

## Application of Criteria for a Project of Air Quality Concern

**Project Title: US 101/Hearn Avenue Interchange Project**

**Project Summary for Air Quality Conformity Task Force Meeting: 10/22/15**

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### Description

- The project would:
  - o Replace the existing 2-lane Hearn Avenue overcrossing with a new 4-lane structure
  - o Widen the existing 1-lane southbound US 101 off-ramp to 2 lanes
  - o Provide bike lanes and sidewalks on new Hearn Avenue overcrossing (existing structure has sidewalk on south side only and no bike lanes)
- No change to US 101 mainline or northbound ramps

### Background

- In National Environmental Policy Act (NEPA) process for Initial Study/Environmental Assessment (IS/EA)
- Public review for IS/EA targeted for early 2016
- No comments received on air quality during public scoping

### Not a Project of Air Quality Concern (40 CFR 93.123(b)(1))

*(i) New or expanded highway projects with significant number/increase in diesel vehicles?*

- Interchange reconfiguration
- No additional through lanes on US 101
- Trucks represent 5 percent of Average Annual Daily Traffic (AADT) (below concern threshold)
- No increase in diesel vehicles
- No land use changes that would attract more diesel vehicles

*(ii) Affects intersections at Level of Service (LOS) D, E, or F with a significant number of diesel vehicles?*

- No increase in diesel vehicles
- Build Alternatives would improve 2020 and 2040 levels of service compared with No Build

*(iii) New bus and rail terminals and transfer points?—Not Applicable*

*(iv) Expanded bus and rail terminals and transfer points?—Not Applicable*

*(v) Affects areas identified in PM<sub>10</sub> or PM<sub>2.5</sub> implementation plan as site of violation?*

- No state implementation plan for PM<sub>2.5</sub>
- No exceedances of federal PM<sub>2.5</sub> standards recorded at nearest air monitoring station during last 5 years
- Project area is not identified as impacted in Bay Area Air Quality Management District (BAAQMD) Community Air Risk Evaluation Program

**Project Assessment Form for PM<sub>2.5</sub> Interagency Consultation**

<b>RTIP ID#</b> <i>(required)</i> 240529	
<b>TIP ID#</b> <i>(required)</i> SON150006	
<b>Air Quality Conformity Task Force Consideration Date</b> 10/22/15	
<b>Project Description</b> <i>(clearly describe project)</i>	
<p>The California Department of Transportation (Caltrans), 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 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.</p> <p>The project would replace the existing two-lane Hearn Avenue overcrossing (one lane in each direction) with a new overcrossing that provides four through lanes (two lanes in each direction). The overcrossing profile would be raised to increase the vertical clearance to the current Caltrans standard. The project would widen the southbound off-ramp to provide two exit lanes from southbound US 101, and additional turning lanes would be added at the southbound US 101 off-ramp intersection at Corby Avenue to the west of US 101. Other than the southbound freeway ramp modifications, the project would not change the alignment or operations of US 101 and the northbound US 101 on-/off-ramps.</p> <p>The following two Build Alternatives are being evaluated, along with the No Build Alternative:</p> <p><u>Alternative 2 – Replace Overcrossing in Same Location and Widen Southbound US 101 Off-Ramp</u>  Alternative 2 would reconstruct the Hearn Avenue overcrossing in the same location and along generally the same alignment as the existing structure (Figure 2). The new overcrossing would have four standard 12-foot through lanes, a wide striped or raised center median that would accommodate a left turn lane for the adjacent intersections, 8-foot sidewalks on each side of the roadway, and 6-foot shoulders that will serve as Class II bike lanes.</p> <p>West of US 101, this alternative would widen the southbound US 101 off-ramp from one to two lanes at the exit from southbound US 101 and additional turning lanes would be provided at the intersection with Corby Avenue. The southbound US 101 on-ramp would not be modified.</p> <p><u>Alternative 2A – Replace Overcrossing in Same Location and Realign Southbound US 101 On-/Off-Ramps</u>  Alternative 2A would also reconstruct the Hearn Avenue overcrossing in the same location and along generally the same alignment as the existing structure (Figure 3). The overcrossing and pedestrian and bicycle improvements along Hearn Avenue where it crosses US 101 would be the same as for Alternative 2. On the west side of US 101, Alternative 2A would relocate the southbound US 101 on-/off-ramp connections with Corby Avenue by approximately 250 feet to the south, to a new signalized intersection with the Corby Avenue Extension roadway. The southbound US 101 off-ramp would be widened from one to two lanes, and additional turning lanes would be provided at the relocated intersection with Corby Avenue. The southbound US 101 on-ramp would also be realigned and lengthened to provide additional storage along the on-ramp up to the meter line, and the adjacent Corby Avenue roadway would be realigned to accommodate the modified on-ramp. Corby Avenue would be widened between the Corby Avenue Extension and Hearn Avenue to provide additional storage length and improved signalized intersection operations.</p>	
<b>Type of Project:</b> Reconfigure existing interchange	
<b>County</b> Sonoma	<b>Narrative Location/Route &amp; Postmiles</b> 04-SON-101 PM 17.9/18.6  <b>Caltrans Projects – EA#</b> 04-4A1301

