

# United States Highway 101/Hearn Avenue Interchange Project

SONOMA COUNTY, CALIFORNIA  
DISTRICT 4 – SON – 101 (PM 17.9/18.6)  
EA 04-4A1300/ID 0400001106

## Initial Study with Proposed Negative Declaration/Environmental Assessment



Prepared by the  
State of California Department of Transportation  
and the City of Santa Rosa

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



July 2016



## General Information about This Document

### What's in this document:

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

### What you should do:

- Please read this IS/EA.
- Additional copies of this IS/EA and related technical studies are available for review at the Department of Transportation District 4 Office, 111 Grand Avenue, Oakland, CA 94612; and City of Santa Rosa Transportation and Public Works, 69 Stony Circle, Santa Rosa, CA 95401. This IS/EA may be downloaded at the following website:  
<http://www.dot.ca.gov/dist4/envdocs.htm>.
- Attend the public meeting on August 3, 2016, at Finley Community Center, 2060 West College Avenue, Santa Rosa CA, 95401.
- We'd like to hear what you think. If you have any comments about the proposed project, please attend the public meeting and/or send your written comments to the Department by the deadline.
  - Send comments via postal mail to:  
Department of Transportation, District 4 Attn: Arnica MacCarthy,  
P.O Box 23660 MS 8B, Oakland, CA 94623-0660
  - Send comments via email to: [Arnica.MacCarthy@dot.ca.gov](mailto:Arnica.MacCarthy@dot.ca.gov).
- Be sure to send comments by the deadline: August 22, 2016.

### What happens next:

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

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Arnica MacCarthy, P.O. Box 23660 MS 8B, Oakland, CA, 94623-0660, 510-286-7195 (Voice), e-mail [Arnica.MacCarthy@dot.ca.gov](mailto:Arnica.MacCarthy@dot.ca.gov), or use the California Relay Service, 800-735-2929 (TTY), 800-735-2929 (Voice) or 711.

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SCH: \_\_\_\_\_  
4-SON-101-PM 17.9/18.6  
EA No. 04-4A1300  
Project No. 0400001106

Modify the US 101/Hearn Avenue interchange in the City of Santa Rosa, Sonoma County, California  
(Post Miles 17.9 to 18.6).

### **Initial Study with Proposed Negative Declaration/Environmental Assessment**

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

THE STATE OF CALIFORNIA  
Department of Transportation

Cooperating Agencies: U.S. Army Corps of Engineers, Federal Highway Administration, State Historic Preservation  
Office, San Francisco Bay Regional Water Quality Control Board. Sonoma County, City of Santa Rosa

Responsible Agencies: City of Santa Rosa, Sonoma County Transportation Authority, California Transportation  
Commission

7-21-16  
Date of Approval

  
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## Proposed Negative Declaration

Pursuant to: Division 13, Public Resources Code

### Project Description

The California Department of Transportation (Department), in cooperation with the City of Santa Rosa (City) and the Sonoma County Transportation Authority (SCTA), proposes to modify and reconstruct the United States 101 (US 101)/Hearn Avenue interchange in the City. The project would replace the existing Hearn Avenue overcrossing with a new overcrossing that would have four traffic lanes with bike lanes and sidewalks on both sides of the roadway. The total length of the project is 0.7 mile (from post mile 17.9 to 18.6).

### Determination

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

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

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

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Melanie Brent  
Deputy District Director  
Environmental Planning and Engineering  
California Department of Transportation, District 4

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Date of Approval

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## Summary

The California Department of Transportation (Department), in cooperation with the City of Santa Rosa (City) and the Sonoma County Transportation Authority (SCTA), proposes to modify and reconstruct the United States 101 (US 101)/Hearn Avenue interchange in the City. The project would replace the existing Hearn Avenue overcrossing with a new overcrossing that would have four traffic lanes with bike lanes and sidewalks on both sides of the roadway. The total length of the project is 0.7 mile (from post mile 17.9 to 18.6).

The Department is the lead agency under the National Environmental Policy Act (NEPA), effective July 1, 2007, pursuant to 23 United States Code (USC) 327 (NEPA Assignment Memorandum of Understanding with FHWA). With NEPA Assignment, FHWA assigned and the Department assumed all of the United States Department of Transportation Secretary's responsibilities under NEPA. The Department is the lead California Environmental Quality Act (CEQA) agency for the project. The project is proposed in cooperation with the City of Santa Rosa and Sonoma County Transportation Authority, which are responsible for providing local and regional funding.

The purpose of the project is to improve local traffic circulation and regional traffic operations; improve multimodal access, connectivity, and operations; and improve overall safety of the facility.

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

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

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
<b>Existing and Future Land Use</b>	No impact.	No impact.	None required.
<b>Consistency with State, Regional and Local Plans and Programs</b>	The No Build Alternative would not be consistent with goals and policies to improve the Hearn Avenue overcrossing area.	The project would provide improvements that are specifically included in, or consistent with the intent of, regional and local plans and programs.	None required.
<b>Parks and Recreation Facilities</b>	No impact.	No impact.	None required.
<b>Growth</b>	No impact.	No impact.	None required.
<b>Farmlands/Timberlands</b>	No impact.	No impact.	None required.
<b>Community Character and Cohesion</b>	No impact.	No impact.	None required.

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

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
<b>Relocations and Real Property Acquisition</b>	No impact.	The project would require the partial acquisition of three properties, two of which would also require a temporary construction easement. The partial acquisitions and temporary construction easements would not affect the continued use of the properties. No relocations would be required.	None required.
<b>Environmental Justice</b>	No impact.	The project area contains an environmental justice community. Project construction would not result in disproportionately high and adverse effects on the environmental justice community.	None required.
<b>Utilities/Emergency Services</b>	No impact.	<p>The project would require relocation of some utilities.</p> <p>The project would require staged temporary lane closures and detouring, which could result in short-term, temporary impacts during construction.</p>	<p>Develop a Transportation Management Plan (TMP) during project design.</p> <p>Notify emergency service providers and the public of lane closures and detours.</p> <p>Utilize portable Changeable Message Signs, California Highway Patrol Construction Zone Enhanced Enforcement Program, and Freeway Service Patrol, where possible to minimize delays.</p> <p>Stage construction to avoid complete road closures.</p>
<b>Traffic and Transportation/ Pedestrian and Bicycle Facilities</b>	<p>In 2020, all local intersections would operate at level of service (LOS) D or better.</p> <p>In 2040, five local intersections would operate at LOS E or F in either the AM or PM peak hour.</p> <p>The No Build Alternative would not provide additional bicycle and pedestrian facilities in the project area.</p>	<p>In 2020, all local intersections would operate at LOS D or better. The Build Alternative would slightly reduce delay at some intersections compared to No Build.</p> <p>In 2040, all local intersections would operate at LOS D or better. The Build Alternative would reduce delay at most intersections compared to No Build.</p> <p>The project would require staged temporary lane closures and detouring.</p>	<p>Develop a TMP that includes:</p> <p>Briefing local public officials and developing a public information program to notify the public of progress and upcoming closures and detours.</p> <p>Outreach to ride sharing agencies, transit operators, and neighborhood and special interest groups to minimize impacts to motor vehicles, bicyclists, and pedestrians during construction.</p>

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

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
<b>Visual/Aesthetics</b>	No impact.	The project would require the removal of mature trees and other landscaped vegetation and the placement of additional retaining walls and median barriers. Project construction would have temporary impacts from nighttime lighting, dust, construction vehicles and equipment, contractor storage, and temporary bridge support structures.	Where space exists, removed vegetation, including trees, will be replanted in accordance with Department policies and in consideration of the City's Tree Ordinance.  The project design will incorporate aesthetic treatments, such as surface texture, patterns and color, for the overcrossing structure and other project components. The City will be consulted in the design and selection of aesthetic treatments.
<b>Cultural Resources</b>	No impact.	Cultural resources were identified within the Area of Potential Effects but were determined ineligible for listing in the National Register of Historic Places. The Build Alternative would not affect a historical or archaeological resource as defined by CEQA or a Section 4(f) historic resource.	If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.  If human remains are discovered, the procedures described in state law will be implemented.
<b>Hydrology and Floodplain</b>	No impact.	The project would not cause a longitudinal encroachment of the base floodplain or place fill within the base floodplain. The project would not result in a significant floodplain encroachment. The Build Alternative would add 1.4 acres of impervious surface but would not significantly increase flows or affect base flood elevations.	No avoidance, minimization, or mitigation to minimize floodplain impacts and to preserve or restore any beneficial floodplain values is necessary.

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

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
<b>Water Quality and Storm Water Runoff</b>	No impact.	Project construction could have temporary impacts to water quality and storm water runoff from increased erosion and subsequent transport of sediment to surface waters. Spills and fluid leaks from construction vehicles, equipment, or materials may also occur during construction.	<p>A Storm Water Pollution Prevention Plan (SWPPP) will be prepared by the Contractor and approved by the Department prior to the start of construction. The SWPPP includes the development of a Construction Site Monitoring Program that presents procedures and methods related to the visual monitoring and sampling and analysis plans for non-visible pollutants, sediment and turbidity, and pH. After assessing the receiving water body and sediment risks, the project has been determined to be a Risk Level 2. Risk Level 2 project requirements include preparation of Rain Event Action Plans prior to an anticipated rain event, performing storm water sampling at all discharge locations during a qualifying rain event, compliance with numeric action levels, and preparation of annual reports detailing Best Management Practices (BMPs) and sampling efforts.</p> <p>The project would implement the short-term (construction) and long-term (permanent) BMPs described in Section 2.2.2.4.</p>
<b>Geology/Soils/Seismic/ Topography</b>	The No Build Alternative would be subject to the same geologic, soils, and seismic hazards as the Build Alternative.	Project components could be exposed to strong earthquake shaking and compaction settlement. Construction has the potential to encounter groundwater.	<p>The Department's design and construction guidelines incorporate engineering standards that address seismic risks. Project elements will be designed and constructed to meet seismic design requirements for ground shaking and ground motions, as determined for the project vicinity and site conditions.</p> <p>Additional geotechnical subsurface and design investigations will be performed during the final project design and engineering phase. The investigations will include site-specific evaluation of subsurface conditions at the location of proposed foundation features.</p>
<b>Paleontology</b>	No impact.	No impact.	None required.

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

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
<b>Hazardous Waste/Materials</b>	No impact.	The project area includes 19 properties with the potential for hazardous materials. There is a risk of encountering contamination from these properties. The project area also includes the potential to encounter aerially deposited lead, lead-based paint, asbestos, lead paint, and polychlorinated biphenyls (PCBs). In addition, vehicle tire and brake wear, oil, grease, and exhaust from vehicular traffic on US 101 and local roads within the project area may have surface soils contaminated with aerially deposited lead and other heavy metals.	<p>Structures to be modified will be investigated for hazardous materials or contamination issues, including the presence of building materials painted with lead-based paint, storage buildings that might contain hazardous materials, asbestos, heating fuel storage tanks, thermoplastic paint, PCBs, and other similar issues.</p> <p>Soil and/or groundwater sampling is recommended prior to or during soil excavation activities. Soil and/or groundwater found to have environmental contaminants should be properly characterized and disposed of at an appropriate facility per applicable regulations.</p> <p>Contractors working at the project site, or removing soil materials and/or groundwater from the project area, should be made aware of appropriate handling and disposal methods through an education program. Further investigation will occur during the detailed design phase.</p>
<b>Air Quality</b>	No impact.	<p>The project would not increase concentrations of criteria pollutants that would result in air quality standard violations. The project would not violate standards for particulate matter of 2.5 micrometers or less (PM<sub>2.5</sub>). The project would not increase mobile source air toxics emissions compared to the No Build Alternative.</p> <p>Construction activities associated with the proposed project would be relatively short in duration and intensity and would not exceed state thresholds for construction emissions.</p>	Standard Department measures that are used for all projects will be implemented to avoid or minimize temporary construction-related impacts to air quality.
<b>Noise</b>	No impact.	The Build Alternative would increase noise levels by 0 to 1 decibel over the No Build Alternative. A 1 decibel increase is generally not perceptible. Construction noise would be temporary, limited in duration, and generally at or below existing freeway noise levels.	Standard Department measures that are used for all projects will be implemented to minimize or reduce the potential for noise impacts from project construction.

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

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
<b>Natural Communities</b>	No impact.	<p>The Build Alternative has the potential to remove up to 134 trees with a diameter at breast height of 6 inches or more. The exact number and location of trees that would be affected would be determined during final project design.</p> <p>The project would not affect wildlife migratory corridors, fish-bearing streams, or fish species or habitat.</p>	<p>Landscaped trees within the State right-of-way that will be removed or damaged during project construction will be replaced in kind, where feasible given water availability and space.</p> <p>Trees protected under City of Santa Rosa and Sonoma County ordinances and native trees within the City or County right-of-way that will be removed or damaged during project construction will be replaced or mitigated in compliance with the applicable City and Sonoma County codes and ordinances, including City Code 17-24.050.</p> <p>Other trees outside of the State right-of-way will be mitigated in compliance with the applicable city and county codes and ordinances.</p>
<b>Wetlands and Other Waters of the United States</b>	No impact.	The project has the potential to affect up to 0.01 acre of wetlands and 0.22 acre of other waters of the U.S. and associated culverts.	<p>The Department will incorporate construction BMPs into the proposed project to reduce effects to sensitive biological resources. Temporarily impacted waters will be graded and restored to their pre-project conditions. New and modified culverts and roadside ditches will be constructed to closely resemble or improve the pre-project conditions, where possible. Site-appropriate erosion control measures, such as silt fencing, will be installed to prevent sediment and pollutant discharges to state and federal waters and wetlands or storm drains.</p> <p>The SWPPP will be implemented to minimize water pollution during project construction.</p>
<b>Plant Species</b>	No impact.	No impact.	None required.

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

Affected Resource	Potential Impact		Avoidance, Minimization, and/or Mitigation Measures
	No Build Alternative	Build Alternative	
<b>Animal Species</b>	No impact.	Construction-related disturbance has the potential to affect Cooper's hawks, white-tailed kites, and other birds protected by the Migratory Bird Treaty Act.	<p>Preconstruction surveys will be conducted by a Caltrans approved biologist prior to the start of construction during the breeding season (January 15 to September 1).</p> <p>If active raptor nests are found within 300 feet of the vicinity of the limits of construction work, or if active passerine nests are found within 50 feet, a non-disturbance buffer will be established in cooperation with the California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS).</p> <p>If rescheduling work around active raptor or passerine nests/roosts is infeasible, a qualified biologist will monitor nests for signs of disturbance.</p>
<b>Threatened and Endangered Species</b>	No impact.	No impact.	None required.
<b>Invasive Species</b>	No impact.	Project construction has the potential to spread invasive species.	The landscaping and erosion control included in the project will not use species listed as invasive. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.
<b>Cumulative Impacts</b>	No impact.	No impact.	None required.
<b>Climate Change</b>	No impact.	No impact.	None required.

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## Chapter 1 Proposed Project

### 1.1 Introduction

The California Department of Transportation (Department), in cooperation with the City of Santa Rosa (City) and the Sonoma County Transportation Authority (SCTA), proposes to modify and reconstruct the United States 101 (US 101)/Hearn Avenue interchange in the City. The project would replace the existing Hearn Avenue overcrossing with a new overcrossing that would have four traffic lanes with bike lanes and sidewalks on both sides of the roadway. The total length of the project is 0.7 mile (from post mile 17.9 to 18.6). The project area is shown in Figure 1.1-1.

The Department is the lead agency under the National Environmental Policy Act (NEPA), pursuant to 23 United States Code (USC) 327. The Department is the lead agency under the California Environmental Quality Act (CEQA).

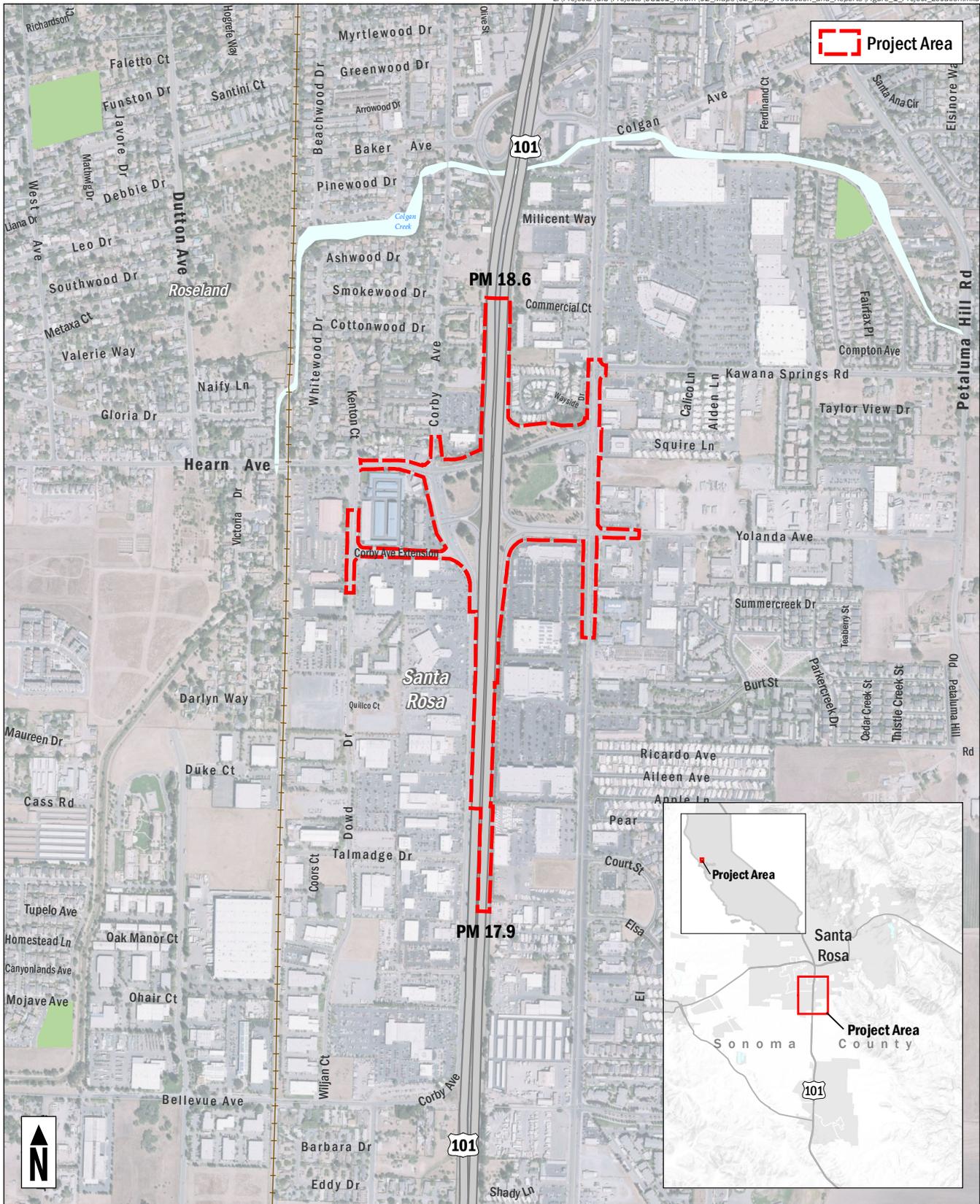
The project is included in the Metropolitan Transportation Commission's (MTC's) Bay Area Regional Transportation Plan (RTP), *Plan Bay Area* (MTC and Association of Bay Area Governments [ABAG] 2013; RTP ID No. 240529). The project is also included in the 2015 Transportation Improvement Program (TIP), which was adopted by the MTC on September 24, 2014 (MTC 2014; TIP ID No. SON-150006), as well as the SCTA 2014 Measure M Strategic Plan (SCTA 2014), where it is categorized as a Local Streets Project.

### 1.2 Location and Background

US 101 is a major north-south corridor extending from Los Angeles, California to Washington State. It is the most important north-south route within Sonoma County for Northern California commuters and commerce, connecting San Francisco and the Peninsula with Marin, Sonoma, and Mendocino counties. It is the primary highway corridor and freight route through Marin and Sonoma counties, providing freeway access through the major cities and communities in the project region including Santa Rosa, Rohnert Park, and Petaluma.

US 101, within the limits of this project, is a six-lane, divided freeway with two general purpose lanes and one High Occupancy Vehicle (HOV) lane in each direction. The HOV lanes extend from northern Petaluma to Windsor River Road in Windsor in both directions. US 101 also has auxiliary lanes in both directions. An approximate 1,400-foot-long northbound auxiliary lane precedes the two-lane off-ramp to Yolanda Avenue/Hearn Avenue, and a northbound auxiliary lane connects the Hearn Avenue on-ramp to the Baker Avenue off-ramp. In the southbound direction, an auxiliary lane connects the Baker Avenue on-ramp to the Hearn Avenue single-lane off-ramp.

The Hearn Avenue overcrossing serves as an important east-west connector over US 101 for southern Santa Rosa. It connects to the two major streets that are nearby and parallel to US 101: Corby Avenue on the west side of the freeway, and Santa Rosa Avenue on the east side. Corby Avenue is generally one lane in each direction but widens to two lanes in the immediate vicinity of Hearn Avenue. Corby Avenue provides access to an auto mall south of the Hearn Avenue interchange, and to commercial, government, and residential uses at Hearn Avenue and north of the interchange, including hotels and a Department of Motor Vehicles office.



0 1,000 Feet

DATA SOURCE  
Esri

US 101/Hearn Avenue Interchange Project  
Santa Rosa, CA

**FIGURE 1.1-1**  
*Project Location*

Santa Rosa Avenue is two to three lanes in each direction with turning lanes at major intersections. Santa Rosa Avenue is lined by large and small commercial and retail businesses, and some residences. Yolanda Avenue extends eastward from the intersection of the northbound Hearn Avenue off-ramp and Santa Rosa Avenue. Land uses along northbound US 101 at the interchange include the Chapel of the Chimes Cemetery and a residential area north of Hearn Avenue.

Other nearby east-west connectors with interchange ramps to US 101 are Baker Avenue 0.6 mile to the north and Todd Road 1.8 miles to the south.

### **1.3 Purpose and Need**

#### **1.3.1 Purpose of the Project**

The purpose of the project is to:

- Improve local traffic circulation and regional traffic operations
- Improve multimodal access, connectivity, and operations
- Improve overall safety of the facility

#### **1.3.2 Project Need**

The existing Hearn Avenue interchange is unable to accommodate current and future traffic volumes, resulting in congestion on Hearn Avenue and in particular on the southbound off-ramp from US 101. Congestion on the southbound off-ramp results in a traffic backup during peak periods that extends beyond the point where the ramp splits from the freeway lanes (known as the ramp “gore point”). The existing Hearn Avenue overcrossing has only one lane in each direction and one sidewalk on the south side of the overcrossing and the westerly approach. There is no sidewalk on the easterly approach between the overcrossing and Santa Rosa Avenue, which requires pedestrians to walk along the edge of the roadway. The sidewalk on the south side of the overcrossing does not meet Americans with Disabilities Act (ADA) standards. There is limited bicycle access at the Hearn Avenue overcrossing. Bicyclists have to share the traffic lanes with vehicles. The following sections describe the existing constraints for vehicles, bicycles, and pedestrians.

##### **1.3.2.1 Capacity and Transportation Demand**

The existing US 101/Hearn Avenue overcrossing was constructed in 1957, and the overcrossing and interchange have limited capacity for current and future traffic levels due to its outdated design and high travel demand. West of US 101, Hearn Avenue has one to two lanes in each direction with additional dedicated turning lanes at the Corby Avenue intersection. East of US 101, Hearn Avenue also has one to two through lanes with additional dedicated turning lanes at the Santa Rosa Avenue intersection. However, at the US 101 overcrossing, Hearn Avenue transitions to one lane in each direction with a sidewalk on the south side only. The two-lane overcrossing creates a bottleneck that causes delays.

The off- and on-ramp connections to US 101 are offset from Hearn Avenue. The southbound ramps connect to Corby Avenue about 300 feet south of Hearn Avenue. The northbound ramps

connect to Yolanda Avenue about 500 feet south of Hearn Avenue. Both the southbound and northbound ramp connections are a configuration known as “hook ramps” because of their compact design. These ramps have limited vehicle capacity because of their short distance, especially for the US 101 southbound off-ramp due to the close proximity of Corby Avenue. As a result, during peak periods, the high volume of vehicles using the single-lane southbound US 101 off-ramp creates a backup that can extend from the Hearn Avenue/Corby Avenue intersection onto the southbound off-ramp, and into the southbound US 101 auxiliary lane. This backup can interfere not only with access from the freeway to Corby Avenue and Hearn Avenue, but also can contribute to congestion and the flow of freeway traffic in the southbound lanes of US 101.

In the northbound direction, the on- and off-ramps provide a longer distance to accelerate and decelerate but are also a hook ramp configuration, which limits the speed of vehicles entering and exiting the freeway.

The existing overcrossing and ramp configurations contribute to traffic congestion at the intersections adjacent to the interchange. Level of Service (LOS) is an indicator of operational conditions on a roadway or at an intersection and is defined in categories ranging from A to F. LOS A represents the best roadway conditions, and LOS F indicates substantial congestion with stop-and-go traffic. At intersections, LOS is evaluated in terms of delay caused by vehicles slowing or stopping due to a signal, stop sign, or queue caused by congestion (Figure 1.3.2-1). At signalized intersections, LOS A indicates that vehicles are delayed by 10 seconds or less, and LOS F represents delays of more than 80 seconds. Policy T-D of the City of Santa Rosa’s General Plan is to maintain a LOS of D or better along all major corridors, with some exceptions (City of Santa Rosa 2009).

In the project area, all intersections as a whole (all movements—straight, right, and left—through each leg of an intersection together, on average) currently operate at LOS D or better. However, the right-turn movement from southbound Santa Rosa Avenue to westbound Hearn Avenue functions at LOS F during the PM peak hour (4:45 PM to 5:45 PM). By future analysis year 2040, the following intersections would operate at LOS E or F during the AM (7:30 AM to 8:30 AM) and/or PM peak hours (Fehr and Peers 2016):

- Santa Rosa Avenue/Yolanda Avenue/US 101 Northbound Ramps
- Santa Rosa Avenue/Southside Drive
- Corby Avenue/Hearn Avenue
- Corby Avenue/US 101 Southbound Ramps
- Corby Avenue/Corby Avenue Extension

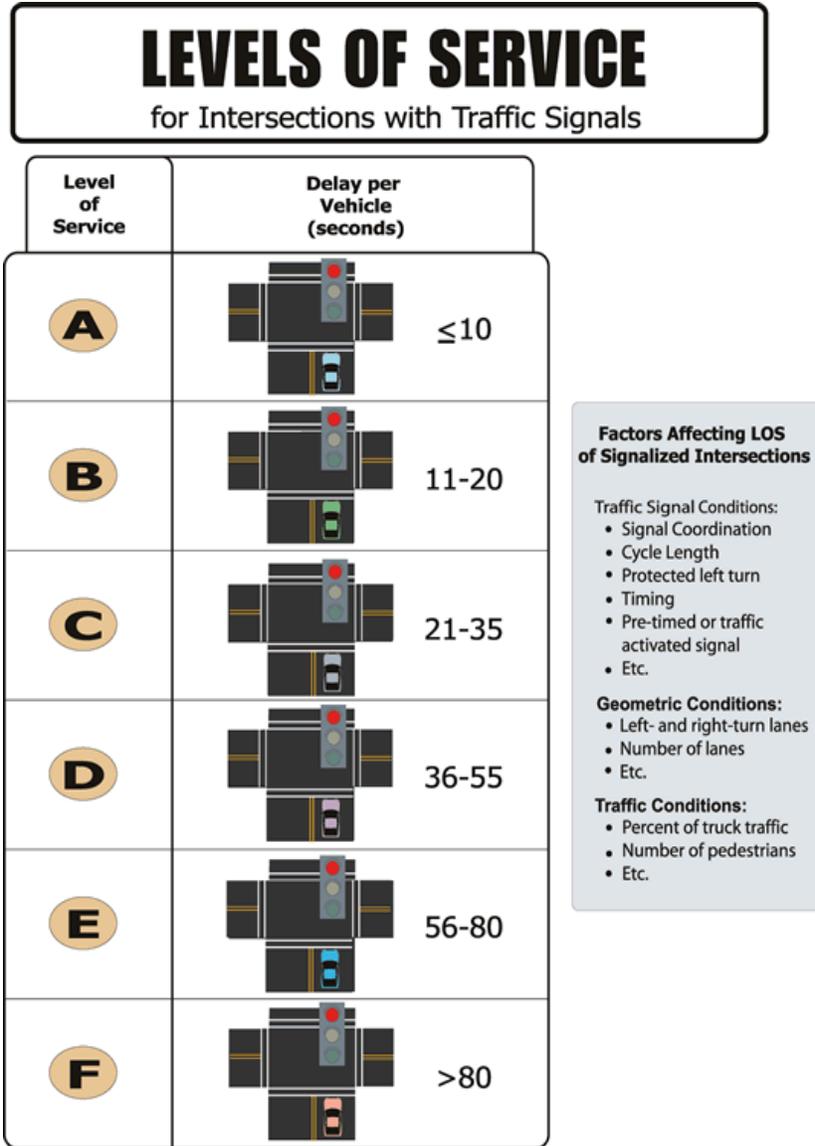


Figure 1.3.2-1: Levels of Service for Signalized Intersections

### 1.3.2.2 Safety

#### US 101 Mainline

Collision data from the Traffic Accident Surveillance and Analysis System (TASAS) was evaluated for the US 101 mainline and ramps between PM 17.616 and PM 19.029 for the period of October 1, 2009, through September 30, 2012. Table 1.3.2-1 summarizes the TASAS collision data for the US 101 mainline and ramps as it relates the data to the statewide averages for similar facilities.

Table 1.3.2-1: US 101 Collision Data

Location	Post Mile	Number of Collisions			Actual Collision Rate (Collisions/MVM)			Average Collision Rate (Collisions/MVM)		
		Total	Fatal	Injury	Total	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury
US 101	17.616 to 19.029	195	1	63	<b>1.14</b>	0.006	0.37	1.06	0.006	0.34
Southbound Off-ramp	18.458	6	0	2	0.44	0.000	0.15	0.84	0.003	0.24
Southbound On-ramp	18.376	1	0	1	0.17	0.000	<b>0.17</b>	0.46	0.001	0.13
Northbound Off-ramp	18.309	9	0	6	<b>1.58</b>	0.000	<b>1.06</b>	0.84	0.003	0.24
Northbound On-ramp	18.498	5	0	0	0.42	0.000	0.00	0.46	0.001	0.13

Notes: MVM = Million Vehicle Miles; bold indicates location that exceeds the statewide average.

Source: TASAS Data 2012

There were 195 total collisions in the 1.4-mile mainline highway segment, including one fatal collision that involved a pedestrian walking on the freeway. There were 63 injury collisions with a total of 79 persons injured. Fifty-nine of the collisions (30.3 percent) were wet-pavement collisions. There were 34 single-vehicle collisions (17.4 percent).

The actual total collision rate is slightly higher than the average total collision rate for similar facilities statewide. The fatal collision rate is identical to the average. The actual fatal-plus-injury collision rate is very close to the average fatal-plus-injury for similar facilities statewide.

The types of collisions were: 113 rear end (57.9 percent), 35 hit object (17.9 percent, mostly median barrier or guardrail, ditch or pole), 28 sideswipe (14.4 percent), 10 broadside (5.1 percent), 4 overturn (2.1 percent), 3 head-on (1.5 percent), 1 auto-pedestrian (0.5 percent), and 1 "other" (0.5 percent). The primary collision factors were speeding, other violations, improper turning, following too closely, factors other than the driver, and unknown.

During the same period, there were 21 collisions on the US 101 ramps, including 3 rear-end collisions involving stopped traffic on the southbound off-ramp and a total of 8 solo off-road collisions along the northbound ramps. The actual collision rates for both southbound ramps and the northbound on-ramp are lower than the statewide average rates for similar facilities. The collision rates for the northbound off-ramp are higher than the statewide average rates for similar facilities.

The proposed project is anticipated to decrease collision rates on southbound US 101 and the southbound off-ramp by adding vehicle storage on the off-ramp and by improving traffic operations at the Corby Avenue/US 101 southbound ramps intersection and Corby Avenue/Hearn Avenue intersection. These improvements would better accommodate vehicles exiting southbound US 101 within the off-ramp and minimize backups into the southbound auxiliary lane.

### **Local Intersections**

Four years (November 2008 through October 2012) of collision data were provided by the City of Santa Rosa (through the California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) database) for seven local intersections. As shown in Table 1.3.2-2, there were 78 collisions along Corby Avenue and Santa Rosa Avenue in the vicinity of the Hearn

Avenue interchange over this period. Of the collisions in the study area, five (about 6 percent) involved a pedestrian and six (about 8 percent) involved bicyclists.

**Table 1.3.2-2: Local Intersection Collision Data**

Location	Total Collisions	Collisions Involving Pedestrians	Collisions Involving Bicyclists	Collisions Resulting in Injury	Collisions Resulting in Fatality
Santa Rosa Avenue/Kawana Springs Road	9	-	2	4	-
Santa Rosa Avenue/Hearn Avenue	23	3	-	13	-
Santa Rosa Avenue/Yolanda Avenue/US-101 Northbound Ramps	14	1	-	9	-
Santa Rosa Avenue/Southside Drive	2	-	-	-	-
Corby Avenue/Hearn Avenue	28	1	4	13	-
Corby Avenue/US-101 Southbound Ramps	2	-	-	2	-
Corby Avenue/Corby Avenue Extension	-	-	-	-	-
<b>Total</b>	<b>78</b>	<b>5</b>	<b>6</b>	<b>41</b>	<b>-</b>

About 53 percent of the collisions in the study area resulted in injury. No fatalities were reported along Hearn Avenue over the four-year period. Table 1.3.2-2 also shows that the highest number of collisions was reported at the two Hearn Avenue intersections, with more than 20 at each location. These two intersections account for approximately two-thirds of all collisions in the study area, including collisions resulting in injury and collisions involving a pedestrian or a bicyclist.

### 1.3.2.3 Roadway, Bicycle, and Pedestrian Facility Deficiencies

Pedestrian and bicycle access on the Hearn Avenue overcrossing and its connections with the Hearn Avenue/Corby Avenue and Hearn Avenue/Santa Rosa Avenue intersections are inadequate for the surrounding residential and commercial land uses. This section of Hearn Avenue connects a residential area on the west side of US 101 with a shopping corridor on the east side of US 101. The residential area contains at least one senior citizen community. The Hearn Avenue overcrossing also provides an important linkage between the residential community and the transit stops on Santa Rosa Avenue. The existing curb ramps and sidewalks on and adjacent to the overcrossing do not meet ADA requirements.

Both Santa Rosa Avenue east of the project and Hearn Avenue west of the project have a Class II bikeway, which is a striped lane for one-way travel. The Hearn Avenue overcrossing does not provide a designated bicycle link and lacks shoulders for bicycle use. Bicycles attempting to cross US 101 on the Hearn Avenue overcrossing currently share the one lane in each direction with vehicles, increasing the risk of accidents and contributing to slower traffic on the overcrossing.

Finally, the Hearn Avenue overcrossing of US 101 has a vertical clearance of 15 feet, while the minimum vertical clearance of 16.5 feet is required for new structures over a freeway. For this reason, the vertical clearance along US 101 at the overcrossing is an existing nonstandard design feature. The lower clearance height at the Hearn Avenue overcrossing may limit the

types of vehicles that can use US 101 in the future. This alone is not a reason to reconstruct the overcrossing, but the Department seeks to comply with current design standards when facilities are planned for major modifications, such as this project.

#### 1.3.2.4 Modal Interrelationships and System Linkages

**Freeway, Highway and Local Road System Links.** The Hearn Avenue interchange is an important connector that links the east and west sides of southern Santa Rosa and provides access between US 101 and the shopping corridor on Santa Rosa Avenue, which includes retailers such as Costco, Best Buy, Trader Joe’s, and REI. It also provides access to food, gas, and lodging adjacent to US 101.

The Hearn Avenue overcrossing also serves to connect local residents with public transportation. Hearn Avenue is served by the City of Santa Rosa Route 12 and Route 19 buses as well as the Corby Connector. Santa Rosa Avenue is served by Sonoma County Transit routes 44 and 48 and Golden Gate Transit routes 72 and 74, which connect southern Santa Rosa to Rohnert Park, Petaluma, and San Francisco (City of Santa Rosa 2014a; SCTA 2014; Golden Gate Transit 2014).

**Bicycle and Pedestrian Links.** Within the City, US 101 serves as a barrier to bicycle and pedestrian access between each side of the freeway. Currently, Hearn Avenue west of the project and Santa Rosa Avenue east of the project both have ADA-compliant pedestrian access and Class II bicycle facilities. The project area remains as the missing link connecting pedestrians and bicyclists from Hearn Avenue to Santa Rosa Avenue.

#### 1.3.3 Independent Utility and Logical Termini

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

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

The southern and northern limits of the project cover a length suitable to allow full consideration of the extent of US 101 northbound and southbound on- and off-ramp design and construction options. The project limits on US 101 are reasonable because improvements are focused on the existing facility location. The eastern and western limits on Hearn Avenue are appropriate as they are compatible with the previous City Phase I and Phase II Hearn Avenue projects to the west of the overcrossing (which widened Hearn Avenue between Corby Avenue and Dutton Avenue and installed upgraded bicycle and pedestrian access), and the completed and under-construction sections of Santa Rosa Avenue north and south of Yolanda Avenue. No subsequent improvements in the area would be needed to meet this project’s purpose and need.

## 1.4 Project Description

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

The proposed project would reconstruct the two-lane Hearn Avenue overcrossing (one lane in each direction) in the same location and along generally the same alignment as the existing structure (Figure 1.4.1-1). The new overcrossing would have four through lanes (two lanes in each direction) and a raised center median that would accommodate a left turn lane for the adjacent intersections. Sidewalks and Class II bike lanes would be added on Hearn Avenue between Corby Avenue and Santa Rosa Avenue. The overcrossing profile would be raised to increase the vertical clearance from the nonstandard 15 feet, 2 inches (as signed on the existing overcrossing) to at least the current Department required standard of 16 feet, 6 inches. On the west side of US 101, the project proposes improvements to the southbound US 101 off-ramp that may include widening. Additional turning lanes are proposed from the southbound US 101 off-ramp to Corby Avenue and on northbound Corby Avenue between the southbound US 101 ramps and Hearn Avenue. The project would not change the alignment or operations of US 101 or the northbound US 101 ramps.

The purpose of the project is to improve local traffic circulation and regional traffic operations; multimodal access, connectivity, and operations; and overall safety of the facility.

### 1.4.1 Project Construction

The following activities and components are anticipated as part of project construction. Construction would take approximately 2 years. Replacement of the Hearn Avenue overcrossing and other construction activities would be staged to maintain vehicle, transit, bicycle, and pedestrian access throughout the construction period. Any lane or ramp closures would be temporary and typically limited to nighttime hours. The exception is that the Department and the City may allow multi-lane ramps and local streets to have one or more lanes closed during off-peak daytime hours.

#### **Right-of-Way Requirements**

No full residential parcels would be acquired for the proposed project, and no residents would be displaced.

The widened Hearn Avenue overcrossing could require acquisition of a narrow section of a governmental property along the east side of Corby Avenue west of US 101. East of US 101, the widened overcrossing could also require the acquisition of one small area from a residential property and one small area from a commercial property where Hearn Avenue connects with Santa Rosa Avenue. Temporary construction easements would also be needed from two of these properties for construction access and staging. Additional information regarding temporary construction easements and partial property acquisitions is included in Section 2.1.3.

#### **Structures**

The new Hearn Avenue overcrossing would consist of a bridge section over US 101 with abutments on either side. The bridge section would be supported by columns on pile

foundations. The abutments would be supported by footings on driven precast, prestressed concrete piles.

Groundwater has historically been encountered at shallow depths (less than 10 feet below existing ground surface) at some locations in the project area. Any groundwater that is displaced by construction would be collected, tested, and disposed off-site in accordance with regulatory agency requirements.

### **Retaining Walls, Concrete Barriers, and Sound Walls**

#### **Retaining Walls**

Retaining walls of up to 24 feet in height would be constructed along the north side of the Hearn Avenue overcrossing approaches on both sides of US 101. The retaining wall along the north side of the Hearn Avenue overcrossing adjacent to Corby Avenue, west of US 101, would be approximately 280 feet long. The retaining wall along the north side of the Hearn Avenue overcrossing adjacent to Santa Rosa Avenue, east of US 101, would be approximately 380 feet long.

#### **Concrete Barriers**

Northbound and southbound US 101 are separated by a concrete median barrier. The concrete barrier in the US 101 median would be modified to protect the new Hearn Avenue overcrossing column supports.

#### **Sound Walls**

Existing masonry sound walls are present in the project area along the northbound US 101 on-ramp from Hearn Avenue, and along the southbound US 101 on-ramp from Baker Avenue to just north of the Hearn Avenue off-ramp. The existing sound walls would not be affected by the project.

