

Application of Criteria for a Project of Air Quality Concern

Project Title: US 101/SR 84 (Woodside Road) Interchange Improvement Project

Project Summary for Air Quality Conformity Task Force Meeting: July 23, 2015

Description

- The project would:
 - o Widen a 0.4-mile segment of SR 84 (Woodside Road) from 5 to 6 lanes.
 - o Construct direct-connect flyover ramps between US 101 and Veterans Boulevard.
 - o Improve the intersections of Woodside Road with Veterans Boulevard, Broadway, and Bay Road to the west of US 101, and Seaport Boulevard/East Bayshore Road/Blomquist Road to the east of US 101.
 - o Construct additional pedestrian and bicycle facilities throughout the project area.
- The mainline of US 101 will not change.

Background

- Early in NEPA process for Initial Study/Environmental Assessment (IS/EA)
- Public review for IS/EA targeted for late 2015/early 2016

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?

- Not a new or expanded highway project
- Interchange modification—no additional lanes on US 101
- No increase in diesel truck volumes or percentages on US 101 or SR 84
- Close to 70% of trucks in project area are 2-axle non-diesel
- No project changes to land use that would affect diesel traffic percentage

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

- Intersections at LOS D, E, or F improve with all build alternatives compared to No Build in both 2022 and 2042
- Delay times improve by an average of 50% with all build alternatives compared to No Build in both 2022 and 2042

(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 PM₁₀ or PM_{2.5} implementation plan as site of violation?

- No state implementation plan for PM_{2.5}
- No violations of the annual federal standard for PM_{2.5} have been recorded in last 5 years
- Redwood City has been removed from the BAAQMD CARE Community list due to significant reductions in emissions of diesel PM in 2015 compared to 2005

Project Assessment Form for PM_{2.5} Interagency Consultation

RTIP ID# <i>(required)</i> 21603	
TIP ID# <i>(required)</i> SM-050027	
Air Quality Conformity Task Force Consideration Date 7/23/15	
<p>Project Description <i>(clearly describe project)</i></p> <p>The California Department of Transportation (Caltrans), in cooperation with the City of Redwood City (City) and the San Mateo County Transportation Authority (SMCTA), proposes to improve the United States Highway 101 (US 101)/State Route (SR) 84 (Woodside Road) interchange in the City of Redwood City, County of San Mateo. The project would widen and add lanes to SR 84 (Woodside Road; hereafter simply Woodside Road), reconstruct all ramp connections to US 101, and construct direct-connect flyover ramps between US 101 and Veterans Boulevard. The project would also construct additional pedestrian and bicycle facilities throughout the project area and improve the intersections of Woodside Road with Veterans Boulevard, Broadway, and Bay Road to the south of US 101, and Seaport Boulevard/East Bayshore Road/Blomquist Street to the north of US 101. The project area is shown in Figure 1.</p> <p>The project would widen Woodside Road from five lanes (two eastbound and three westbound) to six lanes (three in each direction) plus turn pockets. Woodside Road would be lowered in grade to increase the vertical clearance at the US 101 undercrossing from 14.5 feet to 15.5 feet. Additional turning lanes with longer pocket lengths would be added at ramp intersections as well as at Blomquist Street, East Bayshore Road, Broadway, and Bay Road. In addition, the project would construct direct-connect flyover ramps between northbound US 101 and westbound Veterans Boulevard and between eastbound Veterans Boulevard and southbound US 101. The project would also eliminate the existing five-legged intersection at Broadway and Woodside Road. Other than the freeway on-ramp and off-ramp modifications, the project would not change the alignment or operations of US 101.</p> <p>The following three build alternatives are being evaluated, along with the No Build Alternative:</p> <ul style="list-style-type: none"> • Alternative 3 would replace the existing northbound US 101 loop ramps to and from Woodside Road with a new slip on-ramp, loop on-ramp, and diagonal off-ramp in a single partial cloverleaf ramp configuration. The new ramps would connect with Seaport Boulevard at a new signalized intersection. Alternative 3 would also realign and replace the existing southbound US 101 ramps with a single wider diamond-configuration off-ramp and new on-ramp connecting with a new signalized intersection. • Alternative 3A would be the same as Alternative 3 except it would replace the new signalized intersection north of US 101 with a roundabout. • Alternative 8B would replace all existing US 101 ramp connections with diagonal ramps on both sides of US 101 in a diverging diamond configuration. Woodside Road would be reconfigured to allow eastbound and westbound traffic to cross to the opposite side of the road and back again at two new signalized intersections, one on each side of US 101. This configuration would reduce the number of signalized intersections on Woodside Road at the on- and off-ramps. <p>Maps of each build alternative are provided in Attachment 1.</p>	
Type of Project: Reconfigure existing interchange	
County San Mateo	Narrative Location/Route & Postmiles SR 84: 25.3-25.7, US 101: 4.6-6.5 Caltrans Projects – EA# 235360
Lead Agency: City of Redwood City	

PM_{2.5} Project Assessment Form for Interagency Consultation

Contact Person Paul Krupka, City's Contract Project Manager		Phone# 650.504.2299	Fax#	Email paul@ pkrupkaconsulting.com	
Federal Action for which Project-Level PM Conformity is Needed <i>(check appropriate box)</i>					
Categorical Exclusion (NEPA)	X	EA or Draft EIS	FONSI or Final EIS	PS&E or Construction	Other
Scheduled Date of Federal Action: October 2016					
NEPA Delegation – Project Type <i>(check appropriate box)</i>					
Exempt	Section 6004 – Categorical Exemption		Section 6005 – Non- Categorical Exemption		
Current Programming Dates <i>(as appropriate)</i>					
	PE/Environmental	ENG	ROW	CON	
Start	10/2013	10/2016	10/2016	4/2020	
End	10/2016	10/2019	10/2019	4/2023	

Project Purpose and Need (Summary): *(please be brief)*

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

The project is needed to address backups at local street intersections during peak periods that typically extend to the next intersection in either direction. Backups from the Broadway/Woodside Road intersection extend onto the southbound US 101 off-ramp and auxiliary lane. In addition, Woodside Road has no sidewalks or bicycle lanes between Bay Road and Blomquist Street and lacks signalized crosswalks near the south side of the interchange.

Project Assessment Form for PM_{2.5} Interagency Consultation

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

Existing land use types within the project area are industrial, commercial, mixed-use, and urban reserve, as shown in Figure 2.

North of the US 101/Woodside Road interchange are mostly industrial and mixed-use waterfront neighborhood land uses. A 100-acre area north of US 101 between Redwood Creek to the west and the eastern boundary of the former Malibu Grand Prix property to the east is undergoing land use and zoning review as part of the proposed Inner Harbor Specific Plan. The plan, which is expected to be completed in late 2015, would provide a planning framework and policies to guide the development of additional commercial office and retail space, residential units, and recreation uses in the plan area. Salt crystallizer beds, which are designated as an urban reserve and owned and operated by Cargill, lie northeast of the interchange.