**PM<sub>2.5</sub> Project Assessment Form for Interagency Consultation**

<b>Lead Agency:</b> Caltrans				
<b>Contact Person</b> David Montague, Supervising Engineer, City of Santa Rosa	<b>Phone#</b> (707) 543-3860	<b>Fax#</b> (707) 543-4320	<b>Email</b> dmontague @srcity.org	
<b>Federal Action for which Project-Level PM Conformity is Needed</b> <i>(check appropriate box)</i>				
<b>Categorical Exclusion (NEPA)</b>	X	<b>EA or Draft EIS</b>	<b>FONSI or Final EIS</b>	<b>PS&amp;E or Construction</b>
<b>Scheduled Date of Federal Action:</b> September 2016				
<b>NEPA Delegation – Project Type</b> <i>(check appropriate box)</i> <b>Not an exempt project</b>				
Exempt	<b>Section 6004 – Categorical Exemption</b>		<b>Section 6005 – Non-Categorical Exemption</b>	
<b>Current Programming Dates</b> <i>(as appropriate)</i>				
	<b>PE/Environmental</b>	<b>ENG</b>	<b>ROW</b>	<b>CON</b>
<b>Start</b>	8/14	1/17	1/17	5/19
<b>End</b>	9/16	12/18	12/18	6/21
<b>Project Purpose and Need (Summary):</b> <i>(please be brief)</i>				
The purpose of the proposed project is to improve local traffic circulation and regional traffic operations; improve multimodal access, connectivity, and operations; and improve overall safety of the facility.				
The project is needed because the existing Hearn Avenue interchange is unable to accommodate existing and future traffic volumes, resulting in congestion on Hearn Avenue and in particular on the southbound off-ramp from US 101. 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, requiring pedestrians to walk along the edge of the roadway in the shoulder area. Bicyclists must share the traffic lanes with vehicles.				

## Project Assessment Form for PM<sub>2.5</sub> Interagency Consultation

### **Surrounding Land Use/Traffic Generators** *(especially effect on diesel traffic)*

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 (see Figure 4).

The area between US 101 and Santa Rosa Avenue to the south of Hearn Avenue includes a variety of commercial properties including a recreational vehicle showroom, a grocery store, "big box" stores, fast food restaurants, and a few mobile home communities. Immediately south of Hearn Avenue is a cemetery/crematorium/funeral facility and an auto detailing facility. Just off of Santa Rosa Avenue to the east of the project area is more residential property.

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 grocery store, stores including a Costco, and fast food restaurants.

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. Farther west of US 101 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 overcrossing. The residential area has single and multi-family housing, green space, parks, and schools nearby.

The project would not result in changes to land use that would affect diesel truck traffic in the area.

## PM<sub>2.5</sub> Project Assessment Form for Interagency Consultation

**Brief summary of assumptions and methodology used for conducting analysis** (please keep this concise – specifics may include date of when traffic counts were conducted, studies where truck percentages were derived)

Data were collected in November 2014 to determine existing peak hour traffic volumes, truck percentages, and queues on key local roadways within the study area. Intersection turning movement, vehicle classification (truck surveys), pedestrian and bicycle counts were conducted during the morning (7:00 AM to 9:00 AM) and evening (4:00 PM to 6:00 PM) peak periods at the seven study intersections during a typical weekday on Thursday, November 20, 2014, while local schools were in session. Travel time surveys and supplemental ramp and mainline counts were also completed between 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. In addition, lane configurations and posted speed limits were collected for study area roadways. The City of Santa Rosa provided peak hour vehicle count data for five of the seven study intersections between 2007 and 2013.

Mainline travel times and speeds for US 101 were obtained using GPS-equipped “floating” cars.<sup>1</sup> Floating car runs were conducted for the mainline in both the northbound and southbound directions during the AM and PM peak period on November 20, 2014. To ensure a departure time of at most every 15 minutes, two vehicles were deployed during each peak period, one starting at each end. The cars measured travel time and speed between Todd Road and College Avenue, turning around at the following interchange (Golf Course Drive in the south and Guerneville Road / Steele Lane in the north).

Future traffic conditions were evaluated for an opening year of 2020 and a horizon year of 2040.

### Assumptions

The project would replace an existing overcrossing and does not propose to add capacity to US 101 or to the surrounding roadway network. Therefore, the project would not change overall travel demands or origin-destination patterns compared to the No Build scenario. Any redistribution of traffic would reflect the proposed interchange modification. As a result, the AADT on US 101 and adjacent interchanges and intersections would be the same for Alternatives 2 and 2A as for the No Build Alternative. However, peak hour levels of service at local roadway intersections would improve in 2020 and 2040 with Alternatives 2 and 2A compared with No Build because of the additional lanes on the overcrossing, additional storage on the southbound off-ramp, and signal timing changes.