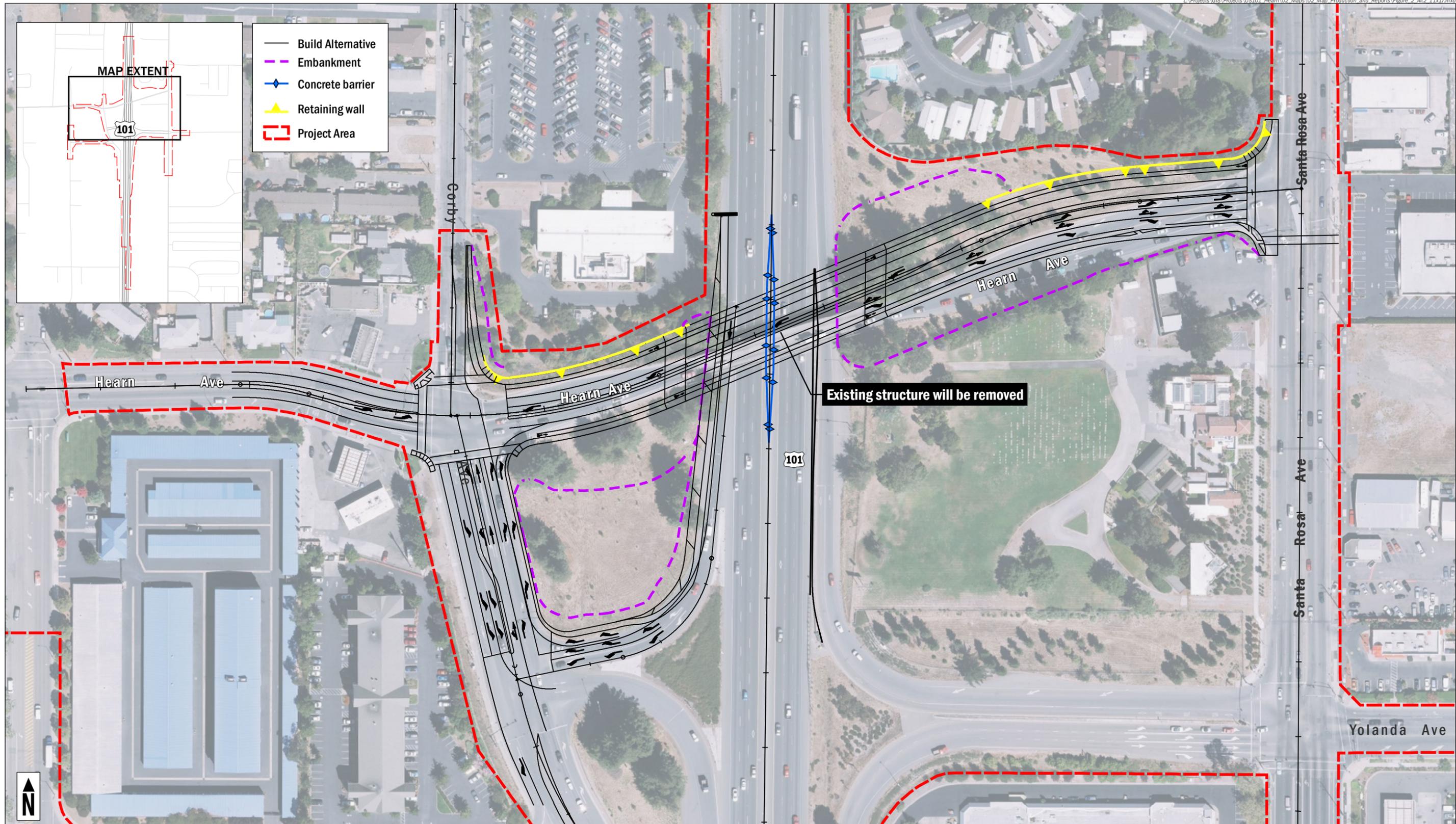
### **Utilities and Drainage**

#### **Utilities**

Preliminary utility investigations have identified the location and extent of existing service lines within the project area. The project is expected to require relocation of some underground and aboveground utilities. The relocation of utilities would result in localized construction impacts and could result in temporary interruption of service. The affected utilities identified in the preliminary investigations include gas, electric, telephone, communication, cable television, sewer, and water. Final verifications of utilities would be performed during the project's final design phase and any needed relocations coordinated with the affected utility owner. Additional information on utility relocations is included in Section 2.1.5.

#### **Drainage**

The nearest creek, Colgan Creek, crosses under US 101 approximately 0.4 mile north of the Hearn Avenue overcrossing and crosses under Hearn Avenue approximately 0.3 mile west of US 101. The project does not include work in or near this creek.



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Roadside drainage ditches exist along both sides of US 101 in the project area. The project is expected to require modifications to these drainages as well as add additional drainage facilities.

Existing underground drainage systems and cross culverts would be upgraded as needed to accommodate the project. As noted above, groundwater has historically been encountered at shallow depths (less than 10 feet below ground surface) at some locations in the project area. No pump stations currently serve the interchange area, and the project is not expected to require the addition of a pump station to handle drainage.

### **Ramp Metering**

The project would maintain the existing ramp metering at the US 101/Hearn Avenue interchange for both the southbound and northbound US 101 on-ramps.

#### **1.4.1.1 Traffic Systems Management (TSM) and Traffic Demand Management (TDM) Alternatives**

Traffic Systems Management (TSM) strategies increase the efficiency of existing facilities by accommodating a greater number of vehicle trips without increasing the number of through lanes. Examples of TSM strategies include: ramp metering, auxiliary lanes, turning lanes, reversible lanes and traffic signal coordination. TSM encourages transit use and ridesharing, which the proposed project would continue to facilitate. TSM also encourages bicycle and pedestrian improvements as elements of an urban transportation system.

TSM strategies are already in use in the project area, such as ramp metering at the US 101 on-ramps from Hearn Avenue; auxiliary lanes between the Hearn Avenue interchange and the adjacent interchanges to the north and south on US 101; turning lanes on Hearn Avenue, Corby Avenue, Santa Rosa Avenue, and Yolanda Avenue; and traffic signal coordination throughout the project area. Despite these measures, the existing two-lane Hearn Avenue overcrossing limits circulation of motor vehicles, pedestrians, and bicycles through the project area, as described in Section 1.3. Although TSM measures alone could not satisfy the purpose and need of the project, the Build Alternative would provide additional TSM components in the form of sidewalks and Class II bike lanes on Hearn Avenue between Corby Avenue and Santa Rosa Avenue. The proposed pedestrian facilities on Hearn Avenue would also increase access to public transit stops in the project area.

Traffic Demand Management (TDM) focuses on regional means of reducing the number of vehicle trips and vehicle miles traveled (VMT) as well as increasing vehicle occupancy. The project would reduce traffic congestion on the US 101 southbound off-ramp and facilitate nonmotorized travel by providing a pedestrian and bicycle link across US 101, which would also support transit access and use in the project area.

#### **1.4.1.2 Estimated Cost**

The project is funded through SCTA Measure M funds, Capital Facilities Fee, and other local funds. The estimated total project cost is \$28.71 million, including \$19.18 million for construction, \$0.58 million for right-of-way, and \$8.95 million in support costs. Costs for the project are estimated through the start of 2019, when the project is scheduled to be ready to advertise for construction.

### **1.4.2 No Build Alternative**

The No Build Alternative proposes no modifications to the overcrossing or ramps other than routine maintenance and rehabilitation and currently planned and programmed projects.

The No Build Alternative would not alleviate current and future traffic or improve circulation at the US 101/Hearn Avenue interchange. It would also not increase bicycle and pedestrian access across US 101. With the No Build Alternative, traffic conditions at local intersections would continue to degrade with increased future traffic demand.

### **1.4.3 Final Decision Making Process**

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

### **1.4.4 Alternatives Considered but Eliminated from Further Discussion**

The following alternatives were studied during the project initiation document (PID) phase of the project and early stages of the project approval and environmental document (PA&ED) phase of the project and ultimately rejected and withdrawn from further study for the reasons noted.

#### **1.4.4.1 Project Study Report-Project Development Support (PSR-PDS) Alternative 4A**

Alternative 4A was one of two viable build alternatives recommended for further study in the approved 2013 Project Study Report-Project Development Support (PSR-PDS) (California Department of Transportation [Caltrans] 2012). The other viable alternative identified in the PSR-PDS was Alternative 2, which has been refined and evaluated in this document as the proposed Build Alternative.

Alternative 4A proposed to reconstruct the Hearn Avenue overcrossing several hundred feet to the south of the existing facility. Like the proposed Build Alternative, the new overcrossing would have four through lanes (two in each direction), a raised median, additional storage for left-turning vehicles at the signalized intersections either side of the overcrossing, bicycle lanes and sidewalks on both sides, and standard clearance over US 101.

On the east side of US 101, the Hearn Avenue overcrossing would be realigned to intersect with Santa Rosa Avenue at the same location as Yolanda Avenue. The ramps to and from northbound US 101 to Santa Rosa Avenue would be realigned and widened to connect with the realigned Hearn Avenue. The auxiliary lane on northbound US 101 approaching the off-ramp would be extended to the south by approximately 280 feet. Santa Rosa Avenue at the new Hearn Avenue/Yolanda Avenue intersection would be sliver widened on the west side, toward the freeway, to accommodate additional turning lanes at the intersection. The existing intersection between Santa Rosa Avenue and Hearn Avenue would be modified as Hearn Avenue was realigned to the south to line up with Yolanda Avenue.

On the west side of US 101, the existing off-ramp from southbound US 101 to Corby Avenue would be widened to add a second exit lane, and Corby Avenue between the southbound US 101 on-/off-ramps intersection and Hearn Avenue would be sliver widened on the freeway side to provide for additional turning lanes at the signalized intersections with the southbound US 101 on-/off-ramps and Hearn Avenue.

The following additional geometric features were studied as part of the refinement of Alternative 4A during the PA&ED phase:

- The existing off-ramp from southbound US 101 to Corby Avenue would be realigned and widened to add a second exit lane and connect at a new intersection with Corby Avenue at the same location as Corby Avenue Extension. The existing signalized intersection at Corby Avenue between Corby Avenue Extension and Hearn Avenue would be eliminated.
- The existing on-ramp to southbound US 101 from Corby Avenue would be realigned to begin at the new intersection at the Corby Avenue Extension.
- A portion of Corby Avenue south of the Corby Avenue Extension intersection would be realigned slightly to the west to accommodate the realigned on-ramp to southbound US 101.

The traffic analysis for Alternative 4A during the early PA&ED phase revealed that the realigned Hearn Avenue/Santa Rosa Avenue/Yolanda Avenue intersection would operate at LOS E on opening day (2020) and degrade to LOS F after opening day. Another design feature was a proposed decision lane on westbound Hearn Avenue to either turn right onto the northbound on-ramp or continue west along Hearn Avenue over US 101, but the lane would require bicyclists traveling westbound on Hearn Avenue to navigate across two right-turning lanes of traffic headed for the northbound on-ramp. Consensus was reached at a focused meeting with Department, City and SCTA representatives on September 2, 2015, to drop Alternative 4A from further study as it did not fully meet two purposes of the project (improve local traffic circulation and regional traffic operations; and improve overall safety of the facility).

#### **1.4.4.2 Alternative 2A**

Alternative 2A would reconstruct the existing overcrossing along its current alignment with the following additional modifications:

- The existing off-ramp from southbound US 101 to Corby Avenue would be realigned and widened to add a second exit lane from southbound US 101 and connect at a new intersection with Corby Avenue at the same location as the Corby Avenue Extension. The existing signalized intersection at Corby Avenue between the Corby Avenue Extension and Hearn Avenue would be eliminated.
- The existing on-ramp to southbound US 101 from Corby Avenue would be realigned and widened to begin at the new intersection at the Corby Avenue Extension.
- A portion of Corby Avenue south of the Corby Avenue Extension intersection would be realigned to the west to accommodate the realigned on-ramp to southbound US 101.

The traffic analysis undertaken for Alternative 2A during the early PA&ED phase revealed that it did not provide any traffic operational improvements compared to the Build Alternative evaluated in this document. Alternative 2A would have required several design exceptions to the Department's standard design guidelines and more right-of-way acquisitions and utility impacts along Corby Avenue than the Build Alternative. Consensus was reached at a focused meeting with Department, City and SCTA representatives on December 15, 2015, to drop Alternative 2A from further study as it did not fully meet the project's purpose.

#### **1.4.4.3 Standard Type L-1 Diamond Interchange Alternative**

The existing interchange configuration is a Type L-6 with hook ramps connecting to the parallel local street systems (Corby Avenue to the west of US 101 and Santa Rosa Avenue to the east of US 101). To provide standard diagonal ramps rather than hook ramps to and from southbound US 101 connecting with Hearn Avenue, the southbound off-ramp would need to be realigned through the Department of Motor Vehicles property in the northwest interchange quadrant, which would require acquisition of the full parcel. The resulting southbound on- and off-ramp intersection along Hearn Avenue would only be a couple of hundred feet from the existing Corby Avenue/Hearn Avenue intersection, which would create operational issues due to lack of available length to accommodate through and turning movements between the two intersections. The new overcrossing would need to be wider to accommodate the additional turning lanes and storage needed to serve the new southbound on- and off-ramp intersection. The existing weaving section between the existing southbound on-ramp from the Baker Avenue interchange and the new diagonal southbound off-ramp at the downstream Hearn Avenue interchange would also be reduced in length.

The Standard Type L-1 Diamond Interchange Alternative was found to not satisfy the project's purpose and need due to the substantial right-of-way acquisition required, the short distance that would result between the local street intersections along Hearn Avenue west of US 101, the added cost for a wider overcrossing, and the impacts to the existing weaving section on southbound US 101 between the Hearn Avenue and Baker Avenue interchanges.

#### **1.4.4.4 Standard Type L-7 Partial Cloverleaf Interchange**

To construct a standard Type L-7 partial cloverleaf interchange, the diagonal off-ramps and loop on-ramps in each direction of US 101 would need to be placed in the northwest and southeast quadrants of the interchange area. The northwest quadrant of the interchange currently contains a Department of Motor Vehicles facility, and the southeast quadrant of the interchange contains commercial development. Full acquisitions of the properties in these two quadrants would be required. The interchange would have a southbound on-/off-ramp intersection along Hearn Avenue in the vicinity of the existing Hearn Avenue/Corby Avenue intersection, and the northbound on-/off-ramp intersection along Hearn Avenue would be approximately 200 feet from the existing Santa Rosa Avenue /Yolanda Avenue intersection. The resulting closely spaced local street intersections would create operational issues due to lack of available length to accommodate through and turning movements along Hearn Avenue between the intersections. The existing weaving section between the existing US 101 southbound on-ramp from the Baker Avenue interchange and the new diagonal southbound off-ramp at the downstream Hearn Avenue interchange would also be further reduced by at least 800 feet.

This alternative was ultimately rejected due to the substantial right-of-way acquisition required, the short distance that would result between the local street intersections along Hearn Avenue on the east and west sides of US 101, and the impacts to the existing weaving section on southbound US 101 between the Hearn Avenue and Baker Avenue interchanges.

#### **1.4.4.5 Roundabout Intersection Control**

The use of roundabouts instead of signalized intersections was evaluated. The Build Alternative proposes to maintain the interchange configuration with the existing hook ramps connecting to the parallel local street systems (Corby Avenue to the west of US 101 and Santa Rosa Avenue to the east of US 101). In order to maintain sufficient storage length on the southbound US 101 on-ramp up to the meter line, installing a roundabout at the southbound on-/off-ramp/Corby Avenue intersection would require right-of-way acquisition from the adjacent Extended Stay America hotel property, which would affect its parking capacity and circulation. The nonstandard intersection spacing between the southbound on-/off-ramp /Corby Avenue intersection and the Hearn Avenue /Corby Avenue intersection to the north would be further reduced. Installing a roundabout at the intersection of the northbound on-/off-ramps with Santa Rosa Avenue and Yolanda Avenue would require a roundabout with more than two lanes to accommodate future traffic volumes. A multi-lane roundabout would require right-of-way acquisition from properties adjacent to the intersection area including a McDonalds restaurant, 7-Eleven gas station, and a commercial development. Extensive overhead and underground utility relocations would also be required to accommodate a roundabout.

This alternative was ultimately rejected due to the constrained right-of-way in the interchange area, the substantial right-of-way acquisition needed, and the need for a roundabout with more than two lanes to accommodate future traffic volumes.

#### **1.4.4.6 Single Point Interchange Alternative**

A Single Point Interchange would have short, straight on- and off-ramps to a Hearn Avenue crossing over US 101. The geometry for Single Point Interchanges typically works best when the surrounding topography is fairly flat and the local streets where the ramps connect do not have to elevate sharply over (or under) the freeway facility. The approach grades for Hearn Avenue where it crosses US 101 are just under 7 percent, which is where some of the ramps would need to intersect with Hearn Avenue. This would have exceeded the Department design standard of 4 percent grades. To provide standard diagonal ramps to and from southbound US 101 connecting with the realigned Hearn Avenue overcrossing (between Hearn Avenue and Yolanda Avenue), the southbound off-ramp would need to realign through the Department of Motor Vehicles property in the northwest interchange quadrant, requiring partial acquisition of that parcel. The resulting southbound on- and off-ramp intersection along Hearn Avenue would only be a couple of hundred feet from the existing Corby Avenue/Hearn Avenue intersection, creating operational issues due to lack of available length to accommodate through and turning movements between the two intersections. The new overcrossing would need to be wider to accommodate the additional turning lanes and storage needed to serve the new southbound on- and off-ramp intersection. The length of the existing weaving section between the existing southbound on-ramp from the Baker Avenue interchange and the new diagonal southbound off-ramp at the downstream Hearn Avenue interchange would also be reduced. Extended signal

phasing would be needed to allow bicyclists to clear the intersection areas, reducing available green time for vehicles, including for the on- and off-ramps.

This alternative was rejected due to the right-of-way acquisition required, the short distance that would result between the local street intersections along Hearn Avenue on the west side of US 101, the added cost for a wider overcrossing, the extended phasing needed for bicyclists to clear the intersection areas, and the impacts to the existing weaving section on southbound US 101 between the Hearn Avenue and Baker Avenue interchanges.

#### **1.4.4.7 Diverging Diamond Interchange Alternative**

A diverging diamond interchange (DDI) was evaluated for the Hearn Avenue Interchange. The geometry for DDIs typically work best when there are heavy left-turn movements. For the Hearn Avenue Interchange, the right-turn movements are typically the heaviest in the peak periods. To date, there are no existing DDIs in California. A DDI at this location would have the same property impacts, reduction in interchange spacing and storage on southbound US 101, and need for a wider overcrossing structure to accommodate turning lanes as a Single Point Interchange. In addition, the northbound on-ramp would need to be realigned through the Chapel of the Chimes Cemetery property, requiring partial acquisition of that parcel. Pedestrian wayfinding through a DDI can be confusing, requiring at least four crossings of vehicle lanes to get through the intersection area.

This alternative was rejected due to the right-of-way acquisition required, the short distance that would result between the local street intersections along Hearn Avenue on the west side of US 101, the added cost for a wider overcrossing, the confusing wayfinding for pedestrians through the interchange area, and the operational impacts of shortening the weaving section on southbound US 101 between the Hearn Avenue and Baker Avenue interchanges.

#### **1.4.4.8 Other Improvements Considered**

Other improvements to the Hearn Avenue Interchange were evaluated and rejected for the following reasons:

- Realign Hearn Avenue to connect with Yolanda Avenue at Santa Rosa Avenue, and realign the northbound on-/off-ramps to connect as hook ramps with Santa Rosa Avenue in the former location of the Hearn Avenue intersection. In essence, the Hearn Avenue/Santa Rosa Avenue and Yolanda Avenue/Santa Rosa Avenue intersection locations would be switched. This design was eliminated from further consideration because realigning the northbound on-ramp farther to the north would reduce the length of the existing weaving section between Hearn Avenue and northbound off-ramp to Baker Avenue, causing operational impacts.
- Realign Hearn Avenue to connect with Yolanda Avenue at Santa Rosa Avenue, realign the northbound off-ramp to connect with the realigned Hearn Avenue, and realign the northbound on-ramp to connect as a hook ramp with Santa Rosa Avenue in the former location of the Hearn Avenue intersection. This design was eliminated from further consideration because of the operational impacts of shortening the weaving section between Hearn Avenue and the northbound off-ramp to Baker Avenue. This design would

also split the northbound ramps between two adjacent local street intersections, which is typically inadvisable because it causes driver confusion.

#### 1.4.5 Permits and Approvals Needed

Table 1.4.5-1 shows the permits, reviews, and approvals that would be required for project construction.

**Table 1.4.5-1: Permits and Approvals Needed**

Agency	Permit/Approval	Status
U.S. Army Corps of Engineers (USACE)	Section 404 permit for placement of fill in wetlands and other waters of the U.S.	<ul style="list-style-type: none"> <li>• USACE approval of preliminary wetland delineation requested in July 2016.</li> <li>• Permit application will be submitted during the detailed design phase.</li> </ul>
Federal Highway Administration (FHWA)	Concurrence with project's conformity to Clean Air Act and other requirements.	<ul style="list-style-type: none"> <li>• Air quality studies will be submitted for FHWA concurrence after public review of this Initial Study/Environmental Assessment.</li> </ul>
State Historic Preservation Officer (SHPO)	Notification of finding of "No Historic Properties Affected" under the Section 106 Programmatic Agreement.	<ul style="list-style-type: none"> <li>• The SHPO concurred with findings on May 19, 2016.</li> </ul>
San Francisco Bay Regional Water Quality Control Board (RWQCB)	Section 401 Water Quality Certification, National Pollutant Discharge Elimination System (NPDES) approval for work greater than one acre.	<ul style="list-style-type: none"> <li>• Applications for Water Quality Certification and NPDES permit will be submitted during the detailed design phase.</li> <li>• A Notice of Intent and SWPPP will be prepared and submitted prior to construction.</li> </ul>
Sonoma County	Permit for removal of protected trees	<ul style="list-style-type: none"> <li>• Permit application will be submitted during the detailed design phase.</li> </ul>
City of Santa Rosa	Encroachment permit for work within City right-of-way, permit for removal of protected trees	<ul style="list-style-type: none"> <li>• Permit applications will be submitted during the detailed design phase.</li> </ul>

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

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

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

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

The project area does not include and would not have an impact to coastal zones or wild and scenic rivers.

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.

### **Parks and Recreation Facilities**

The project would not directly or indirectly affect any parks or Section 4(f) resources (publicly owned lands or lands of historic significance regulated by Section 4(f) of the Department of Transportation Act of 1966; AECOM 2016a), as described in Appendix B.

### **Growth**

Roadway improvements have the potential to induce growth by removing obstacles to growth, facilitating or accelerating growth beyond planned or projected developments, or inducing growth elsewhere in the region. The project would not create new or additional access to areas not previously served by a transportation facility. The project would help to accommodate existing and planned future growth described in the City's General Plan but would not trigger growth beyond those planned or projected developments. The project would increase the capacity of the Hearn Avenue overcrossing but would not affect the overall capacity of US 101; therefore, it would not induce growth elsewhere in the region. Overall, the project would accommodate but not induce growth (AECOM 2016a).

### **Farmlands/Timberlands**

The project area does not contain any lands that are designated as or used as farmlands or timberlands. Therefore, the project would not result in farmland or timberland conversion (AECOM 2016a).

### **Community Character and Cohesion**

The project would not increase access to or through the project area or region in a way that would increase the population or demand for housing; nor would the project affect the cost of

housing. The project has the potential to increase community connectivity by allowing residents to more easily walk or bike across US 101 to access shopping or public transportation but would not physically divide an established community or create new barriers to movement within the project area (AECOM 2016a).

### **Paleontology**

The geologic unit that underlies the project area is Holocene, which dates from approximately 10,000 to 12,000 years before present and is the era in which human civilization is generally considered to have begun. Sedimentary deposits of that age are not considered old enough to contain significant paleontological resources. Therefore, the geologic subunits that underlie the project area are considered to have no potential to yield fossils (AECOM 2016b).

### **Mineral Resources**

The project area does not contain any known mineral resources. Therefore, the project would have no impact on mineral resources.

### **Plant Species**

The project area does not contain any special-status plants, including California Department of Fish and Wildlife (CDFW) fully protected species and species of special concern, and U.S. Fish and Wildlife Service (USFWS) candidate species. The project would have no impact on special-status plant species (AECOM 2016m).

### **Threatened and Endangered Species**

Several sources were reviewed and evaluated for the project area including:

- USFWS species list (Appendix D)
- National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) species lists (Appendix D)
- California Natural Diversity Database (CNDDB)
- A site visit in April 2015

No plant or animal species listed as federally or state threatened or endangered was identified in the project area. The project area lacks suitable habitat to support threatened or endangered species. The project area contains federally designated critical habitat for the California tiger salamander (a federally endangered species) but lacks the required primary constituent elements of such habitat including standing bodies of fresh water that hold water for three consecutive months. The project would not require Section 7 consultation with USFWS or NOAA Fisheries and the project would have No Effect on threatened and endangered species or critical habitat (AECOM 2016m).

## 2.1 Human Environment

### 2.1.1 Existing and Future Land Use

#### 2.1.1.1 Affected Environment

The following discussion is from the *Community Impact Assessment* completed for the proposed project in March 2016 (AECOM 2016a).

Existing land use types adjacent to the project area include retail and business services, medium density to low density residential, mobile homes, light to general industrial, and public/institutional land uses (City of Santa Rosa 2014b).

US 101 runs north to south in the project area. Santa Rosa Avenue runs parallel to US 101 to the east, and Hearn Avenue runs east to west. Development on the east side of US 101 and south of Hearn Avenue, between US 101 and Santa Rosa Avenue, includes a variety of commercial properties including (from south to north) a recreational vehicle showroom, a Smart & Final grocery store, a Petco, a Bed Bath and Beyond, an REI, fast food restaurants (in the Santa Rosa Town Center), and a few mobile home communities. Immediately south of Hearn Avenue is the Chapel of the Chimes (a cemetery, crematorium, and funeral facility) and an auto detailing facility. Additional residential developments lie to the east of the project area, off of Santa Rosa Avenue.

Development on the east side of US 101 to the north of Hearn Avenue is similar to the south side. The area features mobile home parks and commercial facilities along Santa Rosa Avenue including a few hotels, car repair shops, a Trader Joe's grocery store, an auto parts store, a Target, an Old Navy, a Costco, and a variety of fast food restaurants (in the Santa Rosa Marketplace).

Development on the west side of US 101 to the south of Hearn Avenue features several car dealerships, a hotel, and a gas station on Corby Avenue. To the west of US 101 beyond this development are additional car dealerships, industrial parks, a self-storage facility and residential developments.

The west side of US 101 to the north of Hearn Avenue is almost entirely residential except for the California Department of Motor Vehicles office directly adjacent to the Hearn Avenue overpass. The residential area has single and multi-family housing, green space, parks, and schools nearby. Figure 2.1.1-1 shows the City's general plan land use designations (City of Santa Rosa 2009).

Development trends in the project vicinity are characterized by infill developments that are compatible with adjacent land uses, and developments that provide services near residential areas in order to promote transit and nonmotorized travel (City of Santa Rosa 2009). Future proposed and approved development within one mile of the project area is described in Table 2.1.1-1. This information was obtained from CEQAnet (for the period November 2011 through February 2015) and from the City. The table is organized by project type, and provides the name of each development and project details including location and project status.

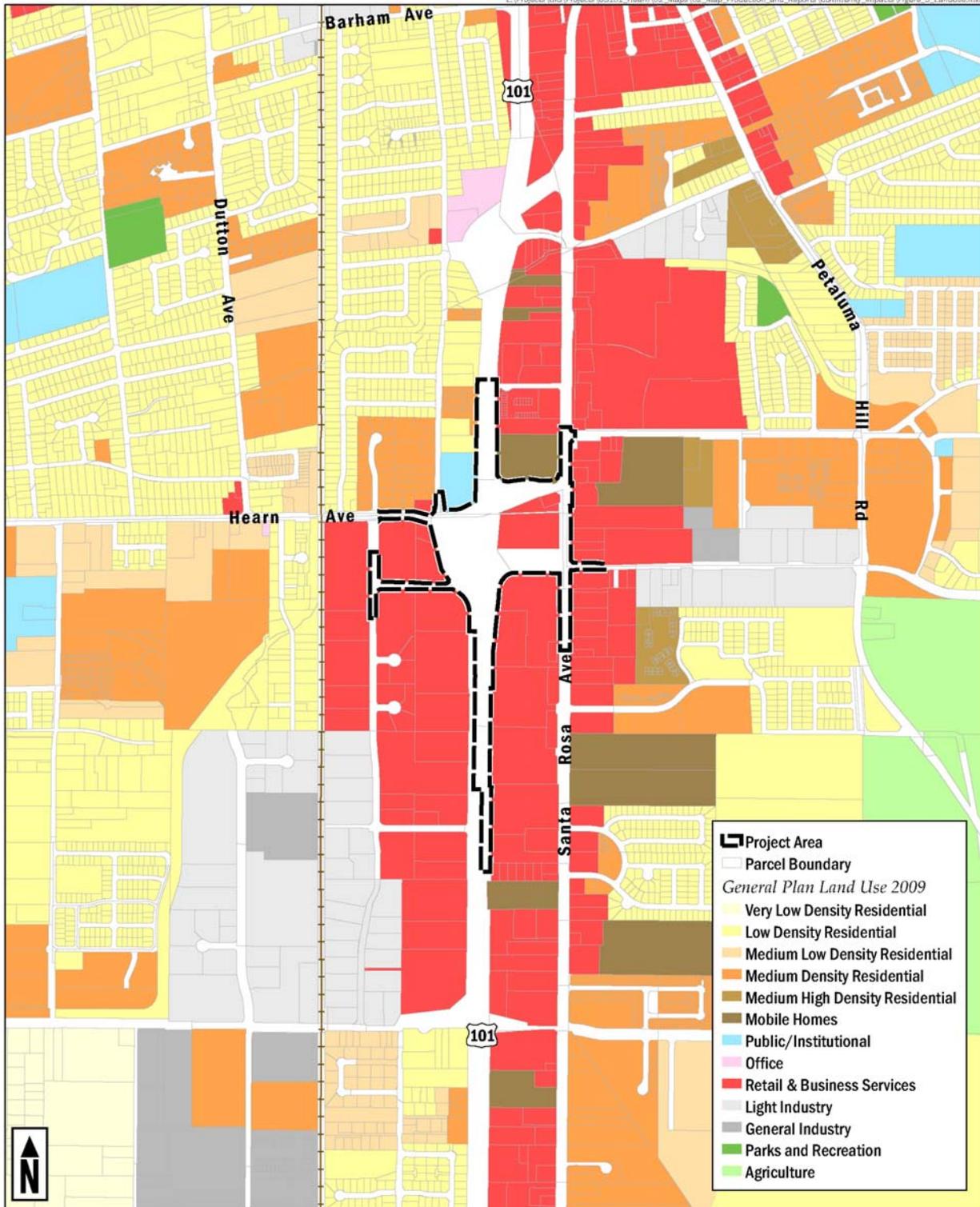


Figure 2.1.1-1: Existing Land Use

**Table 2.1.1-1: Proposed Projects**

<b>Name</b>	<b>Location</b>	<b>Approx. Distance from Project Area</b>	<b>Proposed Uses</b>	<b>Status</b>
<b>Transportation</b>				
Pavement Preventative Maintenance	Multiple Locations (Burt Street, Corby Ave Extension, and Corby Avenue)	Various	Road maintenance.	Approved
Farmers Lane Extension	Yolanda Avenue and Petaluma Hill Road	0.5 mile	Extend the existing Farmers Lane road from Bennett Valley Road to Yolanda Avenue through an existing undeveloped area.	Proposed for Construction
<b>Infrastructure</b>				
Dutton Avenue Community School Pathway	Bellevue Avenue and Dutton Avenue	1.0 mile	Construct walking paths along the unpaved public right-of-way.	Proposed
Western Mobile Home Park Well Arsenic Treatment Project	3309 Santa Rosa Ave	1.0 mile	Replace an existing well with a new well equipped with arsenic and disinfection treatment.	Under Construction
Kawana School Water System Project	2121 Moraga Drive	0.9 mile	Planning and investigation phase project to determine a second drinking water source for the school.	Proposed
Meadow View Elementary Removal Action Work	2665 Dutton Meadows	0.8 mile	Excavate and remove hazardous soils.	Proposed
<b>Commercial</b>				
Fairfield Inn and Suites	111 Commercial Court	0.05 mile	108-room hotel with underground garage and surface parking.	Approved
CarMax Automobile Dealership	Dowd Drive and Quillco Court	0.1 mile	Redevelopment of 7.15-acre dealership.	Approved
Hanzel Auto Plaza	2925 Corby Avenue	0.5 mile	BMW, Volkswagen, and Subaru will occupy the Hanzel Auto Plaza and expand by two additional buildings.	Approved
Golden Gate Meat Co.	1095 South A Street	0.92 mile	1,680-square-foot retail space with 2,400-square-foot office space.	Proposed
<b>Residential</b>				
Yolanda Avenue General Plan Amendment	Yolanda Avenue & Santa Rosa Avenue	0.1 mile	Transferring the right to develop 35 dwelling units to a new location.	Approved
Paseo Vista Townhouses/ Apartments	2290 Dutton Avenue	0.3 mile	General Plan and Zoning amendment to allow development of a 135-unit subdivision.	Approved
Kawana Springs Family Apartments	766 Kawana Springs Road	0.59 mile	42 multi-family housing units.	Approved
Dutton Meadows Phase 1	2650 Dutton Meadows	0.61 mile	160 single-family detached housing units.	Approved

**Table 2.1.1-1: Proposed Projects**

<b>Name</b>	<b>Location</b>	<b>Approx. Distance from Project Area</b>	<b>Proposed Uses</b>	<b>Status</b>
Aston Way Homes	532 Aston Way	0.68 mile	13 single-family detached and 2 single-family attached housing units.	Approved
Aston Way Townhomes	537 Aston Avenue	0.73 mile	7 single-family attached housing units.	Approved
Lantana Place	2975 Dutton Meadows	0.76 mile	96 multi-family housing units.	Approved
Somerset Place	2786 Dutton Meadows	0.76 mile	32 single-family detached housing units.	Approved
Kawana Meadows	1162 Kawana Springs Road	0.82 mile	69 single-family and 161 multi-family housing units.	Approved
Aston Avenue Duplex Apartments	706 Aston Avenue	0.82 mile	28 multi-family housing units.	Approved
Catalina	2740 Dutton Meadows	0.88 mile	60 single-family attached housing units.	Approved
Meadows View	2727 Dutton Meadows	0.96 mile	48 single-family detached and 4 single-family attached housing units.	Approved
Aston Place	908 Aston Avenue	0.98 mile	33 single-family attached housing units.	Approved
Lone Star	2803 Dutton Meadows	1.0 mile	24 single-family detached housing units.	Approved
Meadowood Ranch	2853 Dutton Meadows	1.0 mile	82 single-family detached housing units.	Approved
<b>Other</b>				
Roseland Area/Sebastopol Road Specific Plan	Southwest Santa Rosa	0 mile	Plan focused around the Southside Bus Transfer Center at the Southwest Community Park on Hearn Avenue.	Under Development
Roseland Area Annexation	Roseland	0 mile	Incorporate the Roseland Area into the City of Santa Rosa.	Proposed
Duke Court Lot #6	2870 Duke Court	0.13 mile	16,390-square-foot industrial facility.	Approved
Santa Rosa Village	2660 Petaluma Hill Road	0.63 mile	Mixed-use development including 126 single-family attached housing units and 98,500 square feet of retail space.	Approved
Roseland Charter School	1777 West Avenue	0.8 mile	Construct a new high school and remove the existing school	Approved
Bayer Neighborhood Park and Gardens	West Avenue and Funston Drive	0.8 mile	Expanded community garden, gathering area, animal enclosure, play area, amphitheater, picnic areas, and parking.	Under Construction
Dutton Avenue Community School Pathway	Bellevue Avenue and Dutton Avenue	1.0 mile	Construct walking paths along the unpaved public right-of-way.	Approved
Villas	1755 Sebastopol Road	1.0 mile	Subdivide 14.28 acres to accommodate a 0.52-acre commercial parcel, 197 single-family attached units, and associated improvements.	Approved

**Table 2.1.1-1: Proposed Projects**

Name	Location	Approx. Distance from Project Area	Proposed Uses	Status
Roseland Village Neighborhood Center	Sebastopol Road and West Avenue	1.0 mile	Redevelop the Roseland Village Shopping Center for use by non-profit organizations, schools, and public agencies.	Approved

Sources: CEQAnet 2015, City of Santa Rosa 2014c, City of Santa Rosa 2014d

**2.1.1.2 Environmental Consequences**

**No Build Alternative**

The No Build Alternative would not conflict with or preclude the proposed projects listed in Table 2.1.1-1.

**Build Alternative**

The project would serve existing residential and commercial areas and would not involve unused rural lands. The project is consistent with the existing land use. The project would ease existing and projected future traffic congestion by adding lanes to the overcrossing and increasing capacity on the southbound US 101 off-ramp. The project would not conflict with or preclude the proposed projects listed in Table 2.1.1-1.

**2.1.1.3 Avoidance, Minimization, and/or Mitigation Measures**

No avoidance, minimization, or mitigation is required.

## 2.1.2 Consistency with State, Regional and Local Plans and Programs

### 2.1.2.1 Affected Environment

The following discussion is from the *Community Impact Assessment* completed for the proposed project in March 2016 (AECOM 2016a).

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

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

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

#### **Transportation Plans/Programs**

This project is included in *Plan Bay Area*, the RTP for the nine-county San Francisco Bay Area (MTC and Association of Bay Area Governments [ABAG] (2013)). The RTP lists projects of local and regional importance based on factors such as local support and need, ridership, and potential cost and funding. These factors provide direction on how anticipated federal, state, and local transportation funds will be spent in the Bay Area during the next 25 years. *Plan Bay Area* identifies improving the Hearn Avenue overcrossing as an important way to improve mobility options to the underserved south Santa Rosa community.

The project is included in the SCTA *2009 Comprehensive Transportation Plan for Sonoma County* (SCTA 2009), a county-wide effort to prioritize transportation needs and inform the MTC's regional transportation plan. Sonoma County voters passed the Traffic Relief Act (SCTA Measure M) in 2004. Among other things, it provides direct funding for multi-modal transportation throughout the county. The plan also establishes priorities to consider when allocating SCTA Measure M funds beyond the initial *2007 Measure M Strategic Plan* (SCTA 2007a).

#### **Regional Growth Plans**

*Plan Bay Area* (MTC and ABAG 2013) also describes the regional growth plan for the nine-county San Francisco Bay Area. It designates the Roseland area northwest of the project area as a potential priority development area and the entire project area as a community of concern (either currently disadvantaged or at risk from future growth) based on the high proportion of minorities and non-English speaking households.

*Plan Bay Area* estimates continued growth in Santa Rosa and projects that by 2040, Santa Rosa will see a 38 percent increase in jobs and a 24 percent increase in housing over 2010 levels.

### **General Plans and Community Plans**

The *Santa Rosa General Plan 2035* (City of Santa Rosa 2009) provides a vision for the policies and priorities for the City property, including the annexation of the Roseland area, in the project area. It supersedes the *Santa Rosa Southwest Area Plan*. The plan's urban development, land use, and transportation sections identify goals and policies related to the project area, which are discussed further in Section 2.1.2.2.

### **Habitat Conservation Plans and Natural Community Conservation Plans**

In 2008, a low-effect habitat conservation plan was approved by the USFWS for the incidental take of the federally endangered California tiger salamander and the federally endangered Sebastopol meadowfoam during the construction of a community school located just outside the project area (at 3255 Dutton Avenue). The USFWS determined that the school construction project would result in minor or negligible effects on federally listed species and their habitats (USFWS 2015; Stromberg 2008).

There are no natural community conservation plans in effect in Sonoma County (CDFW 2014).

### **Other Regulatory and Planning Influences**

#### **Santa Rosa Bicycle and Pedestrian Master Plan**

The City adopted a Bicycle and Pedestrian Master Plan in 2010 (City of Santa Rosa 2010). The plan specifically outlines the City's goals for bicycle and pedestrian access as well as prioritizing new projects. It identifies Hearn Avenue from Corby Avenue to Santa Rosa Avenue as a high priority pedestrian project for the City, and the Hearn Avenue overcrossing as a proposed Class II bicycle lane. It notes that US 101 creates a major barrier to pedestrian and bicycle transportation and that safe ways to cross US 101 on foot or on bike are of great interest to the community.

