04 - SM - 101 – 14.5/14.9
EA 04-4H460
Project ID: 0413000210
April 2015

Project Study Report-Project Development Support (PSR-PDS)

To

Request Programming for Capital Support and Approval for Project to Proceed to the Project Approval and Environmental Document (PA&ED) Phase

On Route US 101

Between 0.7 mile north of the Third Avenue OC in San Mateo (PM 14.5)

And 1.6 miles south of the Broadway Avenue OC in Burlingame (PM 14.9)

APPROVAL RECOMMENDED:

BRAD UNDERWOOD, PUBLIC WORKS DIRECTOR
CITY OF SAN MATEO
Accepts Risks Identified in this PSR-PDS and Attached Risk Register

APPROVAL RECOMMENDED:

RICHELLE PEREZ, CALTRANS PROJECT MANAGER

APPROVED:

BIJAN SARTIPI, DISTRICT DIRECTOR

5/22/15
DATE

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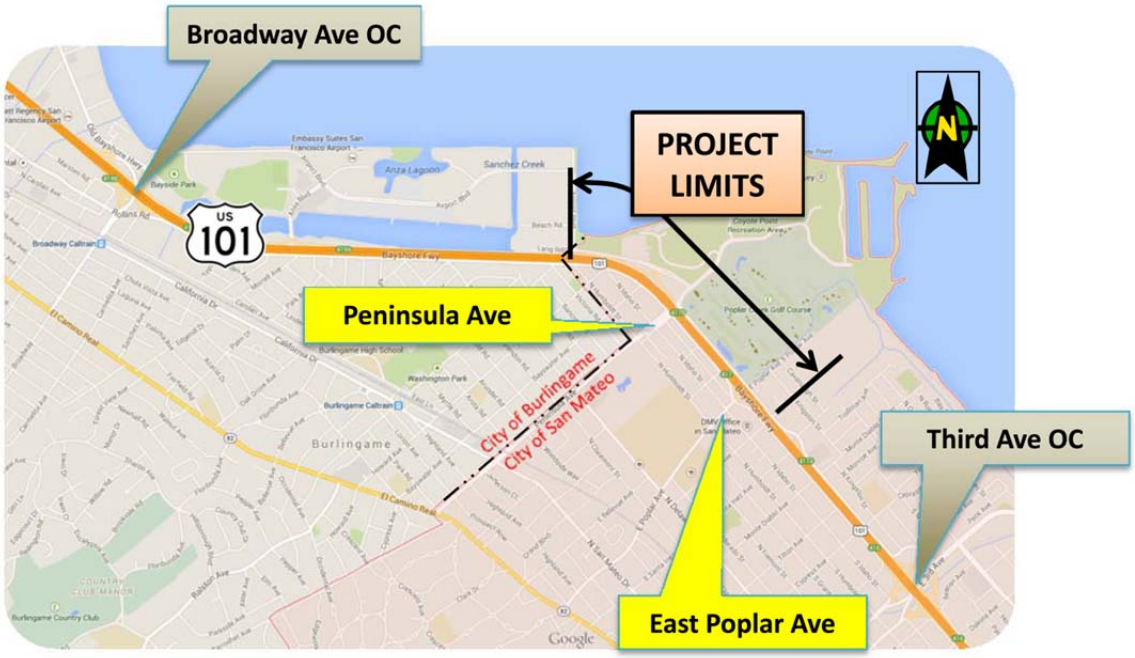
Vicinity Map



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This Project Study Report-Project Development Support has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

4/10/2015

REGISTERED CIVIL ENGINEER *DATE*

Reviewed by:

CELIA McCUAIG
OFFICE CHIEF, ADVANCE PLANNING

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1. INTRODUCTION

Project Description:

The project site is located in San Mateo County on US 101 in the vicinity of Peninsula Avenue, approximately 2.5 miles north of the Route 92/US 101 interchange and 4 miles south of San Francisco International Airport. See Attachment A for the Project Location Map.

The project will relocate the US 101 southbound on- and off-ramps from East Poplar Avenue to Peninsula Avenue to eliminate the partial interchange condition and create a single, full access interchange at Peninsula Avenue and Airport Boulevard. This will result in an improvement to the safety and traffic operations of the southbound US 101 ramps and the intersection of East Poplar Avenue and North Amphlett Boulevard.

The project will provide improvements to the bicycle and pedestrian movements through the intersection of Peninsula Avenue and North Bayshore Boulevard. The project will also provide improvements to local streets to facilitate circulation and property access.

Project Limits	04-SM-101 PM 14.5/14.9
Number of Alternatives	Three Alternatives (See Attachments B & C): 1. Tight Diamond Interchange 2. Partially Spread Diamond Interchange 3. No Build Alternative
Current Capital Outlay Support Estimate for PA&ED	$2.0-$2.2M (Excludes Caltrans IQA)
Current Capital Outlay Construction Cost Range	$22.6-$24.3M
Current Capital Outlay Right-of-Way Cost Range	$24.4-$36.4M
Funding Source	Federal, State, City and San Mateo County Measure A (Sales Tax)
Type of Facility	Freeway Interchange
Number of Structures	One, Modification/widening of the Peninsula Avenue Overcrossing (OC)
Anticipated Environmental Determination or Document	Initial Study under CEQA and a Routine Environmental Assessment under NEPA
Legal Description	On US 101 in San Mateo County in the City of San Mateo from 0.7 miles north of the Third Avenue OC to 1.6 miles south of the Broadway OC
Approximate Schedule	PA&ED Approval – December 2017
Project Development Category	3

Attachment E contains preliminary cost estimates for specific work items included in this project. The remaining support, right-of-way, and construction components of the project are preliminary estimates and are not suitable for programming purposes. A Project Report would serve as approval of the "selected" alternative and the programming document for the remaining support and capital components of the project. The $2.0-$2.2 million estimated for capital outlay support for the Project Approval and Environmental Document (PA&ED) phase includes the City and SMCTA support, but does not include Independent Quality Assurance (IQA) by Caltrans. The master cooperative agreement between San Mateo County Transportation Authority (SMCTA) and Caltrans for PA&ED work states, "Caltrans will fund the cost of its own IQA for work done within existing or proposed future state highway system right of way."

This PSR-PDS serves as the authorizing document to initiate the PA&ED phase. The City of San Mateo is the sponsoring agency. The funding and implementing agency for PA&ED is not known at this time and will be decided on a date to be determined. The role for Caltrans in the next phase is also unknown, but will be determined prior to the start of the PA&ED phase. Conceptual approval of the Build Alternatives will be requested in the PA&ED phase.

2. BACKGROUND

US 101 is the principal arterial serving local and interregional traffic along the San Mateo Peninsula and the greater San Francisco Bay Area. US 101 is a south-north freeway in the Federal Aid Primary System, extending most of the length of California from Los Angeles to the Oregon border. The freeway also connects San Jose and Silicon Valley to the San Francisco International Airport and the San Francisco business district to the north. US 101 was adopted into the State Highway System in 1929. The portion of the route on the San Mateo Peninsula was improved to a conventional four-lane highway in 1932. Portions of US 101 were improved to a six lane facility in 1958 and to an eight-lane freeway in 1971. The original Peninsula Avenue OC was built in the 1940's. The OC and northbound ramps were reconstructed in 2010.

As described in more detail in Section 3, Purpose and Need, the existing ramps are a "partial interchange" configuration, which does not meet current design standards. The northbound ramps for Peninsula Avenue form a "buttonhook" (Type L-6) configuration on Airport Boulevard. The southbound ramps for Poplar Avenue form a "buttonhook" configuration and join the local streets at the unsignalized intersection of East Poplar Avenue and North Amphlett Boulevard.

According to a Traffic Impact Analysis performed by Hexagon Transportation Consultants (Hexagon), dated May 4, 2011, the unsignalized intersection at East Poplar Avenue and North Amphlett Boulevard experiences a higher than normal frequency of accidents. The Hexagon Study evaluated several alternatives to improve the safety of the aforementioned intersection.

One of the alternatives (Option 15) improves the traffic operations and safety of the East Poplar Avenue/North Amphlett Boulevard intersection by removing the US 101 southbound ramps at this location and replacing these with new southbound ramps at Peninsula Avenue. This effectively removes conflicting movements at the East Poplar Avenue intersection and consolidates all of the interchange movements at a single location on US 101 at Peninsula Avenue.

As originally conceived, Option 15 consisted of one-half of a conventional diamond interchange constructed on the west side of US 101 to provide for the southbound movements relocated from East Poplar Avenue to Peninsula Avenue. This configuration has significant impacts to properties located along North Amphlett Boulevard in the vicinity of Peninsula Avenue. The original configuration was subsequently revised so that the proposed construction on the west side of US 101 would be a “tight diamond” configuration with additional structures and retaining walls. This tighter configuration significantly reduces the project footprint, but does not eliminate all impacts to adjacent properties.

An intensive public outreach effort for the project has been executed by the City of San Mateo since 2010, which included three community workshops, five Department of Public Works commission meetings, a project open house and three City of San Mateo Council Study Sessions. After several discussions between the project sponsors and the general public, consensus was reached to proceed with the tighter configuration referred to as "Option 15 (Revised)". At the September 4, 2012 City of San Mateo Council Study Session, this option was presented and San Mateo's City Council approved the further study of this option to develop a PSR-PDS.

Table 2-1 on the following page summarizes the options previously considered by the City of San Mateo with a brief description why many of these options are not being pursued further.

The City has acknowledged that “Option 15 (Revised)” (noted as Alternative 1 in this PSR-PDS) is not the only potentially feasible alternative, and both build alternatives described in this PSR-PDS and the No Build alternative will be evaluated during the PID phase without partiality for the ability to satisfy the project’s purpose and need. Consensus on a preferred alternative, undetermined at this time, will be obtained from all of the project stakeholders, including the City of San Mateo, Caltrans and SMCTA during the PA&ED phase.

Interim improvements to the East Poplar Avenue/North Amphlett Boulevard intersection are currently in the design phase with construction expected to begin in early 2016. These improvements will be considered as an “existing condition” for this project during the PA&ED phase.

Table 2-1 - Options Previously Considered by the City of San Mateo

Option	Description	Considered Further?	Comments
1	Raised Median on Poplar at Amphlett		Restricts access from SB US 101 and does not address safety issues on Poplar at Idaho.
2	Raised Median on Poplar through Idaho		Restricts access from SB US 101, Option 2a was preferred by the City and Caltrans.
2a (See Note)	Same as 2, except left turns from the SB off-ramp allowed onto SB Amphlett	✓	This interim improvement project is scheduled for construction in early 2016.
4	Restrict SB traffic on Amphlett at Peninsula		This was intended to be a supplemental feature to Option 2a, but was dropped because 2a prohibits the SB thru-movement on Amphlett at the Poplar Ave intersection.
5	Full Closure of Poplar Interchange		Solves local intersection safety/operation, but restricts access and distributes traffic to adjacent interchanges.
6	Close off-ramp, keep on-ramp		Restricts access and would create an isolated on-ramp, which is undesirable to Caltrans.
7	Close off-ramp, Convert Poplar to one-way (EB to on-ramp)		Dismissed for reasons similar to Option 6.
8	Provide second EB lane on Poplar from Humboldt		Doesn't address safety/operational issues at the Amphlett intersection and includes major right-of-way impacts on Poplar.
9	Force off-ramp traffic onto NB Amphlett		Creates a circuitous route for off-ramp traffic and forces traffic onto local streets not designed to handle these volumes.
10	Provide second EB lane on Poplar from Idaho		Dismissed for reasons similar to Option 8.
11	Widen Poplar to four lanes		Dismissed for reasons similar to Option 8.
12	Grade separate Poplar/Amphlett		Eliminates safety/operational issues of the intersection, but cost and R/W impacts are significant. Option 2a provides similar benefits at a much lower cost.
13	Close on-ramp, keep off-ramp		Dismissed for reasons similar to Option 6.
14	Close on-ramp at Poplar, build new on-ramp at Peninsula		Would improve safety/operation of Poplar/Amphlett intersection by diverting volumes to Peninsula, but would create an isolated off-ramp, which is undesirable to Caltrans.
15	Close both ramps at Poplar, build new ramps at Peninsula	✓	Consolidates all ramps (NB & SB) at Peninsula (highly desirable by Caltrans). Currently shown in this PSR-PDS as an alternative to be analyzed further during the PA&ED phase.

Note: Option 2a was originally named "Option 3", but was renamed to 2a because it was determined to be a slight variation of Option 2.

3. PURPOSE AND NEED

A. Purpose

The purpose of the proposed project is to:

- Improve the safety of southbound US 101 and the off/on-ramps to/from Poplar Avenue.
- Improve the safety and traffic operations of the intersection at East Poplar Avenue and North Amphlett Boulevard.
- Improve access into north San Mateo and key local destinations including the residential and business communities within the Peninsula Avenue interchange area.
- Improve bicycle and pedestrian circulation within the project limits.
- Improve local circulation in the project area.

B. Need

Existing Facility

US 101 is an eight lane freeway (four lanes in each direction), with a fifth (auxiliary) lane in both directions in the vicinity of the project. Within the City of San Mateo, Peninsula Avenue is the northernmost overcrossing of the freeway. It has northbound off- and on-ramps located at Airport Boulevard about 0.1 mile north of Peninsula Avenue. Southbound on- and off-ramps are located approximately 0.4 mile south of Peninsula Avenue, at East Poplar Avenue. The ramps at Peninsula Avenue and East Poplar Avenue are considered “partial interchanges” as individually they lack full freeway access in both directions. Partial interchanges require an exception to mandatory design standards. The southbound and northbound ramps are considered “buttonhook” configurations. The Third Avenue interchange is approximately 0.8 mile south of East Poplar Avenue and has full access to and from the freeway in both the northbound and southbound directions. Overall, these three interchanges are relatively closely spaced; each is less than one mile from the adjacent interchange. The nearest southbound ramps north of the project site are located at the Broadway Interchange, approximately 1.6 miles north of Peninsula Avenue.

Peninsula Avenue spans across US 101 and is a four lane east-west arterial with Class II bicycle lanes in each direction between North Humboldt Street and Airport Boulevard. Peninsula Avenue provides access to and from northbound US 101 predominantly for residential neighborhoods, some commercial and light industrial uses adjacent to US 101.

In the vicinity of US 101, East Poplar Avenue is a two lane east-west arterial providing access to and from southbound US 101 predominantly for residential neighborhoods, some commercial and light industrial uses adjacent to US 101, and to San Mateo High School. The high school is located along East Poplar Avenue approximately two blocks west of the freeway. East Poplar Avenue terminates at its

intersection with southbound US 101. There is no freeway overcrossing at East Poplar Avenue.

Existing Roadway Deficiencies and Locations of Congestion

The existing single-lane East Poplar Avenue southbound on- and off-ramps are relatively short and thus, have limited capacity to contain queues during peak periods. The southbound ramps connect to East Poplar Avenue at its intersection with North Amphlett Boulevard. To avoid traffic backing up on the southbound off-ramp, and possibly extending onto the southbound lanes of the freeway, off-ramp traffic is uncontrolled (there are no existing stop or yield signs, or traffic signals) where the off- ramp joins East Poplar Avenue at the intersection of North Amphlett Boulevard.

Consequently, vehicles exiting southbound US 101 generally enter East Poplar Avenue at a relatively high rate of speed, causing drivers stopped on northbound or southbound North Amphlett Boulevard and eastbound East Poplar Avenue to wait for adequate gaps to travel through the intersection. Because of the difficulty crossing this intersection, traffic queues form on each stop-controlled leg. In waiting for adequate gaps in the off-ramp traffic, drivers can become impatient leading to potentially unsafe movements through the intersection.

Safety

The off- ramp at US 101/East Poplar Avenue requires drivers to quickly decelerate when exiting US 101, as the vehicles immediately enter into the intersection at East Poplar Avenue/North Amphlett Boulevard. A review of the most recent accident data[1] available for US 101 (April 2009 through March 2012) showed four accidents recorded at the southbound US 101/East Poplar Avenue off-ramp. The "fatality plus injury" (F+I) rate at this location is slightly higher than the statewide average. The reported accident details included vehicles entering the right-turning curve at a relatively high rate of speed, resulting in vehicles skidding out of control beyond the shoulder on the driver's left.

According to the City of San Mateo's Police records, accidents also occurred within the intersection of the ramp terminus at North Amphlett Boulevard and East Poplar Avenue. They have involved collisions between vehicles traveling through or turning at this intersection, and with cars exiting the freeway off-ramp.

Bike and Pedestrian Facilities

Peninsula Avenue is used by bicyclists and pedestrians to cross US 101 and to reach the nearby Coyote Point Recreation Area located just to the northeast of US 101. As Peninsula Avenue enters this recreational area, it becomes Coyote Point Drive, providing access to the Bay shoreline and the San Francisco Bay Trail. The Peninsula Avenue OC includes sidewalks for pedestrians and designated bike lanes in each direction, and crosswalks, with one exception: the south sidewalk on the east side of the Peninsula Avenue OC ends at North Bayshore Boulevard. Pedestrians can access

[1] From California Department of Transportation Traffic Accident Surveillance and Analysis System (TASAS).

the north sidewalk on Peninsula Avenue via a crosswalk, but there is no marked crosswalk across North Bayshore Boulevard. To access points south, pedestrians are currently expected to travel north across Peninsula Avenue, walk three hundred feet east to Airport Boulevard, then cross Peninsula Avenue again to access the sidewalk that parallels the golf course.

4. TRAFFIC ENGINEERING PERFORMANCE ASSESSMENT (TEPA)

A Traffic Engineering Performance Assessment (TEPA) was prepared using traffic data and information available within the public domain and applying macro level analysis and evaluation techniques to provide a technical foundation for developing a preliminary purpose and need for the proposed project, and to outline the scope and magnitude of the more detailed traffic studies to be conducted as part of the PA&ED phase of the project.

Existing traffic data was derived from Caltrans Census Data. The key findings of the TEPA include:

A. Traffic Operations and Safety

The TEPA supports the project's purpose and need. Long queues and delays have been observed at the North Amphlett/East Poplar/SB US 101 Ramps intersection. In addition, the on and off-ramps and the intersection need safety improvements. Accident data and analysis are described in more detail in Section 5 (Deficiencies) of the PSR-PDS.

B. PA&ED Scope

A Traffic Operational Analysis Report (TOAR) will be prepared during the PA&ED phase of the project. The traffic study area will include, but not necessarily limited to, the following seven (7) intersections:

- Peninsula Avenue/North Humboldt Street
- Peninsula Avenue/US 101 Southbound Ramps (Build Alternative)
- Peninsula Avenue/North Bayshore Boulevard
- Peninsula Avenue/Airport Boulevard
- East Poplar Avenue/North Humboldt Street
- East Poplar Avenue/Idaho Street
- East Poplar Avenue/North Amphlett Boulevard*

* The southbound ramps would be removed in the Build Alternatives

In addition, the need for the existing slip ramp from eastbound Peninsula Avenue (just east of North Humboldt Street) onto the parallel frontage road that leads to

North.Amphlett Boulevard will be studied as well. See Attachment D for a graphical depiction of the preliminary estimation of the PA&ED phase study areas.

As part of the PA&ED effort, new data will be collected to reflect the most current conditions. New traffic forecasts will be developed for the Opening Year (2024) and Design Year (2044) using the latest version of the County's travel demand model. The safety analysis will be updated with the latest accident data.

With the addition of US 101 southbound ramps at Peninsula Avenue, the volumes at the intersection of Peninsula Avenue/Humboldt Street are expected to increase. In addition, the distance between Peninsula Avenue/US 101 southbound ramps and Peninsula Avenue/North Bayshore Boulevard will be evaluated. Mitigation will be considered, as needed, for future vehicular queuing at this location to ensure that it will not affect adjacent intersections, the freeway ramps and the mainline. As a result, an analysis of southbound US 101 will also be included in the TOAR.

Ramp metering on southbound US 101, between the San Mateo/San Francisco County line (PM 26.1) and Route 92 (PM 11.9) is expected to be activated by April 2015. As a result, ramp metering at the new on-ramp at Peninsula Avenue will also be considered and evaluated during the PA&ED phase.

See Attachment O for the TEPA document in its entirety.

5. DEFICIENCIES

One of the project's main purposes is to address two safety concerns related to the US 101 southbound ramps at East Poplar Avenue. The first safety concern is specific to the off-ramp itself. The off-ramp consists of a deceleration length of approximately 300 feet, measured from the point of divergence from the mainline to the beginning of the first curve. This deceleration length of 300 feet would meet current design standards if the first curve's radius was 1,000 feet or greater, but the off-ramp's first curve is very tight with a radius of approximately 130 feet. A radius this small is generally only used on low speed roadways (20 mph or less). This is consistent with the warning sign provided at the off-ramp advising motorists to enter the curve at 20 mph (See Photo 5-1).

Photo 5-1 - US 101 SB off-ramp to East Poplar Avenue

Accident data on southbound US 101 (mainline and ramps) was collected from a recent 3-year time period (see Table 5-1). The total accident rate for the East Poplar off-ramp is slightly below the statewide average (0.49 versus 0.54 accidents per million vehicle miles [MVM]), which may not be a cause of concern in itself, but the fatality plus injury rate (F+I) is higher than the statewide average. The likely cause for this is the nonstandard deceleration length mentioned above. When motorists are involved in an accident, it likely is a result of entering the curve too fast, causing the driver to lose control of the vehicle and hit an object on the left side of the curve. All four of the accidents on this ramp noted in the table below resulted from the vehicle hitting an object (or another vehicle) on the left side of the curve.

Table 5-1 - Southbound US 101 Accident Data

Post Mile	Location	Number of Accidents			Actual Accident Rate			Average Accident Rate		
		Total	Fatal	F+I	Total	Fatal	F+I	Total	Fatal	F+I
13.591	SB off-ramp to Third Avenue	3	0	1	0.22	0.000	0.07	0.25	0.002	0.08
14.301	SB on-ramp from East Poplar Avenue	2	0	0	0.16	0.000	0.00	0.46	0.001	0.13
14.361	SB off-ramp to Poplar Avenue	4	0	2	0.49	0.000	***0.24***	0.54	0.001	0.17
16.461	SB on-ramp from Broadway	1	0	0	0.06	0.000	0.00	0.18	0.001	0.06
13.2/16.2	SB US 101	296	5	98	0.76	***0.013***	0.25	1.10	0.004	0.34

Notes:
1. Source: Caltrans TASAS Table B, data from April 1, 2009 to March 31, 2012.
2. Accident rate for the mainline is expressed as # of accidents per million vehicle miles.
3. Accident rate for the ramps is expressed as # of accidents per million vehicles.
4. ***Bold italics*** text denotes locations that exceed the statewide average for a similar facility.

The second safety concern is related to the intersection at the end of the off-ramp where North Amphlett Boulevard intersects with East Poplar Avenue. The off-ramp traffic has a free movement through the intersection, but the other three legs entering the intersection are stop-controlled. During peak hours, motorists on the three stopped-legs, often cannot find adequate gaps in the off-ramp traffic and sometimes enter the intersection impatiently and in an unsafe manner. The free movement of the off-ramp traffic can also cause confusion to motorists as they might be expecting a 4-way stop. In summary, the intersection operates poorly during peak hours and has a history of accidents. See Table 5-2 for the accident data and operational summary of this intersection.

Table 5-2 - Intersection Accident Data and Operational Summary

Intersection Location	Number of Accidents	Daily Vehicles	Rate	California Average[1]	Level of Service
East Poplar Avenue/ North Amphlett Boulevard	17	14,760	0.39	0.34	F (AM Peak) F (PM Peak)

Notes:
1. Source: Traffic Impact Analysis by Hexagon Transportation Consultants, Inc. for the Poplar Avenue, US 101 to Humboldt Street, Traffic Safety Improvement Project (May 2011).
2. Accident data for the intersection was provided by the City of San Mateo. The records include accidents that occurred within 40 feet of the intersection for the 10-year period from October 1, 2000 to September 30, 2010. Prior to 2007, the San Mateo Police Department kept track of all accidents. Since 2007, the accident records include only injury accidents and self-reported property damage only (PDO) accidents. Thus, accident rates were based on collision data prior to 2007.
3. The "California Average" rate is based on 2006 Collision data on California State Highways.

6. CORRIDOR AND SYSTEM COORDINATION

A. Identify Systems

US 101 is a part of the National Highway System and the Strategic Highway Network which provide defense access, continuity, and emergency capabilities for defense purposes. US 101 is also a truck route and part of the Surface Transportation Assistance Act (STAA) Network

B. Corridor Planning

In December 2010, Caltrans developed a Corridor System Management Plan (CSMP) for the US 101 corridor from the Route 85 South Interchange in Santa Clara County to the San Francisco/San Mateo County line. A supplement to this CSMP was finalized in February 2011.

The two build alternatives presented in this PSR-PDS are consistent with the CSMP. The CSMP's "2035 Year Concept" identifies Segment I of the US 101 corridor (Route 92 to Millbrae Avenue) as having the same number of lanes (eight) that exist today. The CSMP's rationale for this is due to right-of-way restrictions within the corridor, resulting in a 25-year concept that is similar to the current facility.

C. State Planning

The US 101 High Occupancy Vehicle (HOV) Lanes Project (EA 04-3G870, PM 6.3/20.8) is currently in the PSR-PDS phase. PID approval is expected in 2015. This project proposes to construct new HOV lanes in both directions of US 101 from Whipple Avenue to just south of I-380 by extending existing auxiliary lanes through the interchanges to create a continuous fifth through lane and then converting the leftmost inside lane to an HOV lane.

Both alternatives for this project propose to maintain the existing five (5) lanes on southbound US 101 between the Broadway on-ramp and the Third Avenue off-ramp. This project is not expected to impact any design features of the HOV Lanes Project, but coordination with the HOV Lanes Project will take place, as necessary, during the PA&ED phase.

There is existing ramp metering equipment at the southbound on-ramp from East Poplar Avenue. This equipment will be either replaced or relocated to its new location at Peninsula Avenue, as necessary.

Coordination with existing traffic operation system (TOS) elements will take place during the final design phase. Near or within the project limits, there exists a changeable message sign (CMS), closed circuit television (CCTV) cameras, a highway advisory radio (HAR), traffic monitoring stations (TMS) and inductance loops for off-ramps. Table 6-1 shows a summary of the TOS elements within the project area.