For both opening year and horizon year, truck percentages were assumed to be 5 percent throughout the traffic study area based on field counts. This is consistent with 2013 Caltrans truck count data, which identifies truck percentages for nearby legs of the US 101 corridor as in the 5 to 6 percent range, with 2-axle trucks representing approximately 50 percent of truck AADT.<sup>2</sup>

### Source

All traffic data in this form is from Fehr and Peers Transportation Consultants, including the *Draft Traffic Operations Analysis Report* (in preparation), except where noted.

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<sup>1</sup> Floating car data, also known as floating cellular data, is a method to determine the traffic speed on the road network. It is based on the collection of localization data, speed, direction of travel and time information from mobile phones or other devices in vehicles that are being driven.

<sup>2</sup> [http://www.dot.ca.gov/hq/traffops/census/docs/2013\\_aadt\\_truck.pdf](http://www.dot.ca.gov/hq/traffops/census/docs/2013_aadt_truck.pdf); Sonoma County data for US 101 PM 19.646, at SR 12 junction.

**Project Assessment Form for PM<sub>2.5</sub> Interagency Consultation**

**Opening Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility**

The project is an interchange project but the traffic analysis includes study area street intersections, which are shown in Figure 5. Preliminary, in progress data for Build and No Build LOS are shown below. AADT and percent/number of trucks are shown in the following section.

**Table 1. Year 2020 Intersection Peak Hour Levels of Service**

Intersection	Peak Hour	LOS <sup>1</sup>		
		No Build	Alternative 2	Alternative 2A
1. Santa Rosa Avenue / Kawana Springs Road	AM	B	B	B
	PM	B	B	B
2. Santa Rosa Avenue / Hearn Avenue	AM	C	C	C
	PM	C	C	C
3. Santa Rosa Avenue / Yolanda Avenue / US 101 Northbound Ramps	AM	C	C	C
	PM	C	C	C
4. Santa Rosa Avenue / Southside Drive	AM	A	A	A
	PM	B	B	B
5. Corby Avenue / Hearn Avenue	AM	<b>D</b>	C	C
	PM	<b>D</b>	C	C
6. Corby Avenue / US 101 Southbound Ramps	AM	C	C	NA
	PM	<b>D</b>	C	NA
7. Corby Avenue / Corby Avenue Extension	AM	A	A	C
	PM	A	A	C

1. Signalized and all-way stop intersection level of service based on weighted average control delay per vehicle, according to the 2010 Highway Capacity Manual.

**Bold** represents levels of service D, E, and F.

NA = Not applicable; intersection does not exist with this alternative.

**RTP Horizon Year / Design Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility**

**Table 2. Year 2040 Intersection Peak Hour Levels of Service**

Intersection	Peak Hour	LOS <sup>1</sup>		
		No Build	Alternative 2	Alternative 2A
1. Santa Rosa Avenue / Kawana Springs Road	AM	C	C	C
	PM	<b>D</b>	<b>D</b>	<b>D</b>
2. Santa Rosa Avenue / Hearn Avenue	AM	C	C	C
	PM	<b>D</b>	C	C
3. Santa Rosa Avenue / Yolanda Avenue / US 101 Northbound Ramps	AM	<b>F</b>	<b>D</b>	<b>D</b>
	PM	<b>E</b>	<b>D</b>	<b>D</b>
4. Santa Rosa Avenue / Southside Drive	AM	<b>E</b>	A	A
	PM	<b>E</b>	C	C
5. Corby Avenue / Hearn Avenue	AM	<b>F</b>	<b>E</b>	<b>E</b>
	PM	<b>F</b>	<b>D</b>	<b>D</b>
6. Corby Avenue / US 101 Southbound Ramps	AM	<b>D</b>	C	NA
	PM	<b>E</b>	C	NA
7. Corby Avenue / Corby Avenue Extension	AM	C	A	<b>D</b>
	PM	<b>D</b>	A	C

1. Signalized and all-way stop intersection level of service based on weighted average control delay per vehicle, according to the 2010 Highway Capacity Manual.

**Bold** represents levels of service D, E, and F.

NA = Not applicable; intersection does not exist with this alternative.

**PM<sub>2.5</sub> Project Assessment Form for Interagency Consultation**

**Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT**

**Table 3. Year 2020 AADT for No Build and Both Build Alternatives**

<b>Intersection or Mainline Segment</b>	<b>AADT</b>	<b>Truck AADT (5%)</b>
1. Santa Rosa Avenue / Kawana Springs Road	31,400	1,570
2. Santa Rosa Avenue / Hearn Avenue	45,400	2,270
3. Santa Rosa Avenue / Yolanda Avenue / US 101 Northbound Ramps	47,200	2,360
4. Santa Rosa Avenue / Southside	29,800	1,490
5. Corby Avenue / Hearn Avenue	42,800	2,140
6. Corby Avenue / US 101 Southbound Ramps	28,100	1,410
7. Corby Avenue / Corby Avenue Extension	16,700	840
Hearn Avenue Overcrossing	28,900	1,450
Santa Rosa Avenue between Yolanda Avenue and Hearn Avenue	34,100	1,710
Corby Avenue between Hearn Avenue and US 101 Southbound Ramps	23,000	1,150
US 101 Northbound Off-Ramp	5,800	290
US 101 Northbound On-Ramp	13,500	680
US 101 Southbound Off-Ramp	11,300	570
US 101 Southbound On-Ramp	6,500	330
US 101 Northbound North of Hearn Avenue Ramps	66,500	3,330
US 101 Northbound South of Hearn Avenue Ramps	58,500	2,930
US 101 Southbound North of Hearn Avenue Ramps	68,700	3,440
US 101 Southbound South of Hearn Avenue Ramps	63,900	3,200

**RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT**

**Table 4. Year 2040 AADT for No Build and Both Build Alternatives**

<b>Intersection or Mainline Segment</b>	<b>AADT</b>	<b>Truck AADT (5%)</b>
1. Santa Rosa Avenue / Kawana Springs Road	37,900	1,900
2. Santa Rosa Avenue / Hearn Avenue	50,900	2,550
3. Santa Rosa Avenue / Yolanda Avenue / US 101 Northbound Ramps	53,800	2,690
4. Santa Rosa Avenue / Southside	34,400	1,720
5. Corby Avenue / Hearn Avenue	47,100	2,360
6. Corby Avenue / US 101 Southbound Ramps	29,100	1,460
7. Corby Avenue / Corby Avenue Extension	17,100	860
Hearn Avenue Overcrossing	31,200	1,560
Santa Rosa Avenue between Yolanda Avenue and Hearn Avenue	36,700	1,840
Corby Avenue between Hearn Avenue and US 101 Southbound Ramps	24,300	1,220
US 101 Northbound Off-Ramp	7,100	360
US 101 Northbound On-Ramp	14,200	710
US 101 Southbound Off-Ramp	11,900	600
US 101 Southbound On-Ramp	7,700	390
US 101 Northbound North of Hearn Avenue Ramps	72,600	3,630
US 101 Northbound South of Hearn Avenue Ramps	64,400	3,220
US 101 Southbound North of Hearn Avenue Ramps	72,000	3,600
US 101 Southbound South of Hearn Avenue Ramps	67,500	3,380

**Project Assessment Form for PM<sub>2.5</sub> Interagency Consultation**

**Opening Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses**  
Not applicable

**RTP Horizon Year / Design Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses**  
Not applicable

**Describe potential traffic redistribution effects of congestion relief** (*impact on other facilities*)

The project would modify an existing interchange and does not propose to add capacity to US 101 or to the surrounding roadway network. The project would not change overall travel demands or origin-destination patterns compared to the No Build scenario. The project is not expected to result in adverse traffic redistribution effects.

**Comments/Explanation/Details** (*please be brief*)

The project is not a project of air quality concern as defined in 40 CFR 93.123(b)(1) for the following reasons:

*The project is not a "new or expanded highway project with a significant number of or increase in diesel vehicles."*

The project would replace an existing overcrossing and would not add through lanes on US 101. Trucks currently represent 5 percent of AADT and would continue to do so in the opening and RTP horizon years. The percent and number of trucks in the project area is considered to be below the concern threshold based on EPA guidance.<sup>3</sup> 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 not affect or result in intersections that are at LOS D, E, or F with a significant number of diesel vehicles.*

The project area contains intersections that are, or in the future will be, at LOS D, E, or F. However, the project would not increase the number of diesel vehicles in the project area, and the Build Alternatives would improve 2020 and 2040 levels of service compared with No Build.

*The project is not a new or expanded bus or rail terminal.*

*The project would not affect an area identified in a PM<sub>2.5</sub> implementation plan as a site of violation.*

No exceedances of the federal PM<sub>2.5</sub> standards have been recorded at nearest air monitoring station during last 5 years.<sup>4</sup> In addition, the project area is not identified as an impacted community in the BAAQMD Community Air Risk Evaluation Program.<sup>5</sup>