#### **Roseland Community-Based Transportation Plan**

In 2007, MTC and SCTA issued a transportation plan evaluating the transportation needs in the Roseland community, which is adjacent to the northwest project area boundary (SCTA 2007b). The plan indicated the most important transportation strategies to the community include having safe routes to school, improving pedestrian access, increasing City bus frequency and service duration, improving bicycle lanes, improving bus stop facilities, and providing multi-use paths along the railroads and creeks.

### **2.1.2.2 Environmental Consequences**

#### **No Build Alternative**

The No Build Alternative would not be consistent with regional and local transportation planning or the Bicycle and Pedestrian Master Plan (City of Santa Rosa 2010). The No Build Alternative's consistency with Santa Rosa General Plan goals and policies is described in Table 2.1.2-1.

#### **Build Alternative**

The proposed project would be consistent with state, regional, and local plans and programs. The project is included in regional and local transportation planning and would address deficiencies in multi-modal transportation identified in the Santa Rosa General Plan. As shown below in

Table 2.1.2-1, the Build Alternative is generally consistent with the goals and policies outlined in the Santa Rosa General Plan.

**Table 2.1.2-1: Consistency of Project Alternatives with Santa Rosa Goals and Policies**

Goal/Policy <sup>1</sup>	No Build Alternative	Build Alternative
<b>UD-C-3</b> - Screen views of development from Highway 101, south of Hearn Avenue, with dense landscape treatments, allowing only glimpses or short breaks to points of interest. North of Hearn Avenue along Highway 101, allow openings in the buffer to views of downtown.	Consistent. The No Build Alternative would not change views from US 101.	Generally consistent. The Build Alternative may affect views from US 101 by removing trees adjacent to the overcrossing and adding retaining walls and embankments. Landscaping that is removed or damaged during project construction will be replaced in kind where proper setback exists and where feasible, in accordance with Department policy.
<b>UD-C-4</b> - Work with the Department to beautify Highway 101 and Highway 12. Encourage the Department to incorporate more landscaping, planting of trees, and sound walls into any improvements planned for these highways. Lessen the impact of new sound walls through the use of vegetation.	Generally consistent. The No Build Alternative would not remove or encourage additional landscaping along US 101.	Generally consistent. As stated previously, the Department will replace landscaping that is damaged or removed during project construction. Noise abatement in the form of sound walls was evaluated for the Build Alternative, and no sound walls were found to meet the feasibility criteria discussed further in Section 2.2.6.
<b>UD-C-5</b> - Work with the County of Sonoma to retain and improve the scenic qualities of Highway 101 and Highway 12, including the planting of trees in the back of developments and along the edge of the Department rights-of-way.	Generally consistent. The No Build Alternative would not remove or encourage additional landscaping along US 101.	Generally consistent. The City of Santa Rosa, SCTA, and the Department are coordinating on the project. See the description for Goal/Policy UD-C-3 regarding views and landscaping.
<b>UD-D-4</b> - Provide continuous sidewalks and bicycle lanes on both sides of major regional/arterial streets.	Not consistent. The No Build Alternative would make no changes to the existing condition, and the Hearn Avenue overcrossing would not be upgraded to include ADA compliant sidewalks or bicycle lanes.	Consistent. The Build Alternative would include ADA compliant sidewalks and Class II bikeways on Hearn Avenue (a major regional/arterial street) between approximately Corby Avenue and Santa Rosa Avenue.
<b>LUL-I-2</b> - Encourage region-serving, high volume retail outlets to locate near freeway access (generally within one-half mile of Highway 101) to minimize traffic on city streets. Do not allow regional-serving uses in residential neighborhoods.	Generally consistent. The No Build Alternative would not directly affect the placement of high volume retail. However, traffic back-ups near the Hearn Avenue overcrossing may discourage further high volume retail development near this area.	Generally consistent. The Build Alternative would also not directly affect the placement of high volume retail. However, the Build Alternative would increase the traffic capacity at the US 101/Hearn Avenue interchange.
<b>LUL-A-1</b> - As part of plan implementation – including development review, capital improvements programming, and preparation of detailed area plans – foster close land use/transportation relationships to promote use of alternative transportation modes and discourage travel by automobile.	Not consistent. The No Build Alternative would not support implementation of capital improvement programming or promotion of alternative transportation.	Consistent. The Build Alternative would support implementation of capital improvement programming (of which the project is an example) and promotes the use of alternative transportation modes by improving pedestrian and bicycle facilities in the project area.
<b>LUL-S</b> - Develop an attractive, safe, and extensive network for pedestrian and bicyclist movements.	Not consistent. The No Build Alternative would not alter the existing pedestrian/bicycle network.	Consistent. The Build Alternative would enhance the pedestrian/bicycle network by improving pedestrian and bicycle facilities in the project area.

**Table 2.1.2-1: Consistency of Project Alternatives with Santa Rosa Goals and Policies**

Goal/Policy <sup>1</sup>	No Build Alternative	Build Alternative
<b>LUL-S-2</b> - Provide for pedestrian walkways on all major roads and in all highway overcrossing designs.	Not consistent. The No Build Alternative provides for one non-ADA compliant sidewalk and no bikeway.	Consistent. The Build Alternative would enhance pedestrian/bicycle access on the overcrossing by improving pedestrian and bicycle facilities in the project area.
<b>T-B-1</b> - Ensure continuous sidewalks.	Not consistent. The No Build Alternative provides for one non-ADA compliant sidewalk.	Consistent. The Build Alternative would enhance pedestrian access by including two ADA compliant sidewalks on the overcrossing, and sidewalk extensions on Corby Avenue and Santa Rosa Avenue.
<b>T-D-1</b> - Maintain a LOS D or better along all major corridors.	Not consistent. Five intersections in the project area would operate below LOS D in 2040 with the No Build Alternative.	Consistent. All intersections in the project area would operate at LOS D or better in 2040 under the Build Alternative.

Source: City of Santa Rosa 2009

<sup>1</sup> UD-C = Urban Design, LUL = Land Use and Livability, T = Transportation

The project would also comply with the *Santa Rosa Bicycle and Pedestrian Master Plan* and the *Roseland Community-Based Transportation Plan* by upgrading the pedestrian and bicycle facilities along the Hearn Avenue overcrossing as well as on parts of Corby Avenue and Santa Rosa Avenue. City and Sonoma County plans consistently refer to US 101 as an impediment to multi-modal transportation, especially in south Santa Rosa. South Santa Rosa has a mix of residential and business areas with limited access for non-motorized travel.

### 2.1.2.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation is required.

## **2.1.3 Relocations and Real Property Acquisition**

### **2.1.3.1 Regulatory Setting**

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

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

### **2.1.3.2 Affected Environment**

The following discussion is from the *Community Impact Assessment* completed for the proposed project in March 2016 (AECOM 2016a).

The project may require small partial property acquisitions of fee parcels and/or temporary construction easements (TCE) from three properties in the project area. The partial acquisitions would not affect the continued use of the properties, and no residents would be displaced. Descriptions of the potential effects are provided below.

### **2.1.3.3 Environmental Consequences**

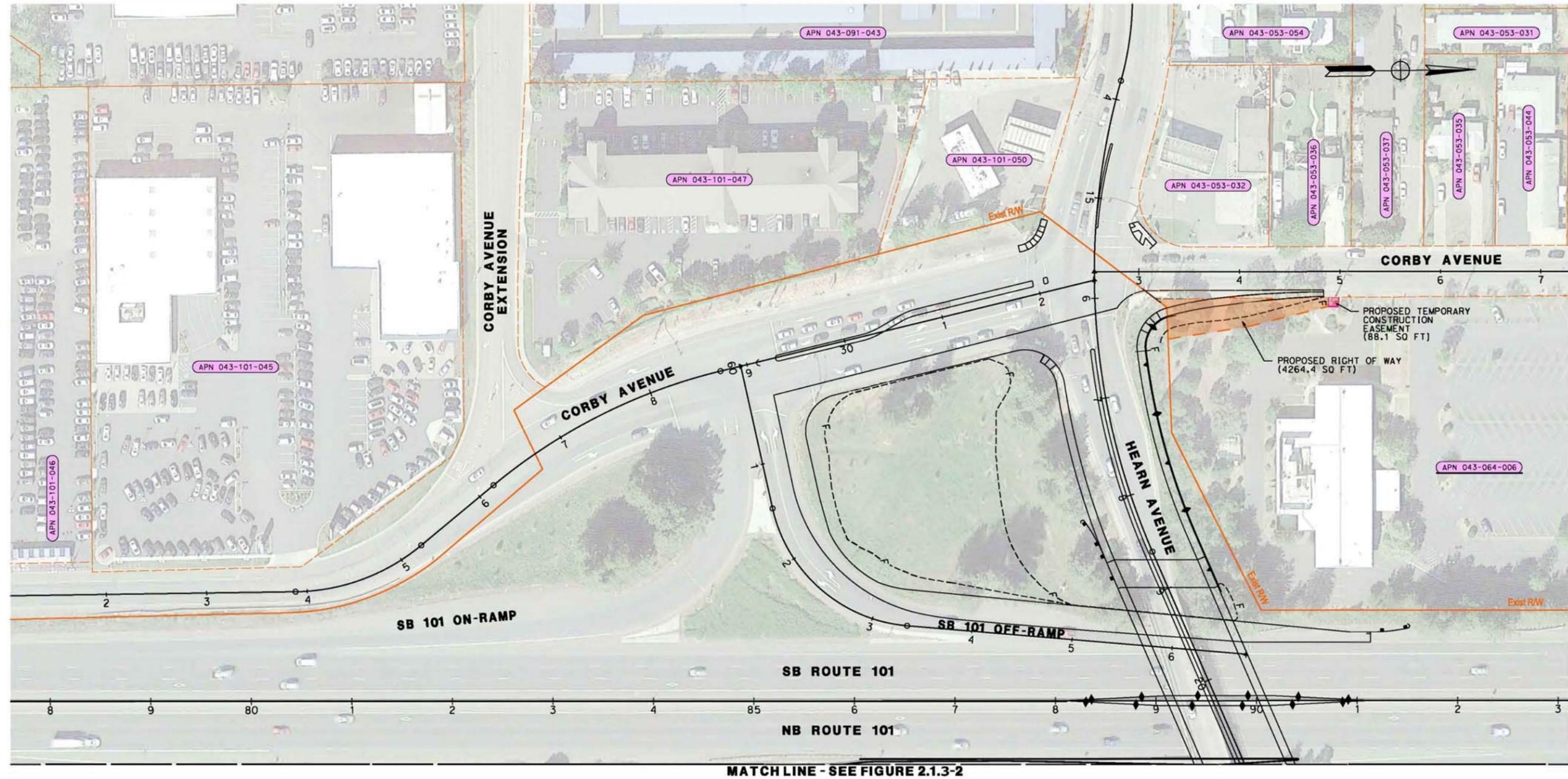
#### **No Build Alternative**

The No Build Alternative would not require any changes to existing properties.

#### **Build Alternative**

The Build Alternative has the potential to affect properties with the construction of the new overcrossing and the removal of the existing overcrossing. Since the new overcrossing would accommodate more lanes than the existing overcrossing, it would be slightly wider at the entrance and exit points. This has the potential to affect the properties that abut the project area to the north, on the east and west side connecting intersections. In addition, the extra right-turn lane onto Santa Rosa Avenue has the potential to affect the property at the southwestern corner of the Hearn Avenue/Santa Rosa Avenue intersection.

At this preliminary stage of project development, the project is not expected to result in the displacement of any of the properties listed in Table 2.1.3-1, or affect their continued use. No economic or relocation effects are anticipated to result from the proposed property acquisitions. The actual impacts to properties will be determined during the project design phase. The potential changes in right-of-way are shown in Figure 2.1.3-1.



**LEGEND:**

**EXISTING:**

- (E) CALTRANS RIGHT OF WAY
- (E) CITY EASEMENT
- (E) PROPERTY LINES

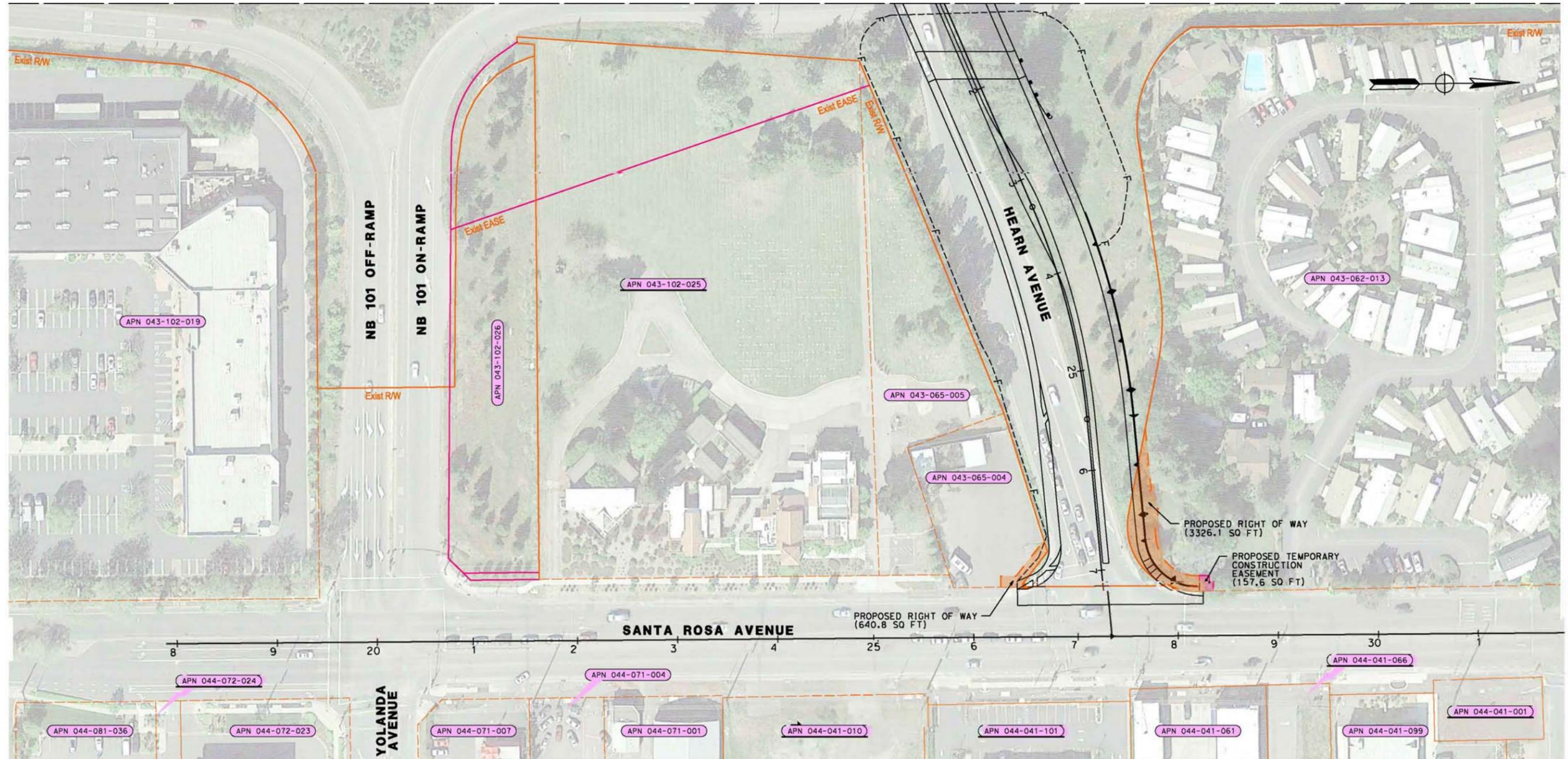
**PROPOSED:**

- (P) RIGHT OF WAY
- (P) TEMPORARY CONSTRUCTION EASEMENT
- (P) CALTRANS RIGHT OF WAY AREA
- (P) TEMPORARY CONSTRUCTION EASEMENT AREA

Note: Dimensions and square footage of potential property acquisitions and temporary construction easements are preliminary estimates and are subject to change during detailed design.

Figure 2.1.3-1: Proposed Right-of-Way Requirements (Sheet 1 of 2)

MATCH LINE - SEE FIGURE 2.1.3-1



**LEGEND:**

**EXISTING:**

- (E) CALTRANS RIGHT OF WAY
- (E) CITY EASEMENT
- (E) PROPERTY LINES

**PROPOSED:**

- (P) RIGHT OF WAY
- (P) TEMPORARY CONSTRUCTION EASEMENT
- (P) CALTRANS RIGHT OF WAY AREA
- (P) TEMPORARY CONSTRUCTION EASEMENT AREA

Note: Dimensions and square footage of potential property acquisitions and temporary construction easements are preliminary estimates and are subject to change during detailed design.

Figure 2.1.3-1: Proposed Right-of-Way Requirements (Sheet 2 of 2)

**Table 2.1.3-1: Preliminary Right-of-Way Requirements**

APN	Address	Parcel Type	Property Impact	Preliminary Area of Impact (square feet)
043-062-013	2389 Santa Rosa Avenue	Residential	Partial Acquisition & TCE: Partial acquisition at the Hearn Avenue/Santa Rosa Avenue intersection. TCE along Santa Rosa. No change to structure or parking.	Partial Acquisition: 3,326.1 TCE: 157.6
043-064-006	2570 Corby Avenue	Institutional	Partial Acquisition & TCE: Partial acquisition at the Corby Avenue/Hearn Avenue intersection and TCE on Corby Avenue. No change to structure or parking.	Partial Acquisition: 4,264.4 TCE: 88.1
043-065-004	2549 Santa Rosa Avenue	Commercial	Partial Acquisition: Partial acquisition at the Hearn Avenue/Santa Rosa Avenue intersection. No change to structure or parking.	Partial Acquisition: 640.8

Notes:

APN = Assessor's parcel number, TCE = Temporary construction easement

#### 2.1.3.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation is required.

## 2.1.4 Environmental Justice

### 2.1.4.1 Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Minority is defined by the Department as any member of the following groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black; or Hispanic (Caltrans 2011a). Low-income is defined based on the United States Department of Health and Human Services (DHHS) poverty guidelines. For 2015, this was \$24,250 for a family of four (DHHS 2015).

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

### 2.1.4.2 Affected Environment

The following discussion is from the *Community Impact Assessment* completed for the proposed project in March 2016 (AECOM 2016a).

The environmental justice study area encompasses the Census tracts that contain the project area (as shown on Figure 2.1.4-1). These Census tracts are compared to the larger region including the City, County, and State. The United States Census Bureau conducts a decennial Census and an ongoing American Community Survey to collect data on the nation's people and economy. Data for the analysis was derived from the full 2010 U.S. Census (Census 2010) and the 2009-2013 5-Year American Community Survey conducted by the U.S. Census Bureau (Census 2013). Table 2.1.4-1 shows the minority and low-income populations in the region and the environmental justice study area. The region and the study area contain a low percentage of Black, American Indian, or Native American persons. The environmental justice study area has a diverse distribution of Asian persons with the southwest area having the highest Asian population and the eastern area having the lowest Asian population. The largest minority group represented in both the region and the study area is Hispanic. The percentage of low-income individuals in the study area is similar to the State average but higher than the County or City as a whole.

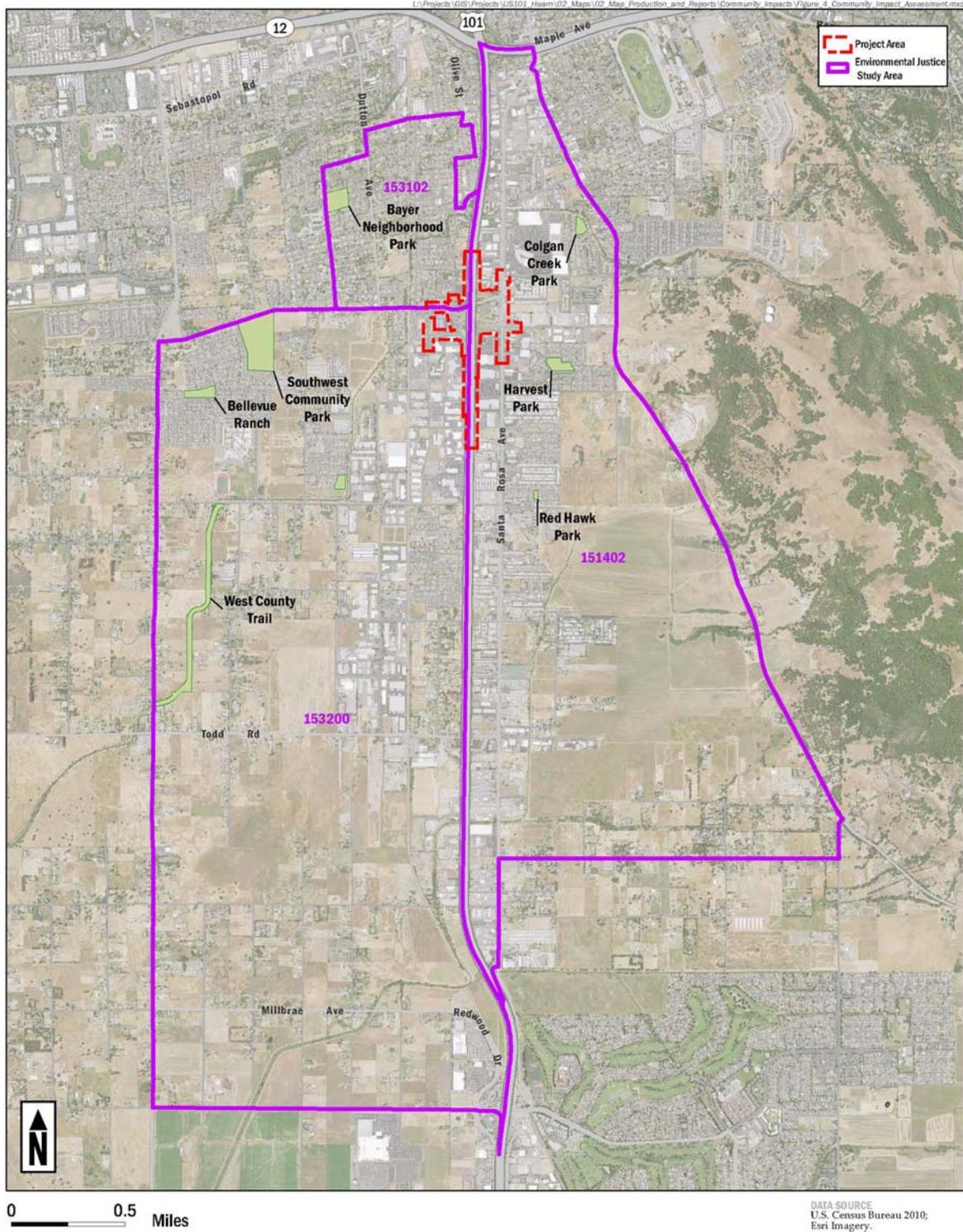


Figure 2.1.4-1: Environmental Justice Study Area

**Table 2.1.4-1: Minority and Low-Income Populations**

Location	Total Population <sup>1</sup>	%Black <sup>1</sup>	%American Indian & Alaska Native <sup>1</sup>	%Asian <sup>1</sup>	%Native American and Other Pacific Islander	% Hispanic <sup>2</sup>	% Low-Income <sup>1</sup>
<b>Region</b>							
State of California	37,253,956	6.17	0.97	13.05	0.39	37.60	12.00
County of Sonoma	483,878	1.57	1.34	3.79	0.32	24.90	7.40
City of Santa Rosa	167,815	2.43	1.67	5.21	0.48	28.60	9.20
<b>Project Area</b>							
Census Tract 151402	9,177	3.18	1.79	1.88	0.38	49.40	12.70
Census Tract 153102	5,742	2.16	3.48	4.84	0.26	66.40	11.00
Census Tract 153200	7,522	2.91	2.29	8.79	0.21	49.20	12.20

Sources: <sup>1</sup>Census 2013, <sup>2</sup>Census 2010

The Department identifies a community as an environmental justice community if it meets one or both of the following criteria:

- The minority population exceeds 50 percent or is meaningfully greater (e.g., more than 10 percentage points) than the minority population percentage in the general population or other appropriate unit of geographic analysis (e.g., the counties overlapping the study area).
- The low-income population comprises more than 25 percent of the Census block group or tract.

This analysis will examine the criteria as it pertains to the environmental justice study area to determine the presence of any environmental justice communities.

As shown in Table 2.1.4-1, the percentage of minority Hispanics in Sonoma County is 24.90 percent. In order to be substantially higher than the surrounding county, and satisfy the first criterion, the percentage of the Hispanic population in the study area Census tracts would need to be greater than 34.90 percent. All three of the Census tracts in the study area have a percentage of Hispanic persons that exceeds 34.90 percent. Therefore, all three of the Census tracts in the study area are considered environmental justice communities. That is, the entire project area is an environmental justice community based on race/ethnicity.

None of the Census tracts contain a low-income population that is more than 25 percent. Therefore, the project area is not an environmental justice community based on income.

### 2.1.4.3 Environmental Consequences

The following discusses the potential for the environmental justice community to be disproportionately affected by the project construction or operation.

### **No Build Alternative**

The No Build Alternative would not disproportionately impact minority or low-income populations.

### **Build Alternative**

#### **Project Construction**

Construction is proposed primarily for the existing right-of-way of US 101 and the Hearn Avenue overcrossing except where noted in Table 2.1.3-1. Residents and business owners near the project area may experience temporary, short-term increases in noise, dust, and traffic from the construction of the new structure, pavement work, and demolition of the existing structure. Motorists, bicyclists, and pedestrians passing through the project area would be exposed to the periodic sights and sounds of construction equipment. Temporary noise and visual effects could be pronounced during construction activities such as the placement of new support structures and the demolition of the existing overcrossing. Standard construction measures that are used for all Department projects, such as implementation of a Transportation Management Plan (TMP) and Standard Specifications (Section 14-9.01, Air Pollution Control; Section 14-9.02, Dust Control; and Section 14-8.02, Noise Control), would help to minimize these temporary effects.

Vehicle, bicycle, and pedestrian access across US 101 would be maintained throughout the construction period through the use of construction phasing. The distribution of the effects due to construction would be based on proximity to the project. Properties nearest to the existing overcrossing would be the most affected. Noise, dust, and traffic effects would dissipate as distance from the overcrossing and on- and off-ramps increases. Project construction would not have disproportionately high and adverse effects on the environmental justice community.

#### **Project Operations**

When the project is completed, it would reduce traffic congestion and improve pedestrian and bicycle access in the project area. People who live or work near the project area would experience an increased ability to cross US 101 at Hearn Avenue via motor vehicle, bicycle, or on foot. The project is intended to decrease wait times and confusion at intersections adjacent to the Hearn Avenue overcrossing and make it safer to travel through the project area. Therefore, disproportionate project effects on the environmental justice community are not anticipated.

Project public outreach will be used to ensure that the community affected by the Build Alternative has the opportunity to provide feedback and request additional information. Given the high proportion of Hispanics in the area, public outreach communications will be bilingual (English/Spanish). No avoidance, minimization, or mitigation measures are required.

#### **2.1.4.4 Avoidance, Minimization, and/or Mitigation Measures**

Based on the above discussion and analysis, the project will not cause disproportionately high and adverse effects on any minority or low-income populations per EO 12898 regarding environmental justice. No avoidance, minimization, or mitigation is required.

## 2.1.5 Utilities/Emergency Services

### 2.1.5.1 Affected Environment

This section describes the utilities and emergency services setting of the project area as described in the *Draft Project Report* completed for the proposed project in 2016 (AECOM 2016c).

#### Utilities

Utilities in the project vicinity were identified through site visits and reviews of utility plans obtained from the Department, the local jurisdictions, Pacific Gas & Electric (PG&E), and various communications providers. Utilities in the project area include:

- Overhead electric, television, and telecommunications; and
- Underground electric, gas, sanitary sewer, water, television, and telecommunications.

PG&E is the primary provider of gas and electricity service in the project area. Comcast, AT&T, and Integra Telecom offer communications services (telephone, Internet, and cable). Water and sewer service is provided by the City.

#### Emergency Services

Police protection, traffic enforcement, and fire protection in the project area are provided by the City of Santa Rosa, County of Sonoma, and California Highway Patrol.

### 2.1.5.2 Environmental Consequences

#### No Build Alternative

The No Build Alternative would not require the relocation of utilities or affect emergency services.

#### Build Alternative

##### Utilities

The project is expected to require the relocation of some underground and above ground utilities. The relocation of utilities would result in short-term, localized construction impacts and could result in temporary service interruptions. The affected utilities identified in the preliminary investigations include electric, water, and sewer. Table 2.1.5-1 presents a preliminary list of utility relocations for the Build Alternative. All relocations are expected to occur within the project area. Final verification would be performed during the project's design phase.

**Table 2.1.5-1: Potential Utility Relocation**

Facility	Owner
Overhead pole (12 kilovolt)	PG&E
Water line with encasement (12 inch)	City of Santa Rosa
Water valves	City of Santa Rosa
Sanitary sewer manholes	City of Santa Rosa

## **Emergency Services**

Lane closures and detouring would be required to replace the existing overcrossing as well as widen and restripe affected US 101 ramps and local streets including Corby Avenue and Hearn Avenue. Lane closures would be done during off-peak hours (outside of 7 AM to 9 AM [AM peak] and 4 PM to 6 PM [PM peak]), or at night to minimize traffic effects. These actions could result in short-term, temporary impacts during project construction, including to emergency service providers, which would be minimized by the measures described in Section 2.1.5.3. See Section 2.1.6.3 (under Construction Impacts) for additional information about road closures.

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

### **2.1.5.3 Avoidance, Minimization, and/or Mitigation Measures**

- Develop a TMP during project design
- Notify emergency service providers and the public of lane closures and detours
- Utilize portable Changeable Message Signs, California Highway Patrol Construction Zone Enhanced Enforcement Program, and Freeway Service Patrol, where possible to minimize delays
- Stage construction to avoid complete road closures

## **2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities**

### **2.1.6.1 Regulatory Setting**

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

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

### **2.1.6.2 Affected Environment**

The information from this section is based on the *Traffic Operations Analysis Report* (Fehr and Peers 2016) completed in March 2016.

#### **Roadway Network**

In the project area, US 101 is a north-south six-lane freeway with HOV lanes in both directions and auxiliary lanes north of Hearn Avenue.

Hearn Avenue extends from Santa Rosa Avenue to the east and approximately 0.5 mile west of Stony Point Road to the west. In the project area, Hearn Avenue has one lane in each direction.

East of US 101, local east-west roads include Kawana Springs Road, Yolanda Avenue, and Southside Drive (a signalized driveway to retail centers on both sides of Santa Rosa Avenue). Santa Rosa Avenue is a north-south road that is approximately 600 feet east of, and parallel to, US 101.

West of US 101, local roads include Corby Avenue (north-south) and Corby Avenue Extension. North of Hearn Avenue, Corby Avenue is approximately 400 feet west of US 101. South of Hearn Avenue, Corby Avenue curves eastward toward US 101 and parallels its west side.

None of the local road segments in the project area have been designated as truck routes but Santa Rosa Avenue serves as a primary public transit route in the project area. The posted speed limit on US 101 is 65 miles per hour (mph) while the local roads have posted speed limits that range from 30 to 40 mph.

Public transit in the project area is discussed in Section 1.3.2.4.

### **Pedestrian and Bicycle Facilities**

The project area currently includes limited bicycle and pedestrian facilities. Class II bicycle facilities are provided on Santa Rosa Avenue and westbound Kawana Springs Road. Hearn Avenue provides Class II bicycle lanes approximately 900 feet west of Corby Avenue, but no accommodations are provided on Hearn Avenue at the overcrossing. Sidewalks are missing on the north side of Hearn Avenue between Corby Avenue and Santa Rosa Avenue. A four- to five-foot wide sidewalk is present on the south side of Hearn Avenue between Corby Avenue and the east end of the structure over US 101.

### **Traffic Operations Analysis Study Area and Methods**

The study area for traffic operations consisted of mainline segments of US 101 (shown in Figure 2.1.6-1) and seven local roadway intersections (shown in Figure 2.1.6-2). The mainline segments of US 101 were from just south of the Todd Road interchange to just north of the College Avenue interchange, in both the northbound and southbound directions. This area includes approximately 4.3 miles of US 101.

The following local roadway intersections were analyzed:

1. Santa Rosa Avenue/Kawana Springs Road
2. Hearn Avenue/Santa Rosa Avenue
3. Santa Rosa Avenue/Yolanda Avenue/US 101 Northbound Ramps
4. Santa Rosa Avenue/Shopping Center Driveway/Southside Drive
5. Hearn Avenue/Corby Avenue
6. Corby Avenue/US 101 Southbound Ramps
7. Corby Avenue/Corby Avenue Extension

The numbers correspond to those shown in Figure 2.1.6-2.

The traffic study analyzed peak period and peak hour conditions at local intersections and on US 101. For local intersections, the peak period is defined as 7 AM to 9 AM (AM peak) and 4 PM to 6 PM (PM peak), and the peak hour within the peak period is defined as 7:30 AM to 8:30 AM and 4:45 PM to 5:45 PM. For US 101, the peak period is the same as for local intersections; however, the peak hour within the peak period is defined as 7:30 AM to 8:30 AM and 4:30 PM to 5:30 PM.

The forecasts used the most recent version of the SCTA travel demand model, which is consistent with ABAG Projections 2011 Jobs-Housing Connection forecast (ABAG 2011). The SCTA travel demand model includes traffic projections anticipated to occur upon buildout of all development anticipated to take place by the year 2040 throughout Sonoma County and the Bay Area. The model assumes the future extensions of Farmers Lane and Golf Course Drive West; implementation of Sonoma-Marin Area Rail Transit (SMART) commuter rail service; widening of Kawana Springs Road, Yolanda Avenue, and Bellevue Avenue; and substantial land use growth in the “traffic analysis zones” around the project area (including a 30 percent increase in households and a 20 percent increase in jobs).



Source: Fehr and Peers 2016

Figure 2.1.6-1: Transportation Study Area



**Figure 2.1.6-2: Local Roadway Intersections**

Intersection operations were analyzed using the Synchro/SimTraffic 8.0 software program, which is based on procedures outlined in the 2010 Highway Capacity Manual (Transportation Research Board 2010). Mainline operations on US 101 were analyzed using the INRIX database and FREQ macroscopic modeling software.

The analysis results include LOS, a measure of the quality of traffic operating conditions varying from LOS A (indicating free-flow traffic conditions with little or no delay) to LOS F (representing over-saturated conditions where traffic flows exceed capacity resulting in long queues and delays). LOS represents the perspective of drivers and is an indication of the comfort and convenience associated with driving. At the project study intersections, the City has established a minimum standard of LOS D. Figure 1.3.2-1 describes the LOS for signalized intersections.

In addition to the individual intersection levels of service, other system-wide performance measures can help to provide a better understanding of overall traffic operations. Vehicle hours of delay (VHD) is the total amount of delay incurred during the peak period because of congestion and demand exceeding the capacity of the roadway network.

### Existing Conditions

#### Local Intersections

Table 2.1.6-1 shows the traffic control device at each intersection as well as the current operating delay and LOS for both the AM and PM peak hours. The study intersections as a whole (all movements—straight, right, and left—through each leg of an intersection together, on average) operate at acceptable levels of service during the AM and PM peak hours (LOS D or better).

**Table 2.1.6-1: Existing Peak Hour Local Intersection Analysis**

Intersections	Traffic Control	Peak Hour	Delay (seconds per vehicle)	LOS <sup>1</sup>
1. Santa Rosa Avenue/ Kawana Springs Road	Signal	AM	11	B
		PM	19	B
2. Santa Rosa Avenue/Hearn Avenue	Signal	AM	13	B
		PM	27	C
3. Santa Rosa Avenue/ Yolanda Avenue/US 101 Northbound Ramps	Signal	AM	27	C
		PM	41	D
4. Santa Rosa Avenue/ Southside Drive	Signal	AM	2	A
		PM	13	B
5. Corby Avenue/Hearn Avenue	Signal	AM	28	C
		PM	32	C
6. Corby Avenue/US 101 Southbound Ramps	Signal	AM	25	C
		PM	26	C
7. Corby Avenue/Corby Avenue Extension	Side street yield on Corby Avenue Extension <sup>2</sup>	AM	8	A
		PM	5	A

Source: Fehr and Peers 2016

Notes: Signal=signalized intersection

1. Level of service.

2. Delay and LOS reported for the worst approach at the unsignalized intersection.

Two locations, however, have individual movements that currently operate at LOS F during the PM peak hour:

- The right turn from southbound Santa Rosa Avenue to westbound Hearn Avenue, which results from the limited capacity of the single westbound lane of the Hearn Avenue overcrossing.

- The northbound left and westbound through movements at the Santa Rosa Avenue/Yolanda Avenue/US 101 northbound ramps intersections, due to existing congestion along northbound US 101 as discussed further below.

Existing VHD in the project area is 70 hours in AM peak hour and 136 hours in the PM peak hour.

### US 101 Mainline

During the AM peak hour, a bottleneck develops along northbound US 101 between the Colgan Avenue on-ramp and the SR 12 off-ramp that results in upstream queues that extend to the segment south of the Hearn Avenue interchange to near the Todd Road on-ramp in the AM peak hour and south of the Todd Road interchange in the PM peak hour. A second bottleneck exists at the segment between the Sixth Street/Morgan Street on-ramp and the College Avenue off-ramp in the AM peak hour, though its impacts are limited to the immediate vicinity of the area.

A bottleneck also exists in the PM peak period along southbound US 101 at the College Avenue on-ramp merge segment, which results in upstream queuing that extends beyond the study limits of this project. There is another bottleneck at the SR 12 on-ramp merge segment; queuing from this bottleneck sometimes extends back to the first bottleneck, further congesting this location.

### 2.1.6.3 Environmental Consequences

#### Local Intersections

#### Opening Year (2020)

**No Build Alternative.** In 2020, all study intersections are anticipated to operate at acceptable levels of service (LOS D or higher) under both the No Build and Build Alternative. Table 2.1.6-2 shows the delay times and LOS for the No Build and Build Alternatives in 2020.

**Table 2.1.6-2: 2020 Opening Year Peak Hour Local Intersection Analysis**

Intersections	Peak Hour	No Build Alternative		Build Alternative	
		Delay <sup>1</sup>	LOS <sup>2</sup>	Delay	LOS <sup>1</sup>
1. Santa Rosa Avenue/Kawana Springs Road	AM	20	B	19	B
	PM	15	B	18	B
2. Santa Rosa Avenue/Hearn Avenue	AM	22	C	21	C
	PM	27	C	24	C
3. Santa Rosa Avenue/Yolanda Avenue/US 101 Northbound Ramps	AM	34	C	33	C
	PM	34	C	36	D
4. Santa Rosa Avenue/Southside Drive	AM	5	A	5	A
	PM	17	B	13	B
5. Corby Avenue/ Hearn Avenue	AM	36	D	27	C
	PM	41	D	26	C
6. Corby Avenue/ US 101 Southbound Ramps	AM	32	C	19	B
	PM	39	D	12	B
7. Corby Avenue/ Corby Avenue Extension <sup>3</sup>	AM	14	B	2	A
	PM	4	A	2	A

Source: Fehr and Peers 2016

Notes: Signal=signalized intersection

1. Delay shown is average seconds per vehicle.

2. Level of service.

3. Delay and LOS reported for the worst approach at the unsignalized intersection.

**Build Alternative.** Compared with the No Build Alternative, the proposed project would improve levels of service at the intersections of Corby Avenue/Hearn Avenue (both AM and PM peak hour) and the Corby Avenue/Corby Avenue Extension (AM only). The project would also slightly reduce delays at most intersections. Signal timing adjustments with the Build Alternative would cause minor increases in delays (2 to 3 seconds) at the Santa Rosa Avenue/Yolanda Avenue/US 101 northbound ramps intersection and Santa Rosa Avenue/Kawana Springs Road intersection. However, operations would remain within City standards of LOS D or higher.

On the west side of US 101, capacity would be added at the Hearn Avenue/Corby Avenue intersection by allowing the eastbound outside lane (currently a right-turn lane) to function as a shared through-right turn lane. The additional storage length on the southbound off-ramp would improve operations in both the AM and PM peak hours.

By the opening year (2020) under the No Build Alternative, VHD would increase by 56 percent in the AM peak hour and 16 percent in the PM peak hour compared to existing conditions. However, the project would reduce VHD in both the AM and PM peak hours compared to the No Build Alternative, as shown below:

- No Build Alternative: 109 hours, AM peak; 157 hours, PM peak.
- Build Alternative: 89 hours, AM peak; 126 hours, PM peak.

#### **Design Year (2040)**

**No Build Alternative.** With the No Build Alternative in 2040, four intersections would operate at unacceptable LOS E or F during the AM and PM peak hours: Santa Rosa Avenue/Yolanda Avenue/US 101 Northbound Ramps, Santa Rosa Avenue/Southside Drive, and Corby Avenue/Hearn Avenue, and Corby Avenue/Corby Avenue Extension. An additional intersection, Corby Avenue/US 101 Southbound Ramps, would operate at LOS E during the PM peak. Table 2.1.6-3 shows delay times and LOS for the No Build and Build Alternatives in 2040.