Table 6- 1 - Summary of Existing TOS Elements within the Project Area

TOS Element	County	Route	Approximate Post Mile	Direction	Approximate Element Location
TMS	SM	101	14.37	N & S	E Poplar Ave SB diagonal ramp meter
CCTV	"	"	14.37	S	South of Peninsula Ave OC
TMS	"	"	14.68	N & S	Peninsula Ave OC
HAR	"	"	14.74	N	Peninsula Ave on-ramp to NB 101
CCTV	"	"	14.75	N	"
TMS	"	"	14.82	N & S	Peninsula Ave on-ramp diagonal ramp meter
CMS	"	"	15.01	S	South of Broadway/ North of Poplar Ave

Notes:
1. Off-ramp loops and conduit for future fiber not included on this list.
2. TOS elements include conduits, conductors, service connections and cabinets.
3. As-built plans of the following EA's to be evaluated during the final design phase: 150414, 150424, 264204. Any other relevant as-builts to be consulted also.
4. TOS elements to be field verified during the final design phase as conditions may have changed.
5. Inductance loops on the proposed SB off-ramp to be provided and run to the nearest ramp meter cabinet (preferred) or TMS.
6. Conduit for future fiber within the project limits was installed by EA 264204.Coordination during the final design phase to take place to replace affected segments and include empty laterals to new and relocated ramp meter and TOS element cabinets.
7. All existing and active ramp metering and TOS elements must be kept operational through all construction phases of the project. Any elements that may be affected by this project must be relocated, modified, or fully replaced as necessary

In addition, because access to/from US 101 will be modified, a new freeway agreement and freeway maintenance agreement, between the City of San Mateo and Caltrans, is expected. The City will be expected to hold a public hearing before entering an agreement with Caltrans. Details of the agreements will be discussed in more depth during the PA&ED phase of the project.

D. Regional Planning

The Metropolitan Transportation Commission (MTC) oversees regional transportation planning efforts for nine Bay Area counties. Transportation projects in the Bay Area are included in the Regional Transportation Improvement Program (RTIP) and the Transportation Improvement Program (TIP). This project is not currently listed in MTC's 2014 RTIP or 2015 TIP, but it is expected that the City of San Mateo or SMCTA will coordinate with Caltrans and the MTC in the future to list the project in the 2016 RTIP and/or 2017 TIP.

However, the project is listed in the 2040 Regional Transportation Plan (RTP). The project (RTP ID #240160) is on the Final 'Plan Bay Area' Project List, dated July 2013.

High Occupancy Toll (HOT) lanes, often called express lanes, provide travel options for carpools, express buses and toll payers. They allow for more efficient use of freeway capacity and generate revenues for other highway and transit improvements. Approximately 800 miles of express lanes are proposed throughout the Bay Area (in MTC's Transportation 2035 Plan), including US 101 in San Mateo County.
Within the Peninsula Avenue area, the preliminary plan calls for the conversion of the inside lanes on US 101 into HOV lanes; then ultimately into single express lanes in each direction. The Peninsula Avenue Interchange Project does not propose any changes to the inside lanes and thus, does not preclude an HOV or express lane in each direction of US 101 in the future.

E. SHOPP Projects

In July 2014, a list of 10-year State Highway Operation and Protection Program (SHOPP) projects within San Mateo County was obtained from Caltrans. Two projects fall within the post mile limits of this project:

1. Bridge Rail Replacement Project (EA 04-TF16D, PM 0.0/23.4)
2. Roadside Preservation Project (EA 04-3G670, PM 0.0/20.0)

These two projects are not expected to impact any design features of either of the two alternatives, but this project will coordinate, as necessary, during the PA&ED phase with these two projects and any other SHOPP projects that may surface over the next couple of years.

F. Local Planning

The Poplar Corridor Safety Improvement Project is currently in design by the City of San Mateo. The purpose of the project is to address traffic congestion and safety issues associated with the intersection at North Amphlett Boulevard and East Poplar Avenue/US 101 southbound ramps.

The project is scheduled to begin construction in 2015 and proposes to place a curbed median along East Poplar Avenue from west of North Idaho Street to North Amphlett Boulevard. The project also proposes to restrict certain movements at the North Amphlett intersection to reduce the potential for accidents and improve the overall operation of the intersection.

These improvements are only considered as an interim solution by both Caltrans and the City of San Mateo. This project will consider these interim improvements as an existing condition during the PA&ED phase.

7. ALTERNATIVES

The No Build and two Build Alternatives were evaluated to determine their ability to satisfy the project's purpose and need.

A. No Build Alternative

In this alternative, the existing facility would remain as-is except for the interim improvements planned by the City of San Mateo described in Section 6F of this report. With this project implemented and an expected improvement to the operation of the intersection, the no build alternative still does not meet Caltrans long-term goals of:

- Addressing the safety of the off-ramp itself, as discussed in Section 5 of this report.
- Removing the partial interchange configuration by consolidating all of the ramps at Peninsula Avenue.

Lastly, it is not known at this time if the intersection will operate at an acceptable level of service in the design year of 2043. This will be verified during the PA&ED phase of the project.

B. Alternative 1 (Tight Diamond Interchange)

As described in Section 2 of this PSR-PDS, Alternative 1 (Tight Diamond Interchange, see Attachment B) was originally conceived in Hexagon's 2011 report as "Option 15".

The southbound ramp's horizontal geometrics for Alternative 1 closely parallel the mainline to provide a "tight diamond" configuration. This was done to minimize the overall footprint and thus, minimize right-of-way, utility and environmental impacts. The southbound off-ramp ties into the Peninsula Avenue OC just west of SB US 101 and directly above North Amphlett Boulevard. The southbound on-ramp is essentially a mirror-image of the off-ramp configuration.

The southbound off- and on-ramps are single-lane ramps, but both ramps widen to two lanes at the intersection with Peninsula Avenue. Depending on the future volumes for these ramps there may be a need for more than two lanes on the ramps at the intersection. The ramp lane configuration will be determined in the PA&ED phase of the project.

See Attachment F for typical cross sections of Alternative 1.

The vertical profile of the southbound ramps is as follows: The off-ramp enters a sag curve and ascends into a grade of +8% and ties into the Peninsula Avenue OC on a crest curve ending on a grade of +2%; the cross slope of the structure. The ramp is

approximately 28 feet above North Amphlett Boulevard at the tie-in at the OC. The on-ramp profile is essentially a mirror image of the off-ramp profile.

C. Alternative 2 (Partially Spread Diamond Interchange)

The southbound ramp's horizontal geometrics for Alternative 2 (See Attachment C) are essentially identical to Alternative 1 at the off-ramp's gore area except for the following two features:

1. A 600-foot auxiliary lane is provided on the mainline prior to the off-ramp. This eliminates an advisory design exception related to sight distance and provides added safety in the situation when the off-ramp experiences an unexpected queue that backs up near the mainline.
2. A compound curve is introduced just downstream of the 23-foot gore point to pull the ramp's alignment away from the mainline to provide separation in a more traditional, partially-spread diamond configuration to provide greater spacing of the intersections on Peninsula Avenue.

As in Alternative 1, the southbound on-ramp is essentially a mirror-image of the southbound off-ramp configuration. The off and on-ramps are single-lane ramps, but both ramps widen to two lanes at the intersection with Peninsula Avenue. Depending on the future volumes for these ramps there may be a need for more than two lanes on the ramps at the intersection. The ramp lane configuration will be determined in the PA&ED phase of the project.

In addition, Alternative 2 provides one-lane widening on the north side of the Peninsula Avenue OC. The widening of the OC allows for an additional lane on the structure, which is currently proposed to be used as a left-turn pocket for WB vehicles on Peninsula Avenue.

See Attachment F for typical cross sections of Alternative 2.

The vertical profile of the ramps is very similar to Alternative 1 except the maximum grades are flatter (< 8%) because the ramps alignments are slightly longer and the tie-in point on the Peninsula Avenue OC is lower by about three feet, approximately 25 feet above the frontage road adjacent to Peninsula Avenue.

D. Design Standards

Exceptions to design standards for both alternatives were presented to Headquarters' (HQ) Design Reviewer, Gordon Brown, and other team members on July 1, 2014. HQ Delivery Coordinator, Larry Moore reviewed the probabilities listed below on Tables 7-1 and 7-2 and provided concurrence on February 25, 2015.

The cross sectional elements of the Peninsula Avenue OC, constructed in 2010 and designed in metric units, meet the standards described in the Caltrans Highway Design Manual (HDM), except for:

- Outside lane width (11.81 feet, 3.6 meters)
- Shoulder width (4.92 feet, 1.5 meters)
- Sidewalk width (5.91 feet, 1.8 meters)

Re-striping of the OC and/or reduction of the 4.92-foot wide curbed median can be done to eliminate exceptions for lane and shoulder widths. Cross sectional dimensions and their relationship to bicycle safety will be finalized during the PA&ED and/or PS&E phase. Bicycle considerations are discussed further in Section 7I.

A request for an exception to sidewalk width will likely take place during the PA&ED phase to avoid reconstruction of the bridge sidewalk. This mandatory design exception is noted in Table 7-1.

The crest vertical curve of the Peninsula Avenue OC provides 246 feet of sight distance. This is slightly less than the standard for 35 mph (250 feet). As a result, this mandatory design exception is noted in Table 7-1.

The center of the left-turning lane of the southbound ramp for Alternative 1 ties into Peninsula Avenue where the profile grade of the OC is approximately 1.7 percent, and the southbound ramp for Alternative 2 ties into Peninsula Avenue where the profile grade of the OC is approximately 3.9 percent.

See Attachment G for a graphical depiction of the mandatory and advisory design exceptions for both alternatives.

Table 7- 1 Mandatory Design Exceptions

Mandatory Design Standards Risk Assessment				
No.	**Alternative**	**Design Standard from Highway Design Manual Tables 82.1A & 82.1B**	**Probability of Design Exception Approval (None, Low, Medium, High,)**	**Justification for Probability Rating**
M1	1 & 2	Index 101.1, Design Speed of Local Facility that Connects to a Freeway	Medium	The existing Peninsula Avenue OC, constructed in 2010, provides 246 feet of sight distance on the crest vertical curve, four feet shy of the standard sight distance for 35 mph (250 feet).
M2	1 & 2	Index 202.2, Standards for Superelevation	High	The nature of the horizontal geometry makes it impractical to provide the standard superelevation rates at all locations. In addition, the proposed cross slopes provide "driver comfort" for speeds approximately equal to the speeds expected at the select locations.
M3	1 & 2	Index 208.4, Bridge Sidewalk Width	High	The existing bridge sidewalks on the Peninsula Avenue OC are 1.8 meters, approximately one inch shy of the standard 6 feet (minimum).
M4	1	Index 405.1, Corner Sight Distance at Public Road Intersections	Low	Although cost to make standard is significant, providing standard corner sight distance should be the goal for all alternatives. This feature can be assessed in the next phase in order to achieve a safe and balanced design. Alternative 2 does not have this nonstandard feature because the OC is widened on the north side and the standard corner sight distance is provided.
M5	1 & 2	Index 504.3, Distance Between Ramp and Local Road Intersections	Medium	The distance between the existing intersections (N Bayshore Boulevard and N Humboldt Street) is only 800 feet. Thus, adding a new intersection makes it impossible to attain at least 400 feet between intersections without relocating one of the existing intersections. Alternative 2 offers an advantage over Alternative 1 because it maximizes the intersection spacing with North Bayshore Blvd and provides balanced intersection spacing along Peninsula Avenue. That said, until traffic studies are done (during PA&ED), the effect of the intersection spacing on the traffic operation of Peninsula Avenue is not known.

Table 7- 2 Advisory Design Exceptions

Advisory Design Standards Risk Assessment				
No.	**Alternative**	**Design Standard from Highway Design Manual Tables 82.1A & 82.1B**	**Probability of Design Exception Approval (None, Low, Medium, High,)**	**Justification for Probability Rating**
A1	1 & 2	Index 201.7, Decision Sight Distance	Low (Alternative 1) High (Alternative 2)	The right-of-way impacts would be significant to make standard. The proposed design offers stopping sight distance of approximately 600 feet (design speed = 60 mph). Alternative 2 offers a high probability of recommendation for approval because it includes a 600-foot auxiliary lane in advance of the exit. This provides motorists additional time to decide to exit the freeway.
A2	2	Index 203.5, Compound Curves on One-Way Roads	High	Since the off-ramp diverges from the mainline along a curve, the off-ramp must also be on the (1,876 foot) radius of the right ETW of the mainline. In order to swing the alignment away from the mainline, a tighter radius curve must be used. The tighter radius (1,050 feet) is considered adequate to accommodate expected vehicular speeds on the off-ramp at the PCC.
A3	1 & 2	Index 204.4, Vertical Curves – 2 Percent and Greater	High	Design does not meet the minimum length for 10V or for stopping sight distance on a sag, however, the ramp's gore areas will be lighted and the sag curves provide adequate passenger comfort (per AASHTO) up to 45 mph.
A4	1	Index 504.2, Ramp Entrance Standards	High	Because of the tight configuration and proximity of the on-ramp (relative to the mainline), the standard 23-foot gore area cannot be attained. However, the standard entrance (50:1 merge) will be provided and safety is not compromised.
A5	1	Index 504.2(3), Freeway Exit on a Curve	Low	Larry Moore met with the previous design team in August 2012 and indicated that the exception for decision sight distance (noted above on this table) would be recommended for approval if a 600-foot auxiliary lane was provided in advance of the off-ramp. Alternative 1 does not include this 600-foot auxiliary lane.

E. Ramp Metering

For the two-lane southbound on-ramp at Peninsula Avenue, a preliminary analysis reveals that an HOV preferential lane with one mixed-flow lane will result in queuing that spills back to the Peninsula Avenue intersection. This will be verified in the traffic analysis to be completed during the PA&ED phase.

A 3-lane on-ramp (one HOV-preferential lane plus two mixed-flow lanes) would likely alleviate any potential queuing issue; however, right-of-way impacts resulting from an additional lane would be significant for both alternatives.

If queuing is an issue, a ramp meter policy exception for both alternatives (to use two mixed-flow lanes in lieu of one HOV-preferential lane plus one mixed-flow lane) would be pursued.

F. Intersection Control Evaluation (ICE)

The ICE process for this project begins with the identification of various access-solution concepts (Pre-ICE Activities). A roundabout, a diverging diamond and a single point interchange concept are discussed below.

Roundabout

A two-lane roundabout in lieu of a signalized intersection was evaluated for both alternatives.

For Alternative 1, a roundabout layout is not feasible without reconstructing the Peninsula Avenue OC. This is due to the length of a cantilever span (overhang) required to accommodate a 180-foot inscribed diameter for a two-lane roundabout. Without placing a column on the SB US 101 shoulder, the cantilever span will have to be in excess of 30 feet, which is simply not possible without reconstructing and reconfiguring the layout of the structure. Even if the roundabout was structurally feasible, the spacing of the North Bayshore Boulevard intersection is very tight (approximately 30 feet between curb returns), thus making a roundabout for Alternative 1 less than ideal from a traffic operations standpoint.

For Alternative 2, a cantilever span is less of a concern since columns can be placed, as needed, without impacting the mainline, but it still offers structural challenges due to the atypical shape of a widened structure. In addition, this concept introduces a different concern. The west side of the roundabout falls on the Peninsula Avenue OC where the profile grade exceeds 4%. Roundabouts should have cross slopes that are relatively flat (< 4%) to minimize the potential overturning of trucks.

See Attachment H for the two-lane roundabout layouts for Alternatives 1 & 2.

Single-lane roundabouts were also reviewed for their feasibility. Aside from potential operational issues associated with single legs approaching and departing the roundabout, the single-lane roundabout will also have similar structural challenges as a two-lane roundabout, especially for Alternative 1, albeit not as severe because of its smaller diameter. In addition, overturning of trucks would also be a concern on the west edge of a single-lane roundabout for Alternative 2.

For these reasons, a single-lane or two-lane roundabout does not appear to be a feasible and cost-effective solution for this project.

Diverging Diamond Interchange (DDI)

The safety and operational benefits of diverging diamond interchanges are well-documented as they provide “free” right and left turns from the end of the diagonal off-ramps in each direction of the freeway.

However, the existing interchange does not have a standard diagonal off-ramp in the northbound direction of US 101. Instead, North Bayshore Boulevard (one lane in each direction) occupies the space where the diagonal off-ramp would exist in a standard DDI configuration. As a result, the recently-constructed northbound ramps and North Bayshore Boulevard would have to be reconfigured, creating significant impacts to the Poplar Creek Golf Course on the east side of US 101.

Due to the existing configuration of the interchange on the east side of US 101, a DDI is not a cost-effective concept for this project.

Single Point Interchange (SPI)

A SPI shares many of the same structural challenges that the roundabout has; the entire overcrossing would likely have to be reconstructed. It would also require a complete reconfiguration of the northbound ramps and North Bayshore Boulevard, similar to the DDI alternative. For these reasons, a SPI is not a cost-effective concept for this project.

G. Local Access Improvements

The project proposes to widen the alleys north and south of Peninsula Avenue. The project also proposes to allow access under the ramps and the Peninsula Avenue OC to provide access to/from both sides of Peninsula Avenue. In the existing condition, only one-way access is allowed (from the south to the north side of Peninsula Avenue).

H. Structural Considerations

Alternative 1 proposes to connect the southbound on-ramp with the existing Peninsula Avenue OC without widening of the structure itself. Although anticipated

to be structurally possible to design and construct ramps and connect them to the existing Peninsula Avenue OC, there would need to be structural modifications (a strengthening retrofit) to the existing overcrossing.

During the PA&ED phase, a structural analysis investigation for strengthening of the existing girders on the overcrossing and any applicable existing support members (bent caps, columns, foundations) would be required. The goal would be to ensure structural compatibility between the existing bridge and the proposed ramp structures (deflections, transfer of loads, expansion/contraction due to thermal conditions, and anticipated displacements during a seismic event).

To accommodate a future widening of the overcrossing, the proposed ramps could be designed not only with columns/bents adjacent to the existing bridge, but with an internal bent cap at a future location of the bents, further away from the bridge. This not only makes the ramps more expensive from a design and construction viewpoint, but because of continual updates to design codes and criteria, it is difficult to ensure that the ramps will not need future replacement. At this time however, it would be possible to design the ramps with the intention of removing a portion of them if future widening of the overcrossing was required.

Alternative 2 proposes to connect the southbound on-ramp with a widened Peninsula Avenue OC. This is preferred from a structural standpoint. The widening could be designed to be structurally compatible not only with the existing bridge (similar span/bent arrangement) but with the off/on ramp structures as well, without the need to retrofit the existing bridge.

I. Pedestrian and Bicycle Transportation

The existing 4.92-foot (1.5 meters per as-built drawings) shoulders on Peninsula Avenue are signed and striped as bike lanes (Class II facility), providing bike connectivity between North Humboldt Street and the Coyote Recreation Area on the east side of US 101. The City's ultimate goal is to re-stripe the lanes on the overcrossing to no less than 11 feet and provide at least two feet of buffer between the bike lane and the right edge of traveled way (ETW) to enhance the safety of bicyclists.

The distance between the existing median curb and the bike lane is 25.6 feet (7.8 meters per as-built drawings). A 12-foot inside/median lane and an 11-foot outside lane would allow for 2.6 feet of buffer between the right ETW and the bike lane (See Attachment F). Widening the structure, as is proposed for Alternative 2, would provide greater flexibility for traveled way and buffered bike lane widths.

The City released a Sustainable Streets Plan in February 2015. This project is funded by a Caltrans Community-Based Transportation Planning (CBTP) Grant and local matching funds.

Improvement to pedestrian accessibility is proposed for both alternatives. A crosswalk would be added on the south leg of the Peninsula Avenue/North Bayshore Boulevard intersection. In addition, a pedestrian path would be added to provide connection to the sidewalk adjacent to the golf course. This will provide easier access to/from Peninsula Avenue from/to points south via North Bayshore Boulevard.

A sidewalk "bulb out" at the southeast corner of the on-ramp entrance at Peninsula Avenue and narrowing the throat of a two-lane entrance ramp to a one lane entrance will also be investigated further during the PA&ED or design phase after the needs of all roadway users have been analyzed. Narrowing the throat of a two-lane entrance ramp to one lane provides the following pedestrian benefits:

- Reduces the crossing distance
- Potentially reduces vehicle turning speeds, and
- Prevents a motorist from cutting around another vehicle yielding to a pedestrian in the crosswalk who is potentially hidden from view behind the yielding vehicle(s).

All existing and proposed pedestrian facilities within the project limits are 'Americans with Disabilities Act' (ADA) accessible and in compliance with Federal and State ADA laws and regulations.

J. Context Sensitive Solutions

The Department uses "Context Sensitive Solutions" as an approach to plan, design, construct, maintain, and operate its transportation system. These solutions use innovative and inclusive approaches that integrate and balance community, aesthetic, historic, and environmental values with transportation safety, maintenance, and performance goals. Context sensitive solutions are reached through a collaborative, interdisciplinary approach involving all stakeholders.

The context of all projects and activities is a key factor in reaching decisions. It is considered for all State transportation and support facilities when defining, developing, and evaluating options. When considering the context, issues such as funding feasibility, maintenance feasibility, traffic demand, impact on alternate routes, impact on safety, and relevant laws, rules, and regulations must be addressed.

The intended result in urban areas, such as this project, is to provide opportunities for enhanced non-motorized travel and visual quality. As described in Section 7I (Pedestrian and Bicycle Transportation), improvements to pedestrian and bicycle access and safety are underway. During the PA&ED and/or PS&E phases, community meetings will take place to provide stakeholders and the public an opportunity to voice their input on aesthetic features of the project such as, landscape concepts and aesthetic designs for the retaining walls and sound walls.

K. Miscellaneous Considerations

The removal of the existing ramps at East Poplar Avenue will leave approximately 36,200 square feet of new vacant land within Caltrans' current right-of-way. There are many potential uses for this land including bioswales for stormwater treatment, maintenance vehicle pullout (MVP) or landscaping. These options will be reviewed more closely and coordinated with Caltrans and the City of San Mateo during the PA&ED phase.

It is the City's intention to bring East Poplar Avenue back to its current condition (no curbed medians, for example) after the ramps are relocated to Peninsula Avenue. Restoring East Poplar Avenue back to its current condition would be included with this project.

L. Stormwater Evaluation

The project is located in the jurisdiction of San Francisco Bay (Region 2) Regional Water Quality Control Board (RWQCB), within San Mateo County Municipal Separate Storm Sewer Systems (MS4). No work will be performed within the San Francisco Bay or San Mateo Creek, the closest water bodies to the proposed improvements. It is anticipated that stormwater discharge during construction is covered by the Caltrans National Pollutant Discharge Elimination System (NPDES) permit within State right-of-way and the San Mateo County Municipal Regional Stormwater NPDES permit outside State right-of-way, and no 401 certification is necessary. Permitting requirements will be further evaluated in the PA&ED phase of this project.

The proposed project improvements for both alternatives increase the impervious area by less than one acre. The total estimated disturbed soil area (DSA) for Alternative 1 is approximately 7.4 acres and 7.6 acres for Alternative 2. The project will require coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. The risk level assessment has been determined to be Level 2.

The Evaluation Documentation Form, completed as part of the Stormwater Data Report (SWDR) for this phase, indicates that the project will require the incorporation of treatment best management practices (BMPs). Biofiltration swales and/or strips are anticipated to be implemented as the permanent BMPs. Both San Francisco Bay Lower and San Mateo Creek are receiving waters on the 303(d) list for trash in accordance with the Statewide 2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report). A study for the feasibility of Gross Solids Removal Devices (GSRDs) should be performed during the later phases of this project.

Permanent erosion control measures such as hydro seeding and fiber rolls are anticipated to be utilized on all new and disturbed fill and cut slopes that are unpaved. Culvert outfalls will include outlet protection and velocity dissipation BMPs if

discharging into ditches and basins to minimize erosion. Design details and installation requirements of BMPs will be developed during PS&E and incorporated into the project plans and special provisions.

Aerially deposited lead (ADL) may be present within the limits of the project improvements. A detailed evaluation of ADL presence on this project, including its characterization and reusability, will be finalized during the PS&E phase.

See Attachment P for the cover page of the SWDR.

8. RIGHT-OF-WAY

A. Right of Way

For Alternative 1, impacts to properties along North Amphlett Boulevard, north of Peninsula Avenue are significant due to the proposed southbound off-ramp alignment and its physical impact to several commercial buildings. Due to the southbound on-ramp's tight configuration, impacts south of Peninsula Avenue are expected to be minor. South of State Street, a sliver will be required across several parcels along North Amphlett Boulevard.

Alternative 2 will also impact many of the commercial buildings north of Peninsula Avenue, but overall right-of-way costs are expected to be higher because the remnant of these parcels will be smaller. In addition, the 600-foot auxiliary lane creates right-of-way impacts to several parcels on North Amphlett Boulevard just north of Howard Avenue. South of Peninsula Avenue, the on-ramp configuration requires a full acquisition. South of State Street, both alternatives have identical right-of-way impacts. See Attachment I for right-of-way exhibits for Alternatives 1 & 2 and Attachment N for Conceptual Cost Estimate – Right of Way Component. Airspace lease areas were not identified within the project limits.

B. Utilities

For Alternative 1, impacts to gas, water, sewer and overhead electrical lines are expected. For example, an existing 24-inch gas main running along North Amphlett Boulevard, north of Peninsula Avenue will have to be relocated to accommodate the location of the new southbound off-ramp to Peninsula Avenue. See Table 8-1 for a summary of the utility impacts for Alternative 1. The total utility relocation cost for Alternative 1, including 30% contingencies, is estimated at $8.93M.

Table 8-1 Utility Impacts for Alternative 1

Utility Impacts – Alternative 1			
Utility Description	Location	Quantity	Cost
24” Gas	Along North Amphlett Blvd, North of Peninsula Ave	1,080 LF	$2.2M
20” Gas	Along North Amphlett Blvd, South of Peninsula Ave	1,550 LF	$2.8M
Unknown Gas	Under the Peninsula Ave OC	100 LF	$50k
15” Sewer	Along North Amphlett Blvd, South of Peninsula Ave	780 LF	$160k
8” Water	Under the Peninsula Ave OC	330 LF	$30k
6” Water	Near State St, South of Peninsula Ave	100 LF	$10k
21 kV Electrical OH	Along North Amphlett Blvd, North of Peninsula Ave	7 Poles, 720 LF	$460k
21 kV Electrical OH	Along Alley, North of Peninsula Ave	6 Poles, 550 LF	$390k
21 kV Electrical OH	Along Alley South of Peninsula Ave	4 Poles, 710 LF	$260k
36” Steel Encasement for 230 kV Electrical	SB US 101, near On-ramp from East Poplar Ave	15 LF	$500k
24” Steel Encasement for 12” Water	“	15 LF	$10k
Subtotal			$6.870,000
Contingencies (30%)			$2,060,000
Total			**$8,930,000**

Utility impacts for Alternative 2 will be very similar to Alternative 1. However, the impacts will be greater due to the additional columns needed for widening of the Peninsula Avenue OC and due to the 600-foot auxiliary lane for the off-ramp. In addition, as-built drawings show that the high voltage 230 kV underground electrical line that runs along North Amphlett Boulevard encroaches onto the shoulder of the proposed auxiliary lane. The project team would likely seek a Utility Policy Variance Request (UPVR) to avoid the relocation of this line; however, the cost summary includes this relocation cost in case approval of the UPVR is not granted.

