dear Mr. Hobbs:

You are consulting with me about the subject undertaking in accordance with the January 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).

Sonoma County Transportation Authority (SCTA) proposes, in cooperation with Caltrans, to improve the intersection of State Route (SR) 116, SR 121, Arnold Drive and Bonneau Road. A complete project description can be found in Section 1 of the Historic Property Survey Report (HPSR).

Caltrans has determined El Bend Grande Motel/Vineyard Inn (23002 Arnold Drive, APN 128-461-015) to be eligible for the National Register of Historic Places under Criterion C at the local level of significance as a distinctive example of a late 1930s motor court commercial building type designed in the Spanish Colonial Revival architectural style. The period of significance is its construction period, 1937-38. I concur.

Caltrans has also found the following eight properties were found to be ineligible for the NRHP:

<i>Name</i>	<i>Address</i>	<i>APN</i>	<i>OHP Status Code</i>
Martin Property	22695 Arnold Drive, Sonoma	142-101-006	6Z
Stormont Property	150 Bonneau Road, Sonoma	142-101-004	6Z
Caltrans Storage Yard	101-105 Bonneau Road, Sonoma	128-451-006	6Z
Carneros Deli & Complex	23003 Arnold Drive, Sonoma	128-451-047	6Z
Bonneau/Bambury House	20065 Arnold Drive, Sonoma	128-451-036	6Z
Fitchenberg Property	15 Fremont Drive, Sonoma	128-461-014	6Z
Toy Storage (Quonset)	105 Fremont Drive, Sonoma	128-461-012	6Z
Green Acres Ranch	800 Arnold Drive, Sonoma	142-081-015	6Z

Mr. Rushing
March 21, 2016
Page 2 of 2

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,

A handwritten signature in blue ink, appearing to read 'Julianne Polanco', with a long horizontal flourish extending to the right.

Julianne Polanco
State Historic Preservation Officer

Appendix H List of Acronyms

Caltrans	California Department of Transportation
CFR	<i>Code of Federal Regulations</i>
CEQA	California Environmental Quality Act
CO	Carbon Monoxide
dBA	A-weighted decibels
°F	degrees Fahrenheit
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
IS/EA	Initial Study/Environmental Assessment
LOS	Level of Service
mph	miles per hour
NEPA	National Environmental Policy Act
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
O ₃	Ozone
PG&E	Pacific Gas and Electric
PM _{2.5}	Fine Particulate Matter
PM ₁₀	Irrespirable Particulate Matter
PRC	Public Resources Code
RAP	Relocation Assistance Program
ROG	Reactive Organic Gases
ROW	Right-of-Way
SCTA	Sonoma County Transportation Authority
SO ₂	Sulfur Dioxide
SR	State Route
TASAS/TSN	Traffic Accident Surveillance and Analysis System/Transportation System Network
U.S.	United States
U.S.C.	United States Code
U.S. EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service

List of Technical Studies

Many technical studies were used to analyze the impacts of the proposed Build Alternatives and the No Build Alternative, and they are summarized in the Initial Study/Environmental Assessment (IS/EA). These studies include:

- Air Quality Study Report, January 2016
- Archaeological Survey Report, February 2016
- Finding of No Adverse Effect, April 2016
- Floodplain Encroachment Technical Memorandum, February 2016
- Historic Property Survey Report, February 2016
- Historic Resources Evaluation Report, February 2016
- Initial Site Assessment, November 2015
- Intersection Control Evaluation, January 2016
- Land Use and Community Impacts Memorandum, December 2015
- Natural Environment Study, April 2016
- Noise Abatement Decision Report, April 2016
- Noise Study Report, January 2016
- Paleontological Identification/Evaluation Report, March 2016
- Preliminary Drainage Impact Study Memorandum, June 2015
- Preliminary Geotechnical Report, August 2015
- Stormwater Data Report, October 2015
- Traffic Operations Analysis, November 2015
- Visual Impact Assessment, March 2016
- Water Quality Assessment Report, April 2016
- Delineation of Waters of the U.S., March 2016

Technical studies are available for viewing, along with copies of the IS/EA at:

Caltrans
District 4 Oakland Office
111 Grand Avenue
Oakland, CA 94612
Attn: Arnica MacCarthy
(510) 286-7195