**Build Alternative.** With the Build Alternative, all intersections would operate at acceptable LOS, and five of the seven study intersections would have better LOS than the No Build Alternative in both the AM and PM peak hours. Delays would generally decrease compared with No Build Alternative, in some cases by a full minute or more (Corby Avenue/ Hearn Avenue, AM and PM peak; Corby Avenue/ US 101 southbound ramps, PM peak; and Corby Avenue/Corby Avenue Extension, AM peak). The exception is at Santa Rosa Avenue/Kawana Springs Road, where the PM peak delay would increase by 3 seconds due to signal timing adjustments (46 seconds with Build Alternative compared with 43 seconds with No Build Alternative).

On the west side of US 101, the project improvements at the Hearn Avenue/Corby Avenue intersection and southbound off-ramp would continue to improve operations in both the AM and PM peak hours compared with the No Build Alternative. Overall, despite the higher design-year traffic volumes, the project would continue to accommodate vehicles at the study intersections without causing backups that affect operations at adjacent intersections.

**Table 2.1.6-3: 2040 Design Year Peak Hour Local Intersection Analysis**

Intersections	Peak Hour	No Build Alternative		Build Alternative	
		Delay <sup>1</sup>	LOS <sup>2</sup>	Delay	LOS <sup>1</sup>
1. Santa Rosa Avenue/Kawana Springs Road	AM	24	C	23	C
	PM	43	D	46	D
2. Santa Rosa Avenue/Hearn Avenue	AM	25	C	25	C
	PM	44	D	38	C
3. Santa Rosa Avenue/Yolanda Avenue/US 101 Northbound Ramps	AM	<b>84</b>	<b>F</b>	41	D
	PM	<b>56</b>	<b>E</b>	47	D
4. Santa Rosa Avenue/Southside Drive	AM	<b>57</b>	<b>E</b>	5	A
	PM	<b>78</b>	<b>E</b>	25	C
5. Corby Avenue/ Hearn Avenue	AM	<b>112</b>	<b>F</b>	46	D
	PM	<b>114</b>	<b>F</b>	37	D
6. Corby Avenue/ US 101 Southbound Ramps	AM	49	D	24	C
	PM	<b>77</b>	<b>E</b>	16	C
7. Corby Avenue/ Corby Avenue Extension <sup>3</sup>	AM	<b>64</b>	<b>F</b>	4	A
	PM	<b>43</b>	<b>E</b>	3	A

Source: Fehr and Peers 2016

Notes: Signal=signalized intersection

1. Delay shown is average seconds per vehicle.

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

3. Delay and LOS reported for the worst approach at this unsignalized intersection.

In 2040, VHD would increase by approximately 348 percent in the AM peak hour and 222 percent in the PM peak hour compared to existing conditions. However, the project would reduce VHD in both the AM and PM peak hours compared to the No Build Alternative, as shown below:

- No Build Alternative: 312 hours, AM peak; 437 hours, PM peak.
- Build Alternative: 146 hours, AM peak; 244 hours, PM peak.

### **US 101 Mainline**

As noted in Section 1.4, the project would not change the alignment or operations of US 101 or the northbound US 101 ramps. On the west side of US 101, the project proposes improvements to the southbound US 101 off-ramp and on-ramp that may include widening. Additional turning lanes are proposed from the southbound US 101 off-ramp to Corby Avenue and on northbound Corby Avenue between the southbound US 101 ramps and Hearn Avenue.

In both 2020 and 2040, freeway operations would not differ between the Build and No Build Alternative. Bottlenecks outside of the study area would continue to influence future operations on US 101. The Build Alternative would improve the flow of traffic through local intersections, allowing traffic to clear from the US 101 southbound off-ramp.

### **Bicycle and Pedestrian Facilities**

#### **No Build Alternative**

The No Build Alternative would not modify the existing bicycle and pedestrian access in the project area.

### **Build Alternative**

**Bicycle.** The Build Alternative proposes to construct new Class II bike lanes along both directions of the Hearn Avenue overcrossing. The exact design and configuration would be finalized during the design phase with input from the City, SCTA, and the Department. The Build Alternative would upgrade the bicycle facilities in the project area compared to the No Build Alternative by providing Class II bicycle lanes.

**Pedestrian.** The Build Alternative proposes to reconstruct the Hearn Avenue overcrossing to include an 8-foot sidewalk on both sides of Hearn Avenue. This would complete the pedestrian connection along the south side of Hearn Avenue from Corby Avenue to Santa Rosa Avenue, and it would provide a pedestrian connection along the north side of Hearn Avenue where no pedestrian access currently exists.

While the intersections of Hearn Avenue/Corby Avenue and Hearn Avenue/Santa Rosa Avenue would both be slightly reconfigured with redesigned vehicle travel lanes, the proposed changes would not substantially affect the pedestrian crossings. The Build Alternative proposes the same crosswalks across both intersections as currently exist, and pedestrian crossing distances would change only minimally, if at all.

The new sidewalk and replacement crosswalks proposed by the Build Alternative would meet Americans with Disabilities Act standards, California Code of Regulations Title 24 requirements, and Department Design Information Bulletin 82-05 standards.

### **Construction Impacts**

#### **No Build Alternative**

The No Build Alternative would not result in construction impacts.

#### **Build Alternative**

During construction, disruptions to vehicle, bicycle, and pedestrian access would be minimized through the use of construction phasing. However, lane closures and detouring would be required to replace the existing overcrossing as well as widen and restripe affected US 101 ramps and local streets including Corby Avenue and Hearn Avenue. Detours to adjacent local streets would be needed to maintain local traffic access during the following temporary closures:

- Overnight closure of either the northbound or southbound directions of US 101 to allow for overcrossing reconstruction. Full closures of US 101 are not anticipated.
- Overnight closures of the southbound US 101 off-ramp, the Hearn Avenue overcrossing, and Corby Avenue between the southbound US 101 ramps and Hearn Avenue to allow for the installation of temporary/permanent striping and traffic control devices (such as concrete barriers and crash cushions) and the shifting of traffic.

Lane closures would be done during off-peak hours to minimize traffic effects. The closures could result in short-term, temporary impacts to bicycle, pedestrian, public transit, and automobile transportation during project construction. With the inclusion of the avoidance and minimization measure described in Section 2.1.6.4, no adverse construction impacts are anticipated.

#### **2.1.6.4 Avoidance, Minimization, and/or Mitigation Measures**

In addition to the measures described in Section 2.1.5.3, the project will:

- Develop a TMP that includes:
  - Briefing local public officials and developing a public information program to notify the public of project progress and upcoming closures and detours.
  - Outreach to ride sharing agencies, transit operators, and neighborhood and special interest groups to minimize impacts to motor vehicles, bicyclists, and pedestrians during construction.

## 2.1.7 Visual/Aesthetics

### 2.1.7.1 Regulatory Setting

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

The California Environmental Quality Act 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

This section describes the visual setting of the project area as described in the *Visual Impact Assessment* completed for the proposed project in March 2016 (AECOM 2016d). The study area for this section is the project area (as shown in Figure 1.1-1).

The project area contains both City and Sonoma County lands. While Sonoma County is predominantly rural, the City of Santa Rosa is the fifth-largest city in the San Francisco Bay Area. The project corridor is in the southern end of the City, away from downtown Santa Rosa. The eastern portion of the City is in the foothills of the Sonoma Mountains, and the western portion is on the Santa Rosa Plain. Therefore, the project area is primarily urban but the foothills can be seen to the east from both US 101 and the existing Hearn Avenue overcrossing.

The surrounding landscape is characterized by relatively flat terrain on the Santa Rosa Plain west of the foothills of the Sonoma Mountains. The vegetation is primarily landscaping with trees including oak, redwood, red cedar, fir, maple, sweetgum, and poplar as well as non-native shrubs and grasses. The land uses within the project corridor are primarily urban with commercial, medium to low density residential, light and general industrial, and institutional uses.

#### **Scenic Quality**

US 101 in the project corridor is not designated or eligible for designation as a state scenic highway, and is not classified as a Landscaped Freeway, a freeway with planting that meets the criteria of the State Outdoor Advertising Regulations (Caltrans 2014). However, the City of Santa Rosa General Plan designates US 101 as a scenic road within City limits (City of Santa Rosa 2009). Except for the area to the northwest of the Hearn Avenue interchange and the mobile home park property immediately to the northeast of the interchange, US 101 in the project area is within City limits and is therefore a local scenic road. No other designated scenic resources exist in the project area.

The interchange is visually dominated by the strong horizontal lines of US 101, local arterial roadways, mature trees, and the Hearn Avenue overcrossing. The visual background includes commercial buildings, trees and other vegetation, and landform vistas of the Sonoma Mountains.

The only properties in the area where people may regularly view the project corridor are the Wayside Gardens Mobile Home Park northeast of the existing Hearn Avenue overcrossing, the Extended Stay America hotel along Corby Avenue, and the Chapel of the Chimes Cemetery along Santa Rosa Avenue just north of Yolanda Avenue. Other properties that are directly adjacent to the project corridor include car dealerships, fast food restaurants, commercial stores, and the Department of Motor Vehicles. Viewers at these properties are typically there to spend time inside of buildings and therefore experience short-duration views of the project corridor.

### **2.1.7.3 Environmental Consequences**

#### **No Build Alternative**

The No Build Alternative would not affect the visual character or quality of the project area.

#### **Build Alternative**

##### **Visual Character**

The visual character (the natural and man-made components that comprise a particular view) of the project would be compatible with the existing visual character of the US 101/Hearn Avenue interchange. The new overcrossing, while taller and wider than the existing overcrossing, would be similar in form and design, and therefore would not add new visual dominance or contrast. Although the roadway would be widened, the new overcrossing would continue to function as a local thoroughfare. Moreover, adjacent Santa Rosa and Corby Avenues are already four-lane roads, so the conversion of Hearn Avenue to four lanes would be consistent with the existing context.

The new overcrossing would remain in the same location as the existing structure, so visible form changes would be limited to a noticeably wider roadway as seen by Hearn Avenue motorists on the overcrossing, as well as a noticeable reduction in tree cover for all motorists approaching the interchange. New retaining walls would be added along the Hearn overcrossing approaches, and embankments and concrete barriers would be added along the US 101 median to protect the bridge supports. However, visual diversity would not change substantially because such elements are all currently present at the interchange.

##### **Visual Quality**

The project would not substantially alter the visual quality of the existing corridor. Visual quality, the value of the views and aesthetics surrounding the project, can be described in terms of vividness, intactness, and unity. Vividness is the extent to which the landscape is memorable and is associated with distinctive, contrasting, and diverse visual elements. The configuration of the existing interchange structure is not unique or especially memorable compared to other interchanges on US 101 in Santa Rosa. However, the redwood trees on both sides of the freeway and adjacent to the Hearn Avenue overcrossing are memorable features. The diversity of other elements of the setting is relatively low, such as the roadway and blank-walled commercial buildings. The project would not change the diversity of the setting except by removing a portion of the redwood trees closest to the overcrossing. By removing the existing landscaped trees, the project would decrease vividness.

Intactness is the integrity of visual features in the landscape and the extent to which the existing landscape is free from non-typical visual intrusions. The existing Hearn Avenue overcrossing is a

visual intrusion on the continuity of the north-south US 101 corridor. The US 101 corridor itself is a major intrusion on the continuity of the local roadway network and underlying landforms. Therefore, the integrity of the project location is low. The project would remove the existing overcrossing and add a new overcrossing, maintaining the current level of visual intrusion and integrity.

Unity is the extent to which all visual elements combine to form a coherent, harmonious visual pattern. US 101 and bordering retaining walls and vegetation present a visual pattern to highway motorists. Some trees would be removed to make room for a wider overcrossing, but these project-related visual changes would not diminish the overall moderate level of unity of the project corridor. Local roads have low visual unity, which the project would not affect.

### **Resource Change**

The project would not considerably affect the form (visual mass and shape); scale (apparent size as it relates to the surroundings); or texture, color, line, and continuity (surface coarseness; reflective brightness and hue; edges or linear definition; and flow of form, line, color, or textural pattern) of the US 101/Hearn Avenue interchange. The project would result in a moderate change in vividness from tree removal adjacent to the overcrossing but would not substantially decrease intactness or unity. Overall, the visual character and quality change would be moderate. Therefore, resource change (changes to visual resources as measured by changes in visual character and visual quality) would be moderate.

### **Viewers and Viewer Response**

Viewer response is a measure or prediction of a viewer's reaction to changes in the visual environment and has two dimensions: viewer exposure and viewer sensitivity. Viewer exposure is a measure of the viewer's ability to see an object, based on the viewer's location in relation to the object, how many people see the object, and how long the object is in view. Viewer sensitivity is a measure of the viewer's recognition of an object and tends to correlate with whether viewers will have a high concern for any visual change.

**Neighbors.** Residents of the Wayside Gardens Mobile Home Park would have high viewer sensitivity to the proposed project—that is, they would notice minor changes—typical of residential land use. However, most residents would have low viewer exposure to the project location, as the existing interchange is only visible from certain locations. Eight residences, the community office, and the clubhouse have backyards facing south toward Hearn Avenue. At the clubhouse and two of these residences, the existing sound wall serves as a barrier obstructing views to Hearn Avenue (Figure 2.1.7-1). At the other residences and community office, private vegetation and trees in the Department right-of-way partially obscure views of Hearn Avenue. The project would remove some of the trees in the Department right-of-way and on private property at the northwest corner of Hearn Avenue and Santa Rosa Avenue, but would not affect the existing sound wall. As a result of the tree removal adjacent to the interchange, some residences would have a less obstructed view of the overcrossing. The remaining trees and other vegetation would continue to provide visual screening between the residences and the overcrossing.

For viewers at Chapel of the Chimes and Extended Stay America, viewer exposure is relatively low due to the short visit duration at these locations. At the same time, viewer sensitivity is relatively high, since hotel patrons and cemetery visitors expect a peaceful setting. The existing condition includes both US 101 and the Hearn Avenue overcrossing. The project would maintain



**Figure 2.1.7-1: Wayside Gardens Clubhouse**

Looking south toward Hearn Avenue. The Hearn Avenue overcrossing is not visible due to the vegetation, sound wall, and trees. Some of the trees beyond the sound wall would be removed as part of project construction.

the existing overcrossing alignment and would not substantially affect the nature of views from these locations. In addition, the hotel first floor is about six feet lower in elevation than Corby Avenue, and trees around the perimeter of the parking lot obscure views toward US 101 from the hotel. US 101 is only partially visible from the upper floors of the hotel. Long-range views toward the Sonoma Mountains to the east would not be affected.

Local motorists, pedestrians, and bicyclists have more frequent views of the project area than cemetery or hotel visitors and have time to observe their surroundings. Therefore, these neighbors would have moderate sensitivity and exposure to visual changes from the project. The project would remove trees along the Hearn Avenue overcrossing. Tree removal would result in a moderate, localized change.

**Highway Users.** US 101 motorists have moderate viewer exposure, with a large number of people seeing the project area for a short duration as they drive past it. Motorists include persons driving the corridor recreationally, who are more engaged in observing their surroundings, as well as commuters and locals driving the corridor as a necessity. Overall, viewer sensitivity is moderate. Drivers tend to be narrowly focused on the roadway and vehicles ahead, while passengers tend to have a much wider visual focus on general surroundings, which would include but not be limited to the overcrossing. The project would not substantially change the view for US 101 motorists, since the overcrossing would be rebuilt at nearly the same height; however, tree removal would result in a moderate, localized change.

It is anticipated that the average response of all viewer groups (neighbors and highway users) would be moderate.

### **Permanent Impacts**

As shown in Figures 2.1.7-2 and 2.1.7-3, the project would result in a moderate level of impact on visual resources. Figure 2.1.7-2 shows the existing condition and simulated Build Alternative view of the Hearn Avenue/Santa Rosa Avenue intersection looking west at the overcrossing structure. As shown in the simulation, tree removal for roadway widening would change the balance of natural and man-made colors and textures and would add new horizontal lines to the

**Existing Condition**



**Visual Simulation**



**Figure 2.1.7-2: Hearn Avenue/Santa Rosa Avenue looking west**



overall form of the road. These changes would have a moderate effect on visual character, especially when viewed from the nearby residential area. In terms of visual quality, vividness and intactness would be reduced, and unity would not be affected because the visual elements (roadway and trees) would still be present, albeit in a different proportion with the project. However, the tree removal and widening of the roadway would make views of the overcrossing and US 101 more prominent for neighbors. The viewer response to this resource change would be low to moderate.

The project would not result in a substantial difference in views from northbound US 101 for highway users. As shown in Figure 2.1.7-3, there would not be a highly visible change in form, line, or scale of the overcrossing. The new overcrossing would be higher than the existing structure, but this change would not be visually pronounced. The project-related tree removal would be noticeable. The overall view would remain non-vivid, and intactness and unity would be reduced due to the removal of trees. The primary visual elements (highway and overcrossing) would still be present in the same composition with the project. Viewer response to this resource change would be moderate.

The project would have a moderate long-term impact to visual character and quality of views through removal of vegetation and placement of additional retaining walls and median barriers. However, with the incorporation of the measures listed in Section 2.1.7.4 into the project design and post-construction landscaping, the project would not have an adverse impact on visual resources.

### **Temporary Impacts**

The project would have visual impacts associated with construction, including night lighting, dust, construction vehicles and equipment, contractor storage area, and temporary bridge support structures. Construction would be staged so that lane closures would occur on local roads, but no full road closures are anticipated. Construction is expected to last approximately two years. Visual impacts during construction would be temporary.

#### **2.1.7.4 Avoidance, Minimization, and/or Mitigation Measures**

Avoidance, minimization, and/or mitigation measures have been identified to lessen the permanent visual impact to neighbor viewers caused by the project. These measures would decrease the visual change perceived by viewers. These will be designed and implemented with concurrence of the District Landscape Architect.

The following measures to avoid or minimize visual impacts will be incorporated into the project:

1. Where space exists, removed vegetation, including trees, will be replanted in accordance with Department policies and in consideration of the City's Tree Ordinance.
2. The project design will incorporate aesthetic treatments, such as surface texture, patterns and color, for the overcrossing structure and other project components. The City will be consulted in the design and selection of aesthetic treatments for the project.

With the incorporation of replacement planting and aesthetic treatments, the project would not have a significant adverse impact requiring additional mitigation.

### 2.1.8 Cultural Resources

The following section is based on information from the *Archaeological Survey Report* (AECOM 2016e), *Historic Resources Evaluation Report* (AECOM 2016f), and *Historic Property Survey Report* (AECOM 2016g) for the proposed project, which were completed in March 2016.

#### 2.1.8.1 Regulatory Setting

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

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

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

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

#### 2.1.8.2 Affected Environment

The study area for cultural resources investigations is referred to as Area of Potential Effects (APE). The APE represents the maximum extent of project-related activities for the proposed undertaking and contains all areas that could be permanently or temporarily affected by the proposed project. The archaeological APE for the project is composed of the Department right-of-way along US 101 from post mile 17.9 to 18.6; portions of Hearn Avenue, Santa Rosa Avenue, Corby Avenue, and Dowd Drive; and the entirety of two parcels occupied by the Chapel of the Chimes Cemetery and Crematorium. The APE widens to cover the median area between roadways and freeway ramps and includes construction staging and laydown areas within the

right-of-way. Portions of parcels where TCEs or partial acquisitions are proposed (Table 2.1.3-1) are also included in the archaeological APE.

The architectural APE for the project encompasses areas that may be directly or indirectly affected by project construction. It includes the same areas as the archaeological APE along with the entire parcels where TCEs or partial acquisitions are proposed, as well as parcels where there is a potential for visual impacts.

The vertical APE represents the maximum vertical extent of project-related activities for the proposed undertaking. Although this varies throughout the project area depending on the project activity, the most substantial vertical impacts are associated with construction of the new overcrossing, which will be supported on piles extending up to 60 feet below ground surface. Other vertical impacts include retaining wall construction, utility relocation, and drainage modification. The vertical impact of these activities ranges from approximately 3 to 45 feet.

### **Records and Archival Review**

A cultural resources records search was conducted at the Northwest Information Center of the California Historical Resources Information System at Sonoma State University on November 13, 2014. The National Register of Historic Places, California Register of Historic Resources, California Inventory of Historic Resources, California Historical Landmarks list, Department Historic Highway Bridge Inventory and Department Cultural Resources Database were also reviewed. Reports from previous studies were also reviewed for the APE and a half-mile radius. Two cultural resources were identified within the APE as a result of the review.

### **Native American Consultation**

In December 2014, the Native American Heritage Commission (NAHC) was contacted to request a search of the Sacred Lands File for Native American cultural resources in or near the APE. The names of Native Americans who might have concerns about the project or knowledge of cultural resources in the area were also requested. The NAHC responded that no sacred lands were identified in the immediate project area. The NAHC also provided a list of Native American contacts. Letters were sent to all individuals specified by the NAHC in January 2015, and follow-up phone calls were made in May 2015.

A representative from the Federated Indians of Graton Rancheria requested consultation with the Department. A copy of the *Archaeological Survey Report* (AECOM 2016e) was provided to the Federated Indians of Graton Rancheria, and no further concerns were expressed. Representatives from the Mishewal-Wappo Tribe of Alexander Valley and Dry Creek Rancheria of Pomo Indians expressed concern about the proposed project and were referred to the Department for consultation. Follow-up calls to Dry Creek Rancheria were not returned. The Department provided the Mishewal-Wappo with additional project information, and the Tribe had no further concerns.

### **Field Survey Results**

A substantial portion of the APE is paved. A pedestrian and windshield survey of the APE was conducted in April 2015. No previously unrecorded archaeological sites were identified as a result of the field survey. Two previously unrecorded built environment resources that are over 45 years old were identified in the APE, surveyed, and recorded by an architectural historian.

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

### **2.1.8.3 Environmental Consequences**

#### **No Build Alternative**

The No Build Alternative would not affect any cultural resources.

#### **Build Alternative**

Cultural resources were identified within the APE, although they were determined ineligible for listing in the National Register of Historic Places. Therefore, the cultural resources finding for this project is No Historic Properties Affected. The Department submitted the cultural resources studies to the SHPO on April 7, 2016, for concurrence on the eligibility of the resources within the APE. The SHPO provided concurrence on May 19, 2016 (Appendix D).

No Section 4(f) historic resources are present within the project area. The project would not cause a substantial adverse change to a historical or archaeological resource as defined by CEQA, or affect or use any Section 4(f) historic resource.

### **2.1.8.4 Avoidance, Minimization, and/or Mitigation Measures**

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

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

## 2.2 Physical Environment

### 2.2.1 Hydrology and Floodplain

The following discussion is based on the *Location Hydraulic Study Report* (WRECO 2016a) for the proposed project, which was completed in February 2016.

#### 2.2.1.1 Regulatory Setting

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

To comply, the following must be analyzed:

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

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

#### 2.2.1.2 Affected Environment

There are no creek, stream, or river crossings within the project limits. Colgan Creek crosses US 101 approximately 0.3 mile north of the project boundary at post mile 18.9, but runoff from the project is not expected to discharge to the creek at the crossing. Runoff from the project in the existing and proposed conditions would discharge to Colgan Creek west of the project, downstream of the US 101 crossing.

Colgan Creek originates from Taylor Mountain, approximately 2 miles east of the Hearn Avenue overcrossing. The creek flows easterly from its origin within a vegetated channel for approximately 9,800 feet where the creek is then conveyed through a culvert. The culvert traverses east under developed commercial areas and daylight after crossing Santa Rosa Avenue. From Santa Rosa Avenue to the US 101 crossing, the creek is conveyed within a rectangular concrete-lined channel. The Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) for Sonoma County identifies the drainage area of Colgan Creek where it crosses US 101 as 2.32 square miles, or approximately 1,485 acres. After crossing under US 101 and the Baker Avenue interchange (about 0.3 mile north of the project), the creek is conveyed southerly within sections of engineered lined and unlined channels until its confluence with the larger Laguna de Santa Rosa watershed approximately 3 miles southwest of the project site.

The FEMA Flood Insurance Rate Maps (FIRMs) were researched for floodplain information. A Zone AE 100-year floodplain is associated with Colgan Creek; however, the floodway is located outside of the project limits (Figure 2.2.1-1). FIRM number 06097C0737F identifies portions of the northbound US 101 lanes and areas east of US 101 in the project area as within areas classified as shaded Zone X (Figure 2.2.1-1 and Figure 2.2.1-2).

Shaded Zone X is a moderate flood hazard area that can include the following areas:

- 500-year floodplain (outside the 100-year floodplain),
- 100-year floodplain with average depths less than 1 foot
- 100-year floodplain with a drainage area less than 1 square mile,
- Area behind a levee certified to protect from the 100-year flood, or
- Future conditions 100-year floodplain (outside of the existing condition 100-year floodplain).

According to the Sonoma County FIS, the shaded Zone X flood area along US 101 is associated with the Colgan Creek crossing of US 101, and denotes a base floodplain with average depths less than 1 foot. The FIS states that the flood areas result from the US 101 culvert crossing being undersized to convey the hydrologic inflow upstream of the culvert. The spill created by the backwater conditions is directed southerly following the topography of the area. The downstream limit of the shaded Zone X flood area is Yolanda Avenue, located 0.1 mile south of the Hearn Avenue overcrossing. The mapping limits of the shaded Zone X shown on the FIRM and described in the FIS were terminated at this location because Yolanda Avenue is elevated and local drainage is unaccounted for.

FEMA modeling for Colgan Creek was used to confirm that the shaded Zone X denotes the 500-year floodplain. Based on model output, the 100-year flow would not reach the project area. Therefore, the base floodway areas associated with Colgan Creek are outside of the project limits.

### **2.2.1.3 Environmental Consequences**

#### **No Build Alternative**

The No Build Alternative would not result in changes to the existing interchange that would affect the floodplain.

#### **Build Alternative**

##### **Longitudinal Encroachment**

The FHWA defines a longitudinal encroachment as an action within the limits of the base floodplain that is longitudinal to the normal direction of the floodplain. The project would not result in a longitudinal encroachment of the base floodplain.

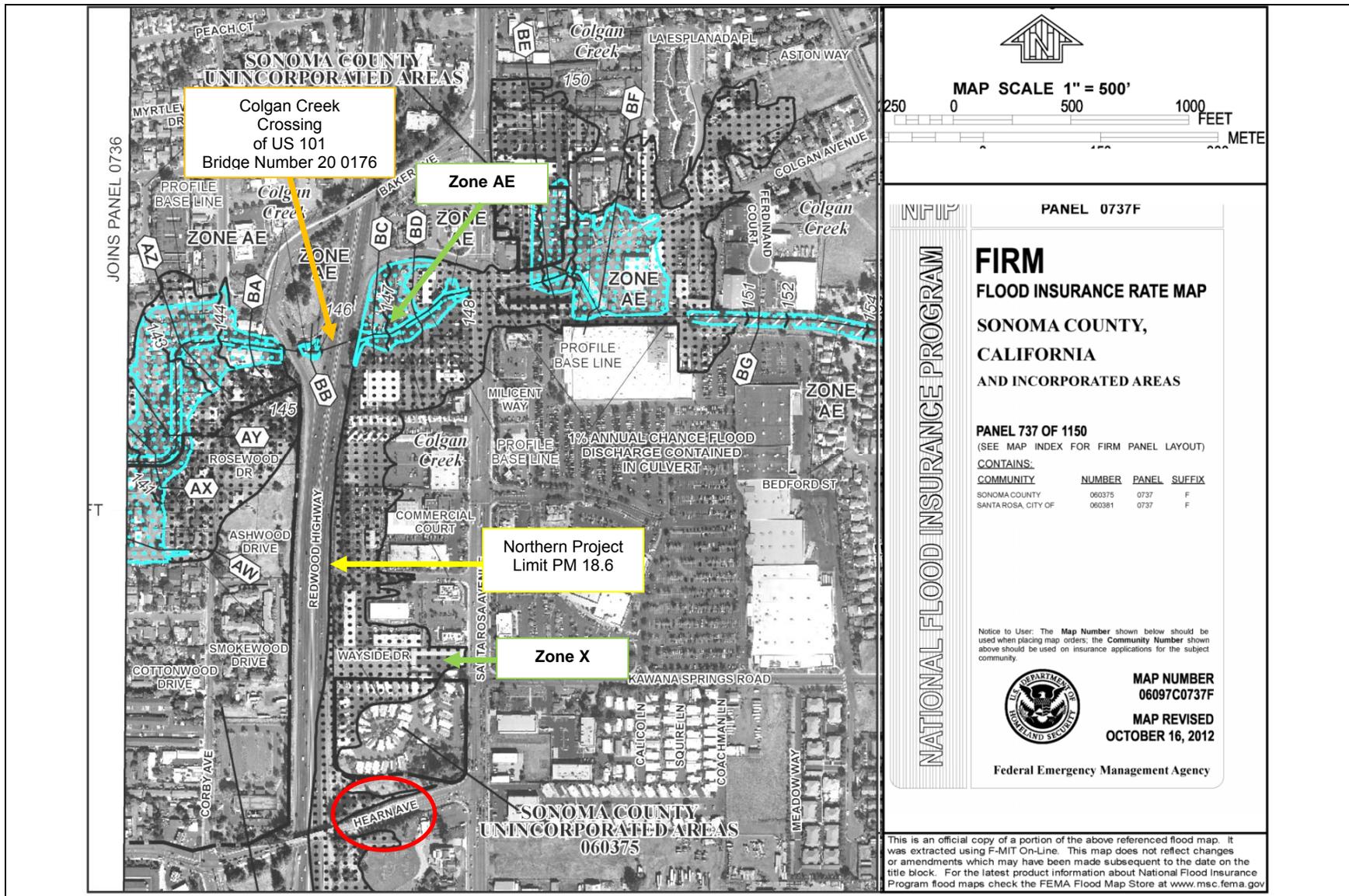


Figure 2.2.1-1: Flood Insurance Rate Map 06097C0737F (Sheet 1 of 2)

Source: Wreco 2015a

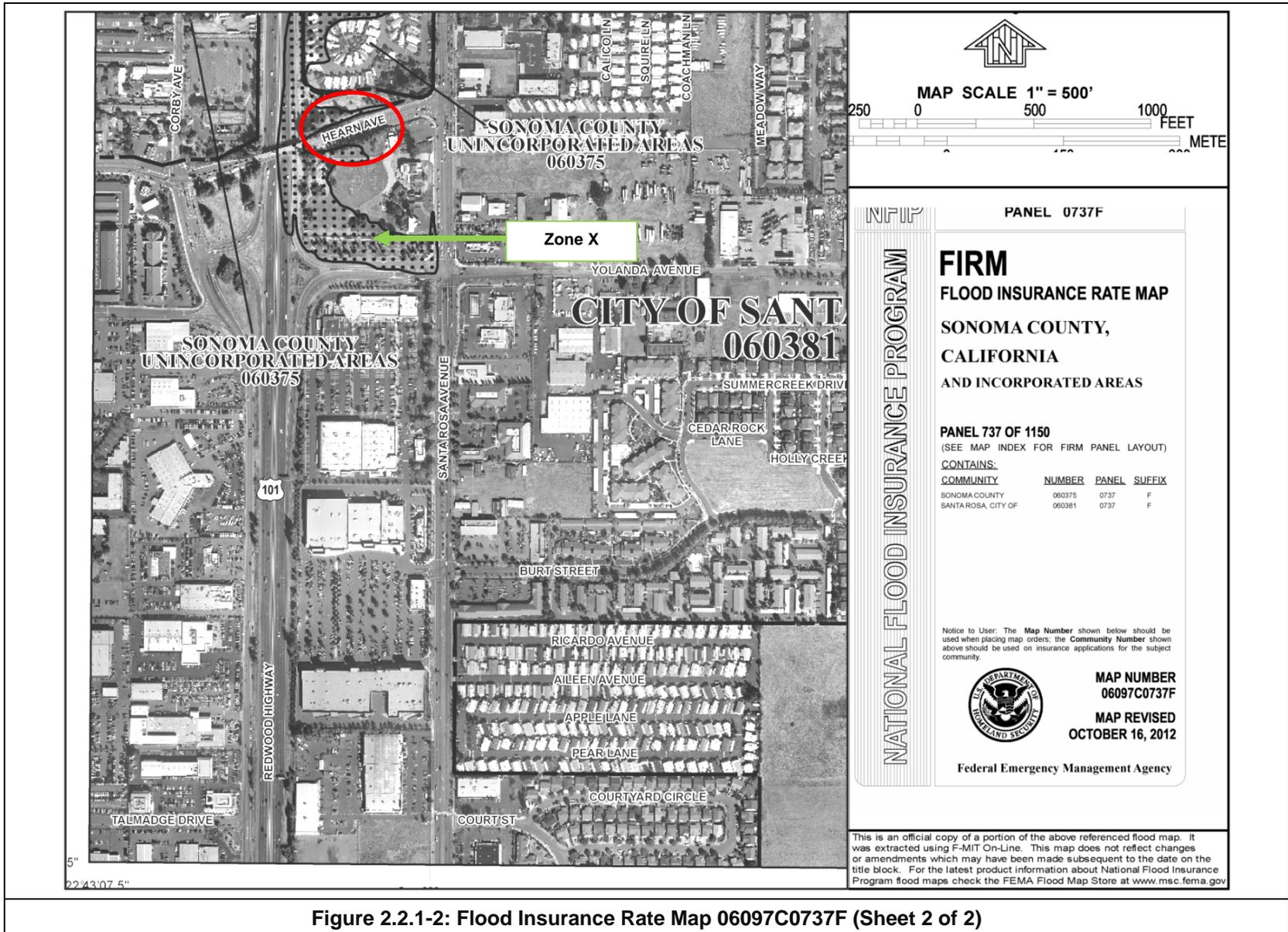


Figure 2.2.1-2: Flood Insurance Rate Map 06097C0737F (Sheet 2 of 2)

Source: Wreco 2015a

### **Risks of the Action**

Since the project is not located within the base floodplain, it would not place fill within the base floodplain. The project would not result in a significant floodplain encroachment. The project would not result in or increase traffic interruptions from flooding or change the 100-year water surface elevation. The project would add 1.4 acres of impervious surface area. The Colgan Creek watershed is approximately 1,485 acres at the US 101 crossing; therefore, the added impervious area is not expected to increase flows or base flood elevations.

### **Natural and Beneficial Floodplain Values**

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 ground water recharge. The project would not affect natural and beneficial floodplain values because the project is outside of the base floodplain.

### **Incompatible Floodplain Development**

The project would not support incompatible floodplain development because the project is outside of the base floodplain, and the surrounding areas are fully developed with commercial and residential land uses.

#### **2.2.1.4 Avoidance, Minimization and/or Mitigation Measures**

No avoidance, minimization, or mitigation measures to minimize floodplain impacts and to preserve or restore any beneficial floodplain values are necessary.

## 2.2.2 Water Quality and Storm Water Runoff

### 2.2.2.1 Regulatory Setting

#### **Federal Requirements: Clean Water Act**

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the U.S. from any point source (any discrete conveyance such as a pipe or man-made ditch) unlawful unless the discharge is in compliance with a NPDES permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

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

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

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

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

effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent (wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall) standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause “significant degradation” to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

### **State Requirements: Porter-Cologne Water Quality Control Act**

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

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

### **State Water Resources Control Board and Regional Water Quality Control Boards**

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQB 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 (NPDES) Program**

#### *Municipal Separate Storm Sewer Systems (MS4)*

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is

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

The Department’s MS4 Permit (Order No. 2012-0011-DWQ, amended Order No. 2014-007-DWQ) was adopted on September 19, 2012 and became effective on July 1, 2013. The permit has basic requirements:

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

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

#### *Construction General Permit*

Construction General Permit (Order No. 2009-009-DWQ) as amended by 2010-0014 DWQ, and 2012-0006-DWQ, adopted on November 16, 2010, became effective on February 14, 2011. The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. A SWPPP is a document that addresses water pollution control for construction projects. The SWPPP describes potential sources of storm water pollution, discusses activities associated with construction, and identifies BMPs to reduce storm water pollution. In accordance with the Department's Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

### *Section 401 Permitting*

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

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

#### **2.2.2.2 Affected Environment**

This section is based on the *Water Quality Assessment Report* (WRECO 2016b), which was completed in February 2016. Hydrology and floodplains are discussed in Section 2.2.1.

#### **Surface Streams**

There are no creek, stream, or river crossings within the project limits. Colgan Creek crosses US 101 approximately 0.3 mile north of the project area, but runoff from the project would discharge to the creek west of the project area, downstream of the US 101 crossing.

The project is located in the Laguna hydrological sub-area, Middle Russian River hydrologic area, and Russian River hydrologic unit (Caltrans 2015). The CWA Section 303(d) List of Water Quality Limited Segments issued by the USEPA identifies impaired waters within the region based on hydrological sub-area. Table 2.2.2-1 summarizes the pollutants, pollutant sources, and proposed TMDL completion dates for the listed pollutants within the Laguna hydrological sub-area. While many of the pollutants had an expected TMDL completion date of 2012, the TMDL studies are still ongoing and as of May 2016, the TMDLs have not yet been approved.

**Table 2.2.2-1: 303(d) List Summary for the Laguna Hydrological Sub-Area**

Pollutant	Expected TMDL Completion Date	Potential Sources
Indicator Bacteria	2012	Source Unknown
Mercury	2019	Source Unknown
Nitrogen	2012	Internal Nutrient Cycling (primarily lakes) Nonpoint Source; Point Source
Oxygen, Dissolved	2012	Internal Nutrient Cycling (primarily lakes) Nonpoint Source; Point Source
Phosphorus	2012	Internal Nutrient Cycling (primarily lakes) Nonpoint Source; Point Source
Sedimentation/Siltation	2012	Channel Erosion Channelization Disturbed Sites (land development) Drainage/Filling Of Wetlands Erosion From Derelict Land Erosion/Siltation Highway Maintenance and Runoff Highway/Road/Bridge Runoff Hydromodification Land Development Nonpoint Source Other Urban Runoff Removal of Riparian Vegetation Road Construction Streambank Modification/Destabilization Urban Runoff/Storm Sewers
Temperature, Water	2012	Hydromodification Nonpoint Source Removal of Riparian Vegetation Streambank Modification/Destabilization Upstream Impoundment

Source: State Water Resources Control Board 2014

The Basin Plan (North Coast RWQCB 2011) identifies existing beneficial uses for the Laguna hydrological sub-area as agricultural supply; industrial service supply; groundwater recharge; freshwater replenishment; navigation; hydropower generation; water contact recreation; non-contact water recreation; commercial and sport fishing; warm freshwater habitat; cold freshwater habitat; wildlife habitat; rare, threatened, or endangered species; fish migration; and fish spawning. Potential beneficial uses include municipal and domestic supply, industrial process supply, shellfish harvesting, and aquaculture.

### **Groundwater Resources**

The project is located within the Santa Rosa Groundwater Basin (Basin ID I-55). According to the project's *Structure Preliminary Geotechnical Report* (AECOM 2016h), groundwater in the project area is encountered at approximate elevations 127 to 130 feet (NAVD88).

Regional groundwater flow is typically toward the southwest. The groundwater flow gradient is very low, ranging from approximately 0.0002 feet per foot to 0.0006 feet per foot.

The general water quality objectives established for groundwater within the North Coast region include bacteria, chemical constituents, radioactivity, and taste and odors. The Basin Plan (North Coast RWQCB 2011) describes region-wide beneficial uses for groundwater basins.

Groundwater within the region has the existing and potential beneficial use of municipal and domestic water supply and may be used as a source of drinking water. Other beneficial uses for groundwater include industrial water supply, industrial process water supply, agricultural water supply, and freshwater replenishment to surface waters.

### **2.2.2.3 Environmental Consequences**

#### **No Build Alternative**

No short-term water quality impacts would occur with the No Build Alternative. The No Build Alternative would have potential permanent water quality impacts due to increasing congestion, leading to a greater deposition of particulates from exhaust and heavy metals from braking.

#### **Build Alternative**

##### **Short-Term (Construction) Impacts**

The project does not include work in or near Colgan Creek. However, during construction, runoff over disturbed soil areas could cause sediment-laden flows to enter storm drainage facilities that discharge into the Colgan Creek, increasing the turbidity, decreasing the clarity, and potentially impacting the beneficial uses of the creek. The project would result in 7.6 acres of disturbed soil area. Generally, as the disturbed soil area increases, the potential for temporary water quality impacts also increases.

Earth-moving and other construction activities could cause minor erosion and runoff of top soils into the drainage systems along the project corridor, which could temporarily affect water quality in local waterways. Also, during construction, project grading and excavation activities would have the potential to increase erosion and result in temporary water quality impacts. Storm water runoff from the project site may transport pollutants to nearby receiving waters and storm drains if BMPs are not properly implemented. Any storm water impacts would be minimized through proper implementation of pollution prevention and treatment BMPs discussed in Section 2.2.2.4.