See Table 8-2 for a summary of the utility impacts for Alternative 2. The total utility relocation cost for Alternative 2, including 30% contingencies, is estimated at $12.18M. See Attachment J for utility exhibits of Alternatives 1 & 2. Verifications of utilities will be required. The need for positive location (potholing) as prescribed by Caltrans Policy on High and Low Risk Underground Facilities Within Highway Rights of Way (January, 1997) will be ascertained once utility facilities have been plotted. Utility relocations are anticipated as noted in Tables 8-1 and 8-2.

As described above, major relocations of high risk facilities, some of which will likely require long lead times, are expected for both alternatives. Thus, HQ Encroachment Policy staff should be consulted during the PA&ED phase to help minimize the potential for delays to the project schedule.

Table 8-2 Utility Impacts for Alternative 2

Utility Impacts – Alternative 2			
Utility Description	Location	Quantity	Cost
24” Gas	Along North Amphlett Blvd, North of Peninsula Ave	1,140 LF	$2.3M
20” Gas	Along North Amphlett Blvd, South of Peninsula Ave	1,550 LF	$2.8M
Unknown Gas	Under the Peninsula Ave OC	250 LF	$130k
15” Sewer	Along North Amphlett Blvd, South of Peninsula Ave	930 LF	$190k
8” Water	Under the Peninsula Ave OC	180 LF	$20k
6” Water	Near State St, South of Peninsula Ave	100 LF	$10k
21 kV Electrical OH	Along North Amphlett Blvd, North of Peninsula Ave	7 Poles, 720 LF	$460k
21 kV Electrical OH	Along North Amphlett Blvd, North of Howard Ave	4 Poles, 410 LF	$260k
21 kV Electrical OH	Along Alley, North of Peninsula Ave	6 Poles, 550 LF	$390k
21 kV Electrical OH	Along Alley South of Peninsula Ave	4 Poles, 710 LF	$260k
230 kV Electrical UG	Along North Amphlett Blvd, North of Howard Ave	140 LF	$2.0M
16 kV Electrical UG	Under the Peninsula Ave OC	130 LF	$40k
36” Steel Encasement for 230 kV Electrical	SB US 101, near On-ramp from East Poplar Ave	15 LF	$500k
24” Steel Encasement for 12” Water	“	15 LF	$10k
Subtotal			$9.370,000
Contingencies (30%)			$2,810,000
Total			**$12,180,000**

Table 8-3 summarizes the $3.25M cost differential between Alternatives 1 and 2.

Table 8- 3 Utility Cost Differential (Between Alternative 1 and Alternative 2)

Additional Utility Costs Associated with Alternative 2			
Utility Description	Location	Quantity	Cost
24” Gas	Along North Amphlett Blvd, North of Peninsula Ave	60 LF	$100k
20” Gas	Along North Amphlett Blvd, South of Peninsula Ave	-	$0k
Unknown Gas	Under the Peninsula Ave OC	150 LF	$80k
15” Sewer	Along North Amphlett Blvd, South of Peninsula Ave	150 LF	$30k
8” Water	Under the Peninsula Ave OC	-80 LF	-$10k
6” Water	Near State St, South of Peninsula Ave	-	$0k
21 kV Electrical OH	Along North Amphlett Blvd, North of Peninsula Ave	-	$0k
21 kV Electrical OH	Along North Amphlett Blvd, North of Howard Ave	4 Poles, 410 LF	$260k
21 kV Electrical OH	Along Alley, North of Peninsula Ave	-	$0k
21 kV Electrical OH	Along Alley South of Peninsula Ave	-	$0k
230 kV Electrical UG	Along North Amphlett Blvd, North of Howard Ave	140 LF	$2.0M
16 kV Electrical UG	Under the Peninsula Ave OC	130 LF	$40k
36” Steel Encasement for 230 kV Electrical	SB US 101, near On-ramp from East Poplar Ave	-	$0k
24” Steel Encasement for 12” Water	“	-	$0k
Subtotal			$2,500,000
Contingencies (30%)			$750,000
Total			**$3,250,000**

C. Railroad

Railroad facilities are not within the vicinity of this project.

9. STAKEHOLDER INVOLVEMENT

SMCTA and the City of San Mateo are in support of the project. In 2013, SMCTA approved the use of ‘Measure A’ funds for this project. Consultation with the City of Burlingame will take place immediately following the PID phase and prior to start of the PA&ED phase.

In November 2013, SMCTA and Caltrans entered into Cooperative Agreement # 04-2497 to complete a PSR-PDS for this project. A new cooperative agreement will be required for the PA&ED phase of the project.

Public outreach meetings, City Commission and/or Council meetings are expected prior to and during the PA&ED phase to obtain input from the local residential and business community. In addition, the project team will seek San Mateo and Burlingame City Council resolutions supporting the advancement of this project into the PA&ED phase.

10. ENVIRONMENTAL DETERMINATION/DOCUMENT

Past experience with similar actions and the information gathered to date indicate that environmental clearance could be obtained with an Initial Study with a Negative Declaration or Mitigated Negative Declaration under CEQA and a Routine Environmental Assessment with a Finding of No Significant Impact under NEPA. Key environmental issues include visual/aesthetics and community impacts, including relocation and environmental justice impacts. The noise study will need to evaluate any changes in existing sound walls along US 101, and the change in ambient noise with the addition of elevated ramps connecting to Peninsula Avenue.

A public outreach and information effort is recommended to keep residents and local businesses informed of the project, the alternatives, opportunities for review and comment, overall project schedule, and right-of-way rights and eligibility.

Typical construction compliance with the Caltrans Construction General Permit will be required, and storm water treatment and hydromodification management measures should be anticipated in the project design.

US 101 from south of Peninsula Avenue to East Poplar Avenue may be at periodic inundation risk from a 100-year flood event or sea level rise in 2030, and the entire project area along US 101 at risk to sea level rise by 2050. The project design should include measures that can minimize or meet a no net increase in the base floodplain. To address potential sea level rise, raising the grade of US 101 is not considered reasonable, but a potential adaptive action may include use of construction materials that are more resilient to sea water inundation.

Preparation of the IS/EA, including technical studies, is anticipated to take 24 months, after receiving information necessary to begin the environmental analysis. This timeline includes time for review by the environmental division staff within Caltrans, but does not include time for permitting by federal or state resource agencies.

Based on the highly developed nature of the area, there is no indication of significant biological resources presence directly at the project site, which can impact the project schedule, although this must be confirmed during the PA&ED phase. Substantial changes to the project description will require review, and could have implications to the schedule.

The funding and implementing agency for PA&ED is not known at this time and will be decided on a date to be determined. Caltrans would act as the lead agency for CEQA/NEPA.

See Attachment K for the Preliminary Environmental Analysis Report (PEAR).

11. FUNDING

Funding for this project is expected to come from Federal, State, City and San Mateo County's 'Measure A' funds.

Preliminary cost estimates are provided in Attachment E. A summary of cost ranges for the project is provided below.

Capital Outlay Project Estimate

	Range of Estimate		STIP Funds		Other Funds	
	Construction	Right-of-Way	Construction	Right-of-Way	Construction	Right-of-Way
Alternative 1	$22.6M	$24.4M	TBD	TBD	TBD	TBD
Alternative 2	$24.3M	$36.4M	TBD	TBD	TBD	TBD

Notes:
1. TBD – To Be Determined
2. All costs are in 2015 dollars. Escalation is not included.
3. Landscape costs are included for a follow-up contract.

The level of detail available to develop these capital outlay project estimates is only accurate to within the above ranges and is useful for long-range planning purposes only. The capital outlay project estimates should not be used to program or commit State-programmed capital outlay funds. The project report would serve as the appropriate document from which the remaining support and capital components of the project would be programmed.

Capital Outlay Support Estimate

Capital outlay support estimate for programming PA&ED phase for this project: $2.0-2.2 million. An additional $690-750k is estimated for Caltrans Independent Quality Assurance (IQA) during the PA&ED phase.

Congestion Mitigation and Air Quality (CMAQ)

The Congestion Mitigation and Air Quality (CMAQ) Improvement Program is legislated under the federal Moving Ahead for Progress in the 21st Century Act (MAP-21), which was adopted in July 2012.

According to the CMAQ program guidance under MAP-21 provided by the Federal Highway Administration (FHWA), the following summarizes the project's eligibility for CMAQ funding:

Each CMAQ project must meet three basic criteria:

1. It must be a transportation project
2. It must generate an emissions reduction, and
3. It must be located in or benefit a nonattainment or maintenance area.

In addition, all Federal-aid projects (CMAQ is no exception) must be included in the Metropolitan Planning Organization's (MPO's) current transportation plan and Transportation Improvement Program (TIP) (or the current Statewide Transportation Improvement Program (STIP) in areas without an MPO). In nonattainment and maintenance areas, the project also must meet the conformity provisions contained in section 176(c) of the Clean Air Act (CAA) and the transportation conformity regulations. Lastly, all CMAQ-funded projects need to complete National Environmental Policy Act (42 U.S.C. 4321 et seq.) (NEPA) requirements and satisfy the basic eligibility requirements under titles 23 and 49 of the United States Code.

This project is expected to meet these requirements and thus, be eligible for funding under the CMAQ program.

12. SCHEDULE

Project Milestones		Scheduled Delivery Date (Month/Year)
PROGRAM PROJECT	M015	October 2015
BEGIN ENVIRONMENTAL	M020	December 2015
CIRCULATE DED EXTERNALLY	M120	June 2017
PROJECT APPROVAL (PA & ED)	M200	December 2017
BEGIN PS&E		June 2018
RIGHT-OF-WAY CERTIFICATION		June 2021
COMPLETE PS&E (RTL APPROVAL)		December 2021
BEGIN CONSTRUCTION		June 2022
END CONSTRUCTION		June 2024

This schedule is subject to change during the PA&ED phase. The "Begin Construction" date of June 2022 assumes that all major utility relocations occur in advance and that the utility companies will need two years to design their facilities (between June 2018 and June 2020) and approximately another two years to complete their relocations (between June 2020 and June 2022).

The anticipated funding fiscal year for construction is 2021/22.

13. RISKS

The project risks have been identified and summarized in the Risk Register (See Attachment L). The risk items most likely to impact schedule are obtaining concurrence from local stakeholders, acquiring right-of-way and experiencing potential delays in the design of utility relocations. The risk item most likely to impact design/cost is the discovery of hazardous materials during the PA&ED phase.

14. FHWA COORDINATION

This project is considered to be an Assigned Project in accordance with the current Federal Highway Administration (FHWA) and Department of Transportation (Caltrans) Joint Stewardship and Oversight Agreement.

Discussion of CMAQ funding is included in Section 11 (Funding).

15. PROJECT REVIEWS

Field Review		Date
District Maintenance	Steve Rouse	Date 3/24/2015
District Traffic Safety Engineer		Date
Headquarters Delivery Coordinator	Larry Moore	Date 2/25/2015
Project Manager	Richelle Perez	Date 3/22/2015
FHWA	Lanh Phan	Date 1/05/2015
District Safety Review	Haixiong Xu	Date 3/20/2015
Constructability Review	Frank Guros	Date 3/16/2015
Other		Date

16. PROJECT PERSONNEL

Name	Title/Department	Phone #
Richelle P. Perez	Caltrans Project Manager	(510) 286-4998
Celia McCuaig	Office Chief, Caltrans Advance Planning	(510) 286-5659
Mimy Hew	Branch Chief, Caltrans Advance Planning	(510) 286-5578
Trang Hoang	Transportation Engineer, Caltrans Advance Planning	(510) 286-5650
Larry T. Moore	Caltrans HQ Delivery Coordinator	(916) 653-2647
David Seriani	Caltrans Highway Operations	(510) 286-4653
Lance Hall	Caltrans Highway Operations	(510) 286-6311
Kathy Boltz	Caltrans Environmental	(510) 622-8706
Kristin Schober	Caltrans Right-of-Way	(510) 286-5327
Laura Hameister	Caltrans Utility Coordinator	(510) 286-5429
Beth Thomas	Caltrans Pedestrian and Bicycle Coordinator	(510) 286-7227
Jim McKim	SMCTA Project Manager	(650) 508-7944
Mike Chan	SMCTA Representative	(510) 774-6119
Gary Heap	City of San Mateo, Engineering Manager	(650) 522-7307
Ramsey Hissen	URS Project Manager	(408) 961-8426
Ramesh Sathiamurthy	URS Engineering Manager	(925) 446-3814
Jeff Zimmerman	URS Environmental	(510) 874-3005
Peter DeStefano	URS Project Engineer	(925) 446-3819

ATTACHMENTS

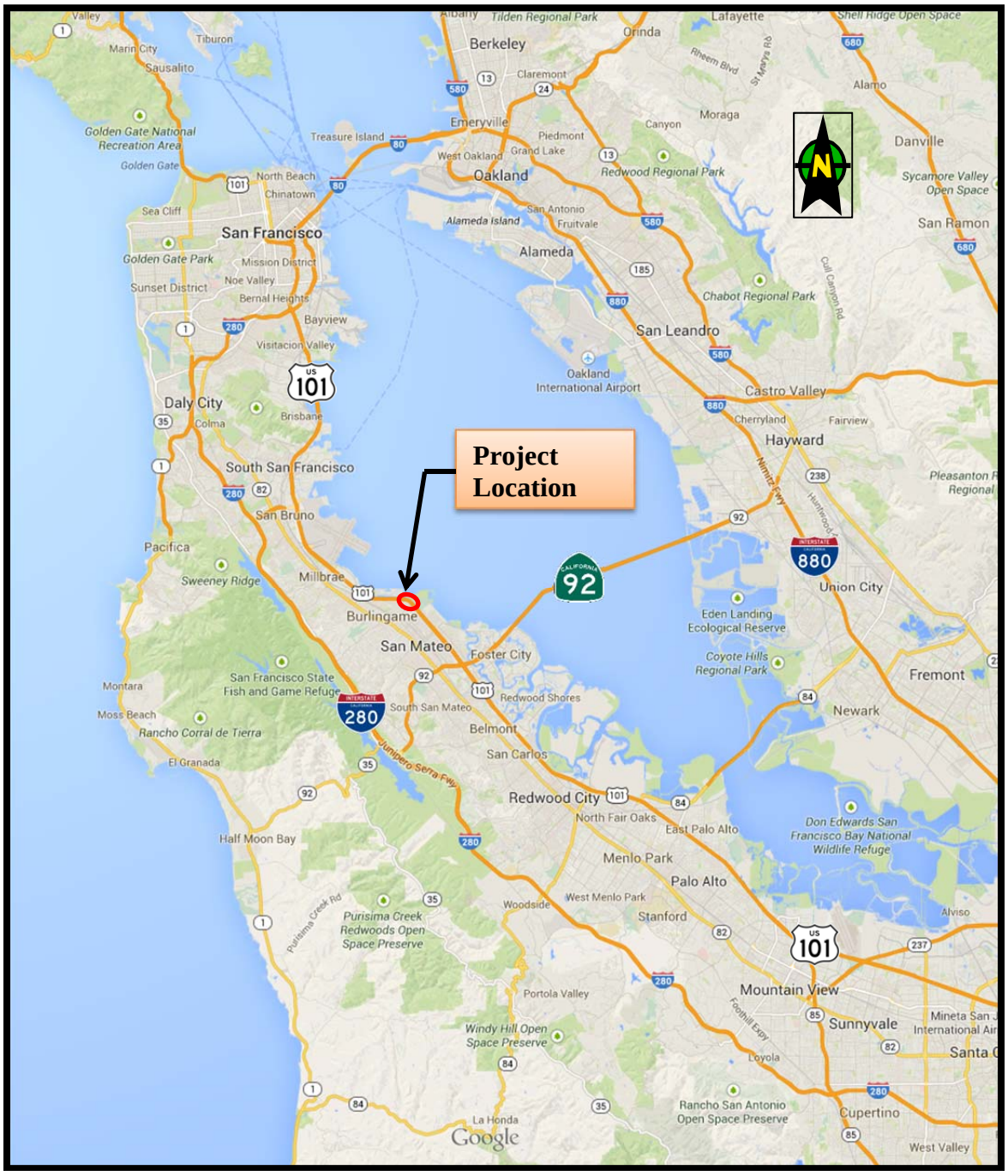
Attachment A Project Location Map
Attachment B Alternative 1 (Tight Diamond Interchange)
Attachment C Alternative 2 (Partially Spread Diamond Interchange)
Attachment D PA&ED Phase – Preliminary Traffic Study Areas
Attachment E Preliminary Cost Estimates
Attachment F Typical Cross Sections
Attachment G Design Exceptions
Attachment H Roundabout Layouts
Attachment I Right-of-Way
Attachment J Utilities
Attachment K Preliminary Environmental Analysis Report
Attachment L Risk Register
Attachment M Transportation Planning Scoping Information Sheet
Attachment N Conceptual Cost Estimate – Right of Way Component
Attachment O Traffic Engineering Performance Assessment
Attachment P Storm Water Data Report (Cover Page)

ATTACHMENT A

PROJECT LOCATION MAP

US 101/Peninsula Avenue Interchange Project

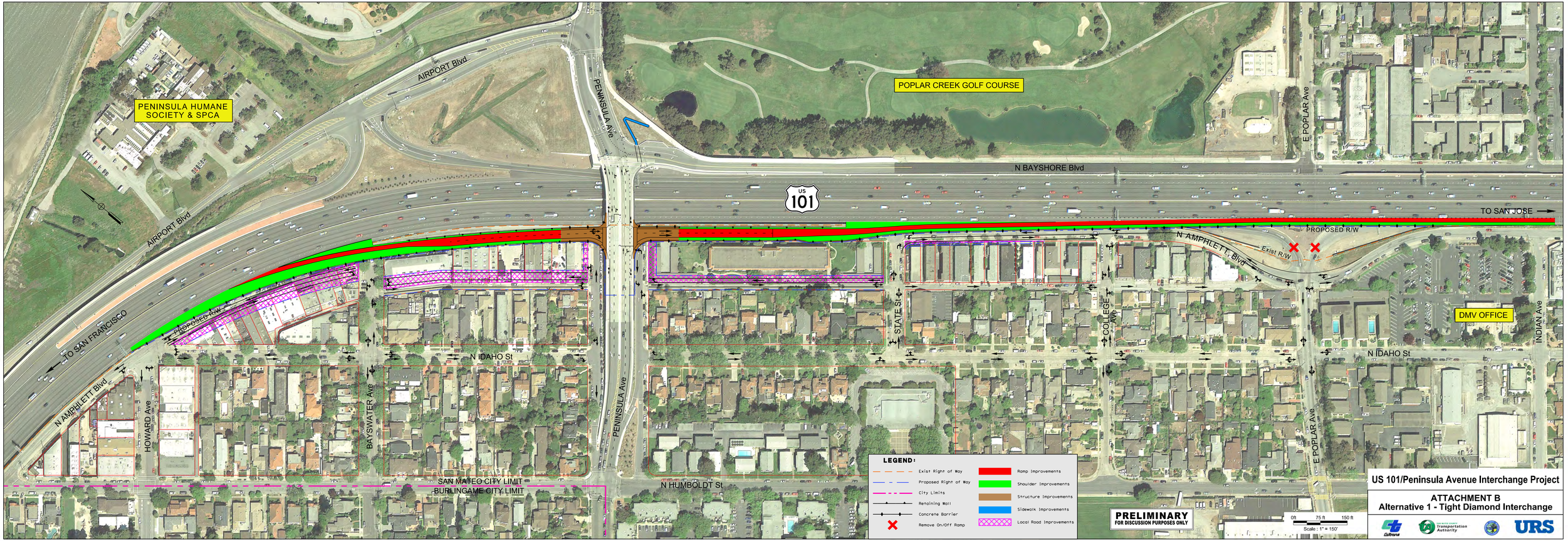
04-SM-101 PM 14.5/14.9



Location Map

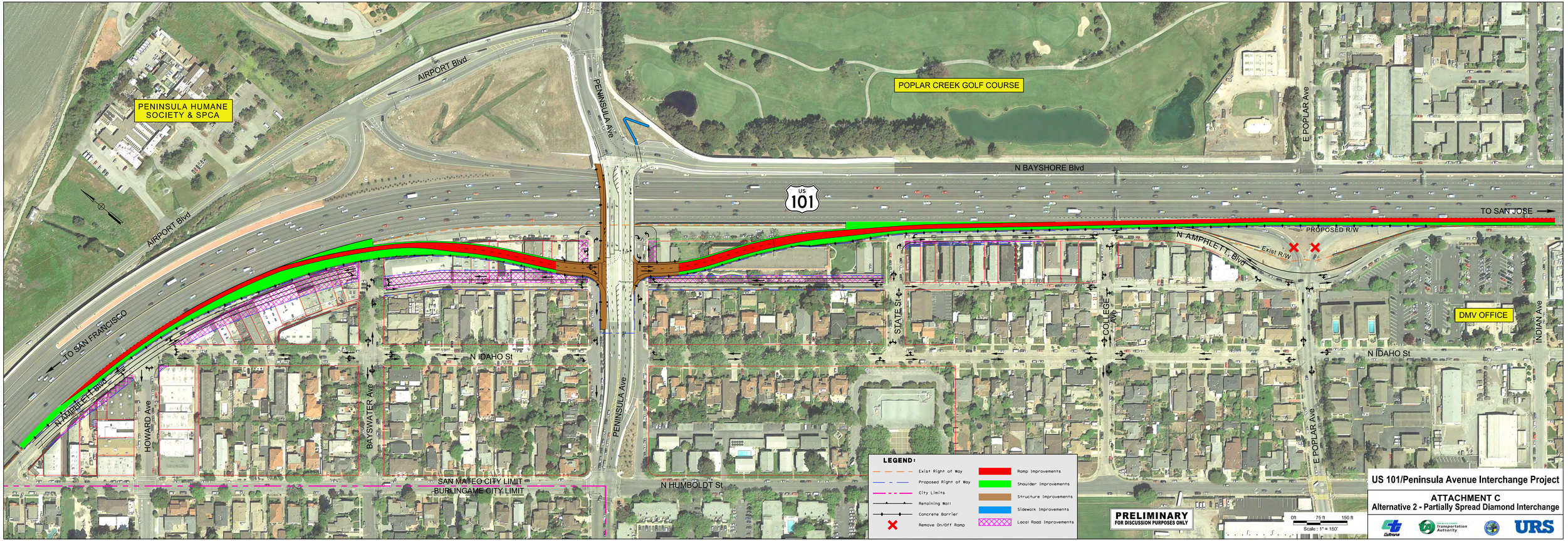
ATTACHMENT B

ALTERNATIVE 1 (TIGHT DIAMOND INTERCHANGE)


PENINSULA HUMANE SOCIETY & SPCA
AIRPORT Blvd
AIRPORT Blvd
PENINSULA Ave
POPLAR CREEK GOLF COURSE
E POPLAR Ave
N BAYSHORE Blvd
US 101
TO SAN JOSE
PROPOSED R/W
Exist R/W
N AMPHLETT Blvd
PROPOSED R/W
TO SAN FRANCISCO
N AMPHLETT Blvd
HOWARD Ave
N IDAHO St
BAYSWATER Ave
PENINSULA Ave
STATE St
COLLEGE Ave
DMV OFFICE
INDIAN Ave
N IDAHO St
E POPLAR Ave
SAN MATEO CITY LIMIT
BURLINGAME CITY LIMIT
N HUMBOLDT St
LEGEND:
Exist Right of Way
Proposed Right of Way
City Limits
Retaining Wall
Concrete Barrier
Remove On/Off Ramp
Ramp Improvements
Shoulder Improvements
Structure Improvements
Sidewalk Improvements
Local Road Improvements
PRELIMINARY
FOR DISCUSSION PURPOSES ONLY
0ft 75 ft 150 ft
Scale : 1" = 150'
US 101/Peninsula Avenue Interchange Project
ATTACHMENT B
Alternative 1 - Tight Diamond Interchange
URS