Farther north of the interchange along Seaport Boulevard are several industrial businesses (recycling, construction, and materials processing); commercial land uses along Chesapeake Drive; the Port of Redwood City; and Pacific Shores Center business park. The Port's location in relation to the project area is shown in Figure 3, and the Port's layout is shown in Figure 4. Approximately 0.5 mile north of the construction limits of the proposed project, a separate frontage road for Port-related traffic runs parallel to Seaport Boulevard between Seaport Court and the northern end of the Port.

The area southwest of the US 101/Woodside Road interchange generally contains downtown Redwood City with commercial, mixed, and residential land uses. The area southeast of the interchange is designated as "Industrial-Light/Incubator Overlay" to promote new startup industrial businesses along Broadway just east of Woodside Road. Other land uses southeast of the interchange include mixed-use, open space, public/semi-public, and residential.

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

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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)

Methodology. Data collection efforts were undertaken in January and May 2014 while local schools were in session to determine existing AM and PM peak period and peak hour traffic volumes, peak hour pedestrian and bicycle volumes, truck volumes and percentages, freeway bottleneck locations and queues, and queues on key local roadways within the study area. Field observations of traffic congestion and queues were conducted during the AM and PM peak periods on several weekdays in early 2014 including the day that intersection traffic counts were collected.

Fehr & Peers obtained ramp and mainline volume data based on traffic counts from the following sources:

- Ramp volumes from the Existing Conditions Report for the US 101/Holly Street Interchange Project (Fehr & Peers, December 2013)
- Ramp counts from the Caltrans Census database (2013)
- Ramp counts from January 2014 using pneumatic tubes to supplement Caltrans Census counts
- Mainline counts obtained from the Performance Measurement System (PeMS) database (2014)

Data collection efforts regarding truck volumes included: (1) freeway mainline counts via Wavetronix,¹ (2) turning movement counts at the study intersections, (3) vehicle classification surveys for one location on Woodside Road and two locations on Seaport Boulevard, and (4) questionnaires submitted to representatives of companies near the interchange that generate truck traffic. The minimum size vehicle considered a truck is the 2-axle single unit truck (e.g., UPS truck and FedEx truck). The truck data collected in the field was used as an input in both the freeway analysis and intersection analysis to better represent the impact of trucks on traffic operations.

The responses to the truck questionnaires indicate that truck volumes peak around noon on weekdays, and the majority of truck traffic occurs before 1:00 PM. Peak morning and evening hours for overall traffic in the project area are 7:30 to 8:30 AM and 5:00 to 6:00 PM.

Predominant truck travel routes on Seaport Boulevard use US 101 to and from areas east of the project location (to and from the Santa Clara County direction). Fewer trucks from Seaport Boulevard use Woodside Road, or US 101 to and from the north.

Future traffic conditions were evaluated for an opening year of 2022 and a horizon year of 2042.

Assumptions. The project would reconfigure an existing interchange 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 traffic demand volumes on US 101 and adjacent interchanges and intersections would be the same for Alternatives 3, 3A, and 8B as for the No Build Alternative.

The following heavy vehicle mix was assumed based on field counts:

- 69% 2-axle, single-unit truck (30 feet)
- 7% 3-axle, semi truck (40 feet)
- 16% less than 5-axle, semi truck (45 feet)
- 5% 5-axle or higher-axle, truck (65 feet)
- 3% buses (40 feet)

Truck percentages on US 101 at the SR 84 interchange average 4.5%. Truck percentages on SR 84 at the US 101 interchange average 15%. (To the west on SR 84, truck percentages decrease.) Future truck percentages are not expected to vary by build alternative.

Source. All traffic data in this form is from the following source:

Fehr and Peers. 2015. *Draft Traffic Operations Analysis Report*. US 101/SR 84 (Woodside Road) Interchange Improvement Project. March 31, 2015.

¹ Wavetronix is a radar traffic detector that is placed on pole along the roadway to collect traffic information such as number of vehicles and general size of vehicles (small, medium, and large). Trucks are considered medium and large vehicles.

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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. Opening Year (2022) Peak Hour Intersection LOS

Intersection	Peak Hour	No Project		Alternative 3/3A			Alternative 8B		
		LOS	Delay/Vehicle	LOS	Delay/Vehicle	% Delay Reduction Over No Project	LOS	Delay/Vehicle	% Delay Reduction Over No Project
Blomquist Street/ Seaport Boulevard	AM	E	70	C	28	60%	C	30	57%
	PM	F	82	D	36	56%	D	35	57%
Lyngso Access / Seaport Boulevard	AM	E	43	C	15	65%	D	32	26%
	PM	F	73	C	15	79%	C	17	77%
Veterans Boulevard / Woodside Road (US 101 SB Ramps/Woodside Road with project alternatives)	AM	F	237	C	23	90%	C	24	90%
	PM	F	188	C	26	86%	C	26	86%
Broadway / Woodside Road	AM	F	321	D	46	86%	D	49	85%
	PM	F	183	D	43	77%	D	47	74%
Bay Road / Woodside Road	AM	F	139	D	38	73%	D	38	73%
	PM	F	170	D	37	78%	C	33	81%
Spring Street / Woodside Road	AM	F	51	A	7	86%	A	7	86%
	PM	E	36	C	22	39%	B	15	58%
Middlefield Road / Woodside Road	AM	F	155	F	142	8%	F	121	22%
	PM	F	337	F	351	-4%	F	300	11%
Blomquist Street / Maple Street	AM	A	5	A	5	0%	A	5	0%
	PM	A	5	A	6	-20%	A	6	-20%
Oddstad Drive / Maple Street	AM	C	20	A	9	55%	B	11	45%
	PM	F	352	F	327	7%	F	297	16%
Veterans Boulevard / Maple Street	AM	E	66	C	28	58%	C	28	58%
	PM	D	40	D	49	-23%	D	43	-8%
Veterans Boulevard / Chestnut Street	AM	F	89	B	12	87%	B	13	85%
	PM	D	40	C	32	20%	D	35	13%
Broadway / Chestnut Street	AM	F	194	C	24	88%	C	25	87%
	PM	F	164	E	70	57%	E	56	66%
US 101 NB Ramps/Seaport Blvd Signal (or Roundabout for Alt 3A)	AM	Planned Feature. Does not exist		B (F)	13 (299)	NA	B	17	NA
	PM	Planned Feature. Does not exist		B (D)	11 (25)	NA	B	15	NA

Notes: NB – northbound; SB – southbound; Delay/Vehicle - delay per vehicle in seconds.
Data are preliminary and are subject to change.