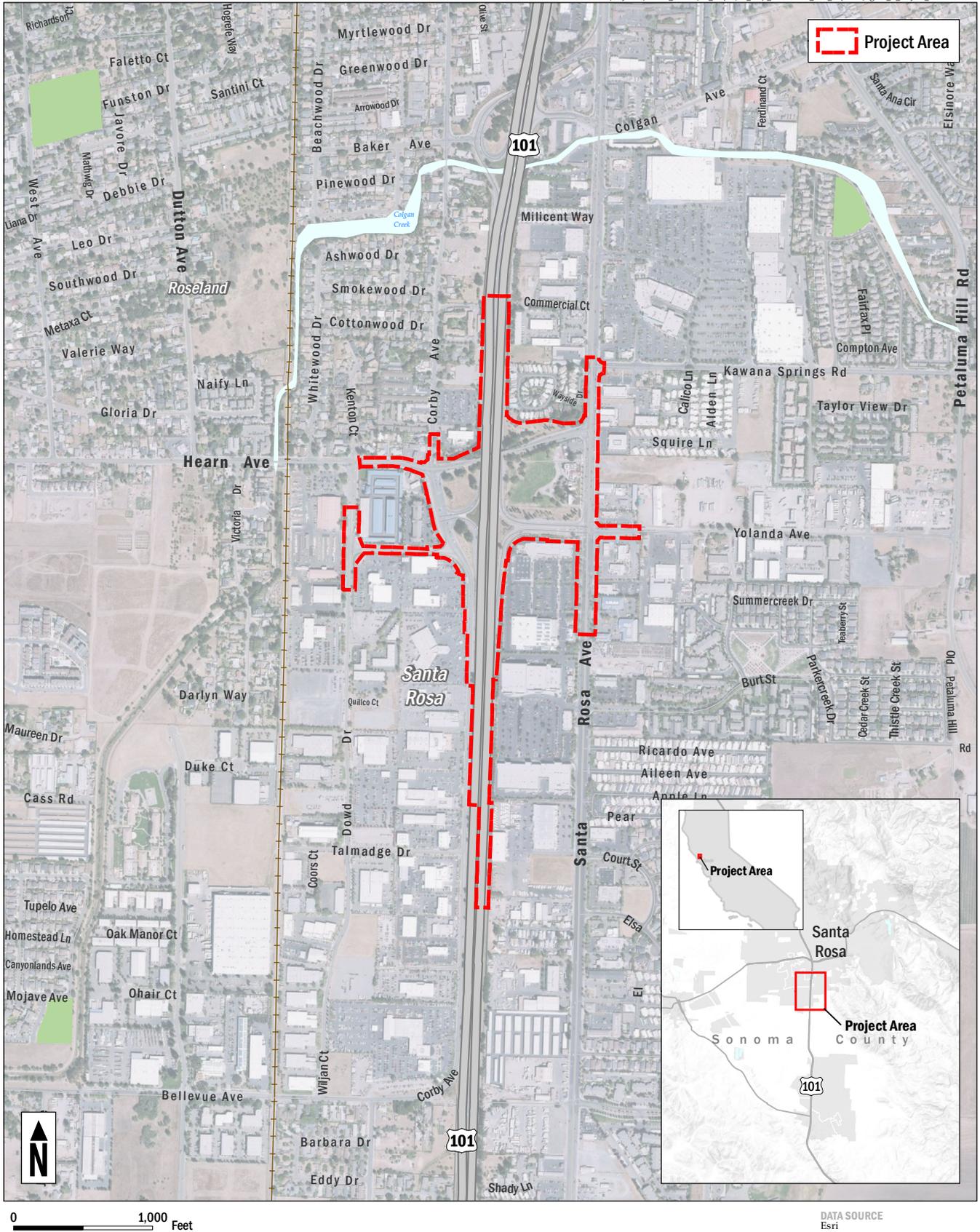
<sup>3</sup> PM Hot-spot Analyses: Frequently Asked Questions.

<http://www3.epa.gov/otaq/stateresources/transconf/generalinfo/420f12082.pdf>.

<sup>4</sup> Data from the nearest air monitoring stations: the Sebastopol station at 103 Morris Street, Sebastopol, CA 95472, approximately 5.6 miles west of the project area, which started operating in January 2014; and the Santa Rosa station on 5th Street in downtown Santa Rosa, approximately 2 miles north east of the project site.