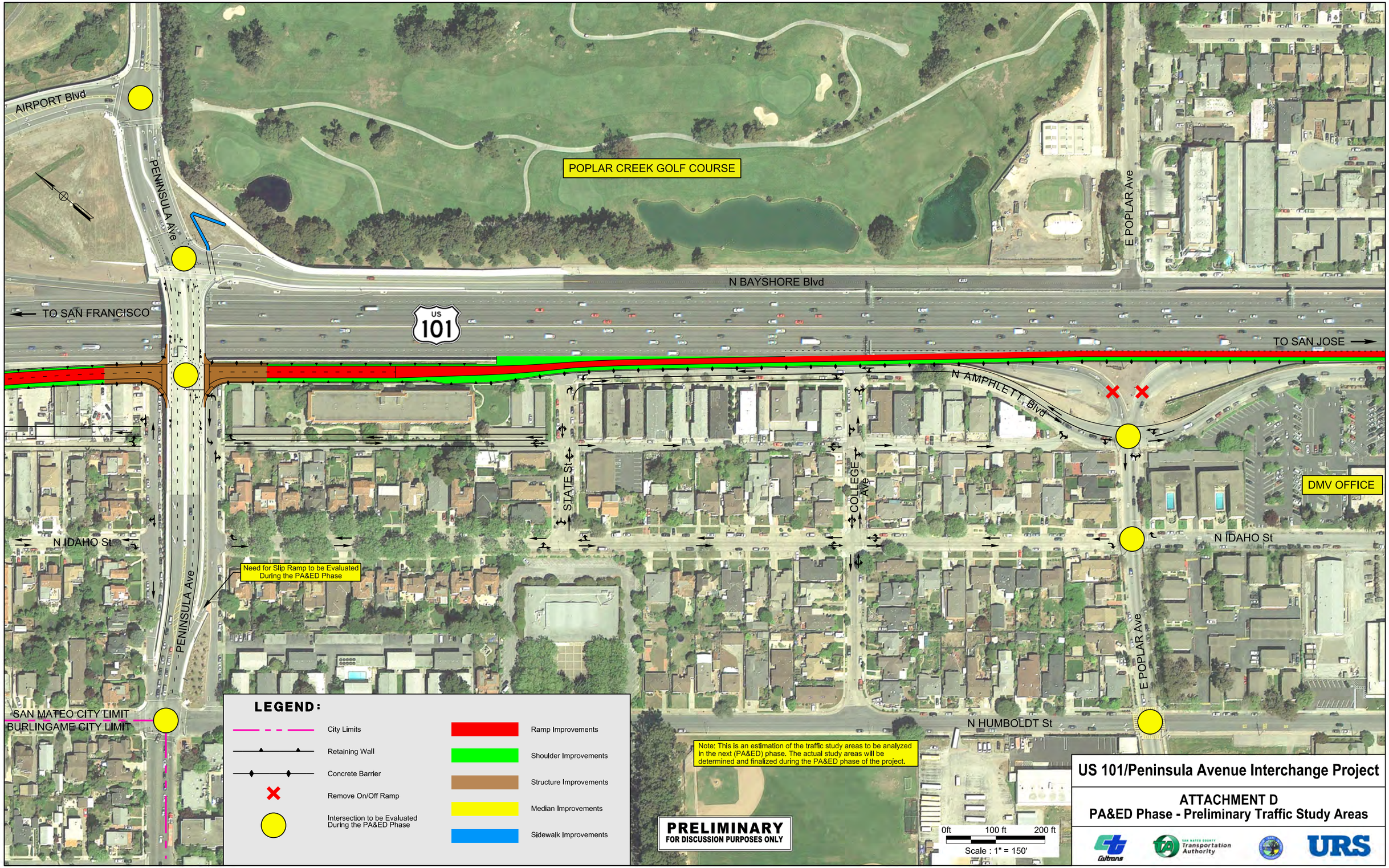
ATTACHMENT C

ALTERNATIVE 2 (PARTIALLY SPREAD DIAMOND INTERCHANGE)


PENINSULA HUMANE SOCIETY & SPCA
AIRPORT Blvd
AIRPORT Blvd
PENINSULA Ave
POPLAR CREEK GOLF COURSE
E POPLAR Ave
N BAYSHORE Blvd
US 101
TO SAN JOSE
PROPOSED R/W
Exist R/W
N AMPHLETT Blvd
TO SAN FRANCISCO
N AMPHLETT Blvd
HOWARD Ave
BAYSWATER Ave
N IDAHO St
PENINSULA Ave
STATE St
COLLEGE Ave
N IDAHO St
DMV OFFICE
INDIAN Ave
E POPLAR Ave
SAN MATEO CITY LIMIT
BURLINGAME CITY LIMIT
N HUMBOLDT St
LEGEND:
Exist Right of Way
Proposed Right of Way
City Limits
Retaining Wall
Concrete Barrier
Remove On/Off Ramp
Ramp Improvements
Shoulder Improvements
Structure Improvements
Sidewalk Improvements
Local Road Improvements
PRELIMINARY
FOR DISCUSSION PURPOSES ONLY
0ft 75 ft 150 ft
Scale : 1" = 150'
US 101/Peninsula Avenue Interchange Project
ATTACHMENT C
Alternative 2 - Partially Spread Diamond Interchange
URS

ATTACHMENT D

PA&ED PHASE – PRELIMINARY TRAFFIC STUDY AREAS



US 101/Peninsula Avenue Interchange Project

ATTACHMENT D
PA&ED Phase - Preliminary Traffic Study Areas

Caltrans | San Mateo County Transportation Authority | URS

ATTACHMENT E

PRELIMINARY COST ESTIMATES

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST - CO - RTE: 04-SM-101

Type of Estimate (PSR, PR, etc.): PSR-PDS
Program Code:
PM: 14.5/14.9
EA: 04-4H460
PP No. :

Project Description: US 101/Peninsula Avenue Interchange Project - Alternative 1

Limits: 0.7 miles north of the Third Avenue OC in the City of San Mateo to 1.6 miles south of the Broadway Avenue OC in the City of Burlingame

Proposed Improvement (Scope): Construction of new US 101 southbound on and off-ramps at Peninsula Avenue in a tight diamond configuration. The project will remove the existing southbound on and off-ramps at East Poplar Avenue, which will result in an improvement to the safety and traffic operations of the southbound US 101 ramps and the intersection of East Poplar Avenue/North Amphlett Boulevard.

CONSTRUCTION PHASE		
TOTAL ROADWAY ITEMS		$16,980,000
TOTAL STRUCTURE ITEMS		$5,566,000
TOTAL CONSTRUCTION COSTS		**$22,550,000**
TOTAL RIGHT OF WAY & UTILITY		$24,430,000
TOTAL CAPITAL COST		**$46,980,000**
TOTAL CONSTRUCTION COSTS (2022 Dollars)		$27,730,000
Program Year of 2022 Estimated, Escalation Rate of 3%		
ENGINEERING SERVICES (PA&ED)	7.5% *	$2,080,000
ENGINEERING SERVICES (PS&E)	12.0%	$2,706,000
R/W SERVICES	5.0%	$1,128,000
CONSTRUCTION ADMINISTRATION @	15.0%	$3,383,000
TOTAL SUPPORT COST		**$9,297,000**
TOTAL PROJECT COST		**$56,300,000**

* Includes cost for the City & SMCTA

Reviewed by Project Engineer	Peter DeStefano, P.E	(925) 446-3819	04/03/15
Approved by Project Manager	Ramesh Sathiamurthy, P.E.	(925) 446-3814 (Phone)	04/03/15 (Date)

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

	DIST - CO - RTE
	04-SM-101
PM:	14.5/14.9
EA:	04-4H460
PP No. :	0

	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Section 1 - Earthwork					
Imported Topsoil	4,700	CY	$30	$141,000	
Roadway Excavation	7,600	CY	$14	$106,400	
Clearing & Grubbing	1	LS	$25,000	$25,000	
Develop Water Supply	1	LS	$25,000	$25,000	
Remove Unsuitable Materials	1	LS	$500,000	$500,000	
				Total Earthwork	$797,000
Section 2 - Structural Section *					
RHMA (Type A)	2,100	TON	$115	$242,000	
HMA (Type A)	6,200	TON	$90	$558,000	
Aggregate Base (Cl 2)	4,000	CY	$35	$140,000	
Aggregate Subbase (Cl 4)	2,700	CY	$20	$54,000	
Remove Base and Surfacing	1,200	CY	$10	$12,000	
				Total Structural Section	$1,006,000
Section 3 - Drainage					
Project Drainage (80% of Sections 1-2)	1	LS	$1,442,400	$1,442,400	
				Total Drainage	$1,442,400

* Attach sketch showing typical structural section elements of the roadway.
Include (if available) T.I., R-Value, and date when tests were performed

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

	DIST - CO - RTE
	04-SM-101
PM:	14.5/14.9
EA:	04-4H460
PP No. :	0

Section 4 - Specialty Items	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Retaining Wall	21,000	SF	$125	$2,625,000	
Sound Wall	24,000	SF	$22	$528,000	
Remove Retaining Wall				$0	
Remove Sound Wall	24,800	SF	$4	$99,200	
Concrete Barrier (Type 60)	2,500	LF	$65	$162,500	
				$0	
Prepare SWPPP	1	LS	$25,000	$25,000	
Water Pollution Control	1	LS	$100,000	$100,000	
Permanent Treatment BMPs	1	LS	$350,000	$350,000	
Time Related Overhead	1	LS	$1,000,000	$1,000,000	
				Total Specialty Items	$4,889,700

Section 5 - Traffic Items					
Lighting	1	LS	$300,000	$300,000	
Signals	1	LS	$300,000	$300,000	
Traffic Control System	1	LS	$175,000	$175,000	
Striping	1	LS	$40,000	$40,000	
Crash Cushions	1	LS	$25,000	$25,000	
Temporary K-rail	10,000	LF	$8	$80,000	
TOS/Ramp Metering	1	LS	$150,000	$150,000	
TMP (Inc. COZEEP, CMS etc.)	1	LS	$350,000	$350,000	
Roadway Signs	1	LS	$40,000	$40,000	
Overhead Signs	1	LS	$500,000	$500,000	
				Total Traffic Items	$1,960,000

Section 6 - Planting and Irrigation					
Planting	1	LS	$300,000	$300,000	
Irrigation	1	LS	$200,000	$200,000	
				Total Planting & Irrigation Items	$500,000

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

	DIST - CO - RTE
	04-SM-101
PM:	14.5/14.9
EA:	04-4H460
PP No. :	0

	Quantity	Unit		Unit Price	Unit Cost	Section Cost
Section 7 - Roadside Management & Safety						
Vegetation Control		SQYD		$60	$0	
Erosion Control	1	LS		$50,000	$50,000	
					Total Roadside Management & Safety	$50,000
					SUBTOTAL SECTIONS 1 - 7:	$10,645,100
Section 8 - Minor Items						
Subtotal Sections 1 - 7		$10,645,100	X	10.0%	$1,064,510	
					TOTAL MINOR ITEMS:	$1,065,000
Section 9 - Roadway Mobilization						
Subtotal Sections 1 - 7		$10,645,100				
Minor Items		$1,065,000				
	Sum	$11,710,100	X	10.00%	$1,171,010.00	
					TOTAL ROADWAY MOBILIZATION	$1,171,000
Section 10 - Roadway Additions						
Supplemental						
Subtotal Sections 1 - 7		$10,645,100				
Minor Items		$1,065,000				
	Sum	$11,710,100	X	10.0%	$1,171,010	
Contingencies						
Subtotal Sections 1 - 7		$10,645,100				
Minor Items		$1,065,000				
	Sum	$11,710,100	X	25%	$2,927,525	
					TOTAL ROADWAY ADDITIONS	$4,099,000
					TOTAL ROADWAY ITEMS (Total of Sections 1 - 10)	$16,980,000

Estimate Prepared By:	Peter DeStefano, P.E	(925) 446-3819	04/03/15
	(Print Name)	(Phone)	(Date)

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

	DIST - CO - RTE
	04-SM-101
PM:	14.5/14.9
EA:	04-4H460
PP No. :	0

II. STRUCTURES ITEMS	#1	#2	#3	
Bridge Name	Peninsula Ave OC			
Structure Type	PC/PS Girder			
Width (ft) - out to out	Var			
Span Length (ft)	Var			
Total Area (SqFt)	12,100			
Footing Type (pile/spread)	Pile			
Cost per Sq. Ft.	$460			
Including:				
Bridge Removal				
Mobilization: 10%				
Contingency: 25%				
Bridge Removal				
Total Cost For Structure	$5,566,000			

SUBTOTAL THIS PAGE	$5,566,000
TOTAL STRUCTURES ITEMS	$5,566,000

Railroad Related Costs

COMMENTS:

Estimate Prepared By:	Jan Hueser, P.E.	(916) 993-7614	04/03/15
	(Print Name)	(Phone)	(Date)

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST - CO - RTE	
	04-SM-101
PM:	14.5/14.9
EA:	04-4H460
PP No. :	0

III. Right-of-Way estimates should consider the probable highest and best use and type and intent of improvements at the time of acquisition. Assume acquisition including utility relocation occurs at the right of way certification milestone as shown in the Funding and Scheduling Section of the PSR. For further guidance see Chapter 1, Caltrans Right of Way Procedural Handbook.

	Current Values (Future Use)	Escalation Rate (%/yr)	Escalated Value (2018)
Acquisition, including excess lands TCE and damages to remainders*	$12,200,000	0.00%	$12,200,000
Utility Relocation	$8,930,000	0.00%	$8,930,000
Clearance / Demolition	$2,500,000	0.00%	$2,500,000
RAP	$400,000	0.00%	$400,000
R/W Services - Title and Escrow Fees	$100,000	0.00%	$100,000
CONSTRUCTION CONTRACT WORK			$0
SB1210	$100,000	0.00%	$100,000
Section 83 Transfers	$200,000	0.00%	$200,000
		0.00%	$0
TOTAL RIGHT OF WAY (CURRENT VALUE)	$24,430,000	TOTAL ESCALATED RIGHT OF WAY	$24,430,000

* See ROW data sheet and right of way cost estimate for details.
* For TCE cost see ROW data sheet and right of way cost estimate for details.

Estimate prepared by:	Peter DeStefano, P.E	(925) 446-3819	04/03/15
	(Print Name)	(Phone)	(Date)

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST - CO - RTE: 04-SM-101

Type of Estimate (PSR, PR, etc.): PSR-PDS
Program Code:
PM: 14.5/14.9
EA: 04-4H460
PP No. :

Project Description: US 101/Peninsula Avenue Interchange Project - Alternative 2

Limits: 0.7 miles north of the Third Avenue OC in the City of San Mateo to 1.6 miles south of the Broadway Avenue OC in the City of Burlingame

Proposed Improvement (Scope): Construction of new US 101 southbound on and off-ramps at Peninsula Avenue in a partially spread diamond configuration. The project will remove the existing southbound on and off-ramps at East Poplar Avenue, which will result in an improvement to the safety and traffic operations of the southbound US 101 ramps and the intersection of East Poplar Avenue/North Amphlett Boulevard.

CONSTRUCTION PHASE		
TOTAL ROADWAY ITEMS		$16,152,000
TOTAL STRUCTURE ITEMS		$8,190,000
TOTAL CONSTRUCTION COSTS		**$24,340,000**
TOTAL RIGHT OF WAY & UTILITY		$36,380,000
TOTAL CAPITAL COST		**$60,720,000**
TOTAL CONSTRUCTION COSTS (2021 Dollars)		$29,940,000
Program Year of 2021 Estimated, Escalation Rate of 3%		
ENGINEERING SERVICES (PA&ED)	7.5% *	$2,246,000
ENGINEERING SERVICES (PS&E)	12.0%	$2,921,000
R/W SERVICES	5.0%	$1,217,000
CONSTRUCTION ADMINISTRATION @	15.0%	$3,651,000
TOTAL SUPPORT COST		**$10,035,000**
TOTAL PROJECT COST		**$70,800,000**

* Includes cost for the City & SMCTA

Reviewed by Project Engineer	Peter DeStefano, P.E	(925) 446-3819	04/03/15
Approved by Project Manager	Ramesh Sathiamurthy, P.E.	(925) 446-3814 (Phone)	04/03/15 (Date)

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

	DIST - CO - RTE
	04-SM-101
PM:	14.5/14.9
EA:	04-4H460
PP No. :	0

	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Section 1 - Earthwork					
Imported Topsoil	5,300	CY	$30	$159,000	
Roadway Excavation	8,000	CY	$14	$112,000	
Clearing & Grubbing	1	LS	$25,000	$25,000	
Develop Water Supply	1	LS	$25,000	$25,000	
Remove Unsuitable Materials	1	LS	$600,000	$600,000	
				Total Earthwork	$921,000
Section 2 - Structural Section *					
RHMA	2,300	TON	$115	$265,000	
HMA (Type A)	7,000	TON	$90	$630,000	
Aggregate Base (Cl 2)	4,400	CY	$35	$154,000	
Aggregate Subbase (Cl 4)	3,000	CY	$20	$60,000	
Remove Base and Surfacing	1,200	CY	$10	$12,000	
				Total Structural Section	$1,121,000
Section 3 - Drainage					
Project Drainage (80% of Sections 1-2)	1	LS	$1,633,600	$1,633,600	
				Total Drainage	$1,633,600

* Attach sketch showing typical structural section elements of the roadway.
Include (if available) T.I., R-Value, and date when tests were performed

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

	DIST - CO - RTE
	04-SM-101
PM:	14.5/14.9
EA:	04-4H460
PP No. :	0

Section 4 - Specialty Items	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Retaining Wall	10,000	SF	$125	$1,250,000	
Sound Wall	24,000	SF	$22	$528,000	
Remove Retaining Wall				$0	
Remove Sound Wall	24,800	SF	$4	$99,200	
Concrete Barrier (Type 60)	2,900	LF	$65	$188,500	
				$0	
Prepare SWPPP	1	LS	$25,000	$25,000	
Water Pollution Control	1	LS	$100,000	$100,000	
Permanent Treatment BMPs	1	LS	$400,000	$400,000	
Time Related Overhead	1	LS	$1,000,000	$1,000,000	
				$0	
				Total Specialty Items	$3,590,700

Section 5 - Traffic Items					
Lighting	1	LS	$300,000	$300,000	
Signals	1	LS	$300,000	$300,000	
Traffic Control System	1	LS	$175,000	$175,000	
Striping	1	LS	$40,000	$40,000	
Crash Cushions	1	LS	$25,000	$25,000	
Temporary K-rail	10,000	LF	$8	$80,000	
TOS/Ramp Metering	1	LS	$150,000	$150,000	
TMP (Inc. COZEEP, CMS etc.)	1	LS	$350,000	$350,000	
Roadway Signs	1	LS	$40,000	$40,000	
Overhead Signs	1	LS	$500,000	$500,000	
				Total Traffic Items	$1,960,000

Section 6 - Planting and Irrigation					
Planting	1	LS	$500,000	$500,000	
Irrigation	1	LS	$300,000	$300,000	
				Total Planting & Irrigation Items	$800,000

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

	DIST - CO - RTE
	04-SM-101
PM:	14.5/14.9
EA:	04-4H460
PP No. :	0

	Quantity	Unit		Unit Price	Unit Cost	Section Cost
Section 7 - Roadside Management & Safety						
Vegetation Control		SQYD		$60	$0	
Erosion Control	1	LS		$100,000	$100,000	
					Total Roadside Management & Safety	$100,000
					SUBTOTAL SECTIONS 1 - 7:	$10,126,300
Section 8 - Minor Items						
Subtotal Sections 1 - 7		$10,126,300	X	10.0%	$1,012,630	
					TOTAL MINOR ITEMS:	$1,013,000
Section 9 - Roadway Mobilization						
Subtotal Sections 1 - 7		$10,126,300				
Minor Items		$1,013,000				
	Sum	$11,139,300	X	10.00%	$1,113,930.00	
					TOTAL ROADWAY MOBILIZATION	$1,114,000
Section 10 - Roadway Additions						
Supplemental						
Subtotal Sections 1 - 7		$10,126,300				
Minor Items		$1,013,000				
	Sum	$11,139,300	X	10.0%	$1,113,930	
Contingencies						
Subtotal Sections 1 - 7		$10,126,300				
Minor Items		$1,013,000				
	Sum	$11,139,300	X	25%	$2,784,825	
					TOTAL ROADWAY ADDITIONS	$3,899,000
					TOTAL ROADWAY ITEMS (Total of Sections 1 - 10)	$16,152,000

Estimate Prepared By:	Peter DeStefano, P.E	(925) 446-3819	04/03/15
	(Print Name)	(Phone)	(Date)

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

	DIST - CO - RTE
	04-SM-101
PM:	14.5/14.9
EA:	04-4H460
PP No. :	0

II. STRUCTURES ITEMS	#1	#2	#3
Bridge Name	Peninsula Ave OC		
Structure Type	PC/PS Girder		
Width (ft) - out to out	Var		
Span Length (ft)	Var		
Total Area (SqFt)	19,500		
Footing Type (pile/spread)	Pile		
Cost per Sq. Ft.	$420		
Including:			
Bridge Removal			
Mobilization: 10%			
Contingency: 25%			
Bridge Removal			
Total Cost For Structure	$8,190,000		

SUBTOTAL THIS PAGE	$8,190,000
TOTAL STRUCTURES ITEMS	$8,190,000

Railroad Related Costs

COMMENTS:

Estimate Prepared By:	Jan Hueser, P.E.	(916) 993-7614	04/03/15
	(Print Name)	(Phone)	(Date)

PRELIMINARY PROJECT COST ESTIMATE SUMMARY

DIST - CO - RTE	
04-SM-101	
PM:	14.5/14.9
EA:	04-4H460
PP No. :	0

III. Right-of-Way estimates should consider the probable highest and best use and type and intent of improvements at the time of acquisition. Assume acquisition including utility relocation occurs at the right of way certification milestone as shown in the Funding and Scheduling Section of the PSR. For further guidance see Chapter 1, Caltrans Right of Way Procedural Handbook.

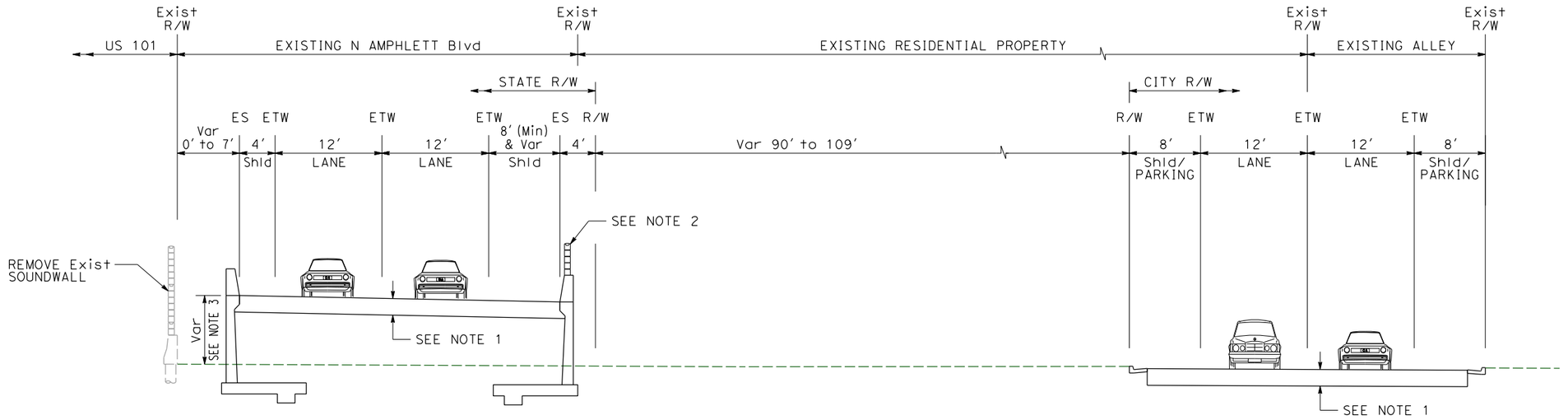
	Current Values (Future Use)	Escalation Rate (%/yr)	Escalated Value (2018)
Acquisition, including excess lands TCE and damages to remainders*	$19,200,000	0.00%	$19,200,000
Utility Relocation	$12,180,000	0.00%	$12,180,000
Clearance / Demolition	$4,000,000	0.00%	$4,000,000
RAP	$600,000	0.00%	$600,000
R/W Services - Title and Escrow Fees	$100,000	0.00%	$100,000
CONSTRUCTION CONTRACT WORK			$0
SB1210	$100,000	0.00%	$100,000
Section 83 Transfers	$200,000	0.00%	$200,000
		0.00%	$0
TOTAL RIGHT OF WAY (CURRENT VALUE)	$36,380,000	TOTAL ESCALATED RIGHT OF WAY	$36,380,000

* See ROW data sheet and right of way cost estimate for details.
* For TCE cost see ROW data sheet and right of way cost estimate for details.