PM_{2.5} Project Assessment Form for Interagency Consultation

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. Horizon Year (2042) Peak Hour Intersection LOS

Intersection	Peak Hour	No Project		Alternative 3/3A			Alternative 8B		
		LOS	Delay/ Vehicle	LOS	Delay/ Vehicle	% Delay Reduction Over No Project	LOS	Delay/ Vehicle	% Delay Reduction Over No Project
Blomquist Street/ Seaport Boulevard	AM	F	266	C	32	88%	D	35	87%
	PM	F	189	D	42	78%	D	42	78%
Lyngso Access / Seaport Boulevard	AM	A	6	A	3	50%	A	4	33%
	PM	A	4	A	2	50%	A	2	50%
Veterans Boulevard / Woodside Road (US 101 SB Ramps/ Woodside Road with project alternatives)	AM	F	297	C	22	93%	C	27	91%
	PM	F	243	C	25	90%	C	25	90%
Broadway / Woodside Road	AM	F	466	E	62	87%	E	76	84%
	PM	F	262	D	53	80%	D	48	82%
Bay Road / Woodside Road	AM	F	231	E	65	72%	D	54	77%
	PM	F	366	D	40	89%	C	34	91%
Spring Street / Woodside Road	AM	F	58	D	29	50%	C	22	62%
	PM	F	86	B	11	87%	A	4	95%
Middlefield Road / Woodside Road	AM	F	503	F	374	26%	F	351	30%
	PM	F	487	F	432	11%	F	365	25%
Blomquist Street / Maple Street	AM	A	9	A	8	11%	B	11	-22%
	PM	A	5	A	6	-20%	A	6	-20%
Oddstad Drive / Maple Street	AM	A	2	A	2	0%	A	3	-50%
	PM	E	42	E	42	0%	E	44	-5%
Veterans Boulevard / Maple Street	AM	D	48	C	29	40%	C	30	38%
	PM	F	126	F	80	37%	F	105	17%
Veterans Boulevard / Chestnut Street	AM	E	80	B	14	83%	B	14	83%
	PM	E	63	E	66	-5%	E	57	10%
Broadway / Chestnut Street	AM	F	278	D	39	86%	D	37	87%
	PM	F	224	F	166	26%	F	162	28%
US 101 NB Ramps/Seaport Blvd Signal (or Roundabout for Alt 3A)	AM	Planned Feature.		B (F)	13 (265)	NA	B	15	NA
	PM	Does not exist		B (C)	11 (22)	NA	B	15	NA

Notes: NB – northbound; SB – southbound; Delay/Vehicle - delay per vehicle in seconds.
Data are preliminary and are subject to change.

Project Assessment Form for PM_{2.5} 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. Opening Year (2022) AADT, % Trucks, and Truck AADT

2022	No Build	Build
AADT*	US 101: 231,000 SR 84: 46,200	<i>Same as No Build</i>
% Trucks	US 101: 4.5% SR 84: 15%	<i>Same as No Build</i>
Truck AADT*	US 101: 10,400 SR 84: 6,900	<i>Same as No Build</i>

* At the US 101/SR 84 (Woodside Road) interchange

Table 4. Opening Year (2022) Detailed Truck Breakdown by Axle (for No Build and Build)

Truck Type by Axle	% of Total Truck AADT¹	AADT		
		SR 84	US 101	Combined
2 axle ²	69	4,761	7,176	11,937
3 axle	7	483	728	1,211
Less than 5 axles	16	1,104	1,664	2,768
5 or more axles	5	345	520	865
Buses	3	207	312	519
Total	100	6,900	10,400	17,300

1. Based on field counts

2. Typically 2-axle trucks are gasoline fueled rather than diesel fueled

PM_{2.5} Project Assessment Form for Interagency Consultation

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 5. Horizon Year (2042) AADT, % Trucks, and Truck AADT

2042	No Build	Build
AADT*	US 101: 270,000 SR 84: 50,600	<i>Same as No Build</i>
% Trucks	US 101: 4.5% SR 84: 15%	<i>Same as No Build</i>
Truck AADT*	US 101: 12,200 SR 84: 7,600	<i>Same as No Build</i>

* At the US 101/SR 84 (Woodside Road) interchange

Table 6. Horizon Year (2042) Detailed Truck Breakdown by Axle (for No Build and Build)

Truck Type by Axle	% of Total Truck AADT¹	AADT		
		SR 84	US 101	Combined
2 axle ²	69	5,244	8,418	13,662
3 axle	7	532	854	1,386
Less than 5 axles	16	1,216	1,952	3,168
5 or more axles	5	380	610	990
Buses	3	228	366	594
Total	100	7,600	12,200	19,800

1. Based on field counts

2. Typically 2-axle trucks are gasoline fueled rather than diesel fueled

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 reconfigure 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. Any redistribution of traffic would reflect the proposed interchange modification. The project is not expected to result in adverse traffic redistribution effects.

Project Assessment Form for PM_{2.5} Interagency Consultation

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.

It is not a new or expanded highway project but rather an interchange modification—no additional lanes on US 101.

The project would not change truck travel demands compared to the No Build scenario. The project would improve the US 101/Woodside Road interchange, which serves truck traffic primarily through its connection to Seaport Boulevard. The project would not affect truck percentages in the project area because it would reconfigure an existing interchange, provide the same access that currently exists, and would not add capacity to US 101 or to the surrounding roadway network. No changes in overall truck percentages or AADT are anticipated. In addition, truck travel volumes in the project area appear to peak around noon on weekdays, and the majority of truck traffic occurs before 1:00 PM. Peak morning and evening hours for general traffic in the project area are 7:30 to 8:30 AM and 5:00 to 6:00 PM. Therefore, most truck traffic doesn't coincide with peak general traffic hours.

Most trucks in the project area would be small, non-diesel trucks. The majority (69 percent) of trucks in the project area would be 2-axle single-unit trucks such as UPS and FedEx trucks. These trucks tend to be gasoline fueled, and low-emission 2-axle trucks as well as buses (which comprise 3 percent of the overall truck count) are becoming increasingly common. Moreover, with full implementation of the California Statewide Truck and Bus Rule in 2023, no truck or bus more than 13 years old will be allowed to operate in California without particulate matter and nitrogen oxide emissions controls, which is expected to reduce diesel PM emissions by 68 percent.²

Intersection levels of service around the interchange would improve with the Build Alternatives compared to No Build. In 2022, 10 intersections would operate at Level of Service (LOS) F with the No Build Alternative, and a maximum of 3 would operate at LOS F with the build alternatives. In 2042, 8 intersections would operate at Level of Service (LOS) F with the No Build Alternative, and a maximum of 4 would operate at LOS F with the build alternatives. Based on preliminary data, delay times would be reduced by an average of 50% with all build alternatives compared to No Build in both 2022 and 2042.