If fueling or maintenance of construction vehicles occurs within the project site during construction, there is a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these materials may pose a threat to water quality if contaminants enter storm drains, open channels, or surface water receiving bodies. The magnitude of the impact from an accidental release depends on the amount and type of material spilled.

Dewatering would be needed at locations of excavation work with high groundwater, and potentially for the placement of the overcrossing bridge footings. Dewatering activities would comply with the Department Standard Specifications, and, if required, a separate dewatering permit would be obtained from the North Coast RWQCB prior to the start of construction.

##### **Long-Term (Permanent) Impacts**

The project would add a total of 1.4 acres of impervious surface area through project features such as the widened overcrossing bridge structure. The project may also require modifications to existing drainages, underground drainage systems, and cross culverts. However, the project would maintain existing drainage patterns to the extent possible and is not expected to require the addition of a pump station to handle drainage.

The increased impervious surface area would increase the amount of runoff that does not infiltrate or disperse over unpaved surfaces. This non-infiltrated and concentrated runoff could result in the direct discharge of sediment-laden flow from the roadway to receiving water bodies. Also, the widened bridge and modified interchange would allow for an increased area for deposition of sediment and other pollutants from vehicular traffic. Any storm water impacts

would be minimized through proper implementation of permanent design pollution prevention and treatment BMPs.

Heavy metals associated with vehicle tire and brake wear, oil and grease, and exhaust emissions are the primary pollutants associated with transportation corridors. Generally, highway storm water runoff has the following pollutants: total suspended solids, nitrate nitrogen, total kjeldahl nitrogen, phosphorus, ortho-phosphate, copper, lead, and zinc. The pollutants are dispersed from aerially deposited pollutants that accumulate on tree leaves, combustion products from fossil fuels, and the wearing of brake pads and tires (WRECO 2016b). The project would potentially increase deposition of particulates from increased traffic loads due to the additional lanes on the Hearn Avenue overcrossing.

The decrease in unpaved overland flow and native infiltration from the project's additional impervious surface area has the potential to increase flow volumes and rates and peak durations to receiving water bodies (a process known as hydromodification). Hydromodification can have permanent water quality effects from increased bed and bank erosion, loss of habitat, increased sediment transport and deposition, and increased flooding.

The project would result in the addition of impervious area but would not substantially reduce the amount of unpaved area available to allow runoff to infiltrate into the soil. The reduction of runoff infiltration could result in loss in volume or amount of water that previously recharged localized aquifers and to reduce regional groundwater volumes. While the increase in impervious area with the project would reduce the available area for storm water infiltration, the increase in impervious surface area compared to the total watershed area would be minimal. Therefore, the amount of surface runoff that infiltrates into the groundwater system would be minimally affected.

The proposed project is expected to result in less than significant impacts to water quality with the avoidance and minimization measures incorporated into the project design and construction.

#### **2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures**

A SWPPP will be prepared by the Contractor and approved by the Department prior to the start of construction. The SWPPP includes the development of a Construction Site Monitoring Program that presents procedures and methods related to the visual monitoring and sampling and analysis plans for non-visible pollutants, sediment and turbidity, and pH. After assessing the receiving water body and sediment risks, the project has been determined to be a Risk Level 2. Risk Level 2 project requirements include preparation of Rain Event Action Plans prior to an anticipated rain event, performing storm water sampling at all discharge locations during a qualifying rain event, compliance with numeric action levels, and preparation of annual reports detailing BMPs and sampling efforts.

Feasible short-term (construction) and long-term (permanent) BMPs for the project are described below. Avoidance, minimization, and/or mitigation measures for wetlands and other waters of the U.S. are described in Section 2.3.2.4.

#### **Short-Term (Construction) BMPs**

Project construction is expected to take two years. Earth-disturbing construction activities should be scheduled to not occur during anticipated rain events. To avoid and minimize any potential sediment laden or contaminated runoff or run-on within the project area, construction site BMPs

should be installed prior to the start of construction or as early as feasibly possible during construction.

Measures to be considered for this project would be detailed during the Plans, Specifications, and Estimates (PS&E) phase. The general construction site BMP strategy for this project consists of the following:

**Soil Stabilization Measures and Sediment Control Measures.** Soil stabilization and sediment control include placing linear sediment barriers such as silt fences at the toe of all excavation and embankment slopes, as well as at the top of all cut slopes to prevent erosion from run-on sources. Contour grading of slopes includes surface roughening by walking the slopes with tracked equipment. Immediately thereafter, slope interruption devices such as fiber rolls would be installed at intervals as specified in the Department Standard Specifications, and soil stabilization measures would be hydraulically applied. For slopes determined to be at high risk for erosion or failure, temporary cover or netting would be placed until permanent erosion control measures can be applied. Wherever possible, early implementation of permanent erosion control seeding or landscape planting would be performed.

**Non-storm Water Management Measures.** Drainage inlet protection would be deployed throughout the project. Active treatment systems are not anticipated to be necessary for this project. There is potential for wind erosion, which would be addressed through the implementation of the soil stabilization and sediment control measures previously discussed.

**Tracking Control.** Off-site tracking of sediment should be limited by the placement of stabilized construction entrances in combination with regular street sweeping and vacuuming. Stabilized construction roadways would be used to provide access for construction activities. Locations of these tracking control BMPs would be considered during final design.

**General Construction Site Management and Storm water Sampling and Analysis.** Various waste management, materials handling, and other housekeeping BMPs would be used throughout the duration of the project. Stockpiles of various kinds are anticipated and would be maintained with appropriate BMPs.

#### **Long-Term (Permanent) BMPs**

The Department MS4 permit contains provisions to reduce, to the maximum extent practicable, pollutant loadings from the facility once construction is complete. The permit stipulates that permanent measures that control pollutant discharges must be considered and implemented for all new or reconstructed facilities. Permanent control measures located within the Department's right-of-way reduce pollutants in storm water runoff from the roadway. These measures reduce the suspended particulate loads, and thus pollutants associated with the particles, from entering waterways. The measures would be incorporated into the final engineering design or landscape design of the project and would take into account expected runoff from the roadway. In addition, the permit also stipulates that an operation and maintenance program be implemented for permanent control measures. Maintenance of drainage facilities would be provided by the Department or the City based on the location of the facility, unless a maintenance agreement is established.

The project is required to consider use of permanent storm water treatment BMPs within the Department's right-of-way because the project directly discharges to surface waters, is a major

reconstruction project, and results in the addition or reworking of one acre or more of impervious area. This project is also required to implement permanent storm water treatment BMPs within the City's right-of-way because the project will create or replace 10,000 square feet or more of local roadway impervious surface.

Based on the soil characteristics and evaluation of the preliminary layout and drainage concept, biofiltration/bioretention, detention, and media filter storm water treatment devices are feasible for this project. While infiltration devices are not feasible for the project because of local soil characteristics, the use of engineered soil media and underdrains would be considered during the design phase to promote infiltration and retention. The design and locations for placement of treatment devices would be determined based on where proposed drainage facilities can connect to existing drainage facilities, and where existing development can accommodate them. The proposed treatment facilities would likely be placed in the open areas on the western side of US 101 where the on- and off-ramps would be modified, or along the east side of US 101 at the toe of the Hearn Avenue overpass. The feasibility, determination of preferred treatment BMP types and locations would be coordinated with the Department's District 4 Office of Water Quality Storm Water Coordination Branch and the City's storm water representative to ensure both the Department's and the City's requirements are met. The plans detailing the proposed storm water treatment measures would be developed during final design.

## 2.2.3 Geology/Soils/Seismic/Topography

### 2.2.3.1 Regulatory Setting

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

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

### 2.2.3.2 Affected Environment

The following discussion is based on the *Structure Preliminary Geotechnical Report* (AECOM 2016h) for the proposed project, which was completed in March 2016.

#### **Site Geology**

The project area is located within California’s Coast Ranges geomorphic province. The province consists of several northwest-trending valleys and ridges that developed following the cessation of Farallon plate subduction beneath the North American plate during the Eocene epoch (34 to 56 million years ago). The subduction was followed by strike-slip faulting and related folding along the San Andreas Fault Zone. In the Bay Area, the San Andreas Fault Zone separates the North American plate to the east from the Pacific plate to the west.

Geologic mapping of the region has been conducted by the U.S. Geological Survey (Fox et al. 1973; Blake et al. 2000; McLaughlin et al. 2008) and the California Geological Survey (Travis 1952; Bedrossian 1981). The maps show that the project area is situated on Quaternary alluvial fan and fluvial deposits consisting of poorly sorted, coarse gravel and sand. This geologic material covers the low-lying portions of the Santa Rosa Valley. The nearest rock outcrops are located in the hills 1,500 feet east of the project area and consist of basaltic andesite and basalt flows of the Sonoma Volcanics group.

#### **Geologic Hazards**

##### **Surface Fault Rupture and Earthquake Shaking**

Several major active faults in Sonoma County are close enough to the project area to be capable of producing strong ground shaking (California Geologic Survey 2002). In order of increasing distance from the project area, these faults are as follows:

- Rodgers Creek fault (the northern portion of the Hayward-Rodgers Creek Fault System), located 1.8 miles northeast;

- Maacama fault, located 7 miles northeast;
- West Napa fault, located 20 miles east; and
- San Andreas fault, located 18 miles southwest.

The regional faults are generally right-lateral strike-slip faults capable of producing strong ground motion in the project area.

The project alignment is not within an Earthquake Fault Zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act of 1972, and no known active or potentially active faults cross the alignment (California Geologic Survey 2002).

### **Liquefaction and Lateral Spreading**

Liquefaction is a phenomenon whereby soil deposits temporarily lose shear strength and collapse. This condition is caused by cyclic loading during earthquake shaking that generates high porewater pressures within the soil deposits. The soil type most susceptible to liquefaction is loose, cohesionless granular soil below the ground water table and within about 50 feet of the ground surface. Liquefaction can result in a loss of foundation support and settlement of overlying structures, ground subsidence and translation due to lateral spreading, lurch cracking, and differential settlement of affected deposits. Lateral spreading occurs when a soil layer liquefies at depth and causes horizontal movement or displacement of the overlying mass on sloping ground or towards a free face such as a stream bank or excavation.

### **Landslides**

A landslide is an event of large-scale ground movement generally caused by an over-steepened slope. No landslides are mapped on the flat land near or at the project area.

### **Expansive or Corrosive Soils**

Expansive soils are those that shrink or swell significantly with changes in moisture content. The clay content and porosity of the soil influence its volume change characteristics, and higher plasticity index correlates to higher expansion potential. The shrinking and swelling caused by expansive clay-rich soils often results in damage to overlying structures.

Corrosive soils can weaken buried steel and concrete foundation elements over time, resulting in reduced foundation capacity and eventually distress to the structure.

### **Settlement**

Settlement is the process of soil consolidating and decreasing in volume. Settlement can occur quickly when soil is loaded by a structure or by the placement of fill on top of soil, and it can also occur gradually when soil pore pressures, increased by vertical loading, gradually dissipate over time. Since the site is likely underlain by granular soils, impact of consolidation settlement due to fill placement is unlikely to be a geotechnical consideration for the design phase study.

Seismically-induced (dry) settlement occurs when loose granular soils above the ground water table increase in density as a result of earthquake shaking. The soil densification can result in differential settlement because of variations in soil composition, thickness, and initial density.

### **Groundwater Depth**

Test borings in 1956 encountered groundwater at approximate elevations of 127 to 130 feet, based on datum converted to NAVD88 (Appendix B in AECOM 2016h).

### **2.2.3.3 Environmental Consequences**

#### **No Build Alternative**

The No Build Alternative would be subject to the same geologic, soils, and seismic hazards as the Build Alternative. The No Build Alternative would not affect groundwater.

#### **Build Alternative**

##### **Surface Fault Rupture and Earthquake Shaking**

The risk of fault offset along the project alignment from a known active fault is considered negligible. The project would not increase the exposure of people or structures to potential substantial adverse effects from fault rupture.

During a major earthquake on a segment of one of the nearby faults, however, strong to very strong shaking is expected to occur in the project area. The intensity of the earthquake ground motion will depend upon the characteristics of the generating fault, distance to the earthquake epicenter, magnitude and duration of the earthquake, and specific site geologic conditions. The potential exists for people or structures to be exposed to potential substantial adverse effects from seismic ground shaking, with or without the project. Appropriate measures will be incorporated into the project design to withstand seismic ground shaking.

##### **Landslides**

Due to the gentle slopes in the vicinity, the project area is not considered susceptible to landsliding, either seismically induced or otherwise. The project area has a negligible potential for landslides with or without the project.

##### **Liquefaction and Lateral Spreading**

The alluvial deposits underlying the project area, if saturated and not sufficiently dense, may liquefy during a large earthquake. Susceptibility to liquefaction can be evaluated through standard geotechnical site investigation techniques. The site vicinity is mapped as having “very low” susceptibility to liquefaction with or without the project (Witter et al 2006).

##### **Expansive or Corrosive Soils**

The alluvial deposits underlying the project area are expected to be predominantly granular and have low expansion potential with or without the project. Laboratory testing as part of a comprehensive geotechnical investigation will evaluate the shrink-swell potential of the project area soils.

Soil corrosivity would be evaluated during the subsurface investigation and laboratory testing phases, as part of detailed project design. Appropriate measures will be incorporated into the project design to counteract the effects of corrosive soils.

### **Settlement**

Medium dense granular soils were encountered in 1956 test borings (Appendix B in AECOM 2016h). These granular soils may be subject to cyclic densification during strong ground shaking, resulting in compaction settlement with or without the project. Evaluation of compaction settlement will be completed during detailed project design.

### **Groundwater Conditions**

The groundwater levels encountered in the project vicinity are relatively shallow. Therefore, foundation excavations for abutments and supports will likely encounter groundwater. The avoidance and minimization measures described in Section 2.2.3.4 will minimize settlement impacts from the project.

#### **2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures**

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

Additional geotechnical subsurface and design investigations will be performed during the final project design and engineering phase. The investigations will include site-specific evaluation of subsurface conditions at the location of proposed Hearn Avenue overcrossing footings and proposed retaining walls, as well as investigations for earthquake-induced liquefaction, soil expansion, soil corrosivity, and compaction settlement. An evaluation of construction dewatering will be included as a part of the field investigation program to provide the basis for construction dewatering plans.

## 2.2.4 Hazardous Waste/Materials

### 2.2.4.1 Regulatory Setting

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

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

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

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

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

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

#### **2.2.4.2 Affected Environment**

The *Initial Site Assessment* (AECOM 2016i) for the proposed project (completed in April 2016) included the following:

- An Environmental Data Resources, Inc. (EDR) regulatory database search for known potential hazardous materials sites, including underground storage tanks (USTs); landfills; hazardous waste generation, treatment, storage, and disposal facilities; and subsurface contamination within an area extending up to 1 mile from the project area (as shown in Figure 1.1-1)
- A review of historical aerial photographs, topographic maps, and building permit reports
- A drive-by reconnaissance of the project area and vicinity
- A review of available files from the EnviroStor and GeoTracker databases maintained by the California Department of Toxic Substances Control and San Francisco RWQCB to obtain additional information on sites identified in the EDR report that are within or near the project area

The purpose of the assessment was to review available information on the study area to identify potential risks and determine whether soil, groundwater, or other testing is needed. Testing for soil and/or groundwater contamination, asbestos, radon, lead-based paint, lead in drinking water, or other contaminants was not conducted as part of the Initial Site Assessment. A summary of the Initial Site Assessment findings is included in Section 2.2.4.3.

#### **2.2.4.3 Environmental Consequences**

##### **No Build Alternative**

The No Build Alternative would not affect potential hazardous material sites in the project area.

##### **Build Alternative**

Nineteen potential hazardous material sites within the project area, or within 1/8 mile upgradient of the project area, were identified during the regulatory database search or observed during site reconnaissance. Of the 19 sites for which further evaluation is recommended, 12 are within the project area. Fourteen of the sites had leaking underground storage tanks (LUSTs) on site, and six are designated as spills, leaks, investigations and clean-ups (SLIC) sites. Eighteen were reported to have releases that impacted the subsurface. Four sites have cases that are open and active.

Corrective actions have been conducted at most of the sites, and natural remediation and decomposition of hydrocarbon and other contaminants likely occurred since some of the releases were detected and remedial actions were initiated several years ago. Nonetheless, the risk of encountering contamination from these sites during project construction in soil and/or groundwater, or of purchasing properties with continued contamination, is judged to be medium to high. Sites currently not identified as having contaminant releases at the time of this report may be identified in the future.

The 19 sites for which additional investigation is recommended are described in Table 2.2.4-1.

**Table 2.2.4-1: Potential Hazardous Materials Sites**

Owner or Occupant (past or present)	Address	Description
Honda of Santa Rosa	2750 Corby Ave	LUST release discovered and stopped on 9/20/1993. Media affected was soil. Contaminants of concern: waste oil, motor oil, hydraulic oil and lubricating oil. Clean up status: Completed - case closed on 8/14/1995.
Lyles Tackle Shop	2690 Santa Rosa Ave	Release discovered and stopped on 10/9/1998. Contaminant of concern: not listed. Drinking water supply potentially affected by spill. Clean up status: Completed - case closed on 7/5/2006.
Santa Rosa Chevrolet	2770 Corby Ave	Leaking UST discovered on 10/19/1989. Contaminant of concern: gasoline. Clean up enforcement began on 5/28/1991. Clean up status: Completed - case closed on 11/30/2005.
Manly Mitsubishi	2755 Corby Ave	Leaking UST discovered on 9/20/1993. Contaminants of concern: waste oil, motor oil, hydraulic oil and lubricating oil. Clean up status: Completed - case closed on 8/14/1995.
Auto Life Center Auto Repair	2698 Santa Rosa Ave	LUST release discovered and stopped on 9/23/1977. Media affected was soil. Contaminant of concern: gasoline. Clean up status: Completed - case closed on 11/12/1997.
Michael's Auto	2642 Santa Rosa Ave	LUST release discovered on 12/28/1987. Contaminant of concern: gasoline. Clean up and abatement enforcement began on 5/14/1992. Clean up status: Completed - case closed on 9/18/1998.
Paul M. Kaltenbach	2575 Corby Ave	Leaking UST discovered on 12/28/1987. Contaminant of concern: gasoline. Clean up and abatement enforcement began on 5/14/1992. Clean up status: Completed - case closed on 9/18/1998.
A&M Mini Market Stop N Go Liquor LLC	440 Hearn Ave	LUST release discovered after two UST tanks were removed on 04/13/1990 during confirmation sampling. Contaminants of concern: gasoline and benzene. Contaminants were found from 16 feet to 20 feet. Clean up and abatement enforcement began on 03/09/2004. Groundwater and soil remediation has been performed starting in 2005, using multi-phase extraction. Quarterly groundwater monitoring events have been conducted from 1999 through 2009. Semi-annual groundwater sampling has been continued from 2009 through the present. Clean up status: Open - remediation as of 1/26/2005.
Santa Rosa Plume at Yolanda	Yolanda at Santa Rosa Ave	No chemical release or clean up details were reported in the EDR report. No information was found in GeoTracker or Envirositor.
Malm Metal Products Inc	2640 Santa Rosa Ave	Leaking UST discovered on 8/24/1987. The leak was stopped by removal of the tank. Contaminant of concern: gasoline. A drinking well used for drinking water supply was potentially affected. Free product removal began in 1983 and ended in 1989. Excavation of soil was performed in 1998. Clean up and abatement enforcement began on 5/14/1999. In Situ Physical Chemical Treatment (other than Soil Vapor Extraction) was conducted in 2004. Monitoring reports have been completed from 2005 through 2013. Clean up status: Open - remediation as of 5/20/2009.
Grog Shop	2296 Santa Rosa Ave	LUST release discovered and stopped on 7/12/1995. Potential media affected was soil. Contaminant of concern: gasoline. Clean up status: Completed - case closed on 1/1/2002.

**Table 2.2.4-1: Potential Hazardous Materials Sites**

Owner or Occupant (past or present)	Address	Description
Malm Fireplaces	326 and 368 Yolanda Ave	Release discovered on 12/16/1997. Potential media affected was soil and aquifer used for drinking water supply. Contaminants of concern: solvents, tetrachloroethylene, trichloroethylene, vinyl chloride, other chlorinated hydrocarbons. A passive soil gas investigation was performed in 2000. Clean up and abatement enforcement began on 5/11/2001. Groundwater monitoring was performed from 2007 to 2011. A North Coast RWQCB letter on 9/17/2014 indicates the possibility of down gradient plume migration to the Mountain View Mobile Estates domestic well which contains trichloroethylene, and requests installation of additional off-site monitoring wells and sampling of the domestic well. Clean up status: Open - site assessment as of 6/1/2001.
Hulsman Trans	325 Yolanda Ave	LUST release discovered and stopped on 9/23/1982. The LUST tank was removed. Contaminants of concern: gasoline and benzene, toluene, ethylbenzene, and xylene compounds. Media affected was soil and well/aquifer used for water supply. The plume is comingled with Malm Metal site. Soil excavation was conducted in 1991 as a remedial action. Clean up and abatement enforcement began on 5/1/2000. Monitoring wells were installed around 2004. An Air Operated Sparging System was installed in December 2013. Clean up status: Open-remediation as of 6/21/2013.
Chevron #9-6449	2200 Santa Rosa Ave	LUST release discovered and stopped on 4/17/1992. Contaminant of concern: gasoline. Potential media affected was an aquifer used for drinking water supply. Remediation and verification monitoring were performed in 1996. Clean up status: Completed - case closed on 1/29/1998.
S & W Investments	2159 Santa Rosa Ave	LUST release discovered and stopped on 7/2/1986. Contaminant of concern: gasoline. Potential media affected was soil. Clean up status: Completed - case closed on 1/22/1996.
Joe's Performance	2151 Santa Rosa Ave	LUST release discovered and stopped on 6/21/1994. Contaminant of concern: gasoline. Potential media affected was aquifer used for drinking water supply. Clean up status: Completed - case closed on 12/03/1997.
Yaeger & Kirk Lumber & Hardware	2875 Santa Rosa Ave	LUST release discovered and stopped on 7/24/1987. Contaminant of concern: gasoline. Potential media affected was well used for drinking water supply. Clean up status: Completed - case closed on 9/23/1993.
Mountain View Mobile Home Park	2860 Santa Rosa Ave	No chemical release or clean up details were reported in the EDR report. No information was found in GeoTracker or Envirositor. Per the Malm Fireplaces File (L59 and L66), the Mountain View Mobile water well contains trichloroethylene. Clean up status: Unknown
Chapel of the Chimes Cemetery	2607 Santa Rosa Ave	The EDR aerial photographs and site visit identified the cemetery within the project area. The cemetery is first visible in the 1965 aerial photographs and was confirmed as still active. Based on historical experience, cemeteries are considered potential hazardous materials sites due to the use of formaldehyde, herbicides, and other hazardous materials.

Source: AECOM 2016i

The project does not propose TCEs or permanent acquisition of any of the 19 properties listed in Table 2.2.4-1. The project would not disturb any previously identified potentially hazardous materials sites.

However, the following hazardous materials could be present in the project area and could be disturbed or used during construction:

- Aerially deposited lead. The presence of US 101 within the project limits predates the removal of lead from gas in the 1970s. Aerially deposited lead is likely present in soils in the immediate vicinity of the freeway, freeway ramps, and surrounding city streets.
- Lead-based paint. Thermoplastic paint on the roadway and overcrossing is likely to contain lead and other heavy metals, and lead-based paint was likely used on buildings in the project area.
- Asbestos. No naturally occurring serpentinite (asbestos containing) rock was mapped within the project area. Asbestos could also be present in concrete, electrical insulation, expansion joint material, sheet packing in girder joints, and textured paint.
- Polychlorinated biphenyls (PCBs). PCBs could be present in fluorescent lighting ballasts, transformers, electrical switch gear and some caulking.
- Gasoline, diesel fuel, oil, and lubricants for operation of construction equipment or vehicles. In all roadway construction projects, there is a potential for the accidental release of fuels or lubricants that are typically used, handled, and stored by contractors. No specific risks related to such a release have been identified for the proposed project. Contractors are required to handle hazardous materials in accordance with applicable laws, including health and safety requirements. No acutely hazardous materials would be used or stored on-site during project construction.

The project would not create a significant new hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Implementation of the avoidance and minimization measures listed in Section 2.2.4.4 would limit the effect of encountering potentially hazardous materials during construction.

#### **2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures**

Structures to be modified will be investigated for hazardous materials or contamination issues, including the presence of building materials painted with lead-based paint, storage buildings that might contain hazardous materials, asbestos (i.e., transit pipe, insulation, and siding), heating fuel storage tanks, thermoplastic paint, PCBs, and other similar issues. A qualified and licensed inspector will evaluate and sample each existing structure scheduled for demolition for the presence of asbestos-containing materials and PCBs.

Soil and/or groundwater sampling is recommended prior to or during soil excavation activities. The exact sample locations, sampling depths, sample media (soil/groundwater), and constituents analyzed will be selected with all potential identified impacts to the project area in mind to prepare a comprehensive sampling plan. The following measures are currently recommended:

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

- If suspected petroleum hydrocarbon-impacted soils will be encountered during soil excavation activities, soil should be sampled, tested, and characterized for petroleum hydrocarbons before the start of construction.
- If soil excavation activities are planned near properties where chlorinated compounds may be present, the soil and/or groundwater should be sampled, tested, and characterized for chlorinated compounds before the start of construction.
- If soil excavation activities are planned near or on the Chapel of the Chimes Cemetery property, soil and/or groundwater should be sampled, tested, and characterized for formaldehyde and herbicides.
- Additionally, prior to the beginning of any soil excavation work, surface soils should be tested for aerially deposited and subsurface lead to evaluate safety recommendations for construction workers and soil management options.
- Any proposed acquisition of properties detailed in Table 2.2.4-1 requires further investigation of soil and/or groundwater, due to the potential for presence of petroleum hydrocarbons, solvents, aerially deposited and subsurface lead, and metals.

Soil and/or groundwater found to have environmental contaminants should be properly characterized and disposed of at an appropriate facility per applicable regulations.

Contractors working at the project site, or removing soil materials and/or groundwater from the project area, should be made aware of appropriate handling and disposal methods through an education program. Elevated levels of the potential contaminants could be present at some locations and, therefore, material moved or removed may require individual or specific testing to verify that concentrations are below any regulatory action limits. Further investigation will occur during the detailed design phase.

## 2.2.5 Air Quality

### 2.2.5.1 Regulatory Setting

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act is its companion state law. These laws, and related regulations by the USEPA and California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter (PM), which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM<sub>10</sub>), and particles of 2.5 micrometers and smaller (PM<sub>2.5</sub>), and sulfur dioxide (SO<sub>2</sub>). In addition, national and state standards exist for lead (Pb) and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H<sub>2</sub>S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

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

#### **Conformity**

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

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

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), and in some areas (although not in California) sulfur dioxide (SO<sub>2</sub>). California has attainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO<sub>2</sub>, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years for the RTP and 4 years (for the TIP). RTP and FTIP conformity uses travel demand and emission models to

determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA), make determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and “open to traffic” schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Conformity analysis at the project-level includes verification that the project is included in the regional conformity analysis and “hot-spot” analysis if an area is “nonattainment” or “maintenance” for carbon monoxide (CO) and/or particulate matter (PM<sub>10</sub> or PM<sub>2.5</sub>). A region is “nonattainment” if one or more of the monitoring stations in the region measures a violation of the relevant standard and the USEPA 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 USEPA 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.

### **2.2.5.2 Affected Environment**

This section summarizes the *Air Quality Impact Assessment* (AECOM 2016j) and *Mobile Source Air Toxics* (AECOM 2016k) technical reports completed for the project in March 2016.

The project area is in the San Francisco Bay Area Air Basin (SFBAAB), which does not attain the federal standards for ozone or fine particulate matter (PM<sub>2.5</sub>) and is unclassified for inhalable particulate matter (PM<sub>10</sub>). For the state standards, which are more stringent than the federal, the region does not attain the ozone, PM<sub>2.5</sub>, or PM<sub>10</sub> standards. Table 2.2.5-1 shows the applicable standards and attainment status of criteria pollutants in the project area.

Due to its topographic diversity, the meteorology and climate of the Bay Area is often described in terms of different subregions and their microclimates. The proposed project is located in the Sonoma County subregion, as defined by the Bay Area Air Quality Management District (BAAQMD 2015a).

Sonoma County’s climate is largely affected by the topography of its valleys. In Santa Rosa, which is in the Cotati Valley, prevailing winds are out of the south and southeast, the annual average wind speed is 5.4 mph. Summer maximum temperatures for this region are in the low 80s, while winter maximum temperatures are in the high 50s to low 60s. Annual rainfall averages 30 inches at Santa Rosa. Consistent with the Bay Area’s Mediterranean climate, Santa Rosa receives 81 percent of its annual rainfall from November through March.

During stagnant conditions, polluted air carried up the Cotati Valley by diurnal upvalley flow, and added to by local emissions, could be trapped against the mountains to the north and east (BAAQMD 2015a, 2015b).

**Table 2.2.5-1: State and National Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards <sup>1</sup>		National Standards <sup>2</sup>	
		Concentration	Attainment Status	Concentration <sup>3</sup>	Attainment Status
Ozone (O <sub>3</sub> )	8 Hour	0.070 ppm (137 µg/m <sup>3</sup> )	N <sup>9</sup>	0.070 ppm (137 µg/m <sup>3</sup> )	N <sup>4</sup>
	1 Hour	0.09 ppm (180 µg/m <sup>3</sup> )	N		See Footnote 5
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m <sup>3</sup> )	A	9 ppm (10 mg/m <sup>3</sup> )	A <sup>6</sup>
	1 Hour	20 ppm (23 mg/m <sup>3</sup> )	A	35 ppm (40 mg/m <sup>3</sup> )	A
Nitrogen Dioxide (NO <sub>2</sub> )	1 Hour	0.18 ppm (339 µg/m <sup>3</sup> )	A	0.100 ppm (see Footnote 11)	U
	Annual Arithmetic Mean	0.030 ppm (57 µg/m <sup>3</sup> )	NA	0.053 ppm (100 µg/m <sup>3</sup> )	A
Sulfur Dioxide (SO <sub>2</sub> ) (see Footnote 12)	24 Hour	0.04 ppm (105 µg/m <sup>3</sup> )	A	0.14 ppm (365 µg/m <sup>3</sup> )	A
	1 Hour	0.25 ppm (655 µg/m <sup>3</sup> )	A	0.075 ppm (196 µg/m <sup>3</sup> )	A
	Annual Arithmetic Mean	NA	NA	0.030 ppm (80 µg/m <sup>3</sup> )	A
Particulate Matter (PM <sub>10</sub> )	Annual Arithmetic Mean	20 µg/m <sup>3</sup>	N <sup>7</sup>	NA	NA
	24 Hour	50 µg/m <sup>3</sup>	N	150 µg/m <sup>3</sup>	U
Particulate Matter - Fine (PM <sub>2.5</sub> )	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	N <sup>7</sup>	12 µg/m <sup>3</sup> (see Footnote 15)	U/A
	24 Hour	NA	NA	35 µg/m <sup>3</sup> (see Footnote 10)	N
Sulfates	24 Hour	25 µg/m <sup>3</sup>	A	NA	NA
Lead (see Footnote 13)	Calendar Quarter	NA	NA	1.5 µg/m <sup>3</sup>	A
	30 Day Average	1.5 µg/m <sup>3</sup>	A	NA	A
	Rolling 3 Month Average	NA	NA	0.15 µg/m <sup>3</sup>	See Footnote 14
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )	U	NA	NA
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 µg/m <sup>3</sup> )	NIA	NA	NA
Visibility Reducing particles	8 Hour (10:00 to 18:00 PST)	See Footnote 10	U	NA	NA

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

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM10, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM10 annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.

2. National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th-highest daily concentrations is 0.075 ppm or less. The 24-hour PM10 standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m<sup>3</sup>. The 24-hour PM2.5 standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m<sup>3</sup>. Except for the National particulate standards, annual standards are met if the annual average falls below the standard at every site. The National annual standard for PM10 is met if the 3-year average falls below the standard at every site. The annual PM2.5 standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.

3. National air quality standards are set by USEPA at levels determined to be protective of public health with an adequate margin of safety.

4. In June 2004, the Bay Area was designated as a marginal nonattainment area of the National 8-hour ozone standard. USEPA lowered the national 8-hour ozone standard from 0.075 to 0.070 ppm (i.e., 70 ppb) effective October 26, 2015.

5. The National 1-hour ozone standard was revoked by USEPA on June 15, 2005.

6. In April 1998, the Bay Area was redesignated to attainment for the National 8-hour carbon monoxide standard.

7. In June 2002, CARB established new annual standards for PM2.5 and PM10.

**Table 2.2.5-1 footnotes, continued**

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

### **2.2.5.3 Environmental Consequences**

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

The **No Build Alternative** would make no physical or operational changes to the project area that would affect air quality. The following discussion applies to the **Build Alternative**.

#### **Regional Air Quality Conformity**

The proposed project is listed in the 2013 Plan Bay Area financially constrained Regional Transportation Plan (ABAG and MTC 2013, RTP ID 240529), which was found to conform by MTC on July 18, 2013, and FHWA and FTA made a regional conformity determination finding on August 12, 2013. The project is also included in MTC's financially constrained 2015 Regional Transportation Improvement Program (TIP; MTC 2014, TIP ID SON150006), TIP Revision Summary page 3. The MTC's 2015 TIP was found to conform by FHWA and FTA on December 15, 2014. The design concept and scope of the proposed project is consistent with the project description in the 2040 RTP, the 2015 TIP, and the open to traffic assumptions of the MTC's regional emissions analysis.

Therefore, the project is in conformity with the SIP and will not otherwise interfere with timely implementation of any Transportation Control Measures (TCMs) in the applicable SIP.

#### **Permanent Impacts**

##### **Evaluation of Potential for Traffic-Related CO Impacts**

Emissions and ambient concentrations of CO have decreased dramatically in the SFBAAB with the introduction of the catalytic converter in 1975. There have been no exceedances of the State or federal standards for CO since 1991. The SFBAAB is currently designated as an attainment-maintenance area for the CAAQS and NAAQS for CO; however, elevated localized concentrations of CO still warrant consideration in the environmental review process. A CO hot-spot analysis is required for conformity purposes because the project is in a CO maintenance area.

Occurrences of localized CO concentrations, known as hot-spots, are often associated with heavy traffic congestion, which most frequently occur at intersections of high-volume roadways.

Guidance from the UC Davis *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) criteria (Garza, Graney, and Sperling 1997) was used to evaluate the potential for CO impacts. The CO Protocol indicates that “Projects that are likely to worsen air quality at signalized intersections having a level of service E, or F, represent a potential for a CO violation and need further analysis” (Caltrans 1997, page 4-7). A quantitative hot-spot analysis was completed using peak hour traffic volumes and speeds from the traffic analysis for the horizon year (2040) (Fehr and Peers 2016). Opening year 2020 was not evaluated quantitatively because the traffic analysis found that all analyzed intersections would operate at Level of Service (LOS) D or better in 2020. Based on preliminary traffic data, one intersection, the Corby Avenue/Hearn Avenue intersection, was expected to operate at LOS E or worse in horizon year 2040 with the project. The preliminary traffic data for the Corby Avenue/Hearn Avenue intersection was used for the CO analysis. However, subsequent traffic analysis determined that in 2040, all intersections in the study area would operate at LOS D or better with the Build Alternative (see Table 2.1.6.3). Therefore, the modeling results for the Corby Avenue/Hearn Avenue intersection are considered conservative; the concentrations are higher than they would be if the updated traffic data were used, and the concentrations would not be exceeded at any other intersections studied in the traffic analysis.

The Corby Avenue/Hearn Avenue intersection represents the maximum CO contribution from the project, as congestion and associated vehicle emissions would be highest. Localized CO concentrations at this intersection were estimated using the California LINE Source Dispersion Model, version 4 (CALINE4) dispersion model. The analysis followed Appendix B of the CO Protocol. The ambient CO concentrations were conservatively assumed to be equal to the highest recorded 1-hour and 8-hour CO concentrations recorded at the Santa Rosa and Sebastopol monitoring stations during the five most recent years of monitored data (2010–2014).

Vehicle emission factors for 2040 were obtained by running the EMFAC2011 model for the fleet-wide average for Sonoma County. EMFAC2011 is a model issued by the California Air Resources Board. It should be noted that EMFAC2011 provides emission factors only up to the year 2035. Although actual vehicle emissions have declined year after year, it is conservatively assumed that the emission factors used in this study would be the same as 2035 for the future years including the project’s horizon year of 2040 (i.e., no decline in future emission rates was applied). The EMFAC2011 analysis is consistent with the methodology used for the regional emission analysis.

A project is considered to have significant impacts if it results in CO concentrations that exceed the 1-hour average State standard of 20 ppm, the 1-hour average Federal standard of 35 ppm, the 8-hour average State standard of 9.0 ppm, and/or the 8-hour average Federal standard of 9 ppm. As shown in Table 2.2.5-2, the estimated CO concentrations in 2040 with the project would be less than 25 percent of the applicable standards. The project would not have a considerable impact on 1-hour or 8-hour local CO concentrations at the intersections with the highest traffic volumes; subsequently, no significant effect is anticipated to occur at any other locations in the study area. The proposed project would not contribute to a violation of standards through at least the project horizon year of 2040.

**Table 2.2.5-2: Localized CO Concentrations at Worst-Case Intersection with Project –  
Horizon Year 2040**

	<b>Project Estimate</b>	<b>California Standard</b>	<b>Federal Standard</b>
1-hour Concentration (ppm)	3.0	20	35
8-hour Concentration (ppm)	1.9	9.0	9

Notes: The Corby Avenue/Hearn Avenue intersection was used as the worst-case intersection.

ppm – parts per million

Total CO concentrations include background 1-hour and 8-hour concentrations of 2.5 and 1.5 ppm, respectively, based on the maximum values recorded during the past 5 years at the Santa Rosa and Sebastopol monitoring stations.

Emission factors were obtained using EMFAC2011 model for Sonoma County.

### Particulate Matter “Hot-Spot” Analysis

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

The USEPA designated the SFBAAB as a Federal nonattainment area for the 35 µg/m<sup>3</sup> PM<sub>2.5</sub> standard, effective December 14, 2009. Therefore, a PM<sub>2.5</sub> hot-spot analysis is required for any project that is determined to be a POAQC as defined in Title 40 CFR Part 93.

Rather than using specific PM<sub>2.5</sub> measurements, the PM<sub>2.5</sub> hot-spot demonstration process begins with an evaluation of whether a project fits into one or more of the categories for “Projects of Air Quality Concern” listed in 40 CFR 93.123(b)(i)–(v). In the Bay Area, the process has been established by the MTC and requires interagency consultation with the Bay Area Air Quality Conformity Task Force. The Task Force includes representatives from federal (USEPA Region 9, FHWA, FTA), state (California Air Resources Board, Caltrans), regional (MTC, Bay Area Air Quality Management District, and Association of Bay Area Governments), and sub-regional (Congestion Management Agencies, transit operators, local jurisdictions, etc.) agencies.

In October 2015, the City, as the project sponsor, initiated consultation with the Air Quality Conformity Task Force by submitting a Project Assessment Form for PM<sub>2.5</sub> Interagency Consultation. The Task Force considered projected future traffic conditions, with and without the project, and whether the project meets the specific regulatory definition of a POAQC set forth in Title 40 CFR Part 93. On October 22, 2015, the Task Force determined that the project is not a Project of Air Quality Concern.

A PM<sub>2.5</sub> hot-spot analysis is not required for this project. The project will conform to the SIP, including the localized impact analysis conducted with interagency consultation required by 40 CFR 93.116 and 93.123. A summary of the Project Assessment for PM<sub>2.5</sub> Interagency Consultation and the Task Force determination are included in Appendix D.

Public comment is requested regarding the Task Force’s determination (Appendix D). Following the close of the public review and comment period for this IS/EA, all comments received on the

air quality conformity determination will be included in an air quality conformity report to be submitted to FHWA. The final determination on project-level conformity will be made by FHWA.

### **Ozone**

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

### **Mobile Source Air Toxics**

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

This section includes a basic quantitative analysis of the likely MSAT emission impacts of the proposed project. Available technical tools do not enable prediction of the project-specific health impacts of the emission changes associated with the No Build and Build Alternatives. Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of the proposed project.

Traffic volumes along the US 101 segment of the project are approximately 120,000 to 130,000 Annual Average Daily Traffic (AADT). Therefore, a quantitative mass daily analysis was performed for the seven priority MSATs using the Department program CT-EMFAC to compare the potential for priority MSAT emissions from the proposed project and the No Build Alternative. The default fleet mix distribution was used for non-trucks, 2-axle trucks, and heavy trucks with 3 or more axles. Traffic volume data for existing conditions (2014), opening year (2020), and horizon year (2040) was provided by the project traffic consultant, Fehr and Peers. As a project-specific traffic speed distribution was not available, a speed distribution representative of Sonoma County was derived from EMFAC2011 speed and VMT data for each modeled year.