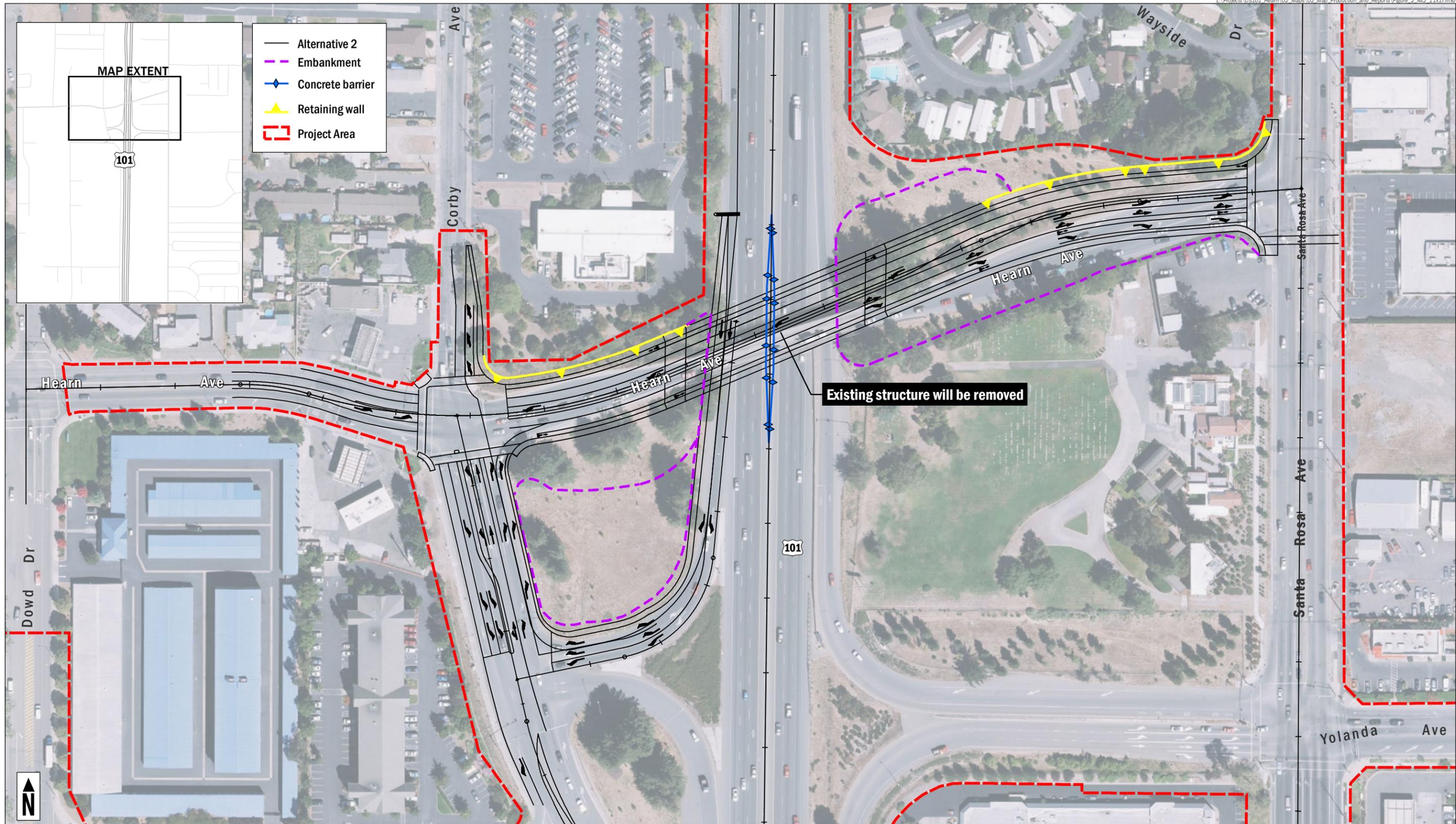
<sup>5</sup> <http://www.baaqmd.gov/plans-and-climate/community-air-risk-evaluation-care-program>.