No violations of the federal annual standard for PM_{2.5} have been recorded in the last 5 years. The nearest air monitoring station to the project area is the Redwood City station, which is located at 897 Barron Avenue, approximately 0.65 mile southeast of the project area. No exceedances of the federal Annual Arithmetic Mean standard for PM_{2.5} were recorded at this station between 2009 and 2013 (the most recent year for which data are available). In addition, Redwood City is no longer identified as a BAAQMD CARE community³ due to significant reductions in emissions of diesel PM in 2015 compared to 2005. Fine PM levels in this community are generally similar to those in most other Bay Area communities, and ozone values are lower.⁴

² http://en.wikipedia.org/wiki/2008_California_Statewide_Truck_and_Bus_Rule

³ In 2004, the Bay Area Air Quality Management District (Air District) initiated the Community Air Risk Evaluation (CARE) program to identify areas with high concentrations of air pollution and populations most vulnerable to air pollution's health impacts.

⁴ BAAQMD. 2014. Identifying Areas with Cumulative Impacts from Air Pollution in the San Francisco Bay Area. Version 2. March.

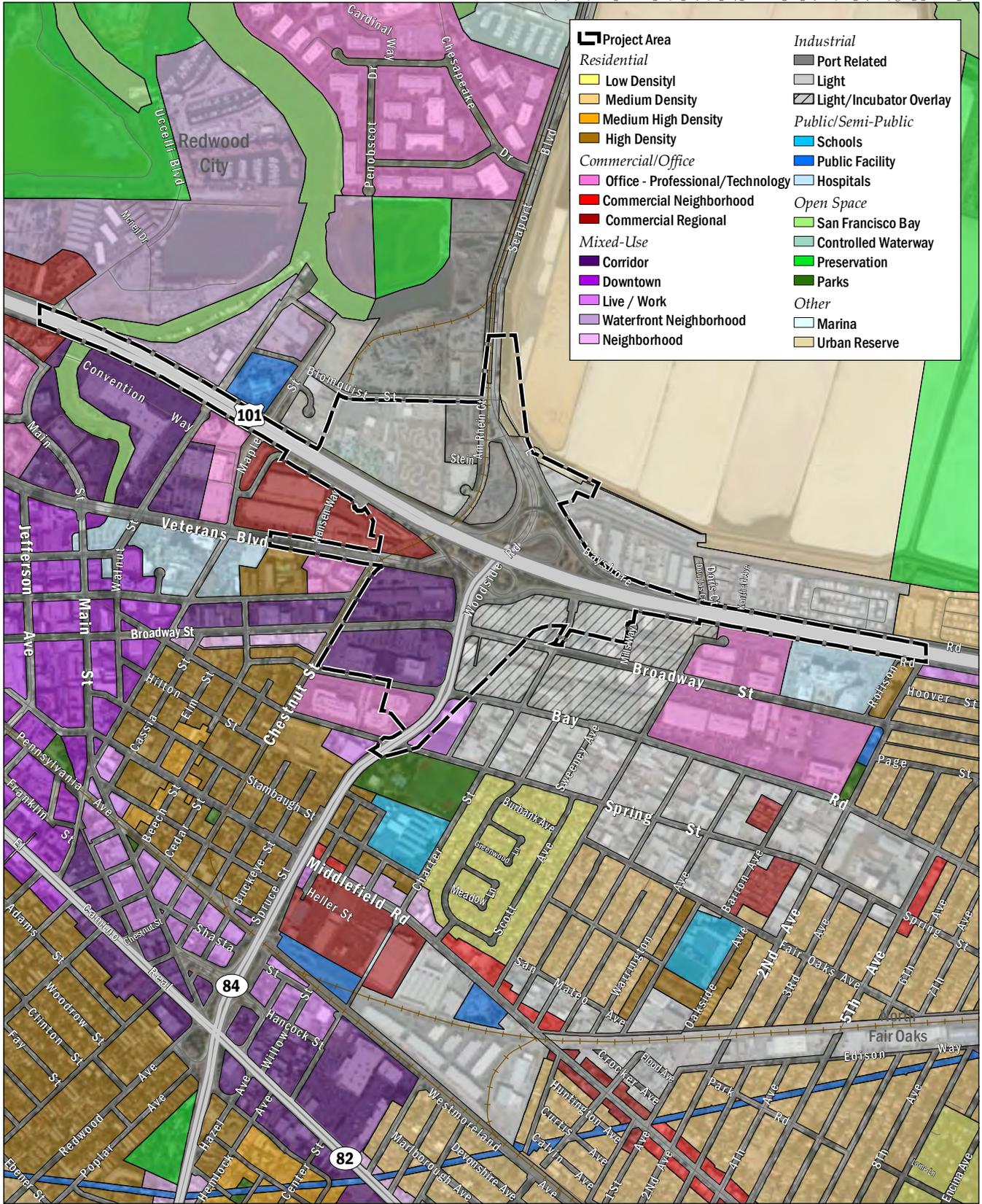
PM_{2.5} Project Assessment Form for Interagency Consultation