For the Build and No Build Alternatives, the amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, if other variables such as fleet mix remain the same. As the project would reconfigure an existing interchange and does not propose to add capacity to US 101 or to the surrounding roadway network, VMT on US 101 and adjacent interchanges and

intersections was assumed to be the same for the Build and No Build Alternatives. As such, the MSAT emissions would be the same for the Build and No Build Alternatives. The modeled results indicate no change in MSAT emissions between the Build and No Build Alternatives for both opening and horizon year scenarios.

All analyzed MSAT emissions (diesel particulate matter [PM], formaldehyde, butadiene, benzene, acrolein, naphthalene, and polycyclic organic matter [POM]) would decrease for all alternatives going from the existing year (2014) to the opening year (2020). Between the opening year and the horizon year (2040), emissions again generally decrease with the exception of naphthalene and POM which would each see a small increase but remain well below existing levels. The observed decrease in estimated MSAT emissions is the result of EPA's national control programs which are projected to reduce MSAT emissions by 72 percent by 2020. The magnitude of the EPA-projected reductions from its national control programs is so substantial that (even after accounting for VMT growth) MSAT emissions in the study area are likely to be lower in the future in all cases.

In conclusion, the project would not increase MSAT emissions compared to the No Build Alternative. MSAT emissions would decrease in the opening year (2020) and horizon year (2040) compared to the existing year (2014). The results from the model runs show that the proposed project would not have an adverse impact on or a substantial increase in MSAT emissions.

### **Construction Impacts**

Temporary increases in emissions are defined as those which occur only during the construction phase and last 5 years or less at any individual site (40 CFR 93.123[c][5]). Project construction would take approximately 2 years. Construction activities will not last for more than 5 years at one general location, so construction-related emissions do not need to be included in regional and project-level conformity analysis (40 CFR 93.123(c)(5)).

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

### **Climate Change**

Climate change is analyzed at the end of this chapter. Neither the United States Environmental Protection Agency (USEPA) nor Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. As stated on FHWA's climate change website (2015), climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will aid decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and

global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

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

#### **2.2.5.4 Avoidance, Minimization, and/or Mitigation Measures**

Temporary construction-related impacts to air quality will be avoided or minimized through implementation of the following standard Department measures, which are used for all projects:

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

In addition, pollutant emissions in construction equipment exhaust can be avoided or minimized by the following:

- Keep engines properly tuned according to the manufacturer's specifications
- Prohibit unnecessary idling (i.e., greater than 5 minutes in duration)
- Avoid unnecessary concurrent use of equipment

## 2.2.6 Noise

### 2.2.6.1 Regulatory Setting

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

#### **California Environmental Quality Act**

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

#### **National Environmental Policy Act and 23 CFR 772**

For highway transportation projects with FHWA (and the Department, as assigned) involvement, the federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 A-Weighted decibels [dBA]) is lower than the NAC for commercial areas (72 dBA). Table 2.2.6-1 lists the noise abatement criteria for use in the NEPA-23 CFR 772 analysis.

**Table 2.2.6-1: Noise Abatement Criteria**

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

Source: Caltrans 2011b

<sup>1</sup> Includes undeveloped lands permitted for this activity category.

Figure 2.2.6-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area		Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	60	Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime		Library
Quiet Rural Nighttime	30	Bedroom at Night, Concert Hall (Background)
	20	Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

**Figure 2.2.6-1: Noise Levels of Common Activities**

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

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

The Department's TNAP 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.

### **2.2.6.2 Affected Environment**

The following summarizes the *Noise Study Report* (Illingworth & Rodkin 2016) and the *Noise Abatement Decision Report* (AECOM 2016l) completed in February 2016.

The existing noise environment throughout the project corridor varies by location, depending on site characteristics such as proximity of receptors to major roadways or other significant sources of noise, the relative base elevations of roadways and receptors, and the presence of any intervening structures or barriers. Noise-sensitive land uses in the project area include single-family and multi-family residences (Activity Category B) located along Hearn Avenue, Corby Avenue, Santa Rosa Avenue, and elsewhere in the interchange vicinity. The project area also includes a cemetery (Activity Category C) located east of US 101 between the freeway and Santa Rosa Avenue, and a hotel (Activity Category E) located west of US 101 on Corby Avenue. The land uses vary in their sensitivity to freeway and road noise and are ranked by activity category in Table 2.2.6-1. Noise abatement criteria for these land uses are listed by activity category in Table 2.2.6-1.

The study area contains an existing 16-foot-high masonry sound wall on the west side of US 101, between the southbound US 101 on-ramp from Baker Avenue (north of the project limits) to just north of the Hearn Avenue off-ramp (Barrier 1, shown in Figure 2.2.6-2). A second existing 16-foot-high noise barrier exists east of US 101, along the northbound US 101 on-ramp from Hearn Avenue and continuing north past the Wayside Gardens Mobile Home Park (Barrier 2, shown in Figure 2.2.6-2). A third existing 16-foot-high noise barrier is east of US 101 near the southern project limits (Barrier 3, shown in Figure 2.2.6-4).

#### **Noise Study**

In May and June 2015, noise measurements were conducted to document the noise environment at sensitive land uses within the project area. Measurements were made at locations throughout the project area and vicinity to represent a variety of uses. Each location is shown in Figures 2.2.6-2 through 2.2.6-4.

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

Existing noise levels were estimated to approach or exceed the NAC at four receptor locations, as described further in Section 2.2.6.3.

### **2.2.6.3 Environmental Consequences**

The project has been determined to be a Type I project (a new construction or reconstruction project) under the FHWA criteria. The following noise analysis meets the requirements for a Type I project (Illingworth & Rodkin 2016).

#### **Long-Term Noise**

This section describes the results of the noise impact assessment that was performed for the proposed project.

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

#### **Traffic Noise Modeling**

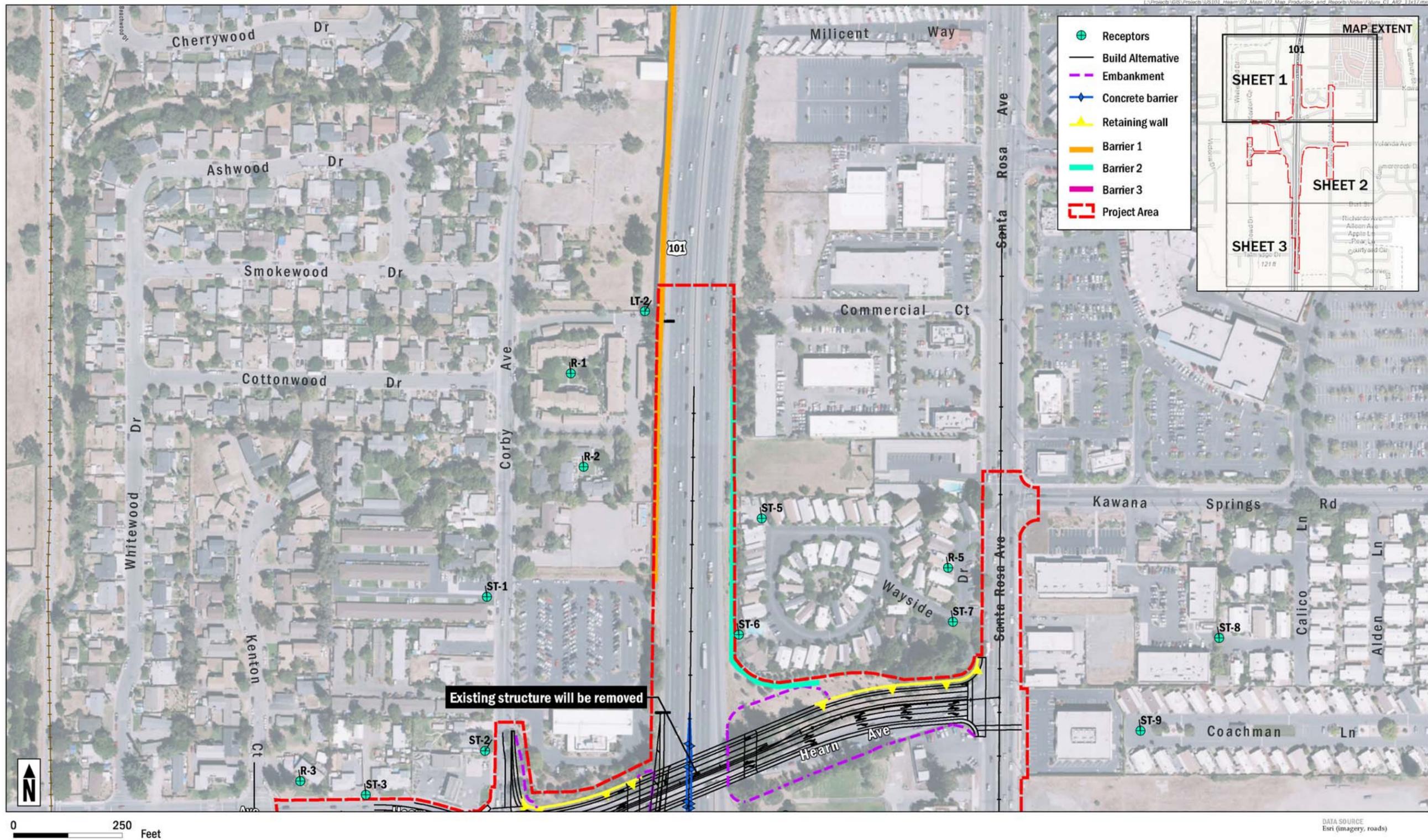
Traffic volume inputs for the traffic noise model were taken from the traffic projections provided by Fehr and Peers. US 101 is forecast to operate at LOS D or worse during peak hours under existing and design year conditions. Free-flowing capacity traffic conditions were used for the traffic noise modeling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

Traffic mix information reported by the Department was used for both existing and future scenarios expected by 2040. The average traffic mix for the US 101 mainline and ramps within the project study limits was 94.9 percent autos, 2.2 percent medium-duty trucks, and 2.9 percent heavy-duty trucks, based on truck percentages provided for the US 101 mainline. The average traffic mix for Hearn Avenue (94.5 percent autos, 5.5 percent medium-duty trucks, and 0 percent heavy-duty trucks), Santa Rosa Avenue (98.1 percent autos, 1.3 percent medium-duty trucks, and 0.5 percent heavy-duty trucks), and Corby Avenue (96.7 percent autos, 3.3 percent medium-duty trucks, and 0 percent heavy-duty trucks) were based on truck percentages observed during the noise monitoring survey.

All freeway traffic was modeled at 65 miles per hour (mph) for autos and light trucks, 60 mph for medium trucks and heavy trucks, and 45 mph for all on and off-ramps. Arterial roadways were modeled at the posted speed limits for the roadway: 35 mph for Hearn Avenue, Santa Rosa Avenue, and Corby Avenue.

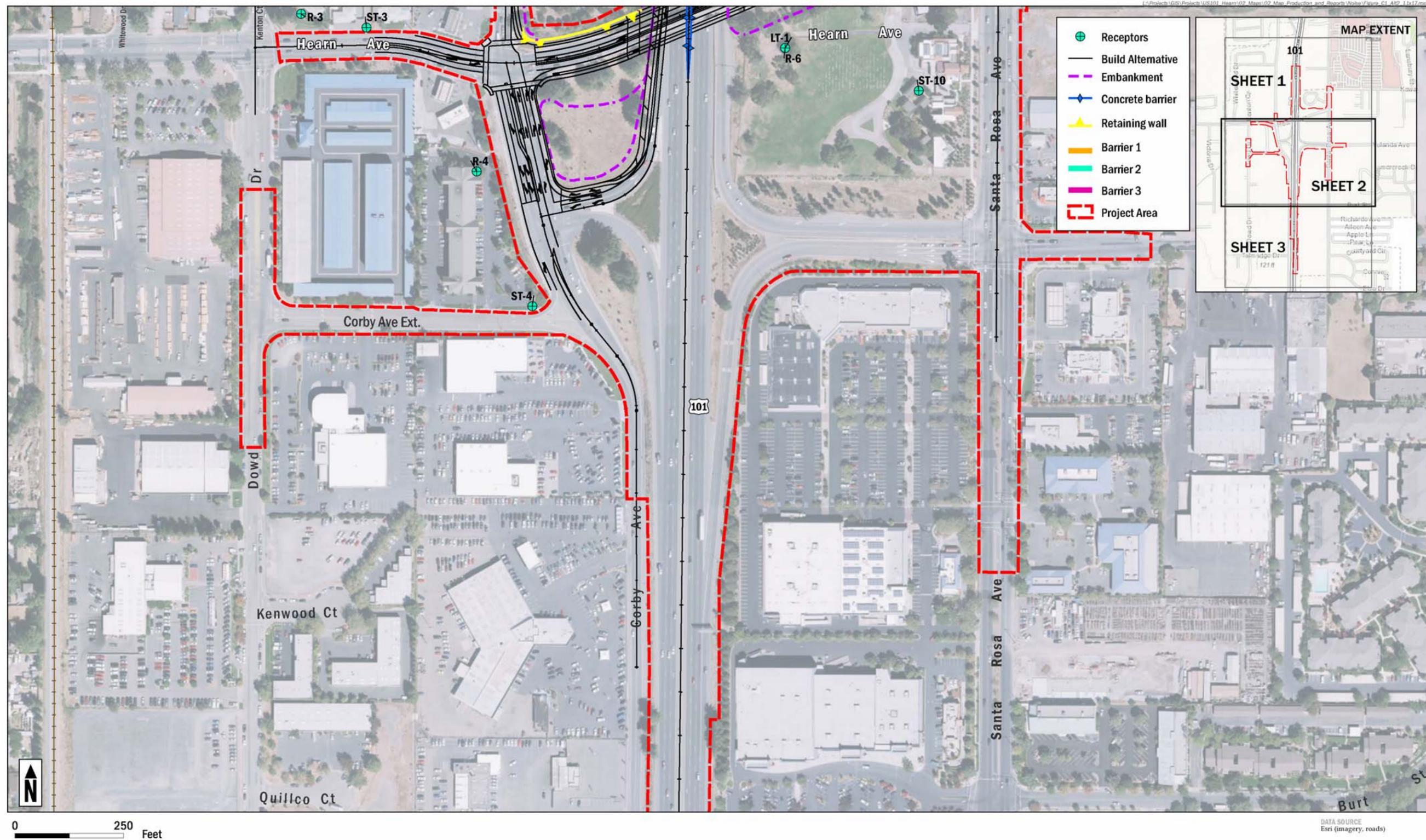
#### **Noise Level Predictions**

Noise levels were measured and projected for the opening year (2020) and the design year (2040) at 13 measurement locations (two long-term [LT] and 11 short-term [ST]) and six modeled receptor locations (R) throughout the project area. Each location is shown in Figures 2.2.6-2 through 2.2.6-4. Noise levels are based on the adjusted model results, using worst-case traffic conditions (in terms of noise generation) for the future No Build and Build Alternative.



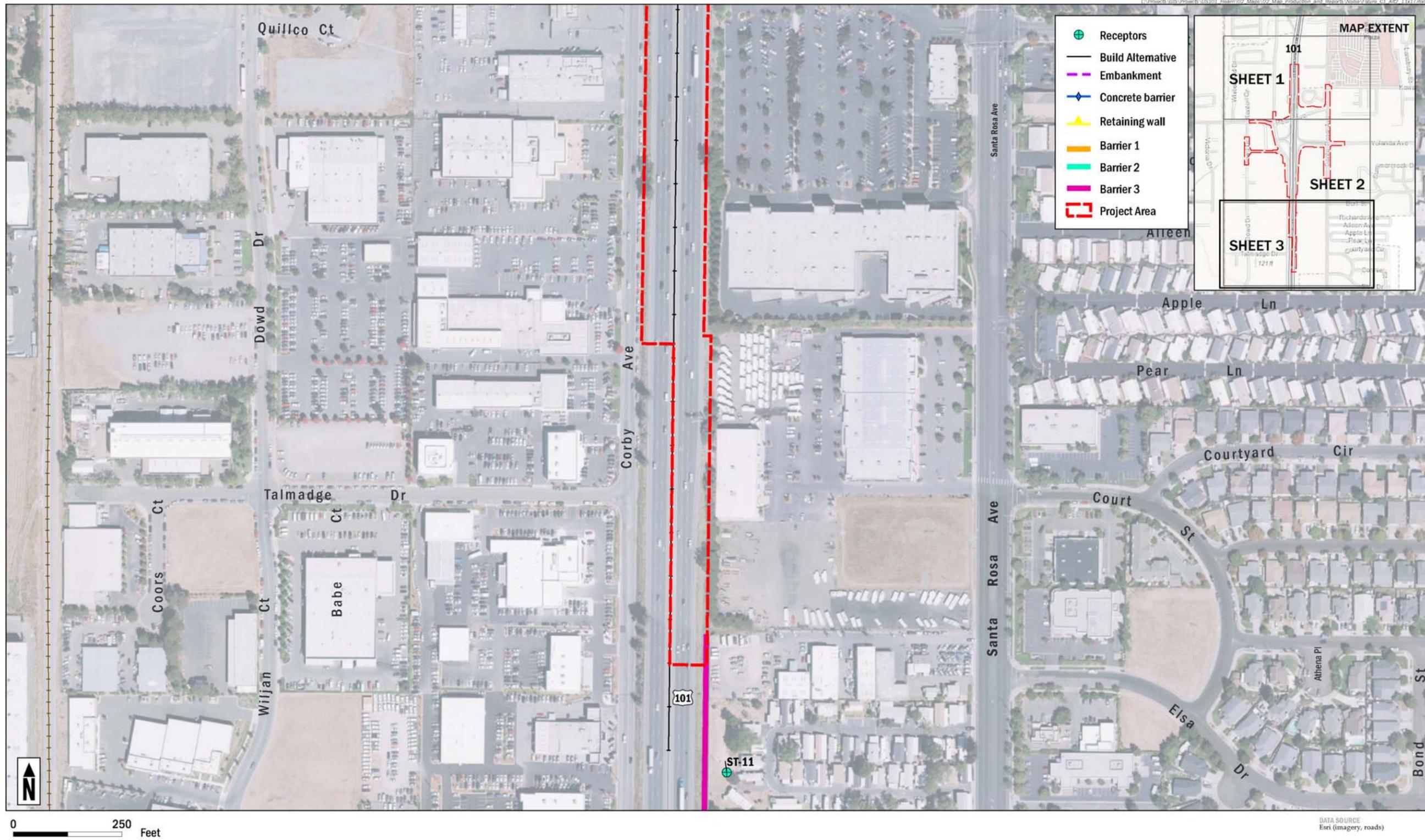
Source: Illingworth & Rodkin 2016

Figure 2.2.6-2: Noise Measurement Locations (Sheet 1 of 3)



Source: Illingworth & Rodkin 2016

Figure 2.2.6-3: Noise Measurement Locations (Sheet 2 of 3)



Source: Illingworth & Rodkin 2016

Figure 2.2.6-4: Noise Measurement Locations (Sheet 3 of 3)

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As shown in Table 2.2.6-2, the loudest-hour noise levels at measured and modeled receptors within the project area are calculated to range from 50 to 73 dBA  $L_{eq[h]}$ <sup>1</sup> under existing conditions and from 50 to 74 dBA  $L_{eq[h]}$  under 2040 No Build and 2040 Build conditions. Noise level increases over existing conditions range from 0 to 1 dB under the No Build and Build Alternatives. A 1 dB noise level increase is generally not perceptible and is not considered substantial with respect to the Department's Protocol (meaning it would be less than 12 dBA, as described in Section 2.2.6.1). However, some locations are predicted to experience noise levels that approach or exceed the NAC.

**Table 2.2.6-2: Modeled Noise Levels**

Receptor ID	Location	Loudest-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing, dBA		Activity Category (NAC)	Impact <sup>1</sup>
		Existing	2040 No Build	2040 Build	2040 No Build	2040 Build		
LT-2 <sup>2</sup>	Northeast corner of 2300 Corby Avenue	65	65	65	0	0	Calibration Point	None
R-1	Courtyard of 2300 Corby Avenue Apartments	54	55	55	1	1	B(67)	None
R-2	Outdoor area for homes on Corby Avenue, 2354 Corby Avenue	59	59	59	0	0	B(67)	None
ST-1	Side yard equivalent of 2425 Corby Avenue	67	67	67	0	0	B(67)	A/E
ST-2	In front of 2571 Corby Avenue	68	68	68	0	0	B(67)	A/E
ST-3	In front of 471 Hearn Avenue	73	74	74	1	1	B(67)	A/E
R-3	Front yard of residence, 577 Hearn Avenue	70	70	70	0	0	B(67)	A/E
ST-4	Southern parking lot of Extended Stay America hotel, 2600 Corby Avenue	67	67	67	0	0	Calibration Point	None
R-4	Façade exposure of Extended Stay America hotel, 2600 Corby Avenue	63	64	64	1	1	E (72)	None
ST-5	Wayside Gardens Mobile Home Park, 2389 Santa Rosa Avenue # 36	64	64	64	0	0	B(67)	None
ST-6	Pool area of Wayside Gardens Mobile Home Park, 2389 Santa Rosa Avenue	62	63	63	1	1	B(67)	None
ST-7	Entrance to Wayside Gardens Mobile Home Park, 2389 Santa Rosa Avenue	64	65	65	1	1	Calibration Point	None
R-5	Wayside Gardens Mobile Home Park residences, 2389 Santa Rosa Avenue	63	64	64	1	1	B(67)	None

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

**Table 2.2.6-2: Modeled Noise Levels**

Receptor ID	Location	Loudest-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase Over Existing, dBA		Activity Category (NAC)	Impact <sup>1</sup>
		Existing	2040 No Build	2040 Build	2040 No Build	2040 Build		
ST-8	End of Calico Lane (near 2333)	50	50	50	0	0	B(67)	None
ST-9	End of Coachman Lane <sup>3</sup> (near 107)	50	51	51	1	1	B(67)	None
LT-1 <sup>2</sup>	Chapel of the Chimes Cemetery, 2601 Santa Rosa Avenue	67	68	68	1	1	Calibration Point	None
R-6	Chapel of the Chimes Cemetery, 2601 Santa Rosa Avenue	65	65	65	0	0	C(67)	None
ST-10	Mausoleum area, Chapel of the Chimes Cemetery, 2601 Santa Rosa Avenue	55	56	56	1	1	C(67)	None
ST-11	Sunset Park Community, 2963 Santa Rosa Avenue	60	60	60	0	0	B(67)	None

<sup>1</sup> Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC.

<sup>2</sup> Long-term noise measurement locations LT-1 and LT-2 were made at heights of 12 feet above ground level and were conducted to measure the diurnal trends in noise levels along US 101, establish the peak traffic noise hour, and calibrate the noise model and short-term measurements. The long-term measurement locations have no outdoor areas of frequent human use where receptors would be exposed to the noise levels at this height. Therefore, no noise impact is identified for LT-1.

<sup>3</sup> Some maps show this as Squire Lane.

**No Build Alternative.** The No Build Alternative would make no physical or operational changes to the project area that would affect noise levels. Noise abatement for locations where noise levels already approach or exceed the NAC would not be considered for this alternative.

**Build Alternative.** Year 2040 noise levels under the Build Alternative are predicted to approach or exceed the NAC at four locations: first-row residential receptors along Hearn Avenue and Corby Avenue (ST-1, ST-2, ST-3, and R-3 as shown in Figure 2.2.6-2). The primary noise source at these residences is traffic along Hearn Avenue or Corby Avenue. These residences are not shielded by existing sound walls. However, new sound walls located along Hearn Avenue and Corby Avenue would block driveway access to these residences and would therefore not be considered feasible. In addition, due to the location of these receptors directly on Hearn Avenue and Corby Avenue, a sound wall along US 101 would not substantially reduce noise levels. Residences are not considered to be Category D indoor uses. Therefore, further noise abatement is not assessed for exterior or interior uses at these locations. No other traffic noise impacts from this project are anticipated.

#### **Short-Term (Construction) Noise**

**No Build Alternative.** The No Build Alternative would not result in construction; therefore, no short-term noise impacts would occur.

**Build Alternative.** Industrial and commercial land uses surround the project area. Noise-sensitive land uses that are located within 500 feet of project construction activities include residences west of US 101 along Hearn Avenue and Corby Avenue (LT-2, ST-1, ST-2, ST-3, R-1, R-2, and R-3; shown in Figure 2.2.6-2), residences in the Wayside Gardens Mobile Home

Park (ST-5, ST-6, ST-7, and R-5; shown in Figure 2.2.6-2), residences east of Santa Rosa Avenue (ST-8 and ST-9; shown in Figure 2.2.6-2), the Chapel of the Chimes Cemetery (LT-1, R-6, and ST-10; shown in Figure 2.2.6-3), and the Extended Stay America hotel (ST-4 and R-4; shown in Figure 2.2.6-3). Sunset Park Community mobile homes (ST-11; shown in Figure 2.2.6-4) would be well over 500 feet from the nearest project construction activities.

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

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

The nearest homes in Wayside Gardens Mobile Home Park would be as close as about 200 feet from proposed pile driving activities under the Build Alternative. These residences are shielded by an existing 16-foot-high sound wall. The primary noise source from pile driving activities is the contact between the hammer and the pile. The existing sound wall would reduce the pile driving noise by an estimated 5 dB, assuming that the top of the wall would break the line of sight between the pile driving strikes and the residences. At a distance of 200 feet, maximum noise levels during pile driving would be 84 dBA  $L_{max}^2$  and 74 dBA  $L_{max}$ , respectively, taking into account the noise reduction provided by the sound wall.

Receptors at the Extended Stay America hotel and residences nearest the Hearn Avenue and Corby Avenue intersection, located between 300 and 600 feet from proposed pile driving, would be exposed to maximum noise levels during pile driving ranging from 79 to 83 dBA  $L_{max}$ .

Maximum noise levels at the Chapel of the Chimes Cemetery mausoleum would be about 73 dBA  $L_{max}$  under the Build Alternative, assuming an insertion loss of about 10 dB due to the mausoleum walls.

Motorists, pedestrians, and bicyclists would be within 100 feet of construction activities while passing through the project area. Table 2.2.6-3 shows the noise levels anticipated for each construction phase for the Build Alternative at 100 feet.

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<sup>2</sup> Maximum Sound Level ( $L_{max}$ ) is a descriptor for the highest instantaneous sound level measured during a specified period.

**Table 2.2.6-3: Noise Levels by Construction Phase at 100 Feet**

<b>Construction Phase</b>	<b>Maximum Noise Level (<math>L_{max}</math>, dBA)</b>	<b>Hourly Average Noise Level (<math>L_{eq[h]}</math>, dBA)</b>
Demolition	84	78
Earthwork	76	78
Paving	79	79
Structures (with Pile Driving)	95	89
Structures (without Pile Driving)	77	78

Nighttime pile driving could exceed the absolute noise level limits established by the Department for nighttime hours. Measures to minimize or reduce construction noise are described in Section 2.2.6.4.

### **CEQA Noise Analysis**

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

The noise analysis described in Section 2.2.6.3 considered the noise setting of several receptor locations in the project area, which are identified by development type in Section 2.2.6.3 and by specific location in Figures 2.2.6-2 through 2.2.6-4. The analysis found that the differences between the baseline noise level and Build noise level ranged from 0 to 1 dB. An increase of 1 dB is considered to be barely perceptible to the human ear. Therefore, under CEQA, changes in traffic noise from the project would not result in a significant impact. (As described in Section 2.2.6.4, however, noise abatement has been considered under NEPA and 23 CFR 772.)

### **2.2.6.4 Avoidance, Minimization, and Abatement Measures**

#### **Traffic Noise Abatement Evaluation**

Receptors that exceed either state or federal thresholds must be evaluated for potential abatement measures. Noise abatement is considered only where frequent human use occurs and where a lowered noise level would be of benefit. Noise abatement must be predicted to provide at least a 5-decibel (dB) minimum reduction at an impacted receptor to be considered feasible by the Department (i.e., the barrier would provide a noticeable noise reduction). Additionally, the Protocol acoustical design goal states that the noise barrier must provide at least 7 dB of noise reduction at one or more benefited receptors. Noise abatement measures that provide noise reduction of more than 5 dB are encouraged as long as they meet the reasonableness guidelines. The cost is based on the 2016 allowance per benefited receptor of \$80,000.

As stated in Section 2.2.6.3, future (2040) noise levels with the project are predicted to approach or exceed the NAC at first-row residential receptors along Hearn Avenue and Corby Avenue (ST-1, ST-2, ST-3, and R-3, shown in Figure 2.2.6-2). The primary noise source at these residences is traffic along Hearn Avenue or Corby Avenue. These residences are not shielded by existing sound walls. However, constructing new sound walls along Hearn Avenue and Corby

Avenue would block driveway access to these residences and would therefore not be considered feasible. Constructing a new sound wall along US 101 to the east of these receptors would not substantially reduce noise levels because the primary noise source is traffic along Hearn Avenue or Corby Avenue. Residences are not considered to be Category D indoor uses. Therefore, further noise abatement is not assessed for exterior or interior uses at these locations. However, the final decision on the noise abatement will be made upon completion of the project design and the public involvement processes.

### **Short-Term (Construction) Noise**

Standard Department measures that are used for all projects include that construction noise shall not exceed a maximum sound level of 86 dBA at 50 feet from job site activities between the hours of 9:00 PM to 6:00 AM. The following standard measures will also be implemented to minimize or reduce the potential for noise impacts from project construction:

- Limit pile driving activities to between 7:00 AM to 7:00 PM, where feasible
- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment
- Prohibit unnecessary idling (i.e., greater than 5 minutes in duration) of internal combustion engines within 100 feet of residences
- Avoid staging of construction equipment within 200 feet of residences and locate all stationary noise-generating construction equipment, such as air compressors, portable power generators, or self-powered lighting systems as far as practical from noise-sensitive receptors
- Utilize "quiet" air compressors and other "quiet" equipment where such technology exists

## 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.

The project area does not include any habitat areas that have been designated as critical habitat under the Federal Endangered Species Act (FESA). Wetlands and other waters are discussed below in Section 2.3.2.

#### 2.3.1.1 Affected Environment

This section is summarized from the *Natural Environment Study–Minimal Impacts* (AECOM 2016m) for the project, which was completed in March 2016.

The project area lies along US 101 between post miles 17.9 and 18.6 in Sonoma County, California, at an elevation of approximately 134 feet above sea level. The area is located in the Santa Rosa Plain, which is bordered by Laguna de Santa Rosa to the west and south, the foothills of Hood Mountain to the east, and the Russian River to the north. The U.S. Department of Agriculture’s Natural Resources Conservation Service (NRCS) Soil Survey describes native soils of the area as Wright loam (NCRS 2015), which belongs to Hydrologic Soil Group D, described as consisting “chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface and shallow soils over nearly impervious material” (Purdue 2013). The Santa Rosa Plain supports vernal pool, wetland, and grassland habitat, but the area has been largely degraded as a result of urban and rural development over the last century.

The Santa Rosa Plain experiences a typical Mediterranean climate with cool, wet winters and warm, dry summers. During the winter, average rainfall at the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center’s Santa Rosa station is 5 to 6 inches per month (December through February) (Menne et al. 2015). The wettest year on record for this station was 1983, when rainfall totaled 63 inches, while the driest year was 1976, when it rained less than 12 inches. There has been one snow event since the station’s inception in 1931. Monthly average temperatures range from 47 to 67 degrees Fahrenheit (°F), with summer temperatures reaching as high as 110°F and winter temperatures falling as low as 15°F.

A biological study area (BSA) was established to evaluate the effects of the proposed project on natural communities and other biological resources. The BSA is approximately 43 acres and includes areas that could be directly and indirectly affected by the proposed project. It corresponds with the project area shown in Figure 1.1-1. The BSA was surveyed on April 8, 2015 to document the potential effects of the proposed project on natural resources. The survey included all accessible areas inside the BSA except three interchanges that lacked space to safely park a car or routes to access by foot. They include the following areas:

- The triangular area bordered by southbound US 101, the southbound US 101 off-ramp to Corby Avenue, and the southbound US 101 on-ramp from Corby Avenue.
- The teardrop-shaped area between Corby Avenue and the southbound US 101 on-ramp from Corby Avenue.
- The triangular area bordered by northbound US 101, the northbound US 101 on-ramp from Yolanda Avenue, and the northbound US 101 off-ramp to Yolanda Avenue.

While these areas were surveyed using binoculars and by reviewing resources such as technical documents (including engineering and hydrology technical reports, topographic contour maps, and aerial imagery), it was not possible to survey these areas as thoroughly as areas that were accessible by foot.

The BSA is in the study area for the Santa Rosa Plain Conservation Strategy, a conservation program intended to contribute to the recovery of the California tiger salamander (*Ambystoma californiense*) Sonoma County distinct population segment, Burke's goldfields (*Lasthenia burkei*), Sonoma sunshine (*Blennosperma bakeri*), Sebastopol meadowfoam (*Limnanthes vinculans*), many-flowered navarretia (*Navarretia leucocephala* ssp. *plieantha*), and their habitat (Goude et al. 2005). The Santa Rosa Plain Conservation Strategy identifies the BSA as "already developed (no potential for impact)" (CDFG 2005a).

In 2008, a low-effect habitat conservation plan was approved by the USFWS for the construction of a community school located at 3255 Dutton Avenue, approximately 0.75 mile south-southwest of the project area. The plan does not apply to the project area.

No natural community conservation plans are in effect in Sonoma County (CDFW 2014).

### **Vegetation Communities**

Vegetation within the project area consists exclusively of previously disturbed areas; all vegetation is within urban landscaped areas and features hydro-seeded or planted species. Ruderal and non-native species, as well as native species, are present within the BSA. Aerial imagery indicates that portions of the Department right-of-way areas within the project area are periodically mowed, and that other areas on private property are subject to regular landscaping maintenance. Prominent grass and forb species include: wild oats (*Avena* sp.), Italian ryegrass (*Festuca perennis*), mustard (*Brassica* sp.), ribwort (*Plantago lanceolata*), wild lettuce (*Lactuca* sp.), Harding grass (*Phalaris aquatica*), pampas grass (*Cortaderia jubata*), cutleaf geranium (*Geranium dissectum*), common mallow (*Malva neglecta*), and annual lupine (*Lupinus bicolor*, a California native species). In addition to several species of ornamental hedges and planted rose bushes (*Rosa* sp.), shrub species naturalized to the project area include Himalayan blackberry (*Rubus discolors*) and coyote brush (*Baccharis pilularis*, a California native species).

### **Trees**

Trees in the project area primarily consist of urban street trees and urban landscaping, including trees on private property and trees within the Department right-of-way. Twenty-two species of trees were observed, including six species native to California. Four species of trees found within the project area are protected under City and Sonoma County ordinances: coast redwood

(*Sequoia sempervirens*), blue oak (*Quercus douglasii*), coast live oak (*Quercus agrifolia*), and valley oak (*Quercus lobate*).

### **Migratory Corridors and Fish Passage**

No wildlife migratory corridors exist in the BSA. High rates of traffic around the project area likely impede wildlife movement and contribute to traffic-related wildlife mortality. US 101 and other major roads surrounding the project area (i.e., Hearn Avenue, Yolanda Avenue, Corby Avenue, and Santa Rosa Avenue) are likely significant dispersal barriers that prevent or limit small mammals and amphibians from entering the project area.

No fish-bearing streams exist in the BSA. As noted in Section 1.4.1, Colgan Creek is the water body closest to the project area. It crosses under US 101 approximately 0.4 mile north of the Hearn Avenue overcrossing and crosses under Hearn Avenue approximately 0.3 mile west of US 101. Runoff from the project area currently discharges to Colgan Creek west of US 101 and would continue to do so with the project (Section 2.2.1.2).

### **2.3.1.2 Environmental Consequences**

#### **No Build Alternative**

The No Build Alternative would not affect vegetation or migratory corridors and fish passage.

#### **Build Alternative**

##### **Vegetation Communities**

Construction activities associated with the Build Alternative would have temporary and permanent impacts to ruderal and landscaped vegetation within the BSA. The Build Alternative would not have any temporary or permanent impacts to a natural community of concern.

##### **Trees**

Approximately 202 trees were identified in the BSA with a diameter at breast height greater than 6 inches. The Build Alternative has the potential affect up to 134 trees with a diameter at breast height of 6 inches or more. The exact number and location of trees that would be affected as a result of the proposed project would be determined during final project design.

### **Migratory Corridors and Fish Passage**

No wildlife migratory corridors or fish-bearing streams exist in the BSA. The project would not directly or indirectly affect fish species or habitat. The project does not include work in or near Colgan Creek, although project area runoff would discharge to the creek west of US 101 (Section 2.2.1.2).

### **2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures**

- Landscaped trees within the State right-of-way that will be removed or damaged during project construction will be replaced in kind, where feasible given water availability and space.

- Trees protected under City of Santa Rosa and Sonoma County ordinances and native trees within the City or County right-of-way that will be removed or damaged during project construction will be replaced or mitigated in compliance with the applicable City and Sonoma County codes and ordinances, including City Code 17-24.050.
- Other trees outside of the State right-of-way will be mitigated in compliance with the applicable city and county codes and ordinances.

## 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 USC 1344), is the primary law regulating wetlands and waters. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

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

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

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

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

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

Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

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

### **2.3.2.2 Affected Environment**

This section is summarized from the *Natural Environment Study–Minimal Impacts* (AECOM 2016m) for the project, which was completed in March 2016.

A preliminary wetland delineation was conducted during the April 2015 site visit to identify potentially jurisdictional wetlands and other waters of the U.S. subject to regulation under Section 401 and Section 404 of the Federal Clean Water Act and Section 1602 of the California Fish and Game Code. Potentially jurisdictional wetlands and other waters of the U.S. were mapped on location using a sub-meter accuracy global positioning system unit and their recorded dimensions analyzed with ArcGIS professional mapping software. In areas inaccessible during the site visit, potentially jurisdictional features were reported using a combination of field observations, engineering and hydrological technical reports, topographic contour maps provided by the Department, as well as interpretation of aerial imagery of the project area from 1965 to 2015.

Approximately 0.23 acre of potentially jurisdictional waters of the U.S. was delineated in the BSA (Table 2.3.2-1). The jurisdictional features include 0.01 acre of USACE jurisdictional wetlands and 0.22 acre of other waters of the U.S., all of which occur within engineered roadside drainage ditches. Culverts connect to portions of these ditches; however, no culverted waters of the U.S. were delineated due to safety-related access limitations. No jurisdictional features that fall exclusively within state jurisdiction (e.g., features that would be under state but not federal jurisdiction) were mapped within the project area.

### **2.3.2.3 Environmental Consequences**

#### **No Build Alternative**

The No Build Alternative would not affect wetlands or other waters of the U.S.

#### **Build Alternative**

Construction of the new Hearn Avenue overcrossing, widened southbound off-ramp, and retaining walls and embankments has the potential to permanently affect up to 0.01 acre of wetlands and up to 0.22 acre of other waters of the U.S. This is based on the conservative assumption that all engineered roadside drainage ditches in the project area would be permanently affected.

Construction of the new overcrossing, widened southbound off-ramp, and retaining walls and embankments would also require replacement of some culverts. The culverts are anticipated to be replaced near their current locations, within the new proposed right-of-way.

**Table 2.3.2-1: Potential Jurisdictional Waters of the U.S. in the BSA**

Jurisdictional Feature	Area (square feet)	Area (acres)
<i>Wetlands (WL)</i>		
WL 1	445	0.01
WL 2	187	< 0.01
<b>Wetland Total</b>	<b>632</b>	<b>0.01</b>
<i>Other Waters of the U.S. (OWUS)</i>		
OWUS 1	552	0.01
OWUS 2	3,321	0.09
OWUS 3	925	0.02
OWUS 4	157	< 0.01
OWUS 5	67	< 0.01
OWUS 6*	333	< 0.01
OWUS 7*	4,292	0.01
<b>Other Waters Total</b>	<b>9,647</b>	<b>0.22</b>
<b>TOTAL</b>	<b>10,279</b>	<b>0.23</b>

\* Features reported from interchange areas that were inaccessible during April 2015 site visit; methodology of collecting preliminary dimensions of these features is described in Section 3.2.3 of the Natural Environment Study-Minimal Impacts (AECOM 2016m).

Construction activities could result in temporary impacts to water quality. The implementation of the measures described in Section 2.2.2.4 and 2.3.2.4 would serve to avoid and minimize these impacts.