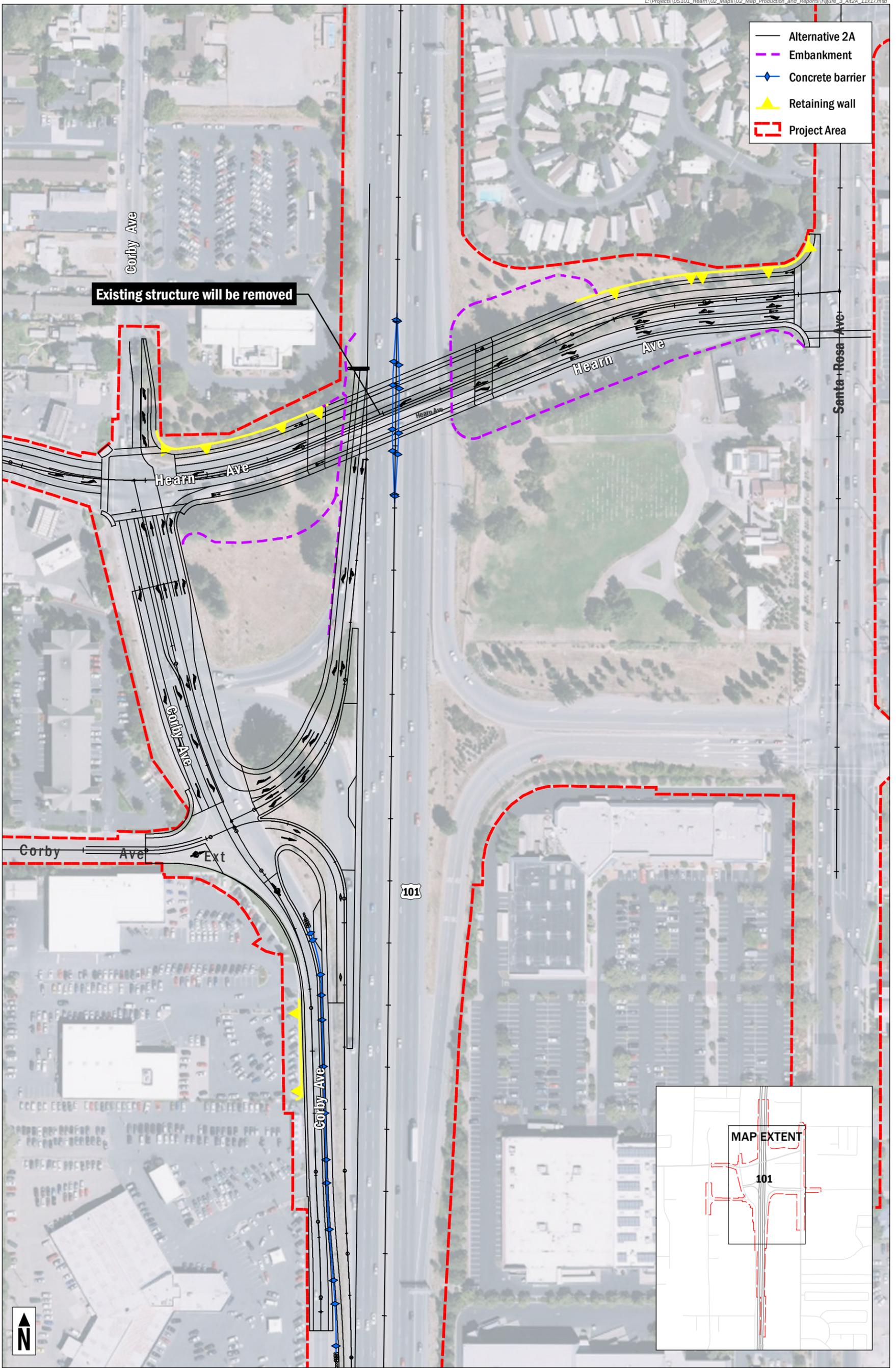
**FIGURES**



US 101/Hearn Avenue Interchange Project  
Santa Rosa, CA

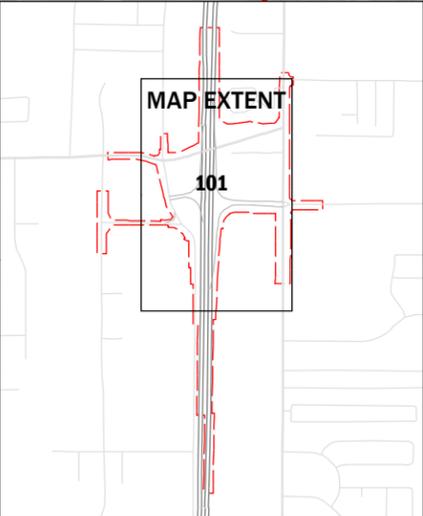
**FIGURE 1**  
*Project Vicinity*





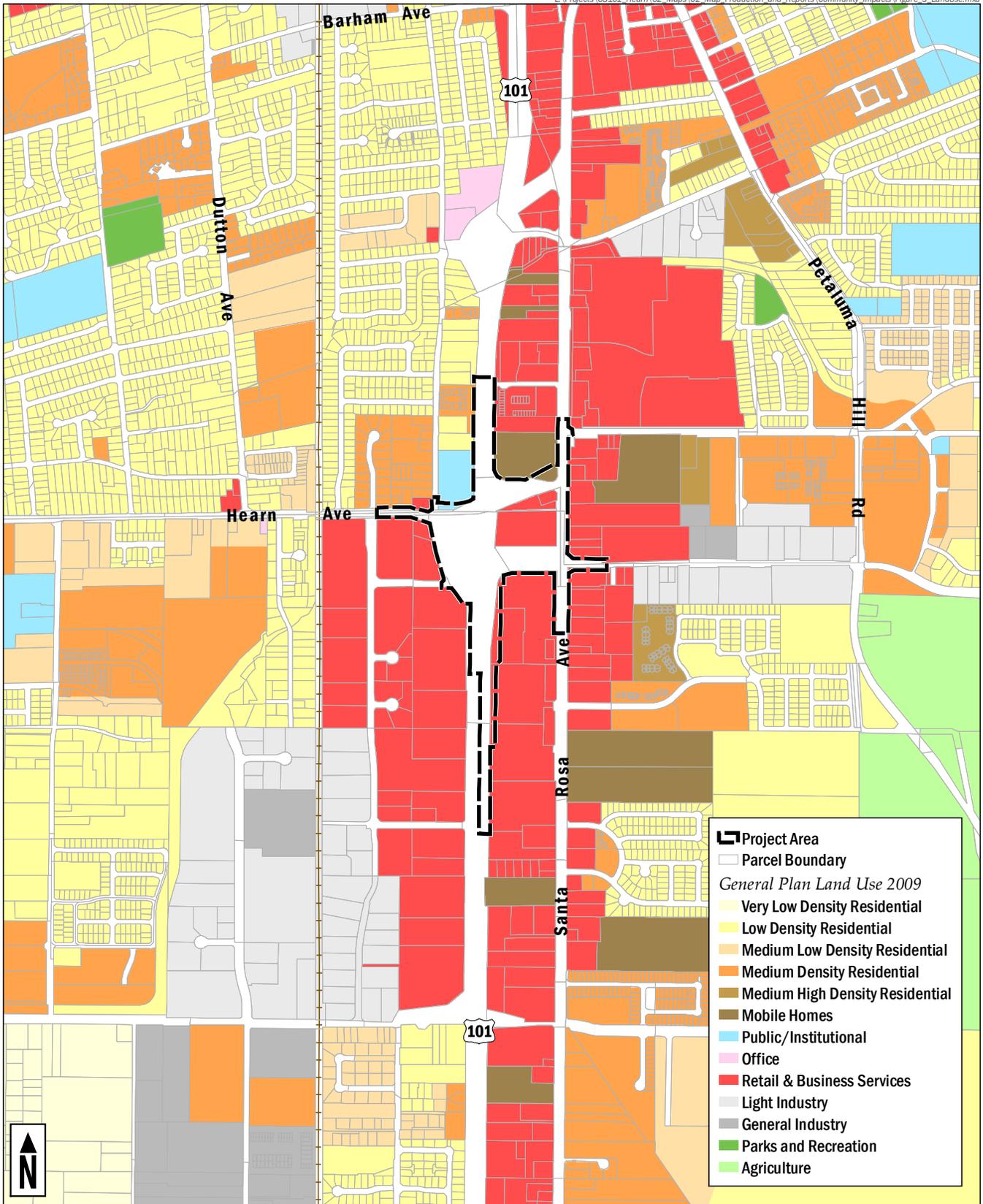
- Alternative 2A
- - - Embankment
- ◆ Concrete barrier
- ▲ Retaining wall
- - - Project Area