FIGURES



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

FIGURE 1
Project Location



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

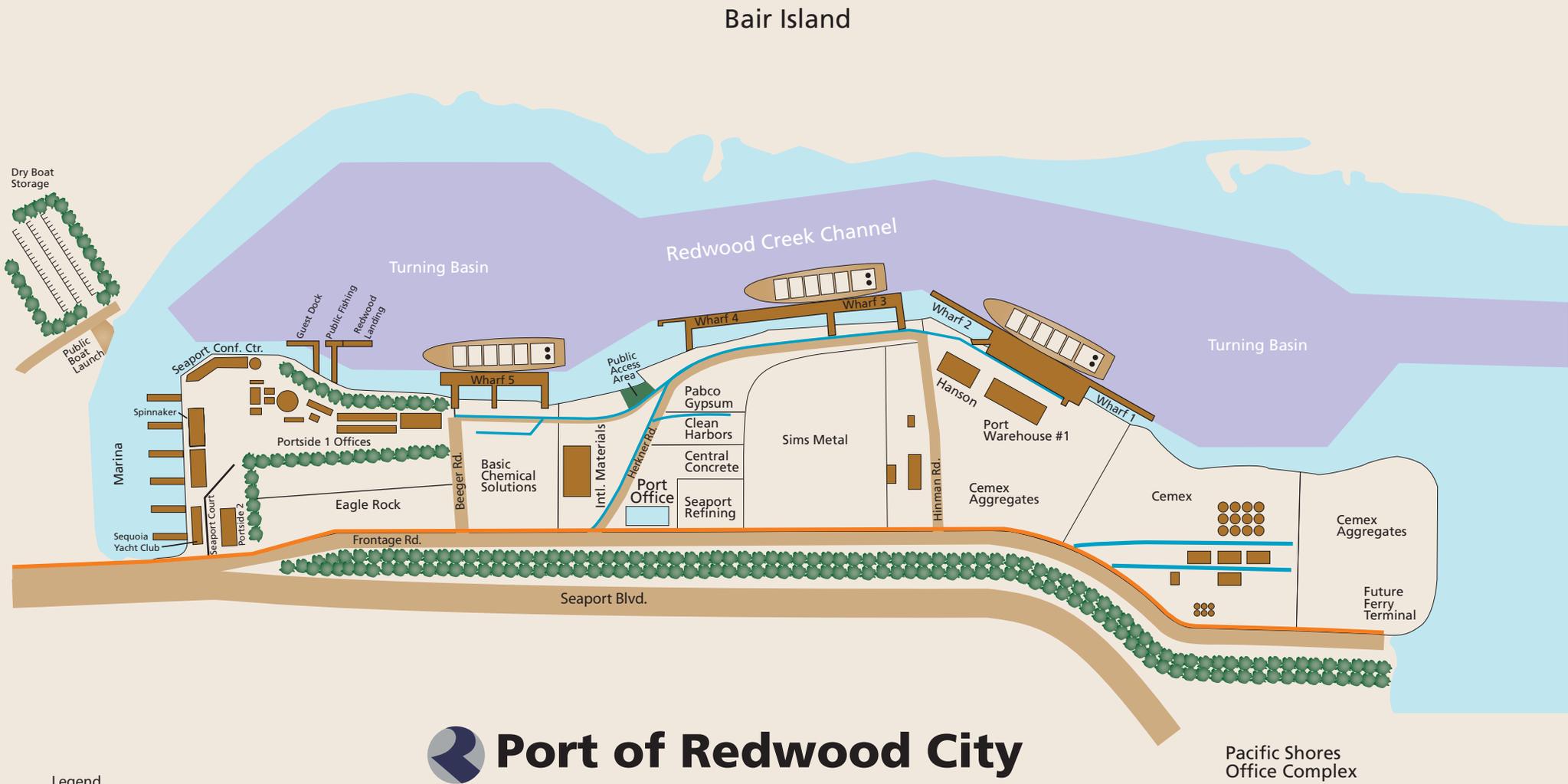
Figure 2. Land Use

Figure 3

Port of Redwood City in Relation to US 101/Woodside Road Interchange

Greco Island
Legend
Port of Redwood City





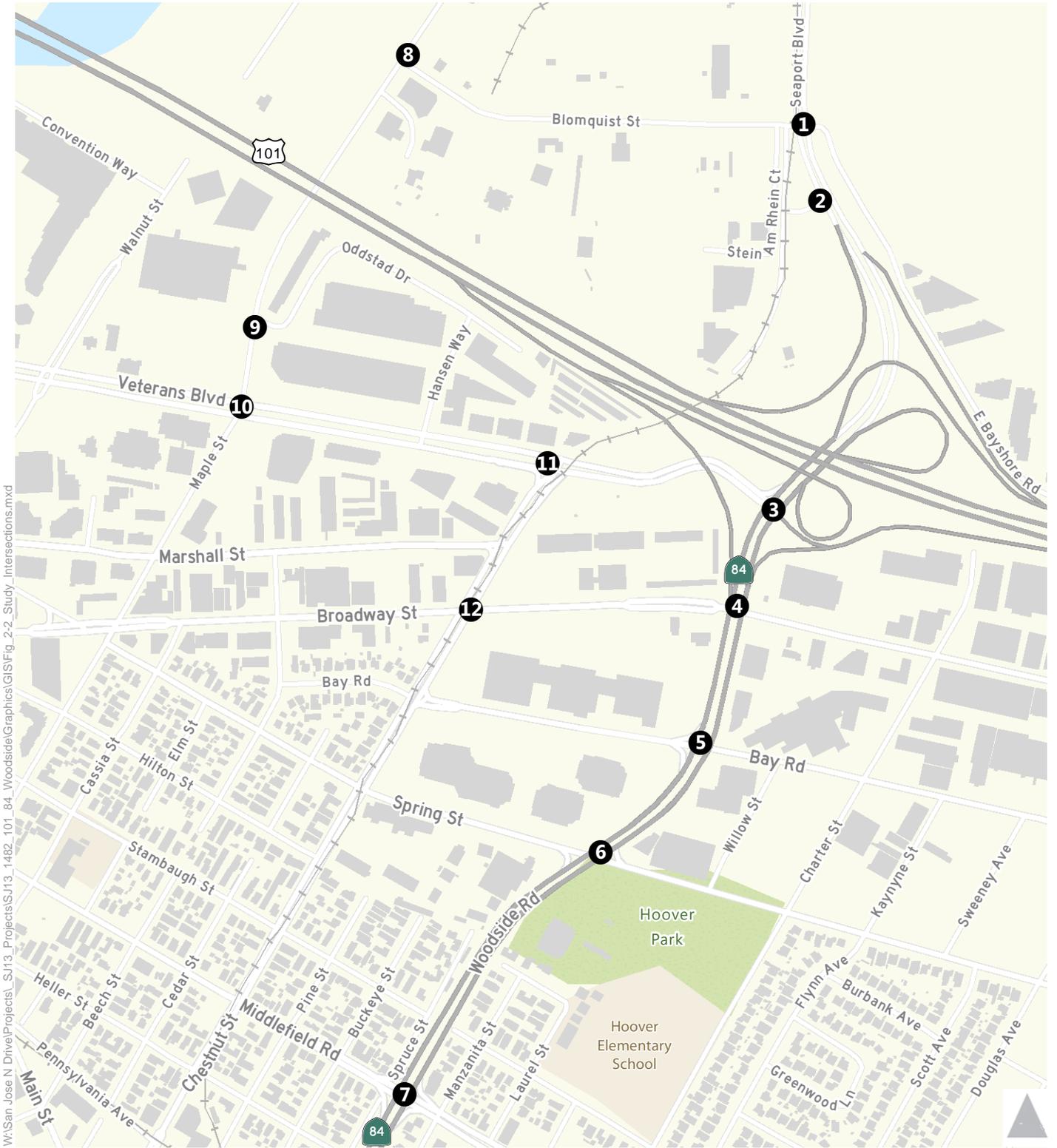
Bair Island

 **Port of Redwood City**

Pacific Shores Office Complex

- Legend
- █ Union Pacific tracks
 - █ Port spur tracks

FIGURE 4. Port of Redwood City Layout



W:\San Jose N Drive\Projects_SJ13_Projects\SJ13_1482_101_84_Woodside\Graphics\GIS\Fig_2-2_Study_Intersections.mxd