#### **2.3.2.4 Avoidance and Minimization Measures**

Pursuant to the Federal Clean Water Act, the California Fish and Game Code, and other environmental regulations, the Department will incorporate the following construction BMPs into the proposed project to reduce effects to sensitive biological resources. These BMPs will be communicated to the contractor through the use of standard special provisions in the bid solicitation package:

1. All temporarily impacted waters will be graded and restored to their pre-project conditions. Permanent impacts, in the form of new or modified culverts and roadside ditches, would be constructed to closely resemble or improve upon the pre-project conditions, wherever possible.
2. No ground-disturbing activities will be conducted outside the project area.
3. Site-appropriate erosion control measures, such as silt fencing, will be installed to prevent sediment and pollutant discharges to state and federal waters and wetlands or storm drains.
4. Temporary erosion control measures, such as installation of coir wattles or coir matting, will be implemented on all disturbed areas. Plastic monofilament netting will not be used as

wildlife may become trapped or injured by the netting, and plastic residues and particles contribute to soil and water pollution.

5. Permanent erosion control measures will be implemented upon completion of construction. All disturbed areas will be revegetated with appropriate native, non-invasive species or non-persistent hybrids that will serve to stabilize site conditions.
6. The Contractor will write a Storm Water Pollution Prevention Plan, the Department will approve it, and it will be implemented to minimize water pollution during project construction.
7. Maintenance and refueling areas for equipment will be kept a minimum of 50 feet from drainage ditches and only on designated disturbed/developed areas where accidental spills can be contained immediately. All equipment shall be refueled with appropriate drip pans, absorbent pads, and water quality BMPs. Equipment and vehicles operating in the project area shall be checked and maintained daily to prevent leaks of fuels, lubricants, or other liquids.
8. Spill containment booms will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.

#### **2.3.2.5 Mitigation Measures**

The project is expected to require a Section 404 permit from the USACE and a Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board. If the minimization and avoidance measures listed in Section 2.3.2.4 are not sufficient to ensure that the adverse effects to the aquatic environment are minimal, other forms of mitigation (rectifying or compensating) may also be used.

### 2.3.3 Animal Species

#### 2.3.3.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The USFWS, NOAA Fisheries and CDFW are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Acts. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.3.2 below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

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

#### 2.3.3.2 Affected Environment

This section is summarized from the *Natural Environment Study–Minimal Impacts* (AECOM 2016m) for the project, which was completed in March 2016.

The project area is highly disturbed and completely surrounded by urban development and therefore provides only marginal habitat for wildlife. All wildlife species observed in the project area were identified by direct observation or recognized by diagnostic signs (e.g., scat, nests, burrows, etc.). Wildlife observed in the project area during the site visit included American crow (*Corvus brachyrhynchos*), hairy woodpecker (*Leuconotopicus villosus*), black phoebe (*Sayornis nigricans*), European starling (*Sturnus vulgaris*), turkey vulture (*Cathartes aura*), Anna’s hummingbird (*Calypte anna*), Eurasian collared dove (*Streptopelia decaocto*), California towhee (*Melospiza crissalis*), house finch (*Haemorhous mexicanus*), and house sparrow (*Passer domesticus*). Western scrub jay (*Aphelocoma californica*), western fence lizard (*Sceloporus occidentalis*), and juvenile alligator lizard (*Elgaria* sp.) were observed directly adjacent to, although not within, the project area.

#### **Special-Status Birds**

Two special-status species identified in the California Natural Diversity Database (CNDDB) and USFWS database searches—the Cooper’s hawk (*Accipiter cooperii*), a species on the California Watch List, and the white-tailed kite (*Elanus leucurus*), a California fully protected species—

have the potential to occur in the project area. The USFWS and NOAA Fisheries species lists are included in Appendix D.

1. **Cooper's Hawk.** The Cooper's hawk occurs in forests, woodlands, and rural and urban areas provided trees are present. Nests are constructed in trees 25 to 50 feet above ground and breeding occurs between March and July (Chiang et al. 2012). Cooper's hawks primarily prey on medium-sized birds.
2. **White-Tailed Kite.** The white-tailed kite is a year-round resident of grassland, agricultural field, oak woodland, savannah, and riparian habitats in rural and urban areas of central and coastal California. White-tailed kites build nests in tall trees between 20 and 100 feet above ground and breed between February and July (CDFG 2005b). Breeding occurs in a variety of habitats where prey—typically small mammals, reptiles, and occasionally birds—is abundant (Baicich and Harrison 2005). There is one CNDDDB occurrence of the white-tailed kite within 2 miles of the project area. This observation was made on May 20, 2003, when two adults were observed approximately 900 feet west of the project area performing courtship and nesting activities. No nests were observed.

Neither Cooper's hawks nor white-tailed kites were observed during the site visit on April 8, 2015, and there was no evidence of their potential presence in the project area. The project area contains tall trees that could potentially provide nesting habitat for these birds. The project area also contains potential hunting and foraging habitat; medium-sized birds were observed in the project area, and there were patches of grasses and forbs with evidence of use by small mammals and reptiles. Although suitable habitat is present in the project area, the potential for special-status birds to nest and forage in the project area is low due to the high level of vehicular traffic and human disturbance around the project area. Consultation with CDFW on white-tailed kite, a CDFW fully protected species, is not anticipated.

### **Migratory Birds**

In addition to the two bird species of special concern, most bird species in California fall under the protection of the Migratory Bird Treaty Act (MBTA) and Section 3513 of the California Fish and Game Code. Several such species were observed during the site visit including American crow, hairy woodpecker, black phoebe, turkey vulture, California towhee, house finch, and western scrub jay. In addition, two potentially active nests and one inactive nest were found within the project area, and three potentially active nests and one confirmed active nest were observed directly adjacent to the project area. The project area contains suitable nesting habitat (in trees and potentially on the Hearn Avenue overcrossing) and potential foraging habitat for migratory birds.

### **2.3.3.3 Environmental Consequences**

#### **No Build Alternative**

The No Build Alternative would not affect animal species in the project area.

#### **Build Alternative**

The project area is immediately adjacent to US 101, where the dominant source of noise is existing freeway traffic. Most project construction activities would exceed ambient daytime noise levels by 5 to 10 dBA (on average over an hour-long period). Some construction activities,

such as pile driving, could produce substantially higher noise levels of up to 95 dBA at 100 feet from the noise source. Construction-related noise has the potential to negatively affect nesting birds. The avoidance, minimization, and/or mitigation measures in Section 2.3.3.4 would reduce the potential for construction noise to affect to nesting birds.

Project-related activities are not expected to affect areas outside of the project area. Ground-disturbing activities will not occur outside of the project area. Wildlife habitat in the project area is marginal; therefore project activities will not affect wildlife. Construction-related noise may extend outside of the project area, but it is unlikely to affect wildlife outside of the project area due to the urban nature of the surrounding community.

Project construction activities (which would include pile driving and construction of a bridge section, abutments, retaining walls, and concrete median barriers) would require soil disturbance and tree and vegetation removal and would produce temporary construction-related noise and nighttime lighting. Tree removal could affect nesting Cooper's hawks, white-tailed kites, or other migratory birds. Soil disturbance and vegetation removal could reduce the abundance of prey within the project area. Noise and nighttime lighting could contribute to behavioral changes in nesting or foraging. The measures in Section 2.3.3.4 would minimize the impacts of project construction on Cooper's hawks, white-tailed kites, and other migratory birds.

#### **2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures**

To ensure compliance with the MBTA and California Fish and Game Code Sections 3503, 3511, and 3513, the following avoidance and minimization measures will be implemented:

1. Preconstruction surveys will be conducted by a Caltrans approved biologist no more than three days prior to the start of construction for activities (including vegetation removal, clearing, or cutting) occurring during the nesting season (January 15 to September 1).
2. If active raptor nests are found within 300 feet of the vicinity of the limits of construction work, or if active passerine nests are found within 50 feet, a non-disturbance buffer will be established at a distance sufficient to minimize nest/roost disturbance based on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential disturbance. Buffer size should be determined in cooperation with CDFW and USFWS.
3. If rescheduling work around active raptor or passerine nests/roosts is infeasible, a qualified biologist will monitor nests for signs of disturbance. If it is determined that project activities are resulting in nest/roost disturbance, work will cease immediately, and the CDFW and the USFWS will be contacted.

## **2.3.4 Invasive Species**

### **2.3.4.1 Regulatory Setting**

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

### **2.3.4.2 Affected Environment**

This section is summarized from the *Natural Environment Study–Minimal Impacts* (AECOM 2016m) for the project, which was completed in March 2016.

The BSA supports a number of non-native species. Some of these species are invasive (that is, species that are not indigenous to the area where they are found and adversely affect the habitat in that area). Invasive species in the BSA are those designated as high risk by the California Invasive Plant Council, including pampas grass (*Cortadeira selloana*). There are also species in the BSA that are nonnative but not invasive, including Himalayan blackberry (*Rubus discolors*).

### **2.3.4.3 Environmental Consequences**

#### **No Build Alternative**

The No Build Alternative would not introduce invasive species into the project area.

#### **Build Alternative**

None of the identified species on the California list of noxious weeds is used by the Department for erosion control or landscaping. However, project construction activities have the potential to inadvertently spread these species.

### **2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures**

In compliance with the Executive Order on Invasive Species, EO 13112, and guidance from the Federal Highway Administration, the landscaping and erosion control included in the project will not use species listed as invasive. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

## 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.

California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under the National Environmental Policy Act (NEPA) can be found in 40 CFR, Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations.

### 2.4.2 Cumulative Impact Analysis

The cumulative impact analysis focuses on the resources that the project may affect. According to the Department's eight-step approach for developing a cumulative impact analysis, if the project would not result in impacts on a resource, it could not contribute to a cumulative impact. The impact used in the cumulative impact analysis is the *net impact*: the project impact minus proposed avoidance, minimization, and/or mitigation measures. For resource areas where the impact will be fully offset by the proposed avoidance, minimization, and/or mitigation measures, the project would not contribute to cumulative impacts.

The proposed project would not have net impacts on any resources. All potential impacts will be minimized through the proposed avoidance, minimization, and/or mitigation measures presented in Chapter 2. Because no impacts have been identified as potentially significant, the project would not result in cumulative impacts.

## 2.5 Climate Change (CEQA)

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF<sub>6</sub>), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles) make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO<sub>2</sub>, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: “Greenhouse Gas Mitigation” and “Adaptation.” “Greenhouse Gas Mitigation” is a term for reducing GHG emissions to reduce or “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 levels).<sup>3</sup>

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing activity, 3) transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective all four strategies should be pursued cooperatively.<sup>4</sup> The following Regulatory Setting section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

### 2.5.1.1 Regulatory Setting

#### **State**

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and proactive approach to dealing with GHG emissions and climate change.

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

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<sup>3</sup> [http://climatechange.transportation.org/ghg\\_mitigation/](http://climatechange.transportation.org/ghg_mitigation/)

<sup>4</sup> [http://www.fhwa.dot.gov/environment/climate\\_change/mitigation/](http://www.fhwa.dot.gov/environment/climate_change/mitigation/)

Executive Order S-3-05 (June 1, 2005): The goal of this EO is to reduce California's GHG emissions to 1) year 2000 levels by 2010, 2) year 1990 levels by 2020, and 3) 80 percent below the year 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill 32, Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (CalEPA) 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 EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

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

Senate Bill 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board (CARB) to set regional emissions reduction targets from passenger vehicles. The MPO for each region must then develop a "Sustainable Communities Strategy" (SCS) 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 AB 32.

### **Federal**

Although climate change and GHG reduction are a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the USEPA nor the FHWA has explicit guidance or methods to conduct project-level GHG analysis; to date, no national standards have been established regarding mobile source GHGs, nor has USEPA established any ambient standards, criteria or thresholds for GHGs resulting from mobile sources. FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process—from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

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 EO 13514 - *Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

USEPA’s authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court’s ruling, USEPA finalized an endangerment finding in December 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 USEPA’s assessment of the scientific evidence that form the basis for USEPA’s regulatory actions. USEPA in conjunction with NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.<sup>5</sup>

The USEPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On August 28, 2012, USEPA and NHTSA issued a joint Final Rulemaking to extend the national program for of coordinated greenhouse gas and fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of GHG emissions.

The complementary USEPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and

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<sup>5</sup> <http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq>

vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO<sub>2</sub> emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

### **2.5.1.2 Project Analysis**

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of GHG.<sup>6</sup> In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented (see Figure 2.5.1-1). The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

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

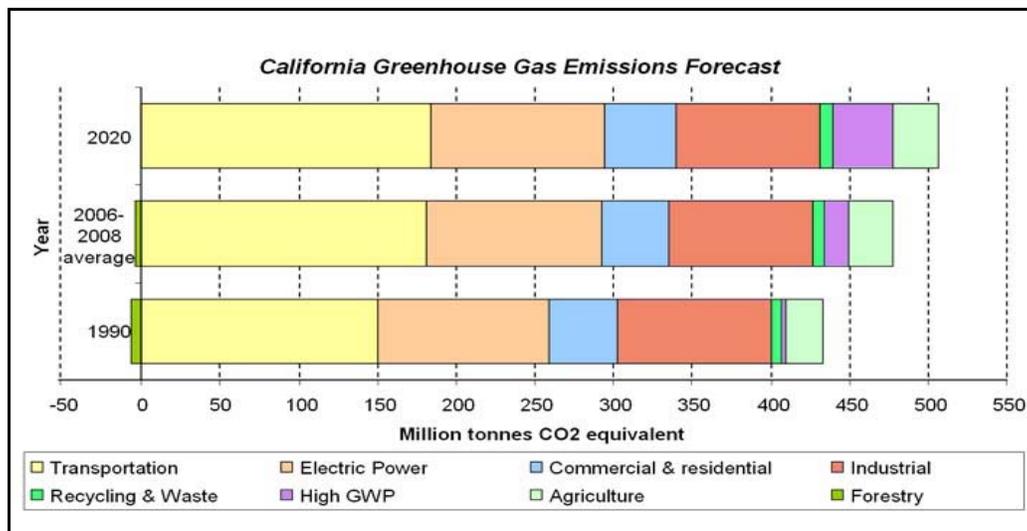


Figure 2.5.1-1: California Greenhouse Gas Forecast

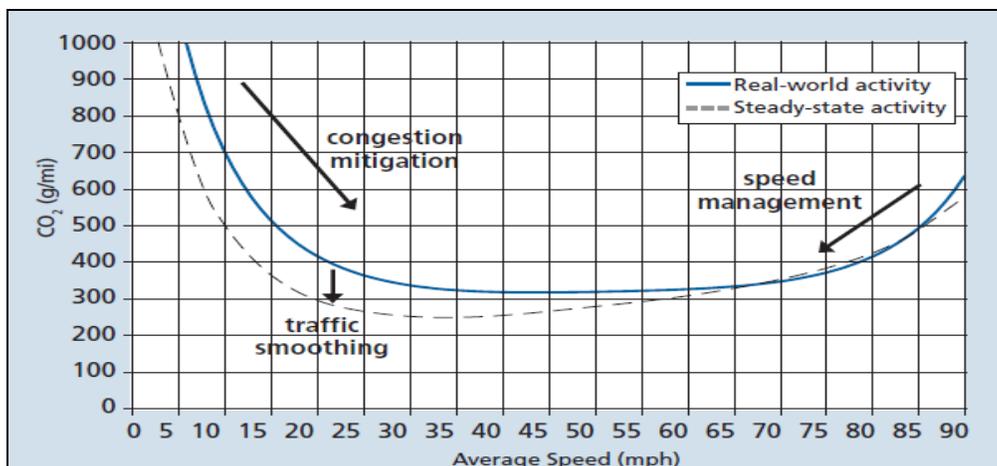
Source: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>

The Department and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California’s GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.<sup>7</sup>

One of the main strategies in the Department’s Climate Action Program to reduce GHG emissions is to make California’s transportation system more efficient. The highest levels of CO<sub>2</sub> from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0-25 miles per hour (see Figure 2.5.1-2 below). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors GHG emissions, particularly CO<sub>2</sub>, may be reduced.

In addition, the City has implemented the Climate Action Plan (adopted June 5, 2012). The plan aims to reduce GHG emissions through among other things, improved transport options, including increasing the bicycle and pedestrian network, and optimized vehicular travel. The reduction measures aim to reduce GHG emissions from a wide variety of sources to avoid reliance on any one strategy or sector to achieve its target.

<sup>7</sup> 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](http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf)



**Figure 2.5.1-2: Possible Effect of Traffic Operation Strategies in Reducing On-Road CO<sub>2</sub> Emission<sup>8</sup>**

The project has been designed to improve local traffic circulation and regional traffic operations. The project would also improve pedestrian and bicycle access in the interchange area, thus providing alternative modes of transportation.

The project is also included in the 2013 RTP and 2015 TIP, which contain adopted strategies for GHG emissions from transportation sources. Specifically, RTP reference number 230550, “Climate Policy Initiatives,” is an ongoing program for the Bay Area region that aims to reduce GHG emissions by funding programs that test new technologies, different policies, or promote behavior changes. The program involves outreach and education for GHG reduction, promotion of Transportation Demand Management strategies, safe routes to school and to transit, bike sharing, and funding for “clean air” vehicles. The adopted TIP also demonstrates that the region will remain below all approved “vehicle emission budgets” through the RTP study year.

CO<sub>2</sub> emissions were estimated using the overall VMT for the project corridor for existing year 2014 and for the No Build and Build Alternatives for opening year 2020 and horizon year 2040. Because the impact of GHG emissions is global, the use of overall VMT for the project is appropriate for this analysis. CO<sub>2</sub> emissions are the primary GHG of concern, as vehicle operation does not result in appreciable amounts of other greenhouse gases.

As the project would reconfigure an existing interchange and does not propose to add capacity to US 101 or to the surrounding roadway network, VMT on US 101 and adjacent interchanges and intersections was assumed to be the same for the No Build and Build Alternatives (Fehr and Peers 2016). The average daily speeds for the corridors are also expected to be the same for the No Build and Build Alternatives. CO<sub>2</sub> emissions for existing conditions and for the No Build and Build Alternatives were estimated using the annual average emission factors from EMFAC2011 for Sonoma County, in combination with average daily speeds and annual VMT within the project corridor. The results are shown in Table 2.5.1-1.

<sup>8</sup> Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010) <<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>>

**Table 2.5.1-1: Annual CO<sub>2</sub> Emissions for Existing (2014) and Future (Opening Year 2020 and Horizon Year 2040) No Build and Build Alternatives**

Analysis Year/ Scenario	Scenario	Average Daily Speeds (mph)	Annual VMT (miles)	Annual Emissions (Metric tons/year)	
				CO <sub>2</sub>	CO <sub>2</sub> (Pavley I + LCF) <sup>a,b</sup>
Existing Year (2014)	Existing	37.5	116,245,000	46,499	42,820
Opening Year (2020)	No Build	36	119,021,000	48,741	36,871
	Build	36	119,021,000	48,741	36,871
Horizon Year (2040)	No Build	33	130,125,000	56,027	37,912
	Build	33	130,125,000	56,027	37,912

Notes:

mph – miles per hour; VMT – vehicle miles traveled; LCF – low carbon fuel

<sup>a</sup> Assembly Bill 1493, also known as Pavley I, includes stricter standards to reduce greenhouse gas emissions from automobiles and light trucks, model years 2017-2025.

<sup>b</sup> LCF: California Assembly Bill AB 32 calls for a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020.

Emission factors obtained from EMFAC2011 for fleet mix in Sonoma County, in combination with the average daily speeds for each analyzed scenario. Annual VMTs were used to calculate annual GHG emissions.

**No Build Alternative and Build Alternative.** In 2020 and 2040, the No Build Alternative and Build Alternative would have higher CO<sub>2</sub> emissions than in the existing (2014) scenario. However, as the average daily speeds and annual VMT for 2020 and 2040 are expected to be the same for the No Build Alternative and Build Alternative, the operational CO<sub>2</sub> emissions would be the same for each alternative.

It should be noted that while the CO<sub>2</sub> annual emissions assume certain reductions in vehicle emissions due to future vehicles operating more efficiently, additional reductions in vehicle emissions may also occur in response to new and stricter legislated standards (such as AB 1493) as they become implemented. The CO<sub>2</sub> annual emissions are estimates and do not necessarily reflect what CO<sub>2</sub> emissions will be in the future. CO<sub>2</sub> emissions also depend on other factors that are not part of the model such as the fuel mix used (EMFAC model emission rates are only for direct engine-out CO<sub>2</sub> emissions not full fuel cycle; fuel cycle emission rates can vary dramatically depending on the amount of additives like ethanol and the source of the fuel components), rate of acceleration, and the aerodynamics and efficiency of the vehicles.

The last column of Table 2.5.1-1 presents estimated operational emissions of greenhouse gases for all modeled scenarios with implementation of two important California rules/standards, AB 1493 (Pavley) and AB 32, which establish stricter standards to reduce greenhouse gas emissions from passenger cars and light duty trucks. These emissions were estimated using EMFAC2011 (in CT-EMFAC5), which includes data for CO<sub>2</sub> emissions for the fleet mix with implementation of these new standards. With these standards in place, the Build Alternative and the No Build Alternative would have lower CO<sub>2</sub> emissions than in the existing (2014) scenario, and the Build Alternative would have the same level of CO<sub>2</sub> emissions as the No Build Alternative for each year.

### **Construction Emissions**

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions 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.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

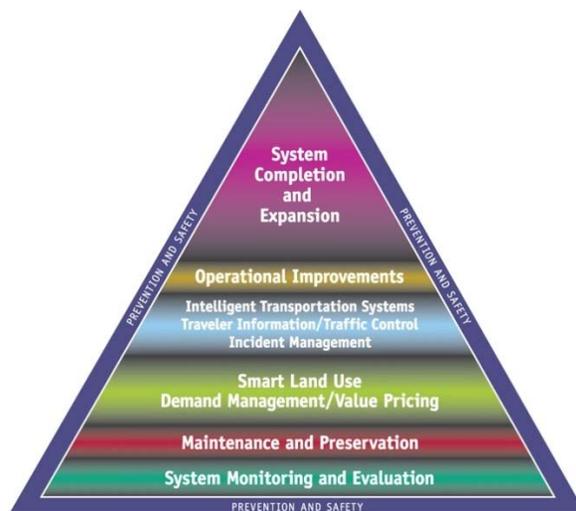
Measures to reduce construction emissions are listed in Section 2.2.5.4 and include maintenance of construction equipment and vehicles, limiting of construction vehicle idling time, and scheduling and routing of construction traffic to reduce engine emissions.

### **CEQA Conclusion**

Project construction may result in a slight, temporary increase in GHG emissions. While it is the Department's determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, the Department is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in Section 2.5.1.3.

#### **2.5.1.3 Greenhouse Gas Reduction Strategies**

The Department continues to be involved on the Governor's Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies the Department is using to help meet the targets in AB 32 come from then Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO<sub>2</sub> reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 2.5.1-3: The Mobility Pyramid.



**Figure 2.5.1-3: The Mobility Pyramid**

The Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. The Department works closely with local jurisdictions on planning activities but does not have local land use planning authority. The Department assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; the Department is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of the fuel economy standards is held by the USEPA and ARB. The Department is also working towards enhancing the State's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill 375 (Steinberg 2008), SB 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 (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system. The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs.

Table 2.5.1-2 summarizes the Departmental and statewide efforts that the Department is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

**Table 2.5.1-2: Climate Change/CO<sub>2</sub> Reduction Strategies**

Strategy	Program	Partnership		Method/Process	Estimated CO <sub>2</sub> Savings Million Metric Tons (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.045 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries	2.5 % limestone cement mix	1.2	4.2	
			25% fly ash cement mix	0.36	3.6	
			> 50% fly ash/slag mix			
Goods Movement	Office of Goods Movement	CalEPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

**Notes:** BT&H = Business, Transportation and Housing, CalEPA = California Environmental Protection Agency, ARB = California Air Resources Board, CEC = California Energy Commission, MMT = million metric tons, MPOs = Metropolitan Planning Organizations

The Department's 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)<sup>9</sup> provides a comprehensive overview of activities undertaken by the Department statewide to reduce greenhouse gas emissions resulting from agency operations.

<sup>9</sup> [http://www.dot.ca.gov/hq/tpp/offices/orip/climate\\_change/projects\\_and\\_studies.shtml](http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml)

The following measures will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

1. The Department and the California Highway Patrol are working with regional agencies to implement intelligent transportation systems (ITS) to help manage the efficiency of the existing highway system. ITS is commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
2. US 101 in the project area is part of the Bay Area high occupancy vehicle lane network, and the MTC and other agencies actively encourage ridesharing (e.g., the “511.org” ridesharing information link provides resources for ride sharing and trip planning). Ridesharing, or carpooling, reduces vehicle trips and their associated emissions.
3. The project will utilize energy efficient lighting, which will be defined during final design.

#### **2.5.1.4 Adaptation Strategies**

“Adaptation strategies” refer to how the Department and others can plan for the effects of climate change on the state’s transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House CEQ, the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011<sup>10</sup>, outlining recommendations to President Obama for how Federal Agency policies and programs can better prepare the U.S. to respond to the impacts of climate change. The Progress Report of the Interagency Climate Change Adaptation Task Force recommends that 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 change.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, then Governor Arnold Schwarzenegger signed EO S-13-08 which directed a number of state agencies to address California’s vulnerability to sea level rise caused

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<sup>10</sup> <http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation>

by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop. The California Climate Adaptation Strategy (Dec 2009),<sup>11</sup> 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 EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science to prepare was directed a Sea Level Rise Assessment Report to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by the Coastal Ocean Climate Action Team as well as the Department as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, 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

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<sup>11</sup> <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

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 EO 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. The proposed project is outside of the coastal zone, and direct impacts to transportation facilities due to projected sea level rise are not expected.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, the Department is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, the Department will be able 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. The Department is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

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## 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, the level of analysis required, and to identify potential impacts and/or mitigation measures and related environmental requirements. This chapter summarizes the results of the Department's efforts to fully identify, address and resolve project-related issues through early and continuing coordination.

### 3.1 Public Scoping and Participation

In 2004, the US 101/Hearn Avenue interchange project was included in the expenditure plan for the Traffic Relief Act for Sonoma County (SCTA Measure M), which authorized a ¼ cent sales tax for transportation, transit, passenger rail, and bicycle improvements (SCTA 2004). The Department began planning for the US 101/Hearn Avenue interchange project in 2007 when the SCTA and the City requested the Department to prepare a project initiation document. In addition, this project is the last of three phases in the overall Hearn Avenue improvements. Phase I widened Santa Rosa Avenue from Yolanda to Kawana Springs Road in 2014. Phase II widened Hearn Avenue from Whitewood Drive to Victoria Drive in 2013 (City of Santa Rosa 2014a).

Formal public involvement for the proposed project began in March 2015 and consists of stakeholder outreach, environmental document meetings, and a City Council briefing meeting.

#### 3.1.1 Stakeholder Meetings

The City along with AECOM staff met with representatives of the Wayside Gardens Mobile Home Park on March 19, 2015 prior to the scoping meeting to discuss the potential project alternatives and environmental resources within the property.

#### 3.1.2 Environmental Document Meetings

Two meetings provide the public with opportunities to learn about and give feedback on the environmental document: (1) a scoping meeting, held before the draft environmental document (DED) is written; and (2) a DED review meeting, held during the public review period for the document.

The scoping meeting was held on April 22, 2015, from 6:30 to 8:30 PM at the Veterans Memorial Building, 1351 Maple Avenue, Santa Rosa. The purpose of the meeting was to solicit community input on the issues to be addressed in the environmental document. The project team provided a presentation, display boards, and a handout (in English and Spanish) on potential interchange alternatives to help attendees understand the proposed project, the scope of the environmental document, and the environmental effects to be studied. The meeting was noticed through newspaper advertisements in the *Press Democrat*. In addition, a bilingual Spanish and English flyer was mailed to more than 1,500 addresses with close proximity to the project area as well as all stakeholders with whom the project team members met, and anyone who signed up for the City's project e-mail list. Announcements were also made using GovDelivery, the City's website, and a Department press release. Approximately 23 people attended the public scoping meeting.

As part of the scoping process, the public was invited to submit written comments on the scope and content of the environmental document for a 30-day period that began on April 22, 2015, and ended on May 22, 2015. Five comments were submitted during the scoping period. Comments received during the scoping period were considered in the environmental document, preliminary design, and technical studies. During the public review period for the DED, the public will have a minimum of 30 days to comment on the document. The second of the two public meetings will be held approximately midway through the review period.

Department, City, SCTA and AECOM staff plan to present the project to the City Council following the DED circulation period.

## **3.2 Consultation and Coordination with Public Agencies**

### **3.2.1 Federal Agencies**

After public circulation of this IS/EA, the project's air quality studies will be submitted to FHWA for a project-level conformity determination.

The proposed project has the potential to affect waters of the U.S. as defined in Section 404 of the CWA. As a result, a permit application will be submitted to the USACE during the detailed design phase.

The proposed project would not affect federal threatened or endangered species, as defined in the FESA. Consultation with USFWS and NOAA Fisheries is not anticipated.

### **3.2.2 Tribal Entities**

In December 2014, the Native American Heritage Commission (NAHC) was contacted to request a search of the Sacred Lands File for Native American cultural resources in or near the APE. The NAHC responded that no sacred lands were identified in the immediate project area.

Representatives from the Mishewal-Wappo Tribe of Alexander Valley and Dry Creek Rancheria of Pomo Indians expressed concern about the proposed project and were referred to the Department for consultation.

Native American consultation is described in further detail in Section 2.1.8.2.

### **3.2.3 State Agencies**

The project's cultural resource studies were submitted to SHPO on April 7, 2016 for concurrence of a determination of resources that are not eligible for the NRHP, and notification of the Department's finding of "No Historic Properties Affected" under the Section 106 Programmatic Agreement. SHPO's concurrence, received on May 19, 2016, is included in Appendix D.

### **3.2.4 Regional Agencies**

- Bay Area Air Quality Conformity Task Force: The project team initiated consultation with the Air Quality Conformity Task Force by submitting a Project Assessment Form for PM<sub>2.5</sub> Interagency Consultation. On October 22, 2015, following a presentation by the team, the Task Force determined that the project is not a project of air quality concern.

Public comment is requested regarding the information in the Project Assessment Summary for PM<sub>2.5</sub> Interagency Consultation and the Task Force's determination (see Appendix D). Following the close of the public review and comment period for the IS/EA, all comments received on the air quality conformity determination will be included in an air quality conformity report to be submitted to FHWA. The final determination on project-level conformity will be made by FHWA.

- San Francisco Bay Regional Water Quality Control Board: Project construction could affect waters of the US. Pursuant to Section 401 of the CWA, a Notice of Intent will be submitted to the RWQCB. The project would implement any general Waste Discharge Requirements issued by the RWQCB.

### **3.3 Circulation, Review, and Comment on the Draft Environmental Document**

Public input on the project will be solicited during the review period for this IS/EA, which will last a minimum of 30 days. The public will be notified of the availability of the IS/EA by a number of methods, including postings on the Department and City websites and a mailed announcement to interested agencies and individuals. During the review period, the Department and City will hold a public meeting to share information about the project and collect comments on the IS/EA from interested parties. The review period and instructions for submitting comments are included on the first page of this document. All formal comments will be addressed and responses published in the Final IS/EA. If the Final IS/EA is approved, a Negative Declaration and a Finding of No Significant Impact will be signed and included with the Final IS/EA.

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## Chapter 4 List of Preparers

This document and its related technical studies were prepared under the supervision of Caltrans District 4. The Project Development Team (PDT) was responsible for oversight of the project and consists of representatives from Caltrans, City of Santa Rosa, SCTA, and AECOM.

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- Matthew Gaffney, Engineering Geologist (Paleontological Identification Report)
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**Individuals Involved in Technical Studies and Environmental Document Preparation**

The following consulting team staff members were responsible for the preparation of the environmental technical studies and the environmental document:

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- Sonia Leung, WRECO, B.S. Contribution: Water Quality Assessment Report and Location Hydraulic Study.
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- AECOM 2016c. Draft Project Report. US 101/Hearn Avenue Interchange Project, City of Santa Rosa, California. Prepared for Caltrans and the City of Santa Rosa. March.
- AECOM 2016d. Visual Impact Assessment. US 101/Hearn Avenue Interchange Project, City of Santa Rosa, California. Prepared for Caltrans and the City of Santa Rosa. March.
- AECOM 2016e. Archaeological Survey Report. US 101/Hearn Avenue Interchange Project, City of Santa Rosa, California. Prepared for Caltrans and the City of Santa Rosa. March.
- AECOM 2016f. Historic Resources Evaluation Report. US 101/Hearn Avenue Interchange Project, City of Santa Rosa, California. Prepared for Caltrans and the City of Santa Rosa. March.
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- AECOM 2016h. Structure Preliminary Geotechnical Report. US 101/Hearn Avenue Interchange Project, City of Santa Rosa, California. Prepared for Caltrans and the City of Santa Rosa. March.
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## **Appendix A CEQA Checklist**

Supporting documentation of all California Environmental Quality Act (CEQA) checklist determinations is provided in Chapter 2 of this Initial Study/Environmental Assessment (IS/EA). Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.

**CEQA Environmental Checklist**

**04-SON-101**

**PM 17.9/18.6**

**04-4A1300**

Dist.-Co.-Rte.

PM/PM

E.A.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
<b>I. AESTHETICS:</b> Would the project:				
a) Have a substantial adverse effect on a scenic vista	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>
<b>II. AGRICULTURE AND FOREST RESOURCES:</b> In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<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) 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>

**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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 U.S. Fish and Wildlife Service?	<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) 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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 GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. 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.

**VIII. HAZARDS AND HAZARDOUS MATERIALS:** Would the project:

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<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
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 type="checkbox"/>	<input checked="" 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"/>
<b>IX. HYDROLOGY AND WATER QUALITY:</b> 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"/>
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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<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
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"/>
<b>X. LAND USE AND PLANNING:</b> 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 type="checkbox"/>	<input checked="" 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"/>
<b>XI. MINERAL RESOURCES:</b> 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"/>
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"/>
<b>XII. NOISE:</b> 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"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<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"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>XIII. POPULATION AND HOUSING:</b> 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"/>
<b>XIV. PUBLIC SERVICES:</b>				
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"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
<b>XV. RECREATION:</b>				
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"/>
<b>XVI. TRANSPORTATION/TRAFFIC:</b> 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 Transportation Commission for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 type="checkbox"/>	<input checked="" 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"/>
<b>XVII. UTILITIES AND SERVICE SYSTEMS:</b> 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"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<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 type="checkbox"/>	<input checked="" 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"/>

**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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>

## **Appendix B Resources Evaluated Relative to the Requirements of Section 4(f)**

This section of the document discusses parks, recreational facilities, wildlife refuges and historic properties found within or next to the project area that do not trigger Section 4(f) protection because either: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

There are no parks or Section 4(f) resources (publicly owned land or land of historic significance regulated by Section 4(f) of the Department of Transportation Act of 1966) in or directly adjacent to the project area. There are two parks within 0.5 mile of the project area: Harvest Park and Colgan Creek Park. Harvest Park is a half-acre dog park operated by the City (City of Santa Rosa 2015a). It is located on Burt Street off of Santa Rosa Avenue to the east of US 101 and south of the Hearn Avenue interchange, approximately 0.3 mile from the project area. Colgan Creek Park is a 2.5-acre park operated by the City (City of Santa Rosa 2015b). It is located on Bedford Street along Colgan Creek. Colgan Creek Park is east of US 101 and north of Hearn Avenue, approximately 0.5 mile from the project area.

The project would not require the temporary or permanent use of any park or recreational facility. Project construction at the Hearn Avenue/Santa Rosa Avenue intersection for the Build Alternative would take place 0.5 mile from Colgan Creek Park and 0.4 mile from Harvest Park. The parks are not expected to experience temporary construction-related noise, air, or visual effects because of their distance from the project construction areas and the number of intervening buildings and trees. Therefore, the provisions of Section 4(f) are not triggered.

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## Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

EDMUND G. BROWN Jr., Governor

**DEPARTMENT OF TRANSPORTATION**  
OFFICE OF THE DIRECTOR  
P.O. BOX 942873, MS-49  
SACRAMENTO, CA 94273-0001  
PHONE (916) 654-5266  
FAX (916) 654-6608  
TTY 711  
www.dot.ca.gov



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Be energy efficient!*

March 2013

### NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: [http://www.dot.ca.gov/hq/bep/title\\_vi/t6\\_violated.htm](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 14<sup>th</sup> 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"*

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## **Appendix D Consultation and Coordination**

This appendix includes the following consultation and correspondence regarding the proposed project.

- The Department's Section 106 SHPO Concurrence, dated May 19, 2016.
- PM<sub>2.5</sub> Interagency Consultation Summary and MTC Air Quality Conformity Task Force determination that the project is not a Project of Air Quality Concern.
- USFWS and NOAA Fisheries species list.

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**Section 106 SHPO Concurrence**

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**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**

1725 23<sup>rd</sup> Street, Suite 100  
SACRAMENTO, CA 95816-7100  
(916) 445-7000 Fax: (916) 445-7053  
calshpo@parks.ca.gov  
www.ohp.parks.ca.gov



May 19, 2016

Reply To: FHWA\_2016\_0407\_001

Brett Rushing  
Office Chief, Office of Cultural Resource Studies  
Caltrans District 4  
111 Grand Avenue  
PO Box 23660  
Oakland, CA 94623-0660

Re: Determinations of Eligibility for the Proposed Hearn Avenue Interchange Project,  
US Highway 101, Santa Rosa, CA

Dear Mr. Rushing:

Thank you for consulting with the State Historic Preservation Officer (SHPO) about the subject undertaking in accordance with the January 1, 2014 *First Amended Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (PA)*.

Caltrans, in cooperation with the City of Santa Rosa and the Sonoma County Transportation Authority, is proposing to modify and reconstruct the US 101 and Hearn Avenue interchange.

Caltrans has determined that the following buildings are not eligible for the NRHP:

- Wayside Gardens Mobile Home Park, 2389 Santa Rosa Avenue, Santa Rosa, CA
- Santa Rosa Chapel of the Chimes, 2601 Santa Rosa Avenue, Santa Rosa, CA

Based on my review of the submitted documentation I concur with the foregoing determinations.

If you have any questions, please contact Natalie Lindquist of my staff at (916) 445-7014 or Alicia Perez at (916) 445-7020.

Sincerely,

A handwritten signature in blue ink, appearing to read "Julianne Polanco".

Julianne Polanco  
State Historic Preservation Officer

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**PM<sub>2.5</sub> Interagency Consultation Summary and  
MTC Air Quality Conformity Task Force Determination**

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## **Summary of Project Assessment for PM<sub>2.5</sub> Interagency Consultation for US 101/Hearn Avenue Interchange Project**

The proposed project is located in the San Francisco Bay Area Air Basin, which does not attain National Ambient Air Quality Standards for particulate matter 2.5 micrometers in diameter or less (PM<sub>2.5</sub>). Therefore, the proposed project and other federally funded projects are required to undergo a screening process set forth by United States Environmental Protection Agency (USEPA) Final Conformity Rule EPA-420-F-10-011 (71 Federal Register 12468). This process was established to protect public health with a margin of safety. The process involves interagency consultation, facilitated through the Metropolitan Transportation Commission's (MTC's) Air Quality Conformity Task Force, regarding whether a project meets specific criteria defined in Title 40 CFR Part 93 for Projects of Air Quality Concern.

On October 22, 2015, the Air Quality Conformity Task Force determined that the proposed project is not a Project of Air Quality Concern (POAQC) as defined by 40 CFR 93.123(b)(1). Therefore, a project-level PM<sub>2.5</sub> hot-spot analysis is not required for the project.

The proposed project is not a POAQC based on the following:

- The project would replace an existing overcrossing and would not add through lanes on US 101.
- Trucks currently represent 5 percent of average annual daily traffic and would continue to do so in 2020 and 2040.
- The project would not increase the number of diesel vehicles in the project area or result in land use changes that would attract more diesel vehicles.
- The project would generally improve levels of service compared with the No Build Alternative in 2020 and 2040.
- No exceedances of the federal annual standard for PM<sub>2.5</sub> have been recorded in the last 5 years.

Meeting notes from the October 22, 2015, Air Quality Conformity Task Force meeting follow.

**Air Quality Conformity Task Force  
Summary Meeting Notes  
October 22, 2015**

Participants:

Amir Fanai – BAAQMD	Ho Nguyen – City of San José
Rodney Tavitas – Caltrans	Lee Lim-Tsao – City of San José
Kevin Nguyendo – Caltrans	Ted Mately – FTA
Dan Hennessey – Fehr & Peers	Stew Sonnenberg – FHWA
Lynn McIntyre – AECOM	Dick Fahey – Caltrans
David Williams – AECOM	Nick Aguilera – UC Berkeley (Student)
David Montague – City of Santa Rosa	Adam Crenshaw – MTC
Rob Sprinkle – City of Santa Rosa	Harold Brazil – MTC
Tina Smith – City of San José	

**1. Welcome and Self Introductions:** Harold Brazil (MTC) called the meeting to order at 9:34 am.

**2. PM<sub>2.5</sub> Project Conformity Interagency Consultations**

**a. Consultation to Determine Project of Air Quality Concern Status**

**i. San Jose Smart Intersections Program Project**

Tina Smith and Ho Nguyen (both from the City of San José) began their description of the San Jose Smart Intersections Program project by stating that the project will install an adaptive traffic signal control (ATSC) system at 35 signalized intersections along two corridors, Tully Road and Saratoga Avenue, in San Jose. Ms. Smith and Mr. Nguyen also indicated that the project will utilize real-time vehicle detection information which will adjust signal timings on a cycle-by-cycle basis in accordance with fluctuations in traffic demand. In addition, the existing signal controller will remain in place and the project will leverage the existing traffic signal communications network.