Estimate prepared by:	Peter DeStefano, P.E	(925) 446-3819	04/03/15
	(Print Name)	(Phone)	(Date)

ATTACHMENT F

TYPICAL CROSS SECTIONS



NOTES:

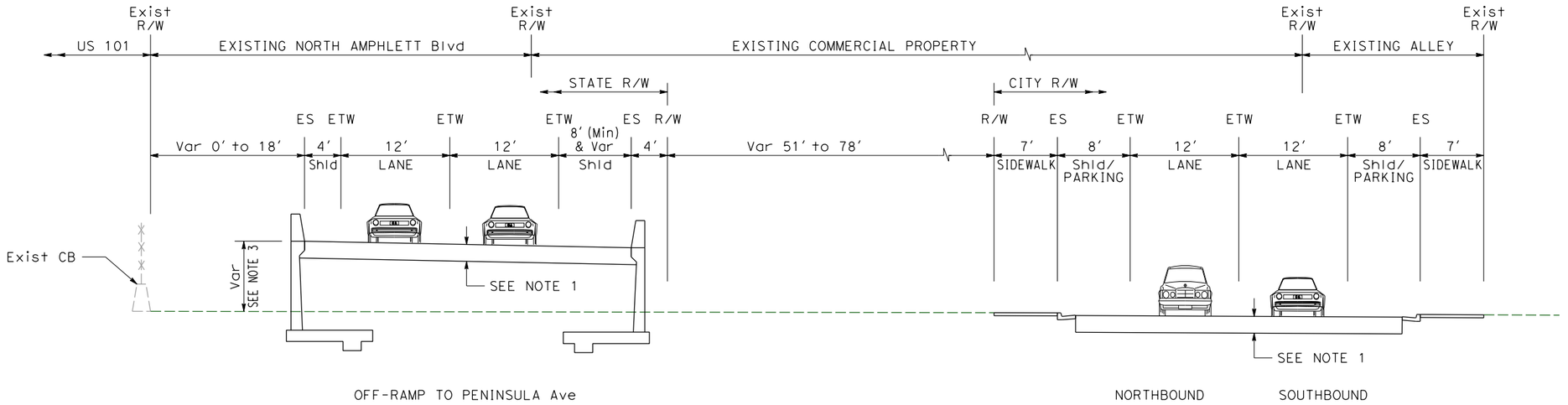
1. FOR ESTIMATING PURPOSES, THE FOLLOWING PAVEMENT SECTION WAS ASSUMED (BASED PARTIALLY ON AS-BUILTS OF THE NORTHBOUND OFF-RAMP TO AIRPORT Blvd):

   0.20' RHMA
   0.60' HMA
   0.75' AB
   0.50' AB

2. LOCATION AND HEIGHT OF SOUND WALLS TO BE DETERMINED AFTER A NOISE STUDY IS COMPLETED DURING THE PA&ED PHASE.

3. HEIGHT OF RETAINING WALL VARIES FROM 3' Min TO 24' Max.

TYPICAL SECTION
BETWEEN PENINSULA Ave AND STATE St



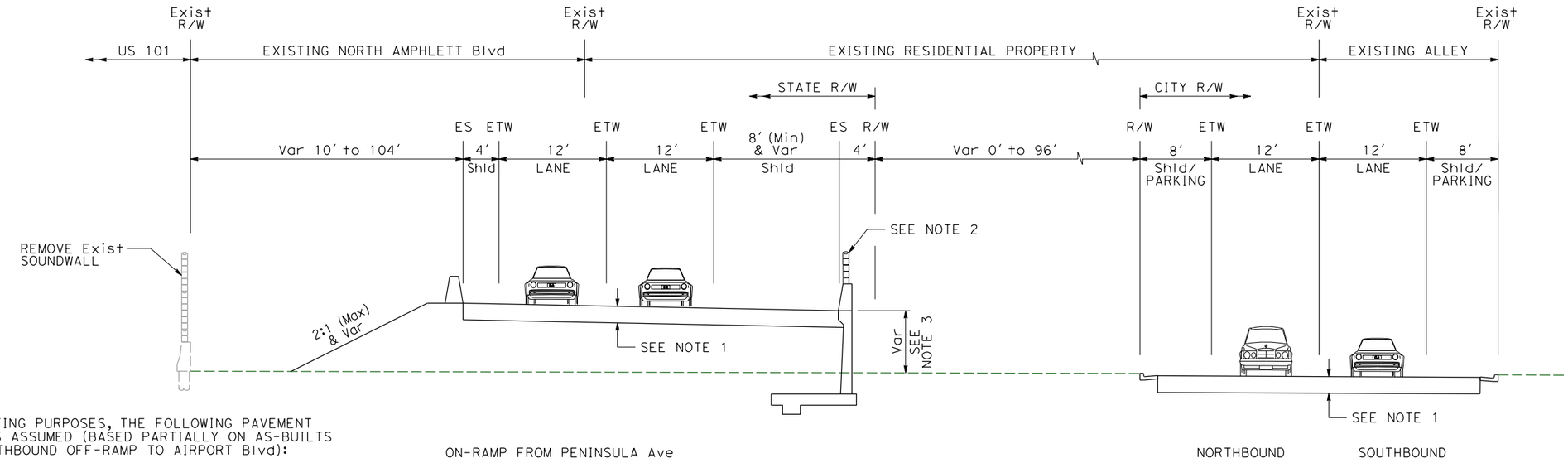
TYPICAL SECTION
BETWEEN BAYSWATER Ave AND PENINSULA Ave

PRELIMINARY
FOR DISCUSSION PURPOSES ONLY

US 101/Peninsula Avenue Interchange Project

ATTACHMENT F
Typical Cross Sections - Alternative 1

Caltrans | San Mateo County Transportation Authority | URS



NOTES:

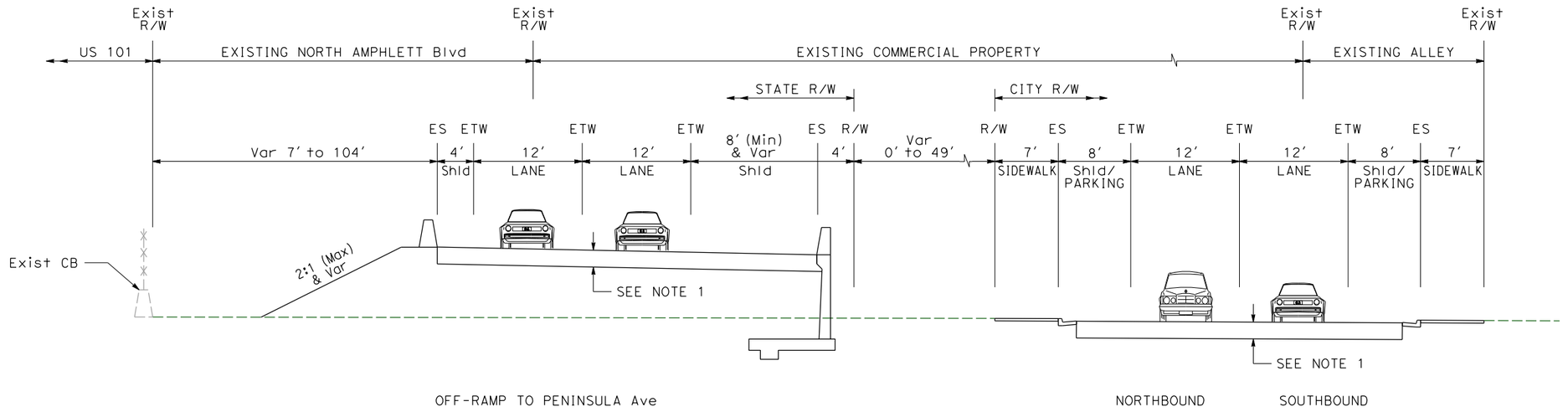
1. FOR ESTIMATING PURPOSES, THE FOLLOWING PAVEMENT SECTION WAS ASSUMED (BASED PARTIALLY ON AS-BUILTS OF THE NORTHBOUND OFF-RAMP TO AIRPORT Blvd):

   0.20' RHMA
   0.60' HMA
   0.75' AB
   0.50' AB

2. LOCATION AND HEIGHT OF SOUND WALLS TO BE DETERMINED AFTER A NOISE STUDY IS COMPLETED DURING THE PA&ED PHASE.

3. HEIGHT OF RETAINING WALL VARIES FROM 3' Min TO 21' Max.

TYPICAL SECTION
BETWEEN PENINSULA Ave AND STATE St



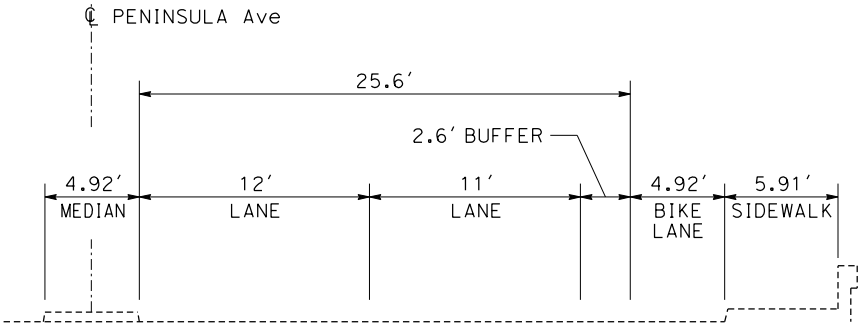
TYPICAL SECTION
BETWEEN BAYSWATER Ave AND PENINSULA Ave

PRELIMINARY
FOR DISCUSSION PURPOSES ONLY

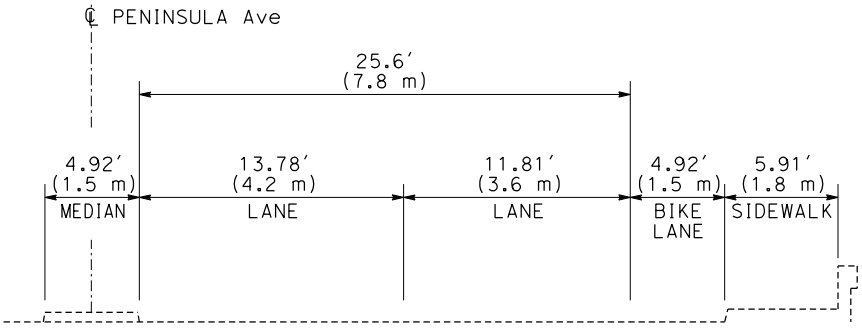
US 101/Peninsula Avenue Interchange Project

ATTACHMENT F
Typical Cross Sections - Alternative 2

Caltrans | San Mateo County Transportation Authority | URS



TYPICAL SECTION - ALTERNATIVES 1 & 2
(Looking East)



TYPICAL SECTION - EXISTING
(Looking East)

US 101/Peninsula Avenue Interchange Project

ATTACHMENT F
Typical Cross Sections - Peninsula Avenue

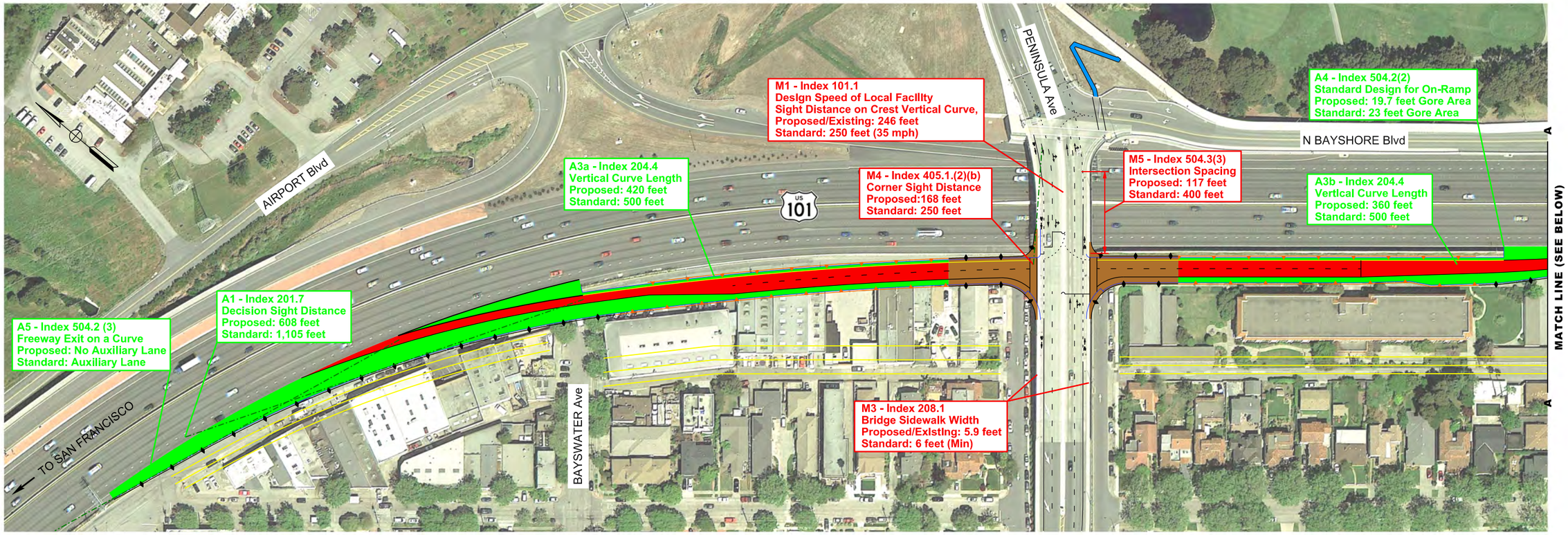
PRELIMINARY
FOR DISCUSSION PURPOSES ONLY

0ft 5 ft 10 ft

Caltrans | TA San Mateo County Transportation Authority | URS

ATTACHMENT G

DESIGN EXCEPTIONS



LEGEND:

- Exist Right of Way
- Proposed Right of Way
- Property Line
- Concrete Barrier
- Retaining Wall
- Ramp Improvements
- Shoulder Improvements
- Structure Improvements
- Sidewalk Improvements
- Remove On/Off Ramp

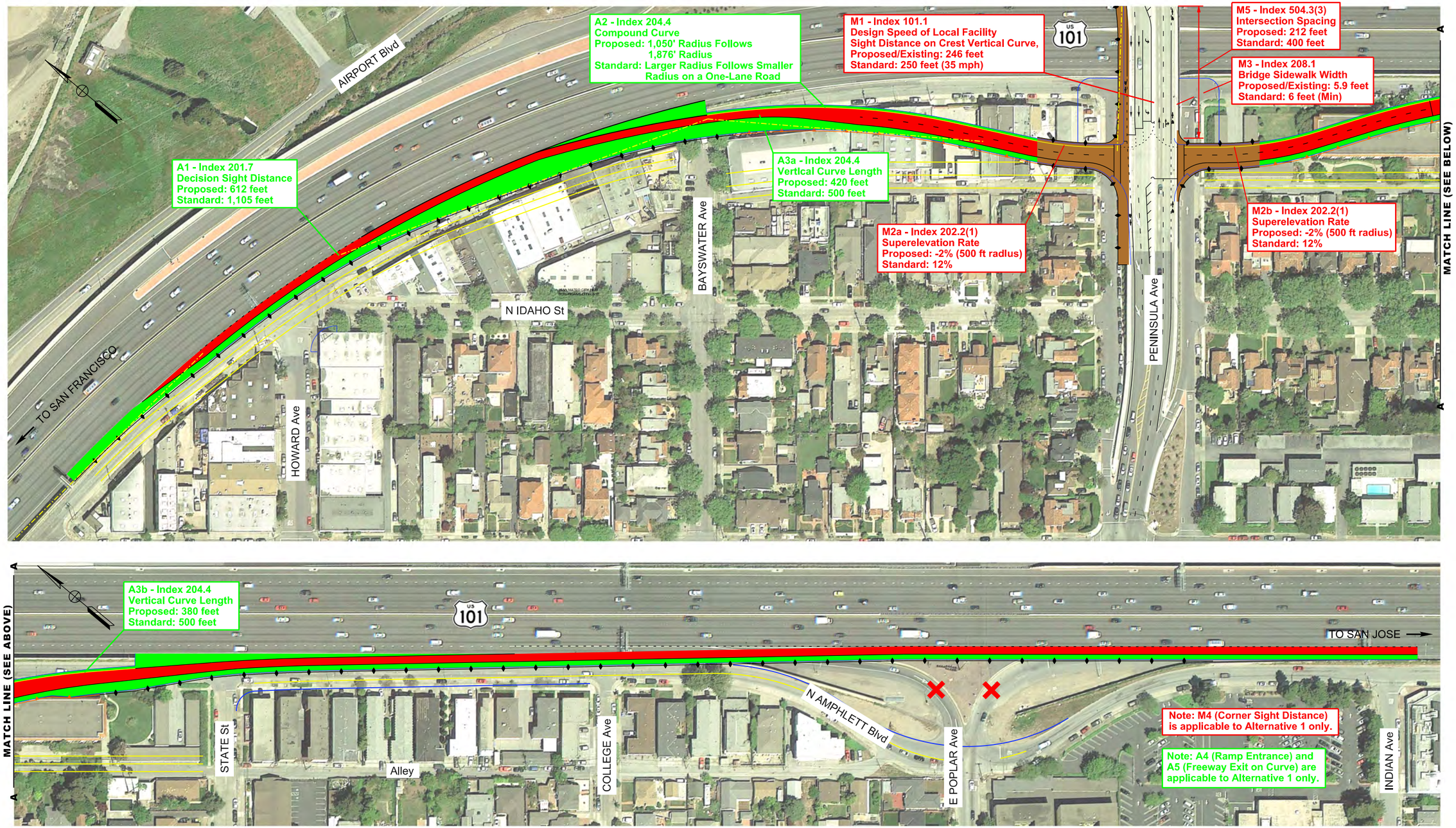
PRELIMINARY
FOR DISCUSSION PURPOSES ONLY

0ft 75 ft 150 ft
Scale : 1" = 150'

US 101/Peninsula Avenue Interchange Project

ATTACHMENT G
Design Exceptions - Alternative 1

Caltrans | San Mateo County Transportation Authority | URS



LEGEND:

- Exist Right of Way
- Proposed Right of Way
- Property Line
- Concrete Barrier
- Retaining Wall
- Ramp Improvements
- Shoulder Improvements
- Structure Improvements
- Sidewalk Improvements
- Remove On/Off Ramp

PRELIMINARY
FOR DISCUSSION PURPOSES ONLY

0ft 75 ft 150 ft
Scale : 1" = 150'

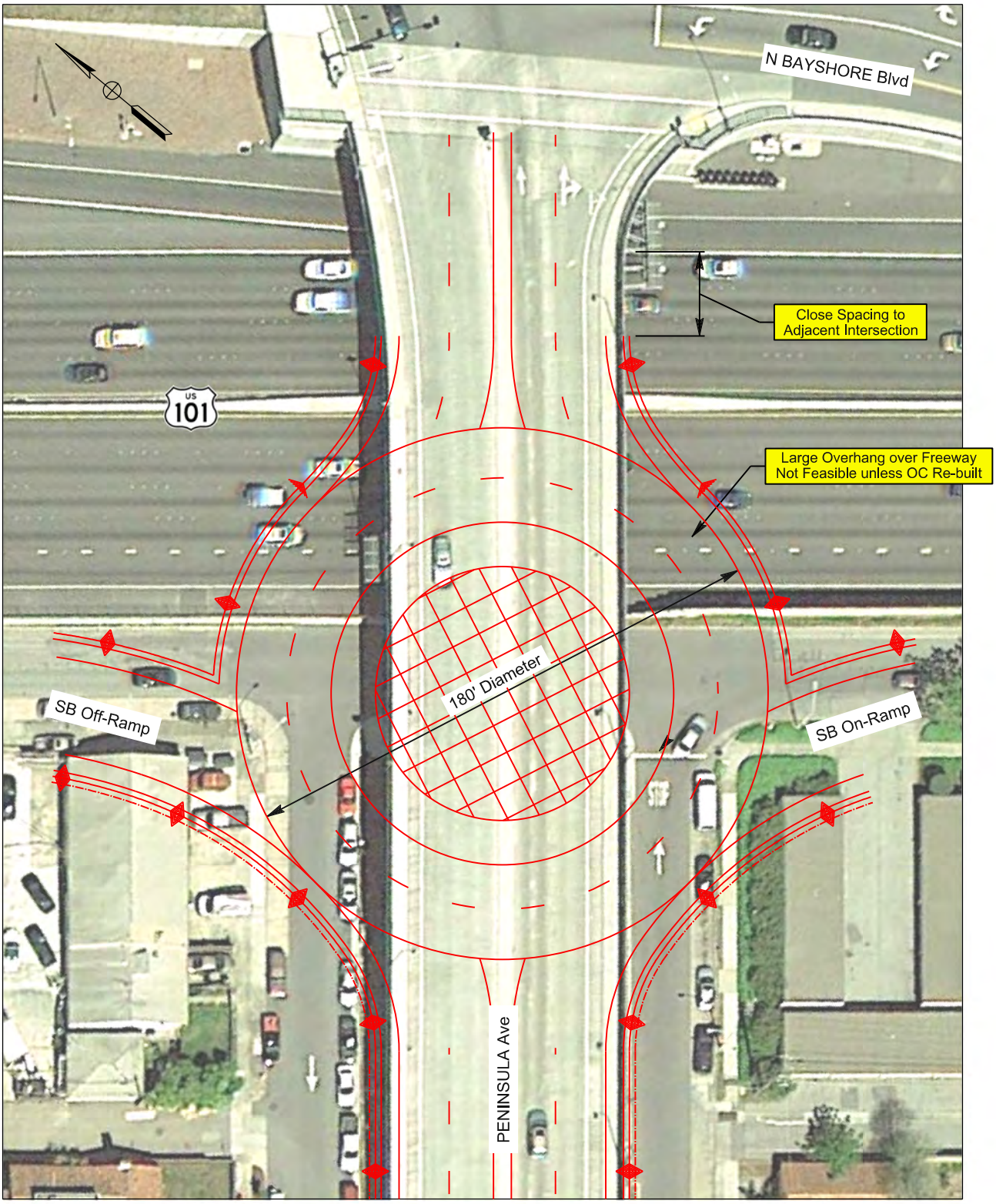
US 101/Peninsula Avenue Interchange Project

ATTACHMENT G
Design Exceptions - Alternative 2

Caltrans | San Mateo County Transportation Authority | URS

ATTACHMENT H

ROUNDABOUT LAYOUTS



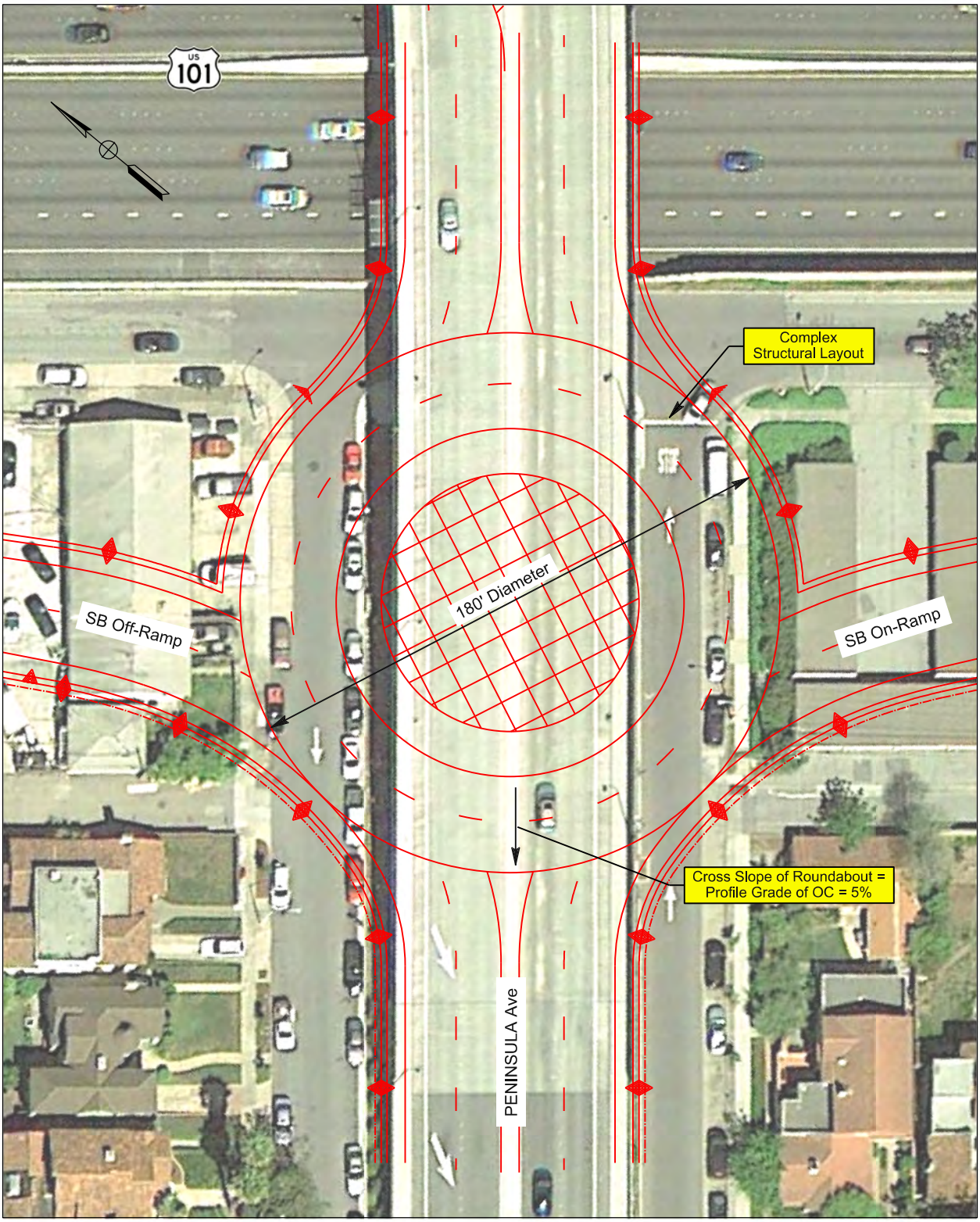
US 101/Peninsula Avenue Interchange Project

ATTACHMENT H
Roundbout Layout - Alternative 1

PRELIMINARY
FOR DISCUSSION PURPOSES ONLY

0ft 25 ft 50 ft
Scale : 1" = 50'

Caltrans | TA San Mateo County Transportation Authority | URS



US 101/Peninsula Avenue Interchange Project

ATTACHMENT H
Roundbout Layout - Alternative 2

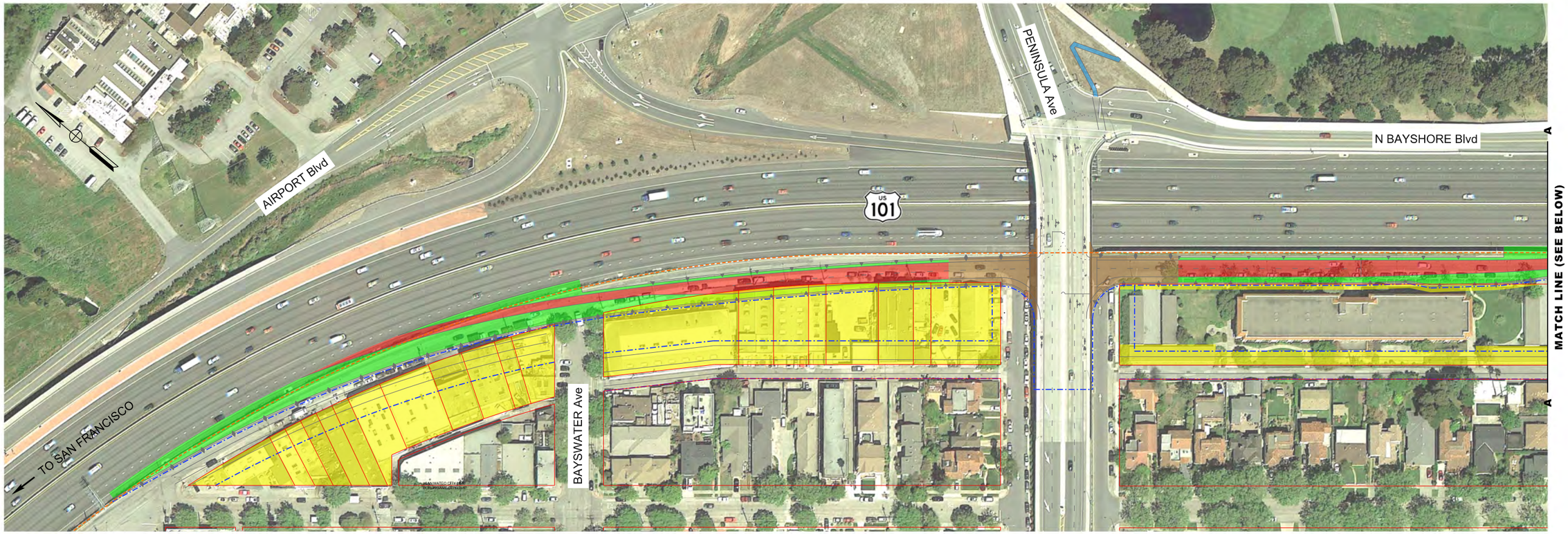
PRELIMINARY
FOR DISCUSSION PURPOSES ONLY