US 101/SR84 (Woodside Road) Interchange Improvement Project
 ● Study Intersections



Figure 5
 Study Intersections

Project Assessment Form for PM_{2.5} Interagency Consultation

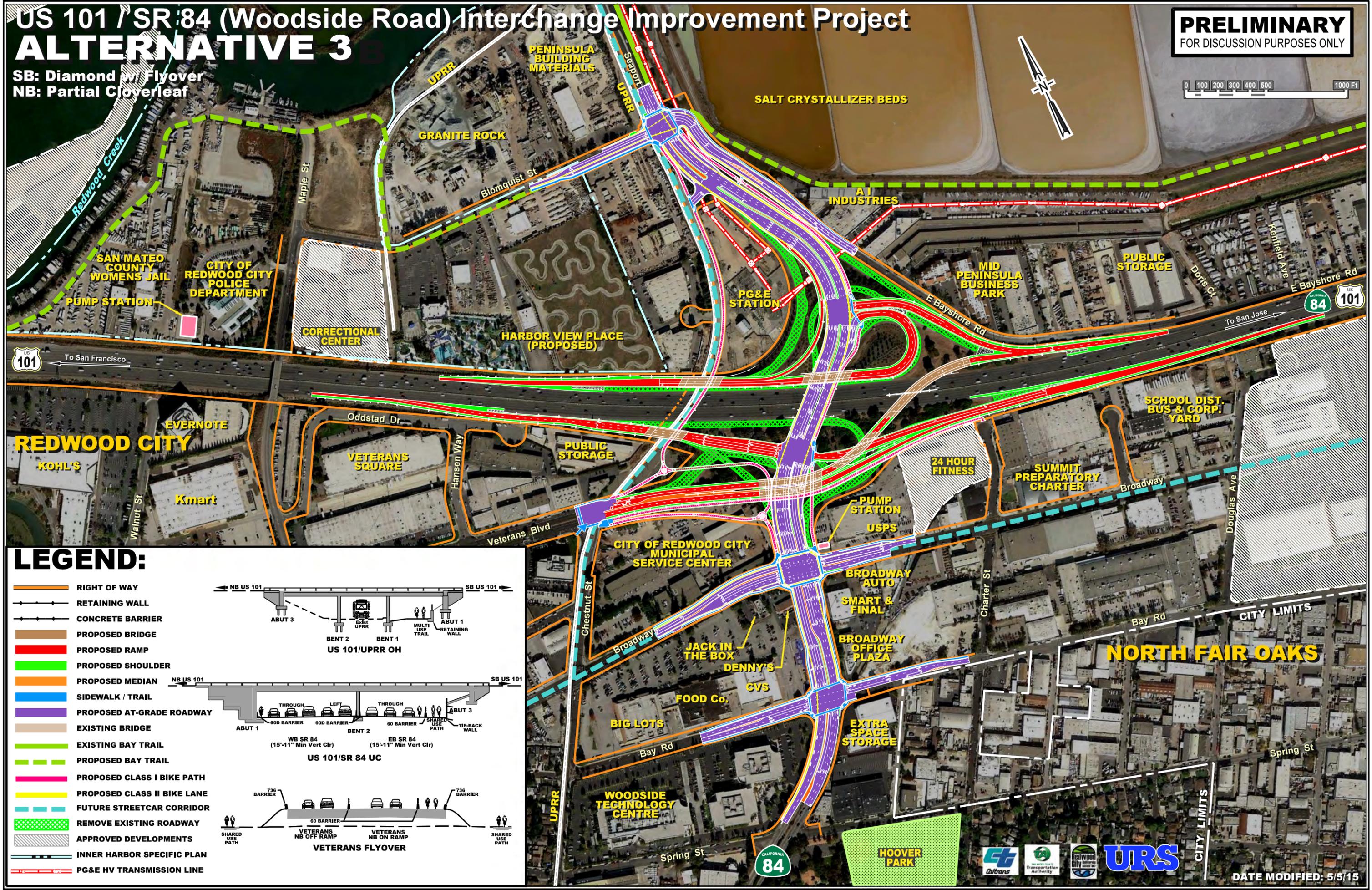
ATTACHMENT 1

US 101 / SR 84 (Woodside Road) Interchange Improvement Project

ALTERNATIVE 3

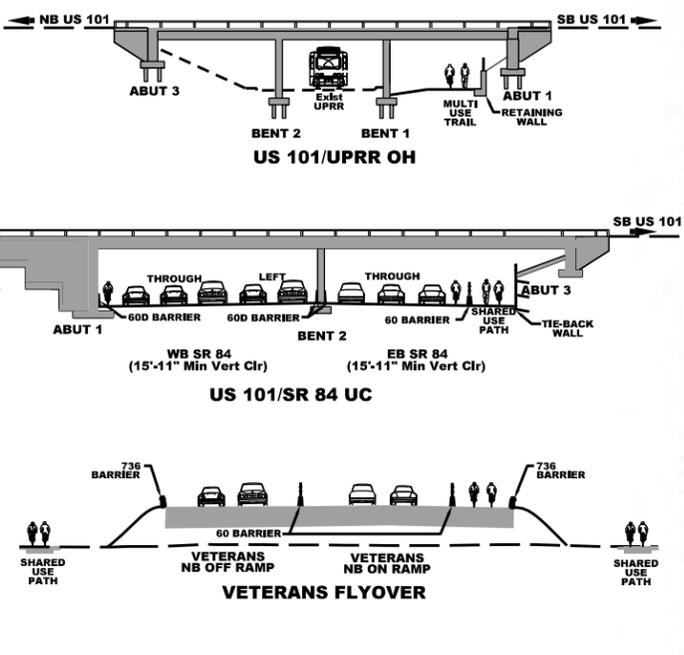
SB: Diamond w/ Flyover
NB: Partial Cloverleaf

PRELIMINARY
FOR DISCUSSION PURPOSES ONLY



LEGEND:

- RIGHT OF WAY
- RETAINING WALL
- CONCRETE BARRIER
- PROPOSED BRIDGE
- PROPOSED RAMP
- PROPOSED SHOULDER
- PROPOSED MEDIAN
- SIDEWALK / TRAIL
- PROPOSED AT-GRADE ROADWAY
- EXISTING BRIDGE
- EXISTING BAY TRAIL
- PROPOSED BAY TRAIL
- PROPOSED CLASS I BIKE PATH
- PROPOSED CLASS II BIKE LANE
- FUTURE STREETCAR CORRIDOR
- REMOVE EXISTING ROADWAY
- APPROVED DEVELOPMENTS
- INNER HARBOR SPECIFIC PLAN
- PG&E HV TRANSMISSION LINE