Existing structure will be removed



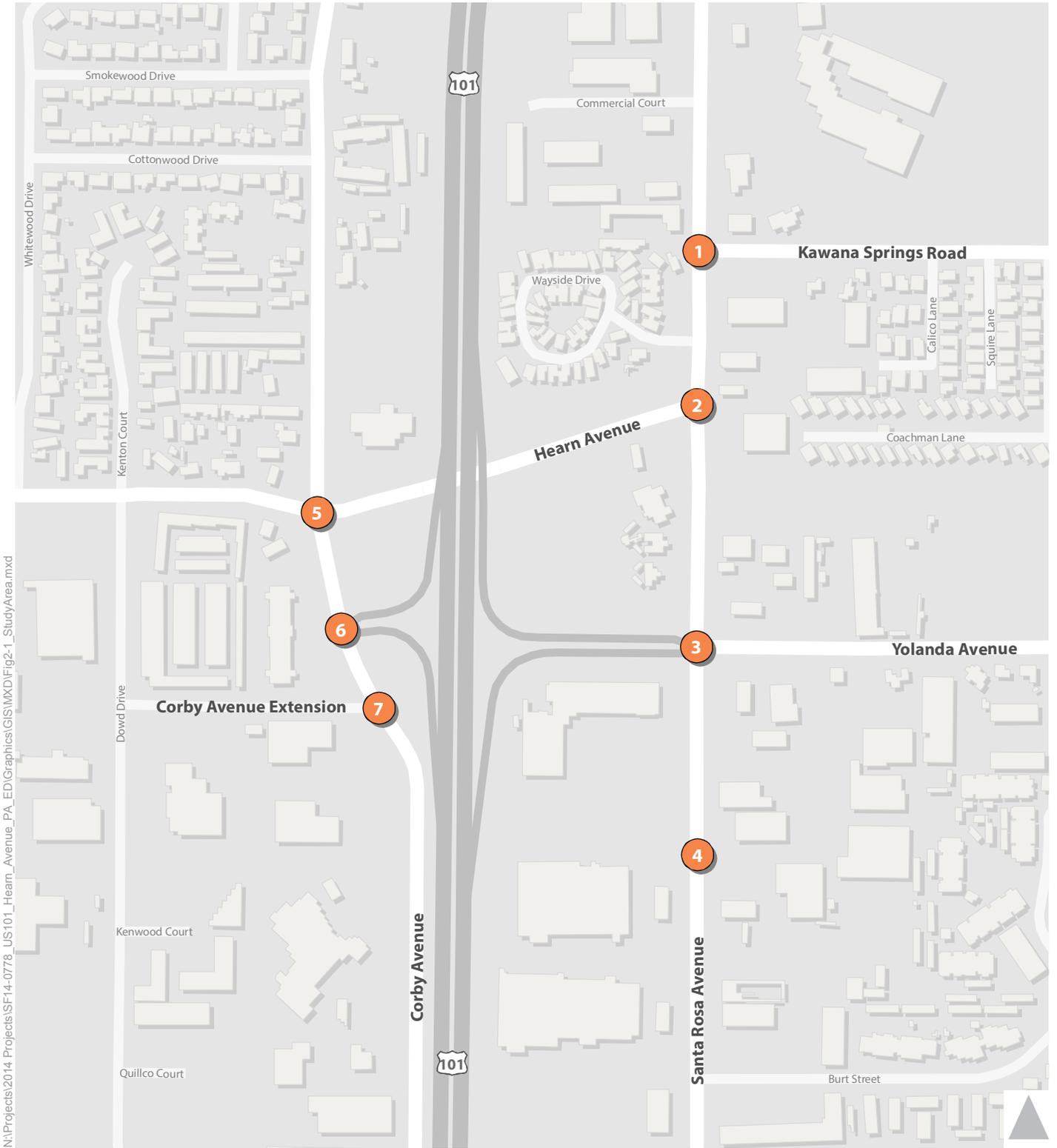
0 250 Feet

DATA SOURCE  
Esri (imagery, roads)



0 1,000 Feet

DATA SOURCE  
City of Santa Rosa, 2009



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# Study Intersection



Figure 5  
Study Area