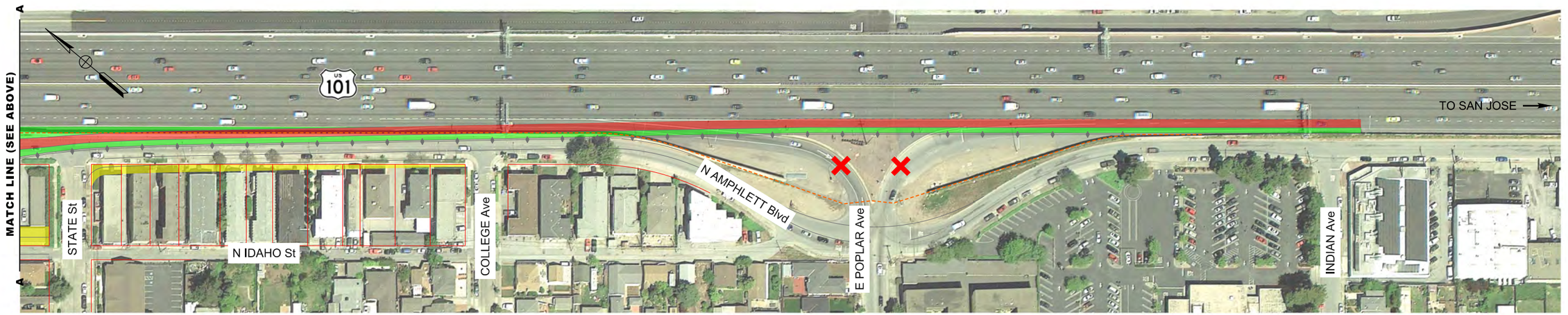
0ft 25 ft 50 ft
Scale : 1" = 50'

Caltrans | TA San Mateo County Transportation Authority | URS

ATTACHMENT I

RIGHT-OF-WAY





LEGEND:

- Exist Right of Way
- Proposed Right of Way
- Property Line
- Concrete Barrier
- Retaining Wall
- Ramp Improvements
- Shoulder Improvements
- Structure Improvements
- Sidewalk Improvements
- Right of Way to be Acquired
- Remove On/Off Ramp

PRELIMINARY
FOR DISCUSSION PURPOSES ONLY

0ft 75 ft 150 ft
Scale : 1" = 150'

US 101/Peninsula Avenue Interchange Project

ATTACHMENT I
Right-of-Way - Alternative 1

Caltrans | San Mateo County Transportation Authority | URS

AIRPORT Blvd

US 101

TO SAN FRANCISCO

HOWARD Ave

N IDAHO St

BAYSWATER Ave

PENINSULA Ave

MATCH LINE (SEE BELOW)

MATCH LINE (SEE ABOVE)

STATE St

Alley

COLLEGE Ave

N AMPHLETT Blvd

E POPLAR Ave

INDIAN Ave

TO SAN JOSE

LEGEND:

- Exist Right of Way
- Proposed Right of Way
- Property Line
- Concrete Barrier
- Retaining Wall
- Ramp Improvements
- Shoulder Improvements
- Structure Improvements
- Sidewalk Improvements
- Right of Way to be Acquired
- Remove On/Off Ramp

PRELIMINARY
FOR DISCUSSION PURPOSES ONLY

0ft 75 ft 150 ft
Scale : 1" = 150'

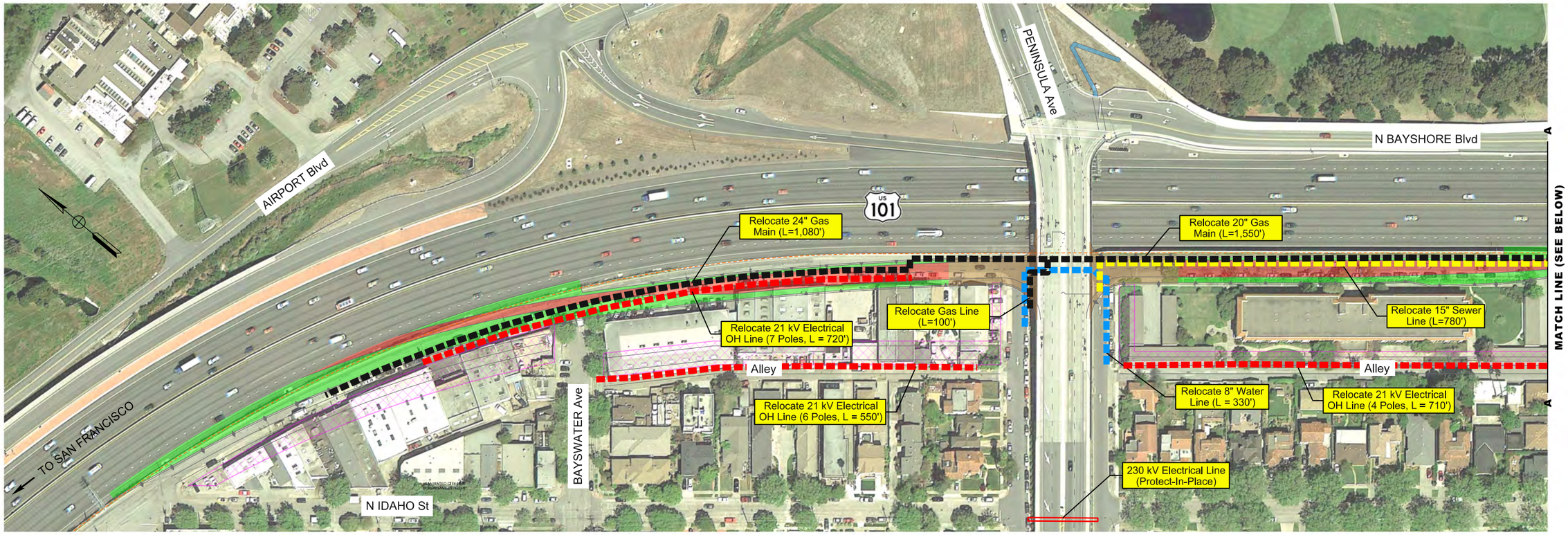
US 101/Peninsula Avenue Interchange Project

ATTACHMENT I
Right-of-Way - Alternative 2

Caltrans | San Mateo County Transportation Authority | URS

ATTACHMENT J

UTILITIES



LEGEND:

- Exist Right of Way
- Proposed Right of Way
- Concrete Barrier
- Retaining Wall
- Remove On/Off Ramp
- Ramp Improvements
- Shoulder Improvements
- Structure Improvements
- Sidewalk Improvements
- Electrical Line
- Water Line
- Sewer Line
- Gas Line
- Local Road Improvements

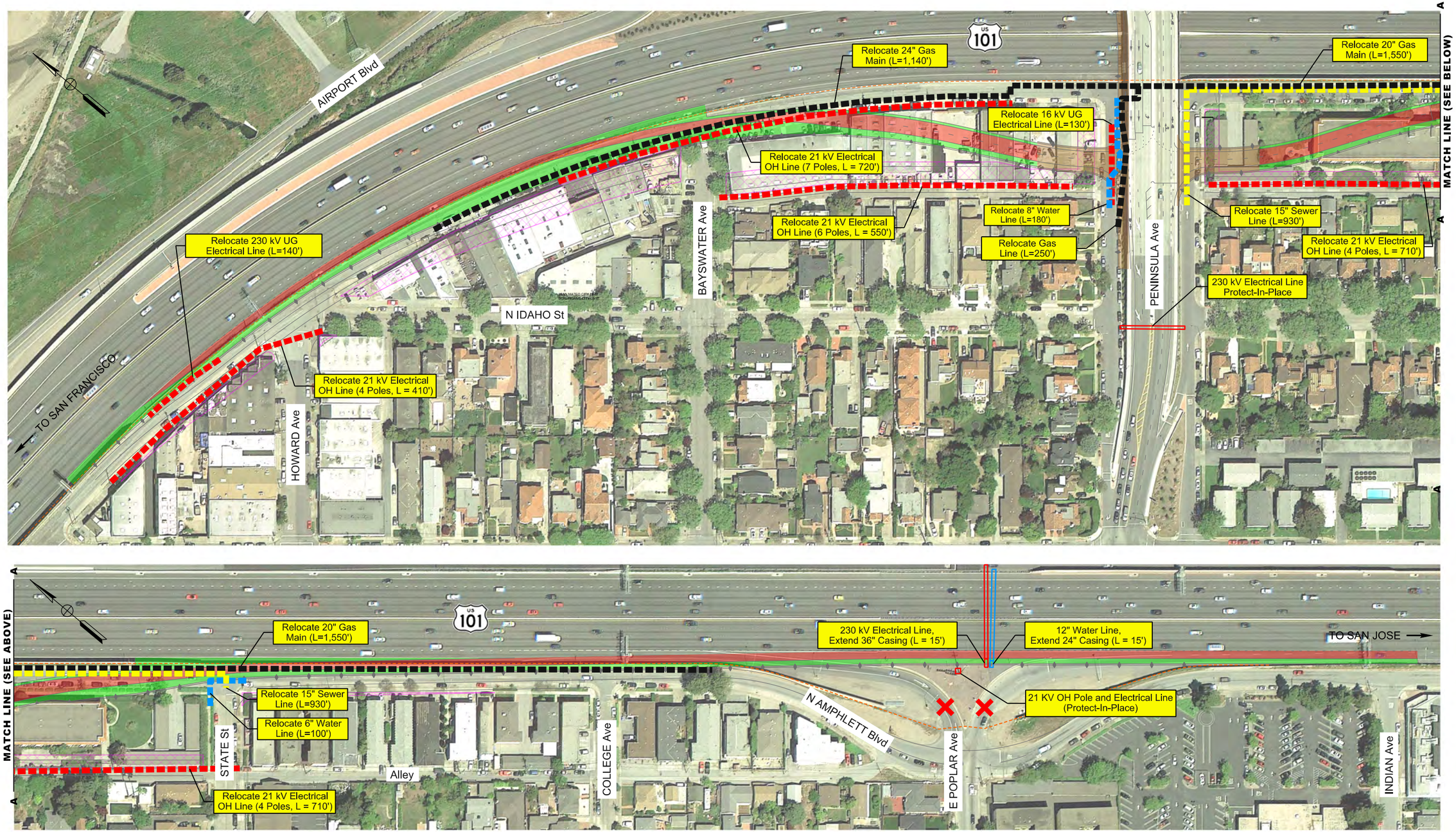
PRELIMINARY
FOR DISCUSSION PURPOSES ONLY

0ft 75 ft 150 ft
Scale : 1" = 150'

US 101/Peninsula Avenue Interchange Project

ATTACHMENT J
Utilities - Alternative 1

Caltrans | San Mateo County Transportation Authority | URS



LEGEND:

- Exist Right of Way
- Proposed Right of Way
- Concrete Barrier
- Retaining Wall
- Remove On/Off Ramp
- Ramp Improvements
- Shoulder Improvements
- Structure Improvements
- Sidewalk Improvements
- Electrical Line
- Water Line
- Sewer Line
- Gas Line
- Local Road Improvements

PRELIMINARY
FOR DISCUSSION PURPOSES ONLY

0ft 75 ft 150 ft
Scale : 1" = 150'

US 101/Peninsula Avenue Interchange Project

ATTACHMENT J
Utilities - Alternative 2

Caltrans | San Mateo County Transportation Authority | URS

ATTACHMENT K

PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT

PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT
April 2015

1. Project Information

District 04	County San Mateo	Route US 101	PM 14.5/ 14.9	EA 4H460
Project Title: US 101/Peninsula Avenue Interchange Project				
Project Manager Richelle Perez			Phone # 510-286-4998	
Project Engineer Mimy Hew			Phone # 510-286-5578	
Senior Environmental Planner Kathy Boltz			Phone # 510-622-8706	
PEAR Preparer Jeff Zimmerman, URS Corporation			Phone # 510-874-3005	

2. Project Description

Purpose and Need

Purpose

The purpose of the proposed project is to:

- Improve the safety of southbound US 101 and the off/on-ramps to/from East Poplar Avenue.
- Improve the safety and traffic operations of the intersection at East Poplar Avenue and North Amphlett Boulevard.
- Improve access into north San Mateo and key local destinations including the residential and business communities within the Peninsula Avenue interchange area.
- Improve bicycle and pedestrian circulation within the project limits.
- Improve local circulation in the project area.

Need

Existing Facility

US 101 is an eight lane freeway (four lanes in each direction), with a fifth (auxiliary) lane in both directions in the vicinity of the project. Within the City of San Mateo, Peninsula Avenue is the northernmost overcrossing of the freeway. It has northbound off- and on-ramps located at Airport Boulevard about 0.1 mile north of Peninsula Avenue. Southbound on- and off-ramps are located approximately 0.4 mile south of Peninsula Avenue, at East Poplar Avenue. The ramps at Peninsula Avenue and East Poplar Avenue are considered “partial interchanges” as individually they lack freeway access in both directions. The southbound and northbound ramps are considered “buttonhook” configurations. The Third Avenue interchange is approximately 0.8 mile south of East Poplar Avenue and has full access to and from the freeway in both the northbound and southbound directions. Overall, these three interchanges are relatively closely spaced; each is less than one mile from the adjacent interchange. The nearest southbound ramps

north of the project site are located at the Broadway interchange, approximately 1.6 miles north of Peninsula Avenue.

Peninsula Avenue spans across US 101 and is a four lane east-west arterial with Class II bicycle lanes in each direction, between North Humboldt Street and Airport Boulevard, providing access to and from northbound US 101 predominantly for residential neighborhoods, some commercial and light industrial uses adjacent to US 101.

In the vicinity of US 101, East Poplar Avenue is a two lane east-west arterial providing access to and from southbound US 101 predominantly for residential neighborhoods, some commercial and light industrial uses adjacent to US 101, and San Mateo High School. The high school is located along East Poplar Avenue approximately two blocks west of the freeway. East Poplar Avenue terminates at its intersection with southbound US 101. There is no freeway overcrossing at East Poplar Avenue. North Amphlett Boulevard is a frontage road that parallels southbound US 101 and intersects East Poplar Avenue.

Existing Roadway Deficiencies and Locations of Congestion
The existing single-lane East Poplar Avenue southbound on- and off-ramps are relatively short and thus, have limited capacity to contain queues during peak periods. The roadway deficiency is most pronounced where the southbound ramps connect to East Poplar Avenue at its intersection with North Amphlett Boulevard. This intersection has five existing "legs" or directions, compared to a conventional four-way intersection. To avoid traffic backing up on the southbound off-ramp, and possibly extending onto the southbound lanes of the freeway, off-ramp traffic is uncontrolled (meaning there are no existing stop or yield signs, or traffic signals) where the off-ramp joins East Poplar Avenue at the intersection of North Amphlett Boulevard.

Consequently, vehicles exiting southbound US 101 generally enter East Poplar Avenue at a relatively high rate of speed, causing drivers stopped on northbound or southbound North Amphlett Boulevard and eastbound East Poplar Avenue to wait for adequate gaps to travel through the intersection. Because of the difficulty crossing this five-legged intersection, traffic queues form on each stop-controlled leg. In waiting for adequate gaps in the off-ramp traffic, drivers can become impatient, leading to potentially unsafe movements through the intersection.

Safety
The southbound off-ramp at East Poplar Avenue requires drivers to quickly decelerate when exiting US 101, as the vehicles immediately enter into the intersection at East Poplar Avenue/North Amphlett Boulevard. A review of the most recent accident data available for US 101 (April 2009 through March 2012) showed four accidents were recorded at the southbound US 101/East Poplar Avenue off-ramp. The "fatality plus injury" (F+I) rate at this location is slightly higher than the statewide average. The reported accident details included vehicles entering the right-turning curve at a relatively high rate of speed, resulting in vehicles skidding into the shoulder area.

According to the City of San Mateo's police records, accidents also occurred within the intersection of the ramp terminus at North Amphlett Boulevard and East Poplar Avenue. They have involved collisions between vehicles traveling through or turning at this intersection, including vehicles exiting the freeway.

Bike and Pedestrian Facilities
Bicyclists and pedestrians use Peninsula Avenue to cross US 101 and access the nearby Coyote Point Recreation Area located just to the northeast of US 101. As Peninsula Avenue enters the recreational area, it becomes Coyote Point Drive, providing access to the Bay shoreline and the San Francisco Bay Trail. The Peninsula Avenue overcrossing includes sidewalks for pedestrians and designated bike lanes in each direction, and crosswalks, with one exception: the sidewalk on the southeast side of the Peninsula Avenue overcrossing ends at the North Bayshore Boulevard off-ramp intersection with Peninsula Avenue. Pedestrians can cross Peninsula Avenue via a crosswalk, but there is no marked crosswalk across North Bayshore Boulevard because there is not a receiving sidewalk on the opposite (east) side of North Bayshore Boulevard.

Description of Work

The project improvements will include construction of new US 101 southbound on and off-ramps at Peninsula Avenue. The project will remove the existing southbound on- and off-ramps at East Poplar Avenue, which will improve the safety and traffic operations of the southbound US 101 ramps and the North Amphlett Boulevard/East Poplar Avenue intersection. This effectively removes conflicting movements at the intersection and consolidates all of the interchange movements at a single location on US 101 at Peninsula Avenue. There would be no direct freeway access between US 101 and East Poplar Avenue once the proposed southbound ramps are opened at Peninsula Avenue.

North and south of Peninsula Avenue, North Amphlett Boulevard and some parallel alleys will be realigned, properties acquired, and existing soundwalls removed and reconstructed as described in the following Alternatives section. There will be sufficient areas available for project staging where right-of-way must be acquired along southbound US 101 for the proposed ramps. Following removal of existing structures, the remaining parcels will have sufficient space for access and staging.

Pedestrian Improvements. On the east side of US 101, a crosswalk would be added on the south leg of the Peninsula Avenue/North Bayshore Boulevard intersection. In addition, a pedestrian path would be added to provide connection to the sidewalk near the Poplar Creek Golf Course. Together, the crosswalk and path will provide easier access between Peninsula Avenue and points south via North Bayshore Boulevard. The proposed work on the east side of US 101 will be entirely within existing State right-of-way.

Alternatives

Two concept designs have been identified, and are illustrated in Attachments B and C in the Project Study Report/Project Development Support (PSR/PDS). The changes to the East Poplar Avenue off- and on-ramps and the crosswalk and pedestrian improvements at Peninsula Avenue/North Bayshore Boulevard described above are common to both proposed alternatives. The following describes the two alternatives.

Alternative 1 is a “tight diamond” configuration with additional structures and retaining walls. All major construction would be on the west side of US 101. The tight configuration places the new on- and off-ramps at Peninsula Avenue directly adjacent to US 101. This design minimizes the project footprint but does not eliminate the need for right-of-way acquisition. It would involve the following changes:

- The pavement for the southbound on- and off-ramps at East Poplar Avenue would be removed up to the North Amphlett Boulevard/East Poplar Avenue intersection.

- Between Howard and Bayswater Avenues, North Amphlett Boulevard will be maintained at grade as one lane in each direction adjacent to southbound US 101, but realigned to accommodate the proposed US 101 southbound off-ramp to Peninsula Avenue.
- Between Bayswater Avenue and State Street:
    - The proposed southbound off- and on-ramps will be constructed adjacent to US 101. From the existing freeway at 8 to 9 feet base elevation, the ramps will increase in grade by 8% to connect to the existing elevated Peninsula Avenue overcrossing structure (36 to 37 feet high).
    - The base of the ramps will be constructed on fill, with retaining walls on both sides. At approximately 175 feet north and south from Peninsula Avenue and about 33 to 34 feet elevation, both ramps will transition from on-fill to elevated structure before connecting to Peninsula Avenue.
    - The off- and on-ramps will be single lanes where they exit and enter southbound US 101, transitioning to two lanes as they approach/depart the Peninsula Avenue overcrossing.
    - North Amphlett Boulevard will be shifted and widened from its current alignment adjacent to the freeway to follow existing unnamed alleys. This will allow continued access to the residential units in the vicinity of the Peninsula Avenue/southbound ramp intersection. North Amphlett Boulevard will continue to be one lane in each direction. The alleys may be widened as practicable and feasible to create two-way streets with conventional widths, shoulders, sidewalks, drainage, and utilities.
- Between State Street and East Poplar Avenue, North Amphlett Boulevard will remain at approximately its existing location, with minor realignment to accommodate the new southbound on-ramp where it merges with the freeway lanes.
- Some residential and commercial properties directly adjacent to southbound US 101 to the north and south of Peninsula Avenue would be acquired and removed by the North Amphlett Boulevard realignment and to allow for construction of the elevated ramp connections with Peninsula Avenue.
- Portions of the existing soundwall along US 101 south of Peninsula Avenue would also have to be removed, and would be reconstructed depending on the remaining land uses and the recommendations of the noise abatement study. Utilities will be similarly relocated to allow for right-of-way acquisition and the new on- and off-ramps.

Alternative 2 represents a larger design footprint for the project and consists of one-half of a conventional diamond interchange constructed on the west side of US 101. The profile and elevation of Alternative 2 is similar to Alternative 1, but the horizontal alignment is different, shifting the proposed ramp connections with Peninsula Avenue farther from the US 101 southbound lanes than Alternative 1. It involves the following:

- In contrast to Alternative 1:
    - Between Bayswater Avenue and State Street, the horizontal alignment will shift away from US 101, creating a spread diamond configuration with respect to the off- and on-ramp connections to the existing Peninsula Avenue overcrossing. This provides greater spacing and sight distance between the ramp intersections on Peninsula Avenue.
    - A 600-foot auxiliary lane will be provided on US 101 north of the southbound off-ramp. The auxiliary lane would improve sight distance and provide additional safety to motorists if a temporary queue forms.

    - The horizontal alignment of the Alternative 2 ramps will require greater property acquisition.
    - This alternative will locate the retaining walls supporting the off- and on-ramps closer to the remaining residential buildings that back up to the unnamed alleys that parallel the freeway that are north and south of Peninsula Avenue.

- Similar to Alternative 1:
    - The pavement for the southbound on- and off-ramps at East Poplar Avenue would be removed.
    - Between Howard and Bayswater Avenues and between State Street and East Poplar Avenue, the two-lane North Amphlett Boulevard will be realigned and maintained at grade with one lane in each direction adjacent to southbound US 101. Between Bayswater Avenue and State Street, North Amphlett Boulevard will be realigned and widened to follow existing alleys north and south of Peninsula Avenue.
    - The ramps will be on fill transitioning to a bridge structure connecting to the Peninsula Avenue overcrossing. The height of the structure will be similar to Alternative 1. The off- and on-ramps will be single lanes where they exit and enter southbound US 101, transitioning to two lanes as they approach/depart the Peninsula Avenue overcrossing.
    - Portions of the existing soundwalls would be removed, but will be reconstructed depending on remaining land uses and the recommendations of the noise abatement study. Utilities will be similarly relocated to allow for right-of-way acquisition and the new on- and off-ramps.

The No Build alternative will also be included and considered. It will consist of not constructing the project, but traffic (and traffic related studies) will be projected to the same study years as the build alternatives for comparison.

Additional alternatives or design options may be identified during the next phase of project development, but Alternatives 1 and 2 were created to represent the range of potential affected land uses and parcels that would reasonably encompass other options.

3. Anticipated Environmental Approval

Check the anticipated environmental determination or document for the proposed project in the table below.

CEQA		NEPA	
Environmental Determination			
Statutory Exemption	☐		
Categorical Exemption	☐	Categorical Exclusion	☐
Environmental Document			
Initial Study or Focused Initial Study with proposed Negative Declaration (ND) or Mitigated ND	☒	Routine Environmental Assessment with proposed Finding of No Significant Impact Complex Environmental Assessment with proposed Finding of No Significant Impact	☒ ☐
Environmental Impact Report	☐	Environmental Impact Statement	☐
CEQA Lead Agency (if determined):		Caltrans	
Estimated length of time (months) to obtain environmental approval:		24 months	
Estimated person hours to complete identified tasks:		3,166	

4. Special Environmental Considerations

Based on a review of the project location and information available at this preliminary stage of evaluation, environmental clearance should be obtained with an Initial Study (IS) with Negative Declaration (ND) or Mitigated Negative Declaration under the California Environmental Quality Act (CEQA), and a Routine Environmental Assessment (EA) with a Finding of No Significant Impact under the National Environmental Policy Act (NEPA). The project will have right-of-way acquisition of residential and commercial properties to the north and south of Peninsula Avenue in the vicinity of US 101. An evaluation and determination of environmental justice effects will be necessary. A public outreach and information effort is recommended to inform residents of the project, the alternatives, opportunities for review and comment, overall project schedule, and right-of-way rights and eligibility.

The Environmental Assessment may qualify as a "Routine Environmental Assessment," assuming that the following criteria for that classification will undergo further review and confirmation as the project alternatives are developed. The project alternatives are narrow in scope, involving variations of the southbound on- and off-ramp designs and are not considered "multiple location alternatives." The purpose and need for the project is not expected to generate controversy and the logical termini and independent utility of the proposed project can be justified to support the limits of the southbound ramp changes. There is no anticipated Section 4(f) involvement or complex endangered species issues, as explained later in this document. No substantial cumulative impacts are anticipated, or high environmental mitigation costs, although there will be relocation costs associated with acquisition of some homes and businesses.

The planned closure of the southbound on- and off-ramps at the North Amphlett Boulevard/East Poplar Avenue intersection and the construction of new US 101 ramps at Peninsula Avenue will result in traffic changes and will require traffic, air quality, and noise studies. The project area is entirely urbanized, and includes homes and business structures that are more than 45 years of age; these properties will require screening and/or evaluation for potential for eligibility following the Section 106 Programmatic Agreement procedures. There are no obvious waterways or wetlands at the project site that might require specific studies or approvals. The following land uses within approximately 0.5 mile of the project area may qualify as Section 4(f) properties:

- The Poplar Creek Golf Course is east-northeast of the US 101/Peninsula Avenue interchange, adjacent to North Bayshore Boulevard between Peninsula Avenue and East Poplar Avenue. Privately operated, this City of San Mateo municipal golf course is open to the public for a fee.
- The Coyote Point Recreation Area, also northeast of US 101. This area is accessed from Peninsula Avenue, which becomes Coyote Point Drive. The recreation area is owned and maintained by the County.
- The San Francisco Bay Trail, which passes through the Coyote Point Recreation Area, and can be accessed from Coyote Point Drive.
- Victoria Park is a City of Burlingame municipal park located at Victoria Road and Howard Avenue, about 2 blocks from the northern limits of the project.
- San Mateo High School and College Park Elementary School, located adjacent to East Poplar Avenue along Humboldt Street, about two or more blocks from the project. These schools contain track and field, baseball, tennis and other facilities that are potential Section 4(f) properties if, besides their primary educational purpose, they remain open to public recreation use during non-school hours.

It is not anticipated that the above properties would be directly impacted by the project. Indirect effects during construction should be considered.

5. Anticipated Environmental Commitments

The following environmental commitments may result from environmental review. This Preliminary Environmental Analysis Report (PEAR) is prepared for a Project Study Report – Project Development Support (PSR-PDS) and therefore no cost estimate for environmental permits or commitments was developed.