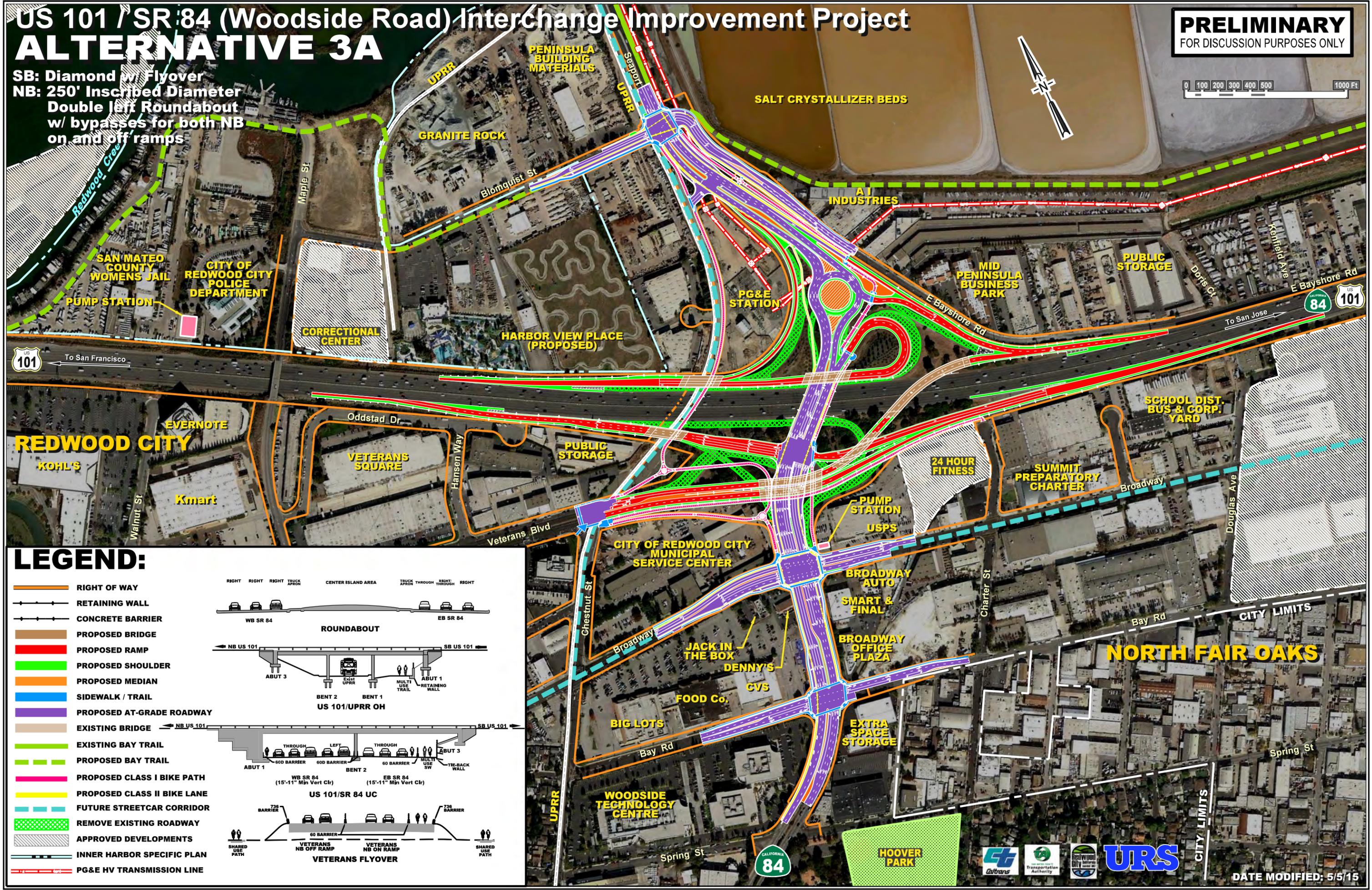


US 101 / SR 84 (Woodside Road) Interchange Improvement Project

ALTERNATIVE 3A

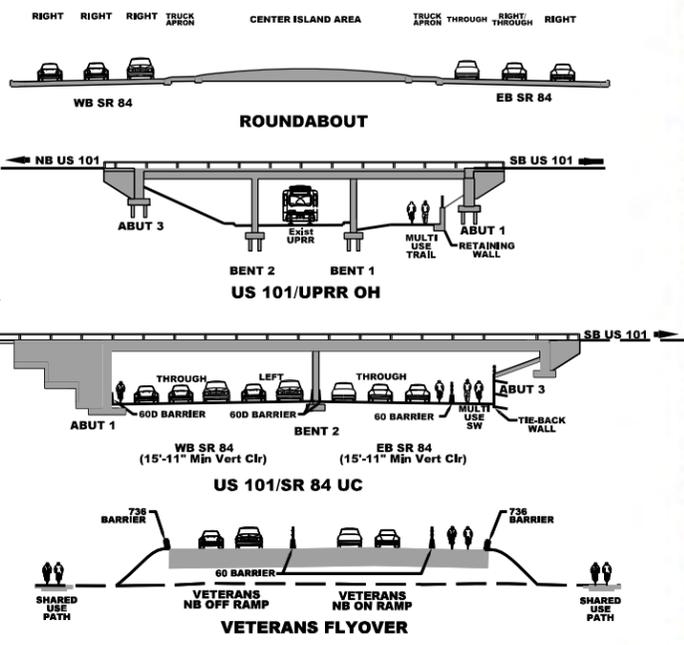
SB: Diamond w/ Flyover
 NB: 250' Inscripted Diameter
 Double Left Roundabout
 w/ bypasses for both NB
 on and off ramps

PRELIMINARY
 FOR DISCUSSION PURPOSES ONLY



LEGEND:

- RIGHT OF WAY
- RETAINING WALL
- CONCRETE BARRIER
- PROPOSED BRIDGE
- PROPOSED RAMP
- PROPOSED SHOULDER
- PROPOSED MEDIAN
- SIDEWALK / TRAIL
- PROPOSED AT-GRADE ROADWAY
- EXISTING BRIDGE
- EXISTING BAY TRAIL
- PROPOSED BAY TRAIL
- PROPOSED CLASS I BIKE PATH
- PROPOSED CLASS II BIKE LANE
- FUTURE STREETCAR CORRIDOR
- REMOVE EXISTING ROADWAY
- APPROVED DEVELOPMENTS
- INNER HARBOR SPECIFIC PLAN
- PG&E HV TRANSMISSION LINE