Ms. Smith and Mr. Nguyen stated that these two project corridors are home to a concentration of businesses, commercial and shopping districts and that the two areas' mix of intersection geometries, proximity to freeway ramps and interchanges, high density and mixed-use land development create dynamic traffic conditions that cannot be effectively addressed by conventional pre-programmed, time-of-day, signal timing schedules.

Ms. Smith and Mr. Nguyen also stated that the ATSC will be deployed to improve travel time reliability, reduce congestion and improve air quality through a more efficient roadway operation all hours of the day and that the project will achieve these targets by specifically reducing the travel times, delays and the number of stops at signalized intersections.

Ginger Vagenas (EPA) was not available for the October 22<sup>nd</sup> meeting, but provided comments on the San Jose Smart Intersections Program project via email below.

From Ms. Vagenas:

San Jose – Smart Intersections project: My preliminary view is that this is not a POAQC, but I would want to hear other points of view, if there are any, before final sign off. Note that there is not a horizon year forecast. Given the type of project, I am not sure this is a “must have,” but am curious to hear what others think.

From Harold Brazil (MTC):

San Jose – Smart Intersections project: Dick agreed with you about “must having” a horizon year forecast need [for this type of project], he did not think the missing data was a deal breaker and he did not think the project was of aq concern. Rodney and Ted also did not feel that the project was of aq concern and Joseph deferred to Caltrans because the project is a section 6004 categorical exemption [NEPA delegation].

Amir asked for some clarification on slide 7 in their presentation and the project sponsor indicated that the map was a global view of the 2 corridors showing the San Jose priority areas with their associated transit lines and stops and the connected freeway network.

Please provide you final sign off that this project is not of aq concern.

From Ms. Vagenas:

Thanks for the recap. I concur that these are not POAQCs.

**Final Determination:** With input from FTA, EPA (via email), Caltrans and FHWA, the Task Force concluded that the San Jose Smart Intersections Program project was not of air quality concern.

## ii. US 101 Hearn Ave Interchange Project

Lynn McIntyre (AECOM) began here description of the US 101 Hearn Ave Interchange project by stating that the project would:

- Replace the existing 2-lane Hearn Avenue overcrossing with a new 4-lane structure
- Widen the existing 1-lane southbound US 101 off-ramp to 2 lanes
- Provide class 2 bike lanes and sidewalks on new Hearn Avenue overcrossing

Ms. McIntyre noted that there would be no change to US 101 mainline or northbound ramps.

In addition, Ms. McIntyre stated that the purpose of the US 101 Hearn Ave Interchange project was to improve:

- Local traffic circulation and regional traffic operations
- Multimodal access, connectivity, and operations
- Overall safety of the facility

Ms. McIntyre indicated that the project is needed to address:

- The inability of the existing interchange to accommodate existing and future traffic (which currently is resulting in congestion on Hearn Avenue and southbound off-ramp)

- The lack of adequate pedestrian and bicycle access across US 101 at Hearn Avenue (sidewalk only on south side of overcrossing and are no striped bike lanes – bikes must share the traffic lanes with vehicles)

Ginger Vagenas (EPA) was not available for the October 22<sup>nd</sup> meeting, but provided comments on the San Jose Smart Intersections Program project via email below.

From Ms. Vagenas:

US 101/Hearn Ave Interchange: My preliminary view is that this is not a POAQC, but I would want to hear other points of view, if there are any, before final sign off. I thought the project sponsor did a good job on the form. One small comment is about the following language in the form:

“The percent and number of trucks in the project area is considered to be below the concern threshold based on EPA guidance.”

We need to remind the applicant that there are not any “concern thresholds” and that we evaluate each project on a case-by-case basis.

From Harold Brazil (MTC):

US 101/Hearn Ave Interchange: This project is a section 6005 non-categorical exemption and Joseph indicated [via email] that he did not think the project was a POAQC - as did Ted, Dick and Rodney. I reminded the project sponsor about your, “not any concern thresholds” and “evaluation of each project on a case-by-case basis” comments.

Amir asked how long the construction period of the project was and also asked if the construction of the project would cause any additional congestion. The project sponsor indicated that the project would take 2 years to construct and the new bridge over Hearn Ave. would be constructed before the existing bridge is removed, therefore traffic would be moved to the new before and while the existing bridge is being removed and there would be no additional congestion caused.

Please provide you final sign off that this project is not of aq concern.

From Ms. Vagenas:

Thanks for the recap. I concur that these are not POAQCs.

**Final Determination:** With input from FTA, EPA (via email), Caltrans and FHWA, the Task Force concluded that the US 101 Hearn Ave Interchange project was not of air quality concern.

## **b. Confirm Projects Are Exempt from PM<sub>2.5</sub> Conformity**

Harold Brazil (MTC) had the following comment from the Task Force on the **2b\_Exempt List 100915.pdf** list of projects:

From Ginger Vagenas (EPA):

On the exemption list, project MRN070002 appears to have a typo – 2006 instead of 2016.

From Harold Brazil (MTC):

Correction was noted and made

**Final Determination:** With input from FHWA , FTA, EPA (via email), Caltrans and MTC, the Task Force agreed that the project on the exempt list (**2b\_Exempt List 100915.pdf**) is exempt from PM<sub>2.5</sub> project level analysis.

### 3. Projects with Regional Air Quality Conformity Concerns

#### a. Review of the Regional Conformity Status for New and Revised Projects

##### New Project Staff is Proposing to Include in the 2015 TIP

Mr. Crenshaw indicated that Staff has received requests from sponsors to add one new individually listed project and two new grouped listed projects to the 2015 TIP and to revise the description of one existing, individually listed project. Mr. Crenshaw provided a listing of this project along with the regional air quality category that staff believes best describes the projects.

Ginger Vagenas (EPA) was not available for the October 22<sup>nd</sup> meeting, but provided comments on the San Jose Smart Intersections Program project via email below.

From Ms. Vagenas:

*Note that the description for ALA130014 (Attachment to Adam's memo) is cut off.*

From Harold Brazil (MTC):

*Correction was noted and made.*

Mr. Crenshaw received no other questions or comments on the above mentioned agenda item.

### 4. Support to Project Sponsors During Consultation Process

Adam Crenshaw notified the Task Force that MTC has hired a consultant to perform web development which will include the air quality module (in FMS) changes and updates.

### 5. Consent Calendar

#### a. September 24, 2015 Air Quality Conformity Task Force Meeting Summary

**Final Determination:** With input from all members, the Task Force concluded that the consent calendar was approved.

### 6. Other Items

Harold Brazil (MTC) spoke about transitioning Task Force meetings to the GoToMeeting is a web-hosted service to allow for desktop sharing conferencing software which will enable meeting participants to meet with other computer users and colleagues via the Internet in real time. Mr. Brazil mentioned that the specific time table to move to GoToMeeting will be delayed by MTC's move to its new offices in San Francisco.

## McIntyre, Lynn

---

**From:** Fund Management System <fms@mtc.ca.gov>  
**Sent:** Friday, October 23, 2015 12:31 PM  
**To:** nadams@srcity.org  
**Cc:** Fund Management System; Harold Brazil  
**Subject:** FMS POAQC Project TIP ID SON150006 (US 101 Hearn Ave Interchange) 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 SON150006 (FMS ID:6082.00) does not fit the definition of a project of air quality concern as defined by 40 CFR 93.123(b)(1) or 40 CFR 93.128 and therefore is not subject to PM2.5 project level conformity requirement. Please save this email as documentation confirming the project has undergone and completed the interagency consultation requirement for PM2.5 project level conformity. Note project sponsors are required to undergo a proactive public involvement process which provides opportunity for public review as outlined by 40 CFR 93.105(e). For projects that are not of air quality concern, a comment period is only required for project level conformity determinations if such a comment period would have been required under NEPA. For more information, please see FHWA PM2.5 Project Level Conformity Frequently Asked Questions (FAQ):

[http://www.fhwa.dot.gov/environment/air\\_quality/conformity/reference/faqs/pm25faqs.cfm](http://www.fhwa.dot.gov/environment/air_quality/conformity/reference/faqs/pm25faqs.cfm)

If you have any questions, please direct them to Harold Brazil at [hbrazil@mtc.ca.gov](mailto:hbrazil@mtc.ca.gov) or by phone at (510) 817-5747

**USFWS and NOAA Fisheries Species Lists**

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# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office

FEDERAL BUILDING, 2800 COTTAGE WAY, ROOM W-2605

SACRAMENTO, CA 95825

PHONE: (916)414-6600 FAX: (916)414-6713

Consultation Code: 08ESMF00-2015-SLI-0902

July 11, 2016

Event Code: 08ESMF00-2016-E-03931

Project Name: US 101/Hearn Avenue Interchange Project, City of Santa Rosa

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

[http://www.nwr.noaa.gov/protected\\_species/species\\_list/species\\_lists.html](http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html)

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2)

of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior  
Fish and Wildlife Service

Project name: US 101/Hearn Avenue Interchange Project, City of Santa Rosa

## Official Species List

### Provided by:

Sacramento Fish and Wildlife Office  
FEDERAL BUILDING  
2800 COTTAGE WAY, ROOM W-2605  
SACRAMENTO, CA 95825  
(916) 414-6600

**Consultation Code:** 08ESMF00-2015-SLI-0902

**Event Code:** 08ESMF00-2016-E-03931

**Project Type:** TRANSPORTATION

**Project Name:** US 101/Hearn Avenue Interchange Project, City of Santa Rosa

**Project Description:** Modifications to Hearn Avenue/101 Interchange in Sonoma County, CA.

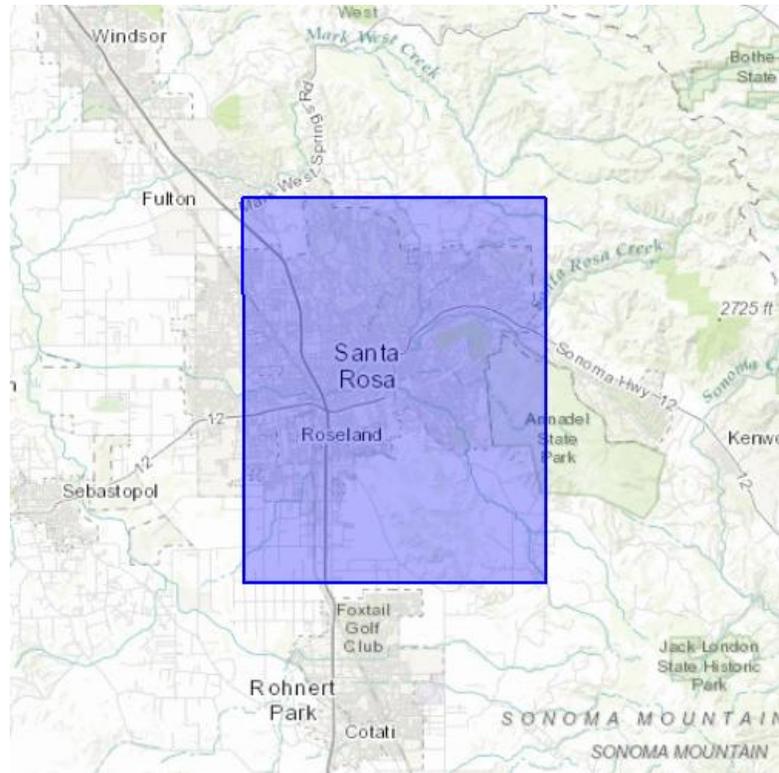
**Please Note:** The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior  
Fish and Wildlife Service

Project name: US 101/Hearn Avenue Interchange Project, City of Santa Rosa

### Project Location Map:



**Project Coordinates:** MULTIPOLYGON (((-122.75024414062499 38.50035521924391, -122.6245880126953 38.50035521924391, -122.6245880126953 38.375577124692164, -122.74955749511717 38.375577124692164, -122.75024414062499 38.50035521924391)))

**Project Counties:** Sonoma, CA



United States Department of Interior  
Fish and Wildlife Service

Project name: US 101/Hearn Avenue Interchange Project, City of Santa Rosa

## Endangered Species Act Species List

There are a total of 19 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Amphibians	Status	Has Critical Habitat	Condition(s)
California red-legged frog ( <i>Rana draytonii</i> ) Population: Entire	Threatened	Final designated	
California tiger Salamander ( <i>Ambystoma californiense</i> ) Population: U.S.A. (CA - Sonoma County)	Endangered	Final designated	
<b>Birds</b>			
Northern Spotted owl ( <i>Strix occidentalis caurina</i> ) Population: Entire	Threatened	Final designated	
<b>Crustaceans</b>			
California Freshwater shrimp ( <i>Syncaris pacifica</i> ) Population: Entire	Endangered		
<b>Fishes</b>			
Delta smelt ( <i>Hypomesus transpacificus</i> ) Population: Entire	Threatened	Final designated	



United States Department of Interior  
Fish and Wildlife Service

Project name: US 101/Hearn Avenue Interchange Project, City of Santa Rosa

steelhead ( <i>Oncorhynchus</i> (=salmo) <i>mykiss</i> ) Population: Northern California DPS	Threatened	Final designated	
<b>Flowering Plants</b>			
Burke's goldfields ( <i>Lasthenia burkei</i> )	Endangered		
Calistoga allocarya ( <i>Plagiobothrys strictus</i> )	Endangered		
Clara Hunt's milk-vetch ( <i>Astragalus clarianus</i> )	Endangered		
Kenwood Marsh checker-mallow ( <i>Sidalcea oregana ssp. valida</i> )	Endangered		
Loch Lomond Coyote thistle ( <i>Eryngium constancei</i> )	Endangered		
Many-Flowered navarretia ( <i>Navarretia leucocephala ssp. plieantha</i> )	Endangered		
Napa bluegrass ( <i>Poa napensis</i> )	Endangered		
Sebastopol meadowfoam ( <i>Limnanthes vinculans</i> )	Endangered		
Showy Indian clover ( <i>Trifolium amoenum</i> )	Endangered		
Sonoma alopecurus ( <i>Alopecurus aequalis var. sonomensis</i> )	Endangered		
Sonoma sunshine ( <i>Blennosperma bakeri</i> )	Endangered		
White sedge ( <i>Carex albida</i> )	Endangered		
<b>Insects</b>			



United States Department of Interior  
Fish and Wildlife Service

Project name: US 101/Hearn Avenue Interchange Project, City of Santa Rosa

San Bruno Elfin butterfly ( <i>Callophrys mossii bayensis</i> ) Population: Entire	Endangered		
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United States Department of Interior  
Fish and Wildlife Service

Project name: US 101/Hearn Avenue Interchange Project, City of Santa Rosa

## Critical habitats that lie within your project area

The following critical habitats lie fully or partially within your project area.

Amphibians	Critical Habitat Type
California red-legged frog ( <i>Rana draytonii</i> ) Population: Entire	Final designated
California tiger Salamander ( <i>Ambystoma californiense</i> ) Population: U.S.A. (CA - Sonoma County)	Final designated

## McIntyre, Lynn

---

**From:** Darren Howe - NOAA Federal <darren.howe@noaa.gov>  
**Sent:** Thursday, February 18, 2016 5:21 PM  
**To:** Clark, Catherine L (Oakland)  
**Cc:** Vivian, Lindsay@DOT; Malamud-Roam, Frances@DOT; McIntyre, Lynn; McLean, Katie; Joyce Ambrosius - NOAA Federal  
**Subject:** Re: Species List for the US 101/Hearn Avenue Interchange Project (Santa Rosa USGS quadrangle)  
**Attachments:** NMFS\_Species\_List\_02\_16\_16.xlsx

Hi Catherine,

Thank you for your February 16, 2016, request for a species list regarding the presence of resources under National Marine Fisheries Service (NMFS) jurisdiction. Your request identified the following U.S. Geological Survey (USGS) quadrangle(s):

- Santa Rosa

Available information indicates that resources under the jurisdiction of NMFS<sup>1</sup> may occur within the area(s) bounded by the identified USGS quadrangle(s). Please see the attached spreadsheet. When making the affects determination(s), consider the potential for proposed project(s) to result in impacts to these resources under appropriate statutes (ESA and MSA).

For future coordination regarding this list, please reference:

- Project Name - US 101/Hearn Avenue Interchange Project
- NMFS Administrative Record Number - 151422WCR2016SR00068

If you have any questions regarding this information or require technical assistance, please contact me at (707) 575-3152 or via email at: [Darren.Howe@noaa.gov](mailto:Darren.Howe@noaa.gov).

Regards,

Darren

<sup>1</sup> Including but not limited to the following resources under the jurisdiction of NMFS:

- listed species, proposed species, designated critical habitat, and proposed critical habitat as identified by the federal Endangered Species Act (ESA);
- essential fish habitat protected by the Magnuson–Stevens Fishery Conservation and Management Act (MSA).

On Tue, Feb 16, 2016 at 2:17 PM, Clark, Catherine L (Oakland) <[catherine.l.clark@acem.com](mailto:catherine.l.clark@acem.com)> wrote:

Dear Darren Howe,

The California Department of Transportation (Caltrans) (federal agency pursuant to 23 USC 327), in cooperation with the City of Santa Rosa and the Sonoma County Transportation Authority (SCTA), proposes to modify and reconstruct the United States Highway 101 (US 101)/Hearn Avenue interchange in the City of Santa Rosa. The project would replace the existing Hearn Avenue overcrossing with a new overcrossing that would

have four traffic lanes and bike lanes and sidewalks on both sides of the roadway. Project construction activities (which would include pile driving and construction of a bridge section, abutments, retaining walls, and concrete median barriers) would require soil disturbance and tree and vegetation removal and would produce temporary construction-related noise and light pollution. The total length of the project is 0.7 mile (from post mile 17.9 to 18.6) and the project area is shown in the attached figure. According to the current schedule, construction of the project would take approximately two years.

Caltrans is investigating potential impacts that the project may have on the plant and animal species that may occur in the vicinity of the project. Caltrans therefore requests a National Marine Fisheries Service Species List for the Santa Rosa USGS 7.5 minute quadrangle. Please e-mail the list to me at [Catherine.L.Clark@aecom.com](mailto:Catherine.L.Clark@aecom.com).

If you have any further questions, please do not hesitate to call me at the phone number listed below, or respond to my email.

**Catherine L. Clark, AICP (on behalf of California Department of Transportation, P.O. Box 942873, Sacramento, CA 94273-0001)**

Environmental Planner

Direct [1-510-874-1756](tel:1-510-874-1756)

[Catherine.L.clark@aecom.com](mailto:Catherine.L.clark@aecom.com)

**AECOM**

1333 Broadway, Suite 800

Oakland, California 94612

T [1-510-874-1756](tel:1-510-874-1756) F [1-510-874-3103](tel:1-510-874-3103)

[www.aecom.com](http://www.aecom.com)

AECOM and URS have joined together as one company. Please note my *new* e-mail address.

--  
Darren Howe  
Natural Resource Management Specialist  
National Marine Fisheries Service  
North Central Coast Office  
777 Sonoma Ave., Room 325  
Santa Rosa, CA 95404  
(707) 575-3152

## Species List - Intersection of USGS Topographic Quadrangles with NOAA Fisheries ESU/DPS, Critical Habitat, Range, and Essential Fish Habitat

**DISCLAIMER:** Every attempt has been made to ensure the accuracy and timeliness of these data. However, NMFS makes no claims, promises, or guarantees about the accuracy, completeness, or adequacy of the content, and expressly disclaims liability for errors and omissions in the contents of this spreadsheet.

X = Present on the Quadrangle

Santa Rosa 38122-D6

Salmonid ESU / DPS (E) = Endangered, (T) = Threatened											CRITICAL HABITAT														
COHO		STEELHEAD					CHINOOK				COHO		STEELHEAD					CHINOOK			Southern DPS Green Sturgeon	Black Abalone	Leatherback Sea Turtle	Eulachon	
SONCC	CCC	NC	CCC	SCCC	SC	CCV	CC	CVSR	SRWR	SONCC	CCC	NC	CCC	SCCC	SC	CCV	CC	CVS	SRWR						
	X		X				X				X														

MARINE / ESTUARINE SPECIES RANGE								ESSENTIAL FISH HABITAT				
Whales/Turtles (see list below)	Green Sea Turtle (E)	Olive Ridley Sea Turtle (E)	Black Abalone (E)	White Abalone (E)	Eulachon (T)	Southern DPS Green Sturgeon (T)	Guadalupe Fur Seal (T)	SALMON		Groundfish	Coastal Pelagic	Highly Migratory Species
								Coho				
								X	X			

Possible:

Leatherback Sea Turtle (E)

Loggerhead Sea Turtle (T)

Blue Whale (E)

Fin Whale (E)

Humpback Whale (E)

Southern Resident Killer Whale (E)

North Pacific Right Whale (E)

Sei Whale (E)

Sperm Whale (E)

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## Appendix E Environmental Commitments Record

Minimization and/or Mitigation Measure	IS/EA Section Reference	Responsible Party	Timing
<b>Utilities/Emergency Services</b>			
Develop a TMP during project design	2.1.5.3	Department, City of Santa Rosa	Final design
Notify emergency service providers and the public of lane closures and detours	2.1.5.3	Department, City of Santa Rosa	Final design
Utilize portable Changeable Message Signs, California Highway Patrol Construction Zone Enhanced Enforcement Program, and Freeway Service Patrol, where possible to minimize delays	2.1.5.3	Department, City of Santa Rosa	Final design
Stage construction to avoid complete road closures	2.1.5.3	Department, City of Santa Rosa	Final design
<b>Traffic and Transportation/Pedestrian and Bicycle Facilities</b>			
Develop a TMP that includes: <ul style="list-style-type: none"> <li>Briefing local public officials and developing a public information program to notify the public of project progress and upcoming closures and detours.</li> <li>Outreach to ride sharing agencies, transit operators, and neighborhood and special interest groups to minimize impacts to motor vehicles, bicyclists, and pedestrians during construction.</li> </ul>	2.1.6.4	Department, City of Santa Rosa	Final design
<b>Visual/Aesthetics</b>			
Where space exists, removed vegetation, including trees, will be replanted in accordance with Department policies and in consideration of the City's Tree Ordinance.	2.1.7.4	Department	Construction
The project design will incorporate aesthetic treatments, such as surface texture, patterns and color, for the overcrossing structure and other project components. The City will be consulted in the design and selection of aesthetic treatments for the project.	2.1.7.4	Department, City of Santa Rosa	Final design
<b>Cultural Resources</b>			
If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.	2.1.8.3	City of Santa Rosa, Construction Contractor	Construction

<b>Minimization and/or Mitigation Measure</b>	<b>IS/EA Section Reference</b>	<b>Responsible Party</b>	<b>Timing</b>
If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC who will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the District Environmental Branch so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.	2.1.8.3	Department, City of Santa Rosa, Construction Contractor	Construction
<b><i>Water Quality and Storm Water Runoff</i></b>			
A SWPPP will be prepared by the Contractor and approved by the Department prior to the start of construction. The SWPPP includes the development of a Construction Site Monitoring Program that presents procedures and methods related to the visual monitoring and sampling and analysis plans for non-visible pollutants, sediment and turbidity, and pH. After assessing the receiving water body and sediment risks, the project has been determined to be a Risk Level 2. Risk Level 2 project requirements include preparation of Rain Event Action Plans prior to an anticipated rain event, performing storm water sampling at all discharge locations during a qualifying rain event, compliance with numeric action levels, and preparation of annual reports detailing BMPs and sampling efforts.	2.2.2.4	Department, City of Santa Rosa, Construction contractor	Final design
The project would implement short-term (construction) and long-term (permanent) BMPs described in Section 2.2.2.4.	2.2.2.4	City of Santa Rosa, Construction contractor	Final design, Construction
<b><i>Geology/Soils/Seismic/Topography</i></b>			
The Department's design and construction guidelines incorporate engineering standards that address seismic risks. Project elements will be designed and constructed to meet seismic design requirements for ground shaking and ground motions, as determined for the project vicinity and site conditions.	2.2.3.4	Department, City of Santa Rosa	Final design

Minimization and/or Mitigation Measure	IS/EA Section Reference	Responsible Party	Timing
Additional geotechnical subsurface and design investigations will be performed during the final project design and engineering phase. The investigations will include site-specific evaluation of subsurface conditions at the location of proposed foundation features as well as investigations for earthquake-induced liquefaction, soil expansion, soil corrosivity, and compaction settlement. An evaluation of construction dewatering will be included as a part of the field investigation program to provide the basis for construction dewatering plans.	2.2.3.4	Department, City of Santa Rosa	Final design
<b>Hazardous Waste/Materials</b>			
Structures to be modified will be investigated for hazardous materials or contamination issues, including the presence of building materials painted with lead-based paint, storage buildings that might contain hazardous materials, asbestos (i.e., transit pipe, insulation, and siding), heating fuel storage tanks, thermoplastic paint, PCBs, and other similar issues. A qualified and licensed inspector will evaluate and sample each existing structure scheduled for demolition for the presence of asbestos-containing materials and PCBs.	2.2.4.4	City of Santa Rosa	Final design
Soil and/or groundwater sampling is recommended prior to or during soil excavation activities. The exact sample locations, sampling depths, sample media (soil/groundwater), and constituents analyzed will be selected with all potential identified impacts to the project area in mind to prepare a comprehensive sampling plan. The following measures are currently recommended:	2.2.4.4	City of Santa Rosa	Final Design
Groundwater, groundwater sampling, analysis, and characterization are recommended before the start of construction to investigate safety precautions for construction personnel. Furthermore, treatment and disposal options for extracted groundwater will need to be evaluated prior to any dewatering of excavations due to construction activities.	2.2.4.4	City of Santa Rosa	Final Design

<b>Minimization and/or Mitigation Measure</b>	<b>IS/EA Section Reference</b>	<b>Responsible Party</b>	<b>Timing</b>
If suspected petroleum hydrocarbon-impacted soils will be encountered during soil excavation activities, soil should be sampled, tested, and characterized for petroleum hydrocarbons before the start of construction.	2.2.4.4	City of Santa Rosa, Construction contractor	Construction
If soil excavation activities are planned near properties where chlorinated compounds may be present, the soil and/or groundwater should be sampled, tested, and characterized for chlorinated compounds before the start of construction.	2.2.4.4	City of Santa Rosa	Final design
If soil excavation activities are planned near or on the Chapel of the Chimes Cemetery property, soil and/or groundwater should be sampled, tested, and characterized for formaldehyde and herbicides.	2.2.4.4	City of Santa Rosa	Final design
Additionally, prior to the beginning of any soil excavation work, surface soils should be tested for aurally deposited and subsurface lead to evaluate safety recommendations for construction workers and soil management options.	2.2.4.4	City of Santa Rosa	Final design
Any proposed acquisition of properties detailed in Table 2.2.4-1 requires further investigation of soil and/or groundwater, due to the potential for presence of petroleum hydrocarbons, solvents, aurally deposited and subsurface lead, and metals.	2.2.4.4	City of Santa Rosa	Final design
Soil and/or groundwater found to have environmental contaminants should be properly characterized and disposed of at an appropriate facility per applicable regulations.	2.2.4.4	City of Santa Rosa, Construction contractor	Construction
Contractors working at the project site, or removing soil materials and/or groundwater from the project area, should be made aware of appropriate handling and disposal methods through an education program. Elevated levels of the potential contaminants could be present at some locations and, therefore, material moved or removed may require individual or specific testing to verify that concentrations are below any regulatory action limits. Further investigation will occur during the design phase.	2.2.4.4	City of Santa Rosa, Construction contractor	Construction

Minimization and/or Mitigation Measure	IS/EA Section Reference	Responsible Party	Timing
<b>Air Quality</b>			
Water all active construction areas daily.	2.2.5.4	Department, City of Santa Rosa, Construction contractor	Construction
Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard.	2.2.5.4	Department, City of Santa Rosa, Construction contractor	Construction
Pave, apply water daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.	2.2.5.4	Department, City of Santa Rosa, Construction contractor	Construction
Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.	2.2.5.4	Department, City of Santa Rosa, Construction contractor	Construction
Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.	2.2.5.4	Department, City of Santa Rosa, Construction contractor	Construction
Hydroseed or apply (nontoxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).	2.2.5.4	Department, City of Santa Rosa, Construction contractor	Construction
Enclose, cover, water twice daily or apply (nontoxic) soil binders to exposed stockpiles (dirt, sand, etc.).	2.2.5.4	Department, City of Santa Rosa, Construction contractor	Construction
Limit traffic speeds on unpaved roads to 15 mph.	2.2.5.4	Department, City of Santa Rosa, Construction contractor	Construction
Install sandbags or other erosion control measures to prevent silt runoff to public roadways.	2.2.5.4	Department, City of Santa Rosa, Construction contractor	Construction
Replant vegetation in disturbed areas as quickly as possible.	2.2.5.4	Department, City of Santa Rosa, Construction contractor	Construction
Keep engines properly tuned according to the manufacturer's specifications.	2.2.5.4	Department, City of Santa Rosa, Construction contractor	Construction

<b>Minimization and/or Mitigation Measure</b>	<b>IS/EA Section Reference</b>	<b>Responsible Party</b>	<b>Timing</b>
Prohibit unnecessary idling (i.e., greater than 5 minutes in duration).	2.2.5.4	Department, City of Santa Rosa, Construction contractor	Construction
Avoid unnecessary concurrent use of equipment.	2.2.5.4	Department, City of Santa Rosa, Construction contractor	Final design, Construction
<b>Noise</b>			
Limit pile driving activities to between 7:00 AM to 7:00 PM, where feasible.	2.2.6.4	City of Santa Rosa, Construction contractor	Construction
Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.	2.2.6.4	City of Santa Rosa, Construction contractor	Construction
Prohibit unnecessary idling (i.e., greater than 5 minutes in duration) of internal combustion engines within 100 feet of residences.	2.2.6.4	City of Santa Rosa, Construction contractor	Construction
Avoid staging of construction equipment within 200 feet of residences and locate all stationary noise-generating construction equipment, such as air compressors, portable power generators, or self-powered lighting systems as far practical from noise-sensitive receptors.	2.2.6.4	City of Santa Rosa, Construction contractor	Construction
Utilize "quiet" air compressors and other "quiet" equipment where such technology exists.	2.2.6.4	City of Santa Rosa, Construction contractor	Construction
<b>Natural Communities</b>			
Landscaped trees within the State right-of-way that will be removed or damaged during project construction will be replaced in kind, where feasible given water availability and space.	2.3.1.3	Department, City of Santa Rosa, Sonoma County	Final design
Trees protected under City of Santa Rosa and Sonoma County ordinances and native trees within the City or County right-of-way that will be removed or damaged during project construction will be replaced or mitigated in compliance with the applicable City and Sonoma County codes and ordinances, including City Code 17-24.050.	2.3.1.3	Department, City of Santa Rosa, Sonoma County	Final design

<b>Minimization and/or Mitigation Measure</b>	<b>IS/EA Section Reference</b>	<b>Responsible Party</b>	<b>Timing</b>
Other trees outside of the State right-of-way will be mitigated in compliance with the applicable city and county codes and ordinances.	2.3.1.3	Department, City of Santa Rosa, Sonoma County	Final design
<b><i>Wetlands and Other Waters of the United States</i></b>			
All temporarily impacted waters will be graded and restored to their pre-project conditions. Permanent impacts, in the form of new or modified culverts and roadside ditches, would be constructed to closely resemble or improve upon the pre-project conditions, wherever possible.	2.3.2.4	Department, City of Santa Rosa, Construction contractor	Final design, Construction
No ground-disturbing activities will be conducted outside the project area.	2.3.2.5	Department, City of Santa Rosa	Final Design
Site-appropriate erosion control measures, such as silt fencing, will be installed to prevent sediment and pollutant discharges to state and federal waters and wetlands or storm drains.	2.3.2.5	Department, City of Santa Rosa	Final Design
Temporary erosion control measures, such as installation of coir wattles or coir matting, will be implemented on all disturbed areas. Plastic monofilament netting will not be used as wildlife may become trapped or injured by the netting, and plastic residues and particles contribute to soil and water pollution.	2.3.2.5	Department, City of Santa Rosa	Final Design
Permanent erosion control measures will be implemented upon completion of construction. All disturbed areas will be revegetated with appropriate native, non-invasive species or non-persistent hybrids that will serve to stabilize site conditions.	2.3.2.5	Department, City of Santa Rosa	Final Design
The Contractor will write a Storm Water Pollution Prevention Plan, the Department will approve it, and it will be implemented to minimize water pollution during project construction.	2.3.2.5	Department, City of Santa Rosa	Final Design

<b>Minimization and/or Mitigation Measure</b>	<b>IS/EA Section Reference</b>	<b>Responsible Party</b>	<b>Timing</b>
Maintenance and refueling areas for equipment will be kept a minimum of 50 feet from drainage ditches and only on designated disturbed/developed areas where accidental spills can be contained immediately. All equipment shall be refueled with appropriate drip pans, absorbent pads, and water quality BMPs. Equipment and vehicles operating in the project area shall be checked and maintained daily to prevent leaks of fuels, lubricants, or other liquids.	2.3.2.5	Department, City of Santa Rosa	Final Design
Spill containment booms will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.	2.3.2.5	Department, City of Santa Rosa	Final Design
If the minimization and avoidance measures listed in Section 2.3.2.4 are not sufficient to ensure that the adverse effects to the aquatic environment are minimal, other forms of mitigation (rectifying or compensating) may also be used.	2.3.2.5	Department, City of Santa Rosa	Final Design
<b>Animal Species</b>			
Preconstruction surveys will be conducted by a Caltrans approved biologist no more than three days prior to the start of construction for activities (including vegetation removal, clearing, or cutting) occurring during the breeding season (January 15 to September 1).	2.3.3.4	Department, City of Santa Rosa, Construction contractor	Pre-Construction, Construction
If active raptor nests are found within 300 feet of the vicinity of the limits of construction work, or if active passerine nests are found within 50 feet, a non-disturbance buffer will be established at a distance sufficient to minimize nest/roost disturbance based on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential disturbance. Buffer size should be determined in cooperation with CDFW and USFWS.	2.3.3.4	Department, City of Santa Rosa, Construction contractor	Pre-Construction, Construction
If rescheduling work around active raptor or passerine nests/roosts is infeasible, a qualified biologist will monitor nests for signs of disturbance. If it is determined that project activities are resulting in nest/roost disturbance, work will cease immediately, and the CDFW and the USFWS will be contacted.	2.3.3.4	Department, City of Santa Rosa, Construction contractor	Pre-Construction, Construction

Minimization and/or Mitigation Measure	IS/EA Section Reference	Responsible Party	Timing
<b><i>Invasive Species</i></b>			
In compliance with the Executive Order on Invasive Species, EO 13112, and guidance from the Federal Highway Administration, the landscaping and erosion control included in the project will not use species listed as invasive. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.	2.3.4.4	City of Santa Rosa, Construction contractor	Construction

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## Appendix F List of Acronyms

AADT	Annual Average Daily Traffic
AB	California State Assembly Bill
ABAG	Association of Bay Area Governments
ADA	Americans with Disabilities Act
APE	Area of Potential Effects
APN	assessor's parcel number
ARB	California Air Resources Board
BAAQMD	Bay Area Air Quality Management District
BT&H	Business, Transportation, and Housing
BMP	Best Management Practices
BSA	biological study area
CalEPA	California Environmental Protection Agency
CALINE4	California LINE Source Dispersion Model, version 4
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (aka "Superfund")
CERFA	Community Environmental Response Facilitation Act
CFR	Code of Federal Regulations
CH <sub>4</sub>	methane
City	City of Santa Rosa
CNDDB	California Natural Diversity Database
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide
CTP	California Transportation Plan
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibels
DDI	diverging diamond interchange
DED	draft environmental document
Department	California Department of Transportation
DHHS	U.S. Department of Health and Human Services
DSA	Disturbed Soil Area
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc.
EMFAC	Emission Factors
EO	Executive Order
FCAA	Clean Air Act, as amended in 1990
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act

FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FONSI	Finding of No Significant Impact
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Programs
GHG	greenhouse gas
H <sub>2</sub> S	hydrogen sulfide
HFC-23	fluoroform
HFC-134a	s, s, s, 2 –tetrafluoroethane
HFC-152a	difluoroethane
HOV	High Occupancy Vehicle
I	Interstate
IGR	Intergovernmental Review
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
ITS	Intelligent Transportation System
L <sub>eq</sub> (h)	hourly equivalent sound level
LEDPA	least environmentally damaging practicable alternative
LOS	Level of Service
LT	long-term
LUL	land use and livability
LUST	leaking underground storage tanks
MBTA	Migratory Bird Treaty Act
mg/m <sup>3</sup>	Milligram Per Cubic Meter
MLD	Most Likely Descendent
MMT	million metric tons
mph	miles per hour
MPO	Metropolitan Planning Organizations
MS4	municipal separate storm sewer system
MSAT	Mobile Source Air Toxics
MTC	Metropolitan Transportation Commission
MVM	Million Vehicle Miles
N <sub>2</sub> O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NAHC	Native American Heritage Commission
ND	Negative Declaration
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NIA	No Information Available
NPDES	National Pollutant Discharge Elimination System
NO <sub>2</sub>	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration

## NOAA Fisheries

	National Oceanic and Atmospheric Administration National Marine Fisheries Service
NRCS	National Resource Conservation Service
O <sub>3</sub>	ozone
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Act
OSTP	Office of Science and Technology Policy
OWUS	Other Waters of the U.S.
PA	Programmatic Agreement
PA&ED	project approval and environmental document
Pb	lead
PCB	polychlorinated biphenyl
PDT	Project Development Team
PID	project initiation document
PG&E	Pacific Gas and Electric
PM	Particulate Matter
PM <sub>2.5</sub>	fine particulate matter
PM <sub>10</sub>	inhalable particulate matter
POAQC	Project of Air Quality Concern
POM	polycyclic organic matter
ppb	parts per billion
ppm	part per million
Project	US 101/Hearn Avenue Interchange Project
PS&E	Plans, Specifications, and Estimates
PSR-PDS	Project Study Report-Project Development Support
PST	Pacific Standard Time
R	receptor locations
RAP	Relocation Assistance Program
RCRA	Resource Conservation and Recovery Act of 1976
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB	California State Senate Bill
SCD	Seismic Design Criteria
SCTA	Sonoma County Transportation Authority
SCS	Sustainable Communities Strategy
SF <sub>6</sub>	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SLIC	spills, leaks, investigations and clean-ups
SMART	Sonoma-Marin Area Rail Transit
SO <sub>2</sub>	sulfur dioxide
ST	short-term
SWMP	Statewide Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan

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SWRCB	State Water Resources Control Board
T	transportation
TASAS	Traffic Accident Surveillance and Analysis System
TCE	temporary construction easement
TCM	Transportation Control Measure
TDM	Traffic Demand Management
TIP	Transportation Improvement Plan
Title VI	Title VI of the Civil Rights Act of 1964
TMDL	Total Maximum Daily Load
TMP	Transportation Management Plan
TNAP	Traffic Noise Analysis Protocol
TNM	Traffic Noise Model
TSCA	Toxic Substances Control Act
TSM	Traffic Systems Management
UD	urban design
US 101	United States Highway 101
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDOT	U.S. Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	underground storage tanks
$\mu\text{g}/\text{m}^3$	microgram per cubic meter
VHD	vehicle hours of delay
VMT	vehicle miles traveled
WDR	waste discharge requirements
WL	wetlands
WPCP	Water Pollution Control Plan

## **Appendix G List of Technical Studies**

*Complete references to the following studies are provided in Chapter 6.*

Air Quality Impact Assessment (AECOM 2016j)  
Archaeological Survey Report (AECOM 2016e)  
Community Impact Assessment (AECOM 2016a)  
Draft Project Report (AECOM 2016c)  
Historical Resources Evaluation Report (AECOM 2016f)  
Historic Property Survey Report (AECOM 2016g)  
Initial Site Assessment (AECOM 2016i)  
Location Hydraulic Study Report (WRECO 2016a)  
Mobile Source Air Toxics (AECOM 2016k)  
Natural Environment Study – Minimal Impacts (AECOM 2016m)  
Noise Abatement Decision Report (AECOM 2016l)  
Noise Study Report (Illingworth & Rodkin 2016)  
Paleontological Identification Report (AECOM 2016b)  
Structure Preliminary Geotechnical Report (AECOM 2016h)  
Traffic Operations Analysis Report (Fehr and Peers 2016)  
Visual Impact Assessment (AECOM 2016d)  
Water Quality Assessment Report (WRECO 2016b)

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