- Surface water runoff from added pavement may result in hydromodification and/or changes, and require treatment options.
- Parcels are identified that have hazardous materials involvement. These will require additional investigation and may require special handling of soils and/or water.
- Existing soundwalls may require modification, depending on the alternative design.
- The project has the potential to affect an “Environmental Justice” area at and surrounding the project location, based on a higher minority census population than the overall county. Additional outreach activities are recommended to define any special considerations or needs that should be included during project development.
- Architectural design and landscaping treatment should be considered in the project design, as a measure to help mitigate visible changes with the addition of the elevated ramp connections.

- The southbound on-ramp at Peninsula Avenue, and removal of the East Poplar Avenue ramps, appear to fall within the 100-year floodplain. Drainage measures may be required in the design to minimize any change in floodplain elevation or flow.

6. Permits and Approvals

The following summarizes anticipated consultation. These actions would be completed during the preparation of the draft and final environmental document (Project Approval and Environmental Document, or PA&ED, time frame):

- **U.S. Fish and Wildlife Service (USFWS) or National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries)**: The highly urbanized environment at the project site makes it unlikely to support habitat for threatened or endangered species that would require a Biological Assessment (i.e., no formal consultation). Once alternatives are further refined and evaluated, results of the biologist's review will be documented in a Natural Environment Study, including the recommended appropriate level of consultation, if any.
- **Federal Highway Administration (FHWA)**: Concurrence will be required that the project conforms, at the project level, to the Clean Air Act.
- **Interagency Air Quality Conformity Task Force**: Concurrence will be required from the Task Force that the project is not a Project of Air Quality Concern and conforms, at the regional level, to the Clean Air Act. Consultation must be completed prior to applying to FHWA for project air quality conformity determination.
- **State Historic Preservation Officer (SHPO)**: The results of the cultural resources studies may require concurrence by the SHPO.

The following regulatory permits and approvals may be required, but will require confirmation and/or updating once alternatives are further refined. The preparation of the applications and permits can be initiated during PA&ED, but cannot be approved by the agencies until the Preliminary Plans, Specifications, and Estimates (PS&E) phase.

- **Army Corps of Engineers (USACE):** There are no obvious water bodies or wetland resources that might meet USACE jurisdictional or permitting requirements.
- **Regional Water Quality Control Board (RWQCB)**: The project will require a Notice of Construction and Storm Water Pollution Prevention Plan agreement with RWQCB.
- **California Department of Fish and Wildlife (CDFW)**: No obvious waterbodies similar to a creek or creek bed and banks are present, and if confirmed, no CDFW approval would be necessary.
- **San Francisco Bay Conservation and Development Commission (BCDC)**. BCDC jurisdiction is located along the Bay shoreline, which occurs nearby but is more than 500 feet to the north of the nearest extent of the project limits. The project is separated from the Bay shoreline and the 100 foot BCDC shoreline band by US 101 and does not appear to fall within BCDC jurisdiction, but this will be confirmed during the PA&ED phase.

7. Level of Effort: Risks and Assumptions

Refer to item 6, above. If it is determined during the environmental studies that sensitive habitat or resources may be present, then consultation with the resource agencies would be reconsidered

but this is considered unlikely given the highly urbanized nature of the project location, and the lack of any obvious biologically sensitive terrestrial or aquatic resources.

8. PEAR Technical Summaries

The following summarizes the potential environmental issues and necessary studies. Where there is a difference between the alternatives, it is noted, otherwise each design alternative would have the same potential effects and need for evaluation. The No Build Alternative would avoid the following changes and impacts, but would also not provide the transportation benefits of the proposed project.

8.1 Land Use: The City of San Mateo General Plan designates the project area as low, medium, and high density multi-family; single-family residential; and service commercial. North of Peninsula Avenue, existing land uses along North Amphlett Boulevard adjacent to the southbound lanes of US 101that may be affected are commercial and service. South of Peninsula Avenue, the land use along North Amphlett Boulevard southward to East Poplar Avenue is multi-family residential. Nearby (one to two blocks away), but outside of the project footprint, are two public facility uses: San Mateo Superior Court on North Humboldt Street, and San Mateo High School, which borders North Humboldt Street and East Poplar Avenue. The project is not expected to affect the courthouse or high school.

There are no public parks or recreation facilities in the project footprint. Nearby facilities that could be defined as Section 4(f) properties are described in Section 4. The nearest is east-northeast of US 101, where Peninsula Avenue borders the Poplar Creek Golf Course; no direct or indirect effects are anticipated to this land use. There are striped bike lanes on the Peninsula Avenue overcrossing of US 101, but these are included as part of a transportation facility and are not a designated recreational trail. The City of San Mateo's Sustainable Streets Plan should be considered for design consistency with any bicycle or pedestrian links that connect to this project.

8.2 Growth: The project is unlikely to substantially affect regional growth. The proposed new US 101 southbound ramps at Peninsula Avenue will replace the existing southbound ramps at East Poplar Avenue, and thus will shift the location of existing freeway access. At a very local level, the closure of the East Poplar Avenue ramps and addition of the ramps at Peninsula Avenue has the potential to affect land uses that are dependent on nearby freeway access (e.g., gas stations, vehicle service, restaurants, etc.). There are no such businesses located immediately at the East Poplar Avenue ramps, but this should be considered and evaluated during the project's PA&ED phase.

8.3 Farmlands/Timberlands: There are no farmlands or timberlands at or near the project location.

8.4 Community Impacts: The affected community consists primarily of commercial business uses north of Peninsula Avenue, and multi-family units south of Peninsula Avenue. The primary community impacts associated with the project alternatives will be property acquisition and relocation. Both alternatives will impact existing commercial businesses between Howard Avenue and Peninsula Avenue. Most of these structures in the segment fronting North Amphlett Boulevard and US 101 will have to be removed, and the businesses relocated. These include service businesses such as cleaning, supplies, auto

repair and service, and small warehouses. Both Alternative 1 and 2 would require acquisition of most, if not all, of these businesses.

South of Peninsula Avenue, the multi-family residential units fronting North Amphlett Boulevard are protected by a soundwall that borders the edge of the state right-of-way. Alternative 1 will require realignment of North Amphlett Boulevard to accommodate the new southbound on-ramp, and reconstruction of the soundwall. This alternative may avoid residential relocations if a portion of North Amphlett Boulevard can be closed and adequate access maintained to the existing parcels. Alternative 2 has a southbound freeway on-ramp realignment that would require greater residential parcel acquisitions and associated relocation of residents.

Census data were reviewed to assess the project's potential for disproportionate effects on environmental justice populations. Census data is aggregated by Census tracts and statistical subareas called block groups. "Environmental justice" populations are traditionally defined as a Census block group population that meets either or both of the following criteria:

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

Census blocks within 0.5 mile of the project footprint were evaluated for the above criteria. No block groups met the first criteria of being more than 50 percent minority and more than 25 percent low-income (measured as being below the poverty line). About half of the block groups within 0.5 mile of the project met the second criteria, showing a substantially higher minority population than the surrounding area. This was measured by comparing the block groups against the average percent of minority population for all of the Census tracts in San Mateo County. Block Group 6060.01 covers most of the project area, extending from the county line (approximately at North Humboldt Street and US 101) to East Poplar Avenue. Block 6062.01 extends to the south of East Poplar Avenue. Both of these Block Groups show 10 percent or more minority population than the average across the county, and would be considered to have the potential to include an environmental justice community.

Alternative 2 would require residential acquisitions and relocation of residents. The housing between Peninsula Avenue and East Poplar Avenue will be exposed to construction activities. The Community Impact Assessment (CIA) will need to include evaluation of the community residents and neighborhood characteristics, and an assessment of Environmental Justice effects. It will require information on the estimated extent of residential and commercial properties potentially acquired for each alternative, and changes in access and circulation in the local neighborhood.

For safety of users, existing bicycle and pedestrian facilities on the Peninsula Avenue overpass structure may require temporary closure during construction when the proposed ramps are connected to the structure. Construction for the crosswalk and pedestrian path on the east side of US 101, at the south leg of the Peninsula Avenue/North Bayshore Boulevard intersection, may also temporarily disrupt pedestrian and bicycle use.

Notification and signs would be provided to inform users prior to and during construction, and staging of the work on Peninsula Avenue may help minimize disruption.

8.5 Visual/Aesthetics: A Visual Impact Assessment (VIA) will be necessary. Both alternatives will construct new southbound on- and off-ramps that will connect to the existing Peninsula Avenue overcrossing structure that will be visible to nearby residential areas. Both alternatives will result in the removal of the commercial businesses between Peninsula Avenue and Howard Avenue, leaving open, undeveloped lots. Residential uses that previously viewed or adjoined these commercial buildings will have new views of the freeway and areas to the north. The level of effort needed for the analysis of impacts should allow for the preparation of visual simulations of the alternatives.

Residential areas that will be exposed to the freeway will be evaluated for noise abatement and assuming they qualify, a soundwall would be constructed along the freeway right-of-way that will again block direct views of US 101. North Amphlett Boulevard would be shifted to parallel the realigned southbound off-ramp.

The alternatives will introduce new structures that will be readily visible to residents and businesses near the project. Currently, North Amphlett Boulevard functions and appears as a frontage road along southbound US 101. Between East Poplar Avenue and Peninsula Avenue, existing masonry block soundwalls are located along the edge of the state right-of-way between the freeway and North Amphlett Boulevard, preventing visibility of the freeway from most nearby land uses. There are no soundwalls between Peninsula Avenue and just north of Howard Avenue, as there are only commercial uses fronting the freeway; the freeway is entirely visible to drivers and from the businesses along North Amphlett Boulevard.

With Alternative 1, between approximately North Idaho Street and the Peninsula Avenue overcrossing, many of the businesses fronting North Amphlett Boulevard and the freeway will be removed to accommodate the southbound on-ramp. The removal of the businesses will expose the secondary row of apartments and homes to the freeway and off-ramp that line the unnamed alleys (one parcel back from North Amplett Boulevard and the freeway). Homes that are newly exposed to the freeway will likely qualify for a soundwall, but this will be determined by the noise studies that will be performed during environmental review. As the off-ramp rises to meet the elevated Peninsula Avenue overcrossing, residents that once viewed commercial businesses will see a soundwall transition into a retaining wall that will support the ramp. The retaining wall supporting the ramp will rise up to approximately 25 to 30 feet in height at Peninsula Avenue. For the southbound on-ramp, the same sequence of retaining wall and soundwall will be constructed to replace the existing soundwall. For residents north of Peninsula Avenue, residents will again see a masonry wall, but it will be closer due to the realignment of North Amphlett Boulevard to accommodate the new on-ramp.

With Alternative 2, the view of the proposed ramps will be similar, but the compound curve of the ramp will place the retaining wall/soundwall closer to the remaining residents between the unnamed alleys and North Idaho Street. Residential units south of Peninsula Avenue will be acquired and removed, and residents along the alleys would see the retaining wall for the southbound on-ramp and a soundwall on the edge of the ramp.

The necessary acquisition of properties will leave portions of parcels that are undeveloped, and potentially available for landscaping.

Although the project area to the west of US 101 is highly urbanized, there is a potential that the areas where new right-of-way is acquired may affect some existing street trees. There will be opportunities for new landscaping in the areas where existing structures are removed. At East Poplar Avenue, the removal of the on- and off-ramps will leave an open area that may be relinquished or transferred to the city; this change could provide an opportunity to realign North Amphlett Boulevard and install landscaping.

US 101 is not an eligible or designated Scenic Highway within the project limits. Caltrans has classified the section of US 101 between post miles (PM) 14.68 and 14.91 in San Mateo County as Landscaped Freeway, a designation that is used to control the placement of outdoor advertising displays in landscaped areas adjacent to freeways. The project limits on US 101 (PM 14.5 to 14.9) are within this Landscaped Freeway segment. Caltrans policy is to replace maintained landscape plantings within a designated Landscaped Freeway that are removed as a result of a State transportation construction project. Along southbound US 101, however, there is minimal planted landscaping within the right-of-way other than vines along the soundwalls and fencing located between the outside freeway shoulder and North Amphlett Boulevard. There is no median landscaping, and the project will not affect any landscaping along northbound US 101.

Lighting will be determined during later phases of project development but may be required where the new southbound off- and on-ramps are constructed at Peninsula Avenue as well as other locations. Street lighting at the ramp interchange with Peninsula Avenue will be elevated above nearby remaining residential units, and should be evaluated for light and glare impacts in the VIA and during design.

8.6 Cultural Resources: There are numerous built structures at the project location. These include apartment buildings, homes, businesses, at least one church, and overhead utility poles and lines. A preliminary review of the files at the Northwest Information Center in Sonoma, California on August 8, 2014, by URS revealed previous survey coverage of the area. No prehistoric sites were identified. Many of the built environment structures had been evaluated, and the structures that were evaluated were deemed ineligible for potential listing in the National Register of Historic Places or the California Register of Historical Resources.

This project will require compliance with Section 106 of the National Historic Preservation Act through application of the procedures in the Caltrans 2014 Programmatic Agreement. This will include preparation of cultural resources technical studies and reports, identified at a preliminary stage as: 1) An Archaeological Survey Report (ASR), 2) a Historic Properties Survey Report (HPSR), and 3) a Historic Resource Evaluation Report (HRER). The project will require consultation with Native American representatives and others including local historic preservation societies and the State Historic Preservation Officer. The potential for unknown subsurface resources will be addressed in the ASR based on a geoarchaeological review. The extent of reporting will relate to the known presence or potential for presence of resources within or near the project.

8.7 Hydrology and Floodplain: There are no mapped creeks or other surface water bodies that cross or are adjacent to southbound US 101 within the project limits[1]. Stormwater drainage inlets at the southbound US 101 off- and on-ramps at East Poplar Avenue collect surface sheet flow runoff. The inlets drain to culverts that extend beneath the freeway, and transfer storm flow to a concrete-lined drainage channel on the south side of East Poplar Avenue to the east of US 101. The concrete-lined drainage channel ultimately drains into San Francisco Bay.

Floodplain mapping shows Zone AE extending along US 101 from the south side of Peninsula Avenue interchange to south of East Poplar Avenue. Zone AE is defined as an area where the base flood zone elevations have been determined, and is considered within the 100-year floodplain. All other areas along US 101 north of Peninsula Avenue are mapped as Zone X, which is considered outside of the 100-year floodplain. Potential impacts to floodplains will be further evaluated. A Location Hydraulic Study, Summary of Floodplain Encroachment Report, and/or a Floodplain Evaluation Report will be required since the project will encroach into the floodplain. A reference to encroachments on the base floodplain must be included in public notices, and any encroachments must be identified at public hearings. Design features for structures within the100-year floodplain (e.g., the proposed US 101 on-ramp at Peninsula Avenue) will be considered to avoid increasing base flood elevations or adversely impairing the existing flow.

8.8 Water Quality and Storm Water Runoff: The proposed US 101 ramps at Peninsula Avenue will increase the total area of impervious surface within the project area. Offsetting factors will be the proposed removal of the paved ramps at East Poplar Avenue and the prevalence of paved surfaces in the project area. The total new runoff will be calculated during preliminary design. There is a potential that the project will add a net increase of one acre or more of new impervious surface, and if so will require consideration of permanent storm water treatment and hydromodifcation management measures. Drainage basins could be considered at the location where the ramps will be removed at East Poplar Avenue and at parcels where existing businesses or residences may require removal for construction of the new ramps at Peninsula Avenue.

Both build alternatives will require more than one acre of soil disturbance, including staging areas, grading, cut and fill (if any), new pavement, and replacement pavement. The project must therefore comply with the Statewide Construction General Permit (GGP). In accordance with the GGP, Best Management Practices (BMPs) will have to be included in the construction of the project to the maximum extent practicable (MEP). This process involves the determination of a "risk level," and it can be expected that a Stormwater Pollution Prevention Plan (SWPPP) will be developed by Caltrans or the construction contractor(s), as well as any required monitoring reporting requirements or plans.

The project area does not appear to have any Waters of the State or Waters of the United States, but this will be verified during PA&ED. The possible exception is the drainage inlet at the southbound US 101 off-ramp at East Poplar Avenue. During the PA&ED phase, the connectivity of this inlet to San Francisco Bay should be evaluated, along with any changes in drainage from the removal of the East Poplar Avenue ramps. The need for a Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control

[1] Source: National Hydrography Dataset (http://viewer.nationalmap.gov/viewer/)

Board (SFBRWQCB) will be considered. The need for a Section 404 permit from the U.S. Army Corps of Engineers appears unlikely, but will also be confirmed.

8.9 Geology, Soils, Seismic and Topography: The project location is relatively flat and just above sea level in elevation. Based on the U.S. Geological Survey's National Geologic Map Database, the project area is underlain by artificial fill (Holocene), described as poorly to well consolidated gravels, sand, silt and rock fragments[2] Immediately to the west of US 101, the subsurface formations are alluvium (Holocene), consisting of unconsolidated and moderately consolidated materials. Historic topographic mapping shows this approximate area of the freeway as tidal drainages in 1905.[3]

The project location is about 4.5 miles from the San Andreas Fault, which runs just west of I-280 through San Mateo County. The short distance to this major fault, and the presence of other faults in the Bay Area region, create a high risk for strong ground shaking. This risk is magnified considering that the regional geologic mapping indicates the potential presence of fill and other consolidated and unconsolidated materials.

At PA&ED, the project will require a Preliminary Geotechnical Report, including reconnaissance-level field review and literature review. The new off- and on-ramp structures at Peninsula Avenue, new or relocated soundwalls, and any proposed retaining walls will require evaluation in a Structures Foundation Report.

8.10 Paleontology: The project appears to be located in an area of artificial Bay shoreline fill that is adjacent to, and may be underlain by, Holocene-era sedimentary deposits. These types of deposits are not generally associated with paleontological resources. Based on a review of geologic mapping, the potential for fossils to exist at this location is likely low. This information should be re-examined at the PA&ED phase, and if confirmed, a short Paleontological Identification Report is recommended for documentation.

8.11 Hazardous Waste/Materials: An Initial Site Assessment (ISA) was prepared[4]. The ISA included a regulatory database review by Environmental Data Resources, Inc. (EDR). The ISA study area extended 1 mile from the project location to locate distant contamination sources that might affect the project. The focus of the ISA was on sites within 1/8 mile of the project area. Historic aerial photos and maps were reviewed for the presence of historic land uses of concern, and online databases maintained by the California Department of Toxic Substances Control (DTSC) and the (SFBRWQCB) were checked.

A site review was also conducted. It confirmed information gathered during the file review regarding the presence of industrial and commercial businesses at the project location, including multiple automotive repair/body shops, and multiple wells associated with ground water monitoring.

The ISA identifies 29 potential hazardous materials sites within the project location or 1/8 mile. Most of these sites have no reported release of hazardous materials or contamination,

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[2] U.S. Geological Survey, Geologic map of the Montara Mountain and San Mateo 7.5' quadrangles, San Mateo County, CA 1994 (http://ngmdb.usgs.gov/ngm-bin/pdp/zui_viewer.pl?id=18144)

[3] NETR On-line Historic Aerials (http://www.historicaerials.com/aerials.php?scale=2000&lon=-122.332338&lat=37.581964&year=2005)

[4] Initial Site Assessment, US 101 / Peninsula Avenue (Peninsula Interchange), San Mateo County, California. Prepared by URS Corporation, 2014.

and are associated with commercial or light industrial businesses that store or use hazardous materials as a part of their operation. Six of the properties have a record of a hazardous materials release. In each case, a clean-up or investigation action is still open (active), or the site is otherwise considered to have a potential concern and should be further evaluated in a Phase II investigation. Of the six properties, four are within the project location and consist of leaking underground storage tanks (LUSTs). Two of the properties are within 1/8 mile of the project, and are both private residences with LUSTs. The risk of encountering soil and/or groundwater contamination from the six properties during project construction, or of purchasing properties with continued contamination, is judged to be medium to high.

The project will also involve acquisition of properties with structures. These structures have the potential to contain lead-based paint, and construction materials may contain asbestos. Demolition of these buildings has the potential to release these contaminants. Thermoplastic paint or "dots" on the road and existing ramps may also contain lead, and if so, require special handling and disposal.

A Phase II or Preliminary Site Investigation (PSI) should be performed prior to right-of-way acquisition, or earlier. It should update the Initial Site Assessment records review and findings and define recommendations for any identified properties of concern that will be acquired and/or affected by the project. Properties currently not identified as having contaminant releases at the time of the ISA may experience contaminant releases in the future. The PSI should include provisions for soil and water sampling and testing, aerially deposited lead testing in the soils along US 101 and local roads that will be excavated or graded, and evaluation of building structures that will be acquired and demolished. The PSI should also define proper handling and disposal methods for materials determined hazardous.

8.12 Air Quality: The project is not exempt from air quality conformity review, and regional and project level-conformity will need to be demonstrated. An air quality conformity determination will be needed from the Federal Highway Administration (FHWA). For regional conformity, the project will need to be included by the project sponsors in an applicable and current Metropolitan Transportation Commission Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP). An Air Quality Study will be required to demonstrate conformity with the assumptions in the RTP and the TIP.

For project-level conformity, the air quality study will need to address current federal non-attainment and "maintenance" pollutants in the Bay Area. In the past, ozone has been qualitatively addressed through discussion of the Bay Area's adopted compliance strategies. Carbon monoxide is currently in attainment in the Bay Area, but limited modeling can be used if necessary to demonstrate project compliance. Construction emissions and greenhouse gas emissions will require evaluation in the Air Quality Study.

An evaluation of fine particulate matter ($PM_{2.5}$) will be required based on traffic data for both build alternatives and No Build conditions. This assessment is heavily based on truck traffic volumes. Caltrans' nearest available traffic and truck counts at the US 101/3rd Street interchange show just under 250,000 average annual daily traffic (AADT), which includes nearly 11,000 trucks (about 4.4 percent trucks)[5]. A $PM_{2.5}$ Assessment Form and supporting

[5] Caltrans Traffic Census, Truck Traffic for 2012 (http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm)

information will be needed to perform consultation with the Bay Area Air Quality Conformity Task Force. This consultation is necessary to determine if the project is a Project of Air Quality Concern (POAQC) as defined in 40 Code of Federal Regulations 93.123(b)(1). Results of the studies must be included in the Draft Environmental Document for public review and comment. An air quality conformity checklist will also be required.

A Mobile Source Air Toxics (MSAT) report will be required to address diesel particulate matter and other potentially toxic emissions. Because the volume of traffic on US 101 exceeds 200,000 ADT, a quantitative analysis may be required for the MSAT report.

8.13 Noise and Vibration: This project will construct new US 101 ramps at Peninsula Avenue in proximity to residential areas, and will therefore be considered a Type I project requiring noise abatement evaluation. The noise study will evaluate the removal or relocation of the existing soundwall along US 101 south of Peninsula Avenue, and the exposure of residential land uses to freeway traffic north of Peninsula Avenue from the removal of structures that currently help "shield" freeway noise. Abatement measures will be considered in terms of feasibility and reasonableness, in accordance with current Caltrans procedures.

8.14 Energy and Climate Change: A greenhouse gas emissions analysis should be prepared for the environmental document, following Caltrans' most current guidance as included in the Department's Standard Environmental Reference.

Sea Level Rise Assessment: Large segments of US 101 from the San Francisco International Airport to northern Santa Clara County are within mapped inundation areas for the 100-year floodplain and a predicted 55-inch sea level rise zone (Pacific Institute 2009). The project, from just north of Peninsula Avenue to the East Poplar Avenue off- and on-ramps, is entirely within the 55-inch sea level rise area, and portions of the project are within the mapped 100-year flood event. Sea level rise has the potential to increase the frequency of flooding, damage from flooding, and increase the size of the floodplain area of risk.

A sea level rise assessment for the project was performed following Caltrans guidance (Caltrans 2011). Table 1 is based on the recommended factors for whether measures that help address future sea level rise should be incorporated in the project.

Table 1 – Sea Level Rise Evaluation Screening Factors for US 101/Peninsula Avenue Interchange

Factors to Consider in Whether to Incorporate Sea Level Rise in Programming and Design	Towards considering SLR in Project Design?	Explanation
1. Design life longer than 20+ years?	Yes	Project improvements are expected to have a design life of 20+ years.
2. Redundant/alternative routes available?	No	There are alternative US 101 interchanges north and south that drivers can use if necessary. Other segments of the Peninsula along US 101 could also have a similar risk of inundation.
3. Anticipated travel delays (from inundation)	Yes	Lack of access at Peninsula Avenue or East Poplar Avenue would cause delays.

Table 1 – Sea Level Rise Evaluation Screening Factors for US 101/Peninsula Avenue Interchange		
Factors to Consider in Whether to Incorporate Sea Level Rise in Programming and Design	**Towards considering SLR in Project Design?**	**Explanation**
4. Goods movement/interstate commerce	No	The ramps are not critical to interstate commerce.
5. Evacuations/emergencies	No	Although important, the interchange ramps are not "vital" as other route options are available.
6. Traveler safety (delaying the project to incorporate SLR would lead to on-going/new safety concerns)	No	Although this is not a "safety" project, there are higher incidences of accidents at East Poplar Avenue. The City's improvements to the intersection turning movements along North Amphlett Boulevard will help improve safety, and would be expected to help reduce the current accident rates. The City of San Mateo Poplar Avenue Safety Improvements are anticipated to begin construction in 2015. The US 101/Peninsula Avenue interchange project is independent of the City's project.
7. Expenditure of public funds	No	The project is not a significant investment with respect to other highway improvements involving new lanes or complete interchange reconstruction. This project is limited to removal and replacement of southbound on- and off-ramps only, with no changes to the mainline of US 101.
8. Scope of project ("point" vs. "linear")	No	The project scope is not substantial with respect to most freeway improvements. It is focused on southbound ramps at the project location and is not an extensive linear improvement.
9. Effect of incorporating SLR on non-state highway (interconnectivity issues with local streets and roads)	No	Effective resolution of the inundation along this area of the Bay shoreline requires more infrastructure investment and improvements than this project could incorporate. For example, reducing future inundation at the ramps and US 101 would require reconstruction of the freeway, Peninsula Avenue overcrossing (to maintain clearance of the raised freeway), and the ramp connections.
10. Environmental constraints	No	More extensive improvements at this interchange will require additional property acquisition and removal of more businesses and homes.

The majority of results in Table 1 do not trend toward including sea level rise as a major design criterion. Cost-effective measures can still be considered.