DATE MODIFIED: 5/5/15

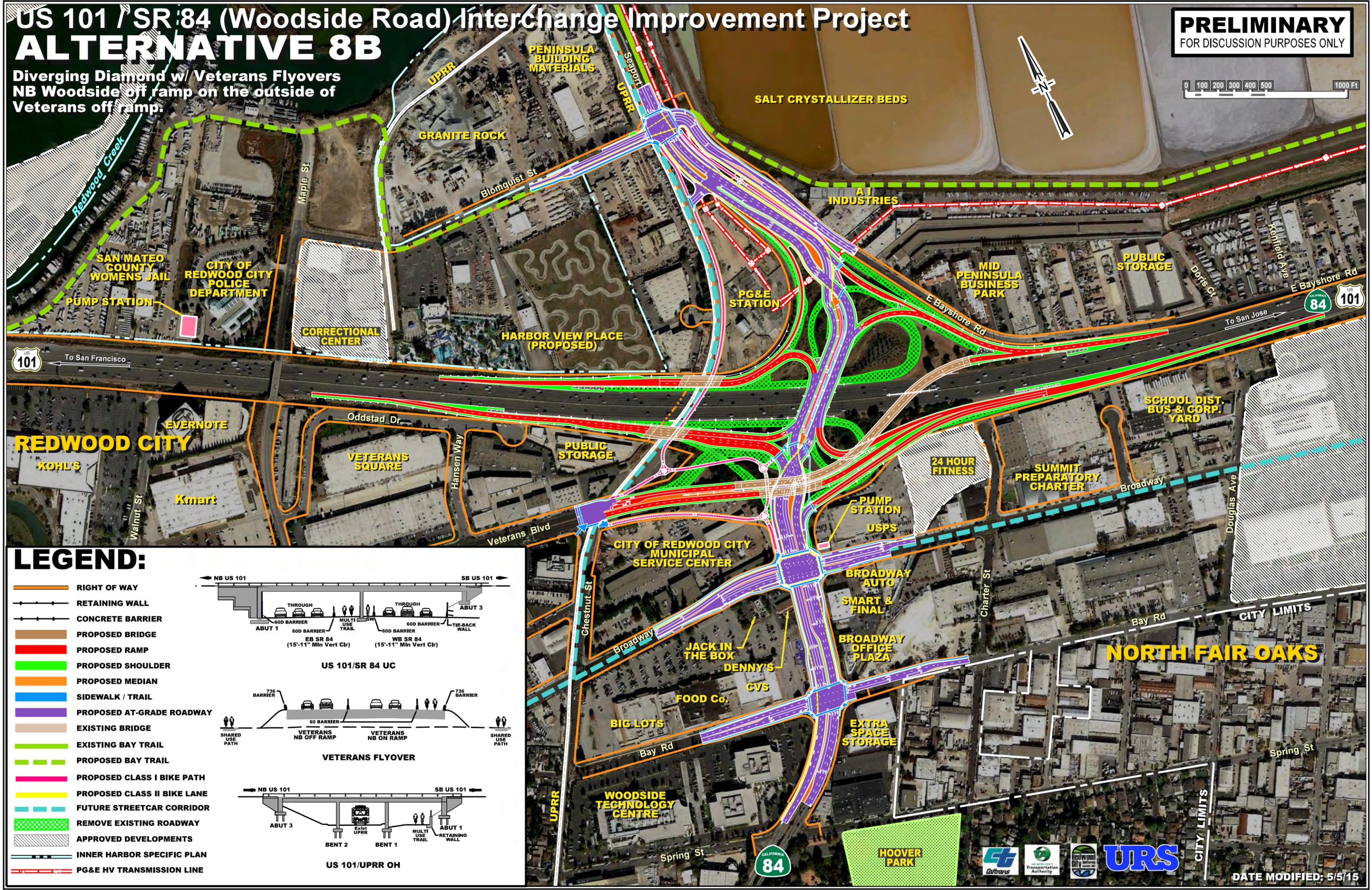


US 101 / SR 84 (Woodside Road) Interchange Improvement Project

ALTERNATIVE 8B

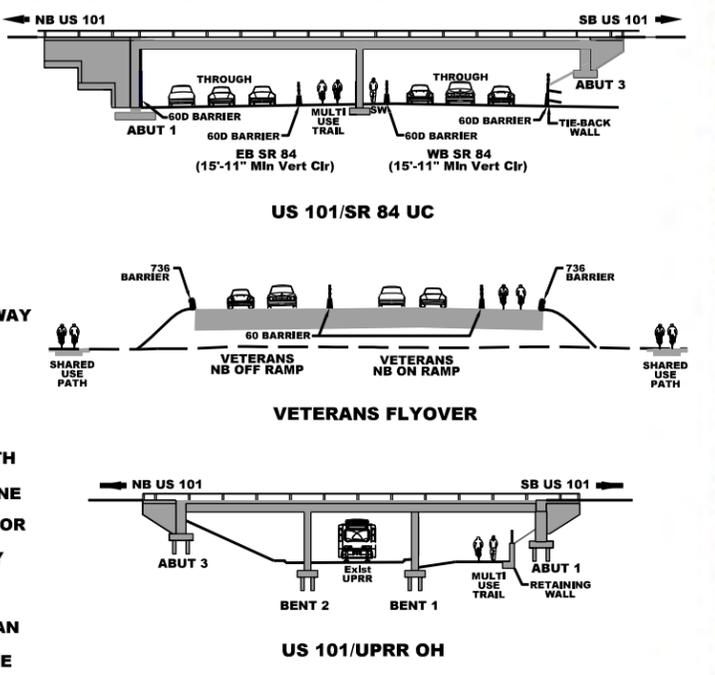
Diverging Diamond w/ Veterans Flyovers
 NB Woodside off ramp on the outside of Veterans off ramp.

PRELIMINARY
 FOR DISCUSSION PURPOSES ONLY



LEGEND:

- RIGHT OF WAY
- RETAINING WALL
- CONCRETE BARRIER
- PROPOSED BRIDGE
- PROPOSED RAMP
- PROPOSED SHOULDER
- PROPOSED MEDIAN
- SIDEWALK / TRAIL
- PROPOSED AT-GRADE ROADWAY
- EXISTING BRIDGE
- EXISTING BAY TRAIL
- PROPOSED BAY TRAIL
- PROPOSED CLASS I BIKE PATH
- PROPOSED CLASS II BIKE LANE
- FUTURE STREETCAR CORRIDOR
- REMOVE EXISTING ROADWAY
- APPROVED DEVELOPMENTS
- INNER HARBOR SPECIFIC PLAN
- PG&E HV TRANSMISSION LINE



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