To address sea level rise in the project, any improvements would need to plan for the 2020 to 2040 design period, or beyond. Estimated sea level rise projections, using the Ocean Protection Council adopted sea level rise estimates, indicate a 7 inch (2030 year) to 14 inch (2050) minimum increase in expected inundation elevation. The profiles for this project show the ramps conforming to grade at the freeway at approximately 5 to 10 feet elevation. Assuming the Council's projections for future conditions, the project and surrounding area will be at risk to flooding in the area between south of Peninsula Avenue to south of East Poplar Avenue from a 100-year flood, and the entire area by a 55-inch sea level rise (late century event or forecast year 2100, or a combination of sea level rise and extreme storm

events). Under such circumstances, not only would the interchanges at US 101/Peninsula Avenue and East Poplar Avenue be at least temporarily unusable during storm or high water events, but large portions of US 101 from northern San Mateo County into Santa Clara County would be impacted as well.

The Department has identified a broad range of actions that can be considered for roadway segments threatened presently or in the future by inundation (Caltrans 2013). These were reviewed for this project, as follows, and one measure that involves constructing improvements with materials more resilient to sea water inundation could be further considered as explained in Table 2, item #2. The other measures reviewed below are not considered practicable or reasonable for this project.

Table 2 – Review of SLR Adaptive Measures

Adaptive Measure	Applicability to the Project
1. Increase the base elevation of the infrastructure	Would require change in elevation of US 101 and existing overpass at Peninsula Avenue to maintain clearance. Extensive cost and significant increase in impacts.
2. Construct the improvements with materials more resilient to sea water exposure or change to more resilient building materials	This measure could be further considered. Specifications for use of more corrosion-resistant materials could be considered in the design of the project, if appropriate, following further review.
3. Build larger or additional drainage canals near coastal routes	Would substantially increase area of impact, and have significant increase in type of impacts.
4. Relocate sections of road	Would require substantial property relocation to move US 101 further inland to avoid inundation area.
5. Strengthen, heighten, and construct new seawalls and dikes	This would involve construction at the shoreline of the Bay, greatly expanding the project construction area. Sea walls and dikes may not be consistent with or acceptable to the S.F. Bay Plan/Bay Conservation and Development Commission.
6. Use a combination of hard engineering (human-made structures) and soft engineering measures (implementing ecological principles) to protect coastal infrastructure	Potentially beneficial but would require consideration on a more regional scale than this project (similar to measure #5).

8.15 Biological Environment: The project area is entirely urbanized and consists of southbound US 101 where the freeway on- and off-ramps at East Poplar Avenue will be removed, the proposed ramp locations at Peninsula Avenue, portions of North Amphlett Boulevard north and south of the Peninsula Avenue overcrossing, and residential and commercial properties along North Amphlett Boulevard fronting US 101. There are no channelized surface drainages and no vegetated corridors within the potential construction footprint for either build alternative. Potentially affected vegetation will be limited to street trees and planted landscaping.

The U.S. Fish and Wildlife Service online database and California Natural Diversity Data Base (CNDDB) were reviewed for species with potential habitat at or near the project area.[6] The highly urbanized nature of the project area makes it unlikely that the species on

[6] Listings generated online from the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife/CNDDB in February 2015.

these lists could have habitat that could be directly affected, and potential construction effects could likely be avoided or minimized with required measures. Species on the lists include numerous aquatic and shoreline species associated with the presence of the San Francisco Bay shoreline and waters. The Bay is to the north of the project and US 101, and its shoreline and waters will not be directly affected by the project. The Poplar Creek Golf Course is on the northbound side of US 101 where work would be limited to a pedestrian path improvement and a crosswalk, within the State right-of-way; the golf course area near the project may be considered habitat by the resource agencies and should be considered for indirect effects and inclusion within the biological survey study area. Indirect effects, if any, to biological species or habitat would likely be limited to construction noise or erosion in stormwater runoff that reaches the drainages leading to the San Francisco Bay. Erosion into stormwater runoff during construction will be minimized through protective measures to contain sediments within the project construction area. These will include BMPs and any other measures required for compliance with the GGP, described for Water Quality in Section 8.8.

The federal Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 et seq.), Title 50 Code of Federal Regulations part 10, and California Fish and Game Code Sections 3503, 3513, and 3800 protect the occupied nests and eggs of migratory birds. Birds nest in a variety of places including trees, shrubs, human-made structures, and the ground. If construction activities will be conducted between February 1 and September 1, the potential for migratory birds and their nests to occur within the project area should be anticipated in project planning, including the need for avoidance. Pre-construction surveys for migratory birds and raptors and their nests should be conducted regardless of the time of year.

8.16 Cumulative Impacts: Cumulative impacts associated with other past, present, or future planned projects will be considered during the preparation of the environmental document. The US 101 3rd Avenue to Millbrae Avenue project to add auxiliary lanes in the northbound and southbound directions began construction in 2007 and was completed in 2011. That project included reconstruction of the US 101/Peninsula interchange but did not include any ramps in the southbound direction at Peninsula Avenue. The City of San Mateo's East Poplar Corridor Safety Improvement Project would add near-term traffic management improvements along East Poplar Avenue from west of North Idaho Street to the US 101 southbound ramps; that project will focus primarily on adding center median restrictions. These and other transportation and non-transportation projects will be considered in the evaluation of cumulative impacts, and avoidance or minimization measures will be recommended where appropriate or needed.

8.17 Context Sensitive Solutions: Context Sensitive Solutions will be considered, as applicable. These solutions are achieved through a collaborative interdisciplinary approach involving stakeholders affected by the project.

9. Summary Statement for PSR or PSR-PDS

Past experience with similar actions and the information gathered to date indicate that environmental clearance could be obtained with an IS/ND or Mitigated Negative Declaration under CEQA and a Routine EA with a Finding of No Significant Impact under NEPA. Key environmental issues include visual/aesthetics and community impacts, including relocation and environmental justice impacts. The noise study will need to evaluate any changes in existing soundwalls along US 101, and the change in ambient noise from the addition of elevated ramps connecting to Peninsula Avenue.

A public outreach and information effort is recommended to keep residents and local businesses informed of the project, the alternatives, opportunities for review and comment, overall project schedule, and right-of-way rights and eligibility.

Typical construction compliance with the Caltrans Construction General Permit will be required, and storm water treatment and hydromodification management measures should be anticipated in the project design.

US 101 from south of Peninsula Avenue to East Poplar Avenue may be at periodic inundation risk from a 100-year flood event or sea level rise in 2030, and the entire project area along US 101 at risk to sea level rise by 2050. The project design should include measures that can minimize or meet a no net increase in the base floodplain. To address potential sea level rise, raising the grade of US 101 is not considered reasonable, but a potential adaptive action may include use of construction materials that are more resilient to sea water inundation.

Preparation of the IS/EA, including technical studies, is anticipated to take approximately 24 months after receiving information necessary to begin the environmental analysis. This timeline includes time for review by the environmental division staff within Caltrans, but does not include time for permitting by federal or state resource agencies.

Based on the highly developed nature of the area, there is no indication of significant biological resources presence directly at the project site, which can impact the project schedule, although this must be confirmed during the PA&ED phase. Substantial changes to the project description will require review, and could have implications to the schedule.

The funding and implementing agency for PA&ED is not known at this time and will be decided on a date to be determined. Caltrans would act as the lead agency for CEQA/NEPA.

10. Disclaimer

This PEAR provides information to support programming of the proposed project. It is not an environmental determination or document. Preliminary analysis, determinations, and estimates of mitigation costs are based on the project description provided in the PSR. The estimates and conclusions in the PEAR are approximate and are based on cursory analyses of probable effects. A reevaluation of the PEAR will be needed for changes in project scope or alternatives, or in environmental laws, regulations, or guidelines.

11. List of Preparers

Cultural Resources specialist Kathleen Kubal	Date: 2/13/15
Biologist Nicole Rucker	Date: 2/13/15
Community Impacts specialist Lynn McIntyre	Date: 2/13/15
Noise and Vibration specialist Jeff Zimmerman	Date: 2/13/15
Air Quality specialist Lynn McIntyre	Date: 2/13/15
Paleontology specialist/liaison Lynn McIntyre	Date: 2/13/15
Water Quality specialist Jeff Zimmerman	Date: 2/13/15
Hydrology and Floodplain specialist Jeff Zimmerman	Date: 2/13/15
Hazardous Waste/Materials specialist Suzanne Nase	Date: 2/13/15
Visual/Aesthetics specialist Jeff Zimmerman	Date: 2/13/15
Energy and Climate Change specialist Jeff Zimmerman	Date: 2/13/15
Other:	Date:
PEAR Preparer (Name and Title) Jeff Zimmerman, Project Manager (Environmental Specialist)	Date: 2/27/15

12. Review and Approval

I confirm that environmental cost, scope, and schedule have been satisfactorily completed and that the PEAR meets all Caltrans requirements. Also, if the project is scoped as a routine EA, complex EA, or EIS, I verify that the HQ DEA Coordinator has concurred in the Class of Action.

Kathy Boltz, Senior Environmental Planner — Date: 4/13/2015

Richelle Perez, Project Manager — Date: 04-13-2015

REQUIRED ATTACHMENTS:

Attachment A: PEAR Environmental Studies Checklist
Attachment B: Estimated Resources by WBS Code
Attachment C: Schedule

PEAR Attachment A: Environmental Studies Checklist

Attachment A: PEAR Environmental Studies Checklist

Rev. 11/08

Environmental Studies for PA&ED Checklist					
	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
Land Use	☐	☐	☒	**M**	
Growth	☐	☐	☒	**L**	
Farmlands/Timberlands	☒	☐	☐	**L**	
Community Impacts	☐	☐	☒	**M**	
Community Character and Cohesion	☐	☐	☒	**M**	
Relocations	☐	☐	☒	**M**	
Environmental Justice	☐	☐	☒	**M**	
Utilities/Emergency Services	☐	☒	☐	**L**	
Visual/Aesthetics	☐	☐	☒	**M**	
Cultural Resources:	☐	☐	☒	**L**	
Archaeological Survey Report	☐	☐	☒	**L**	
Historic Resources Evaluation Report	☐	☐	☒	**L**	
Historic Property Survey Report	☐	☐	☒	**L**	
Historic Resource Compliance Report	☒	☐	☐	**L**	
Section 106 / PRC 5024 & 5024.5	☐	☐	☒	**L**	
Native American Coordination	☐	☐	☒	**L**	
Finding of Effect	☒	☐	☐	**L**	
Data Recovery Plan	☒	☐	☐	**L**	
Memorandum of Agreement	☒	☐	☐	**L**	
Other:	☐	☐	☐	**L**	
Hydrology and Floodplain	☐	☐	☒	**M**	
Water Quality and Stormwater Runoff	☐	☐	☒	**L**	
Geology, Soils, Seismic and Topography	☐	☐	☒	**L**	
Paleontology	☐	☐	☒	**L**	PIR only
PER	☒	☐	☐	**L**	
PMP	☒	☐	☐	**L**	
Hazardous Waste/Materials:	☐	☐	☒	**M**	
ISA (Additional)	☐	☒	☐	**L**	Update ISA
PSI	☐	☐	☒	**M**	
Other:	☐	☐	☐	**L**	
Air Quality	☐	☐	☒	**L**	
Noise and Vibration	☐	☐	☒	**M**	
Energy and Climate Change	☐	☒	☐	**L**	
Biological Environment	☐	☐	☒	**L**	
Natural Environment Study	☐	☐	☒	**L**	
Section 7:	☐	☐	☒	**L**	
Formal	☒	☐	☐	**L**	
Informal	☐	☐	☒	**L**	
No effect	☒	☐	☐	**L**	
Section 10	☒	☐	☐	**L**	
USFWS Consultation	☒	☐	☐	**L**	
NMFS Consultation	☒	☐	☐	**L**	
Species of Concern (CNPS, USFS, BLM, S, F)	☒	☐	☐	**L**	

Environmental Studies for PA&ED Checklist					
	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
Wetlands & Other Waters/Delineation	☒	☐	☐	**L**	
404(b)(1) Alternatives Analysis	☒	☐	☐	**L**	
Invasive Species	☐	☒	☐	**L**	
Wild & Scenic River Consistency	☒	☐	☐	**L**	
Coastal Management Plan	☒	☐	☐	**L**	
HMMP	☒	☐	☐	**L**	
DFG Consistency Determination	☒	☐	☐	**L**	
2081	☒	☐	☐	**L**	
Other:	☒	☐	☐	**L**	
Cumulative Impacts	☐	☐	☒	**L**	
Context Sensitive Solutions	☐	☒	☐	**L**	
Section 4(f) Evaluation	☐	☒	☐	**L**	
Permits:					
401 Certification Coordination	☒	☐	☐	**L**	
404 Permit Coordination, IP, NWP, or LOP	☒	☐	☐	**L**	
1602 Agreement Coordination	☒	☐	☐	**L**	
Local Coastal Development Permit Coordination	☒	☐	☐	**L**	
State Coastal Development Permit Coordination	☒	☐	☐	**L**	
NPDES Coordination	☐	☐	☒	**M**	
US Coast Guard (Section 10)	☒	☐	☐	**L**	
TRPA	☒	☐	☐	**L**	
BCDC	☐	☒	☐	**L**	

PEAR Attachment B: Estimated Resources by WBS Code

Project ID: 413000210
EA: 4H460K
Description: US 101 Peninsula Avenue Interchange Project

WBS Task Activity Code	Division Chief	Office Chief	Senior	Generalist	Biology	Cultural	Haz Waste	Socio-Economic	Storm Water	Erosion Control	WQ Permits	Noise/Air	EPPM	Hydraulics - Env. work only	Landscape-Env. work only	Total
Assigned Unit						**0666/0665**										
Project Management																
100.10 – Project Management - PA&ED																-
100.15 – Project Management - PS&E																-
100.20 – Project Management - Construction																-
100.25 – Project Management - Right of Way																-
Total Project Management	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Perform Preliminary Engineering Studies and Draft Project Report																
160.05 – Updated Project Information		8	8	52	6				16	8	8	6		8	8	128
160.10 – Engineering Studies																-
160.15 – Draft Project Report																-
160.30 – Environmental Study Request				24												24
160.40 – NEPA Assignment			2	4												6
Total Perform Prelim Eng Studies & Draft PR	-	8	10	80	6	-	-	-	16	8	8	6	10	8	8	158
Perform Environmental Studies and Prepare Draft Environmental Document - Task Management Activities																
165.05 – Env Scoping of Alternatives			4	20	8							8				40
165.10 – General Env Studies			10	48			80	64	24	16	8	140		40	48	478
165.15 – Biological Studies					152											152
165.20 – Cultural Resource Studies		10				40										50
165.25 – Draft Env Document	8	8	45	300	8	8	24	16	6			30		16	20	489
165.30 – NEPA Assignment				6												6
Total Perform Env Studies & Prepare DED	8	18	59	374	168	48	104	80	30	16	8	178	70	56	68	1,215
Obtain Permits, Licenses, Agreements and Certifications (PLACs) and Route Adoptions during PA&ED Component - Task Management Activities																
170.05 – Reqired PLACs					60				24	4	8					96
170.10 – PLACs																-
170.15 – Railroad Agreements																-
170.20 – Freeway Agreements																-
170.25 – Agreement for Material Sites																-
170.30 – Executed Maintenance Agreements																-
170.40 – Route Adoptions																-
170.45 – MOU from TERO																-
170.55 – NEPA Assignment																-
Obtain PLACS & Rte Adoptions during PA&ED	-	-	-	-	60	-	-	-	24	4	8	-	5	-	-	96
Circulate Draft Environmental Document and Select Preferred Project Alternative - Task Management Activities																
175.05 – DED Circulation		2	4	8		16										30
175.10 – Public Hearing			12	40								16			24	92
175.15 – Public Comment Responses & Corr		4	40	80	8		8					16			16	172
175.20 – Project Preferred Alternative			2	4												6
175.25 – NEPA Assignment			16	8												24
Total Circ DED & Select Preferred Proj Alt	-	6	74	140	8	16	8	-	-	-	-	32	20	-	40	324
Prepare and Approve Project Report and Final Environmental Document																
180.05 – Final Project Report			4	16			8					8				36
180.10 – Final Env Document		8	16	90	16	16	4		22	16	16	16		16	16	252
180.15 – Completed Env Document	4			12												16
180.20 – NEPA Assignment			8	10												18
Total Prep and Approve PR & FED	4	8	28	128	16	16	12	-	22	16	16	24	21	16	16	322
Prepare Base Maps and Plan Sheets for PS&E Development																
185.05 – Updated Project Information																-
185.15 – Preliminary Design																-
Total Prep Base Maps & Plan Sheets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Assigned Unit						**0666/0665**										
Right of Way Property Management and Excess Land																
195.40 – Property Management																-
195.45 – Excess Land																-
Total RW Property Mgmt and Excess Land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Utility Relocation																
200.15 – Approved Utility Relocation Plan																-
200.20 – Utility Relocation Package																-
Total Utility Coordination	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Obtain Permits, Licenses, Agreements, and Certifications (PLACs) during PS&E Component - Task Management Activities																
205.05 – PLACs Determination																-
205.10 – PLACs					140				24	11	24					199
205.15 – Railroad Agreements																-
205.25 – Agreement for Material Sites																-
205.30 – Executed Maintenance Agreements																-
205.45 – MOU from TERO																-
205.55 – NEPA Delegation																-
Total Permits & Agreements during PS&E	-	-	-	-	140	-	-	-	24	11	24	4	5	-	-	199
Obtain Right of Way Interests for Project Right of Way Certification																
225.75 – Right of Way Clearance																-
Total Obtain RW Interests for Proj RW Cert	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prepare Draft PS&E																
230.05 – Draft Roadway Plans																-
230.10 – Draft Highway Planting Plans																-
230.30 – Draft Drainage Plans																-
230.35 – Draft Specifications																-
230.60 – Updated Project Info for PS&E Pkg																-
230.90 – NEPA Assignment						8			24	118	32					182
230.99 – Other Draft PS&E Products																-
Total Prepare Draft PS&E	-	-	-	-	-	8	-	-	24	118	32	14	15	-	-	182
Mitigate Environmental Impacts and Clean-up Hazardous Waste - Task Management Actitivities																
235.05 – Environmental Mitigation					40					5	8					53
235.10 – Detailed Site Investigation for HW							8									8
235.15 – HW Management Plan							8									8
235.20 – HW PS&E							4									4
235.25 – HW Clean-up																-
235.30 – Haz Substances Disclosure Doc							4									4
235.35 – Long Term Mitigation Monitoring																-
235.40 – Updated Env Commitments Record					8											8
235.45 – NEPA Assignment																-
Total Mit Env Impacts & Clean-up HW	-	-	-	-	48	-	24	-	-	5	8	-	3	-	-	85
Post Right of Way Certification Work																
245.75 – Right of Way Clearance																-
Total Post RW Clearance Work	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Circulate, Review and Prepare Final District PS&E Package																
255.05 – Circ. & Rev. Draft Dist PS&E Package				16	8											24
255.10 – Updated PS&E Package					6											6
255.15 – Environmental Reevaluation			16	30	16	16	8					16			8	110
255.20 – Final District PS&E Package				4	4	4	4		40	64	16	4			4	144
255.40 – Resident Engineer's Pending File					4											4
255.45 – NEPA Assignment				4												4
Total Circ, Rev and Prepare Final Dist PS&E Pkg	-	-	16	54	38	20	12	-	40	64	16	20	15	-	12	292

Project ID: 413000210
EA: 4H460K
Description: US 101 Peninsula Avenue Interchange Project

Attachment B - Estimated Resources By WBS Code

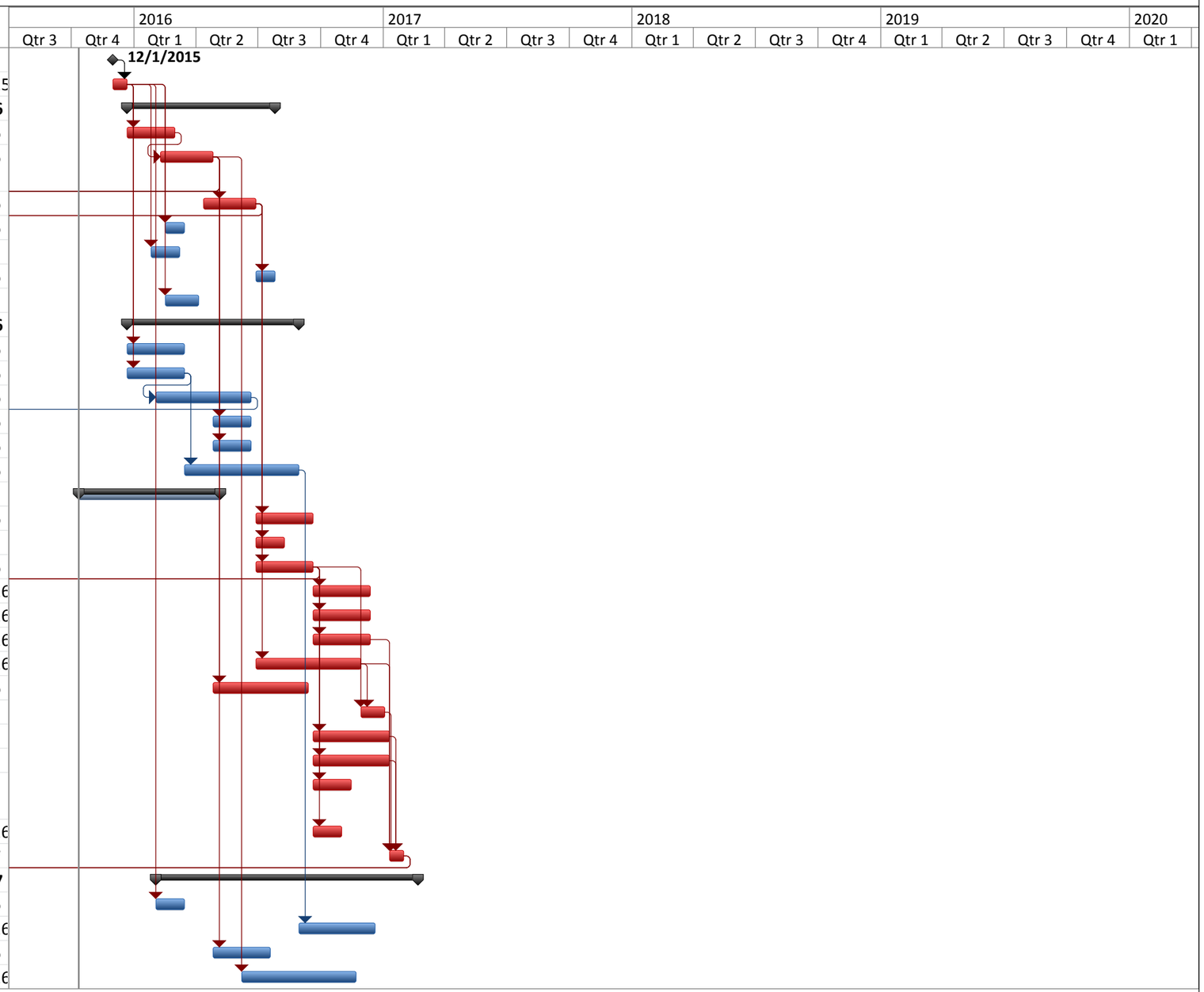
WBS Task Activity Code	Division Chief	Office Chief	Senior	Generalist	Biology	Cultural	Haz Waste	Socio-Economic	Storm Water	Erosion Control	WQ Permits	Noise/Air	EPPM	Hydraulics - Env. work only	Landscape-Env. work only	Total
Assigned Unit						**0666/0665**										
Contract Bid Documents "Ready to List"																
260.75 - Env Cert at RTL			2	8	8				16	30		4			4	72
Total Contract Bid Documents "RTL"	-	-	2	8	8	-	-	-	16	30	-	4	5	-	4	-
Construction Engineering and General Contract Administration																
270.15 – Construction Stakes																-
270.33 – Construction Inspection																-
270.66 – Technical Support					8				16	8	24					56
Total Const Engineering & Gen Contract Admin.	-	-	-	-	8	-	-	-	16	8	24	-	3	-	-	56
Administration of Permits, Licenses, Agreements and Certifications (PLACs) and Environmental Stewardship																
280.10 – PLAC Compliance						16										16
280.40 – PLAC Violations																-
280.50 – Other Environmental Compliance																-
280.60 – Other Environmental Violations																-
280.70 – Updated ECR			2	8	4											14
280.75 – Environmental Reevaluation			4	8	4		4	4				8		4	8	44
280.80 – Updated PLACs																-
Total Admin of PLACs and Env Stewardship	-	-	6	16	8	16	4	4	-	-	-	8	4	4	8	74
Change Order Administration																
285.05 – Change Order Process																-
285.10 – Functional Support									40	40	8					88
Total Change Order Administration	-	-	-	-	-	-	-	-	40	40	8	-	4	-	-	88
Disputes and Claims																
290.40 – Potential Claim Record										8						8
Total Disputes and Claims	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	8
Accept Contract/Prepare Final Construction Estimate and Final Report																
295.35 – Certificate of Environmental Compliance		2	4	8	8		2					4			4	32
295.40 – Long Term Env Mit/Mont after CCA										35						35
Total Accept Contract	-	2	4	8	8	-	2	-		35	8	4	5	-	4	67
Total Project Hours	12	42	199	808	516	124	166	84	252	363	160	294	185	84	160	3,166

Source: Caltrans District 4

PEAR Attachment C: Schedule

US 101/Peninsula Avenue Interchange Schedule

ID	Task Name	Duration	Start	Finish
1	Project Start	0 days	Tue 12/1/15	Tue 12/1/15
2	Notice to Proceed (PA&ED) & Initiation Tasks	15 days	Tue 12/1/15	Mon 12/21/15
3	**Project Initiation**	**155 days**	**Tue 12/22/15**	**Mon 7/25/16**
4	Base Mapping & Data Collection	50 days	Tue 12/22/15	Mon 2/29/16
5	Develop Alternatives & Prelim Design, right-of-way	55 days	Tue 2/9/16	Mon 4/25/16
6	Preliminary Geometrics	55 days	Tue 4/12/16	Mon 6/27/16
7	Bike & Pedestrian Data	20 days	Tue 2/16/16	Mon 3/14/16
8	Preliminary Stormwater Evaluation	30 days	Tue 1/26/16	Mon 3/7/16
9	Preliminary Cost Estimate	20 days	Tue 6/28/16	Mon 7/25/16
10	Preliminary Utility Identification	35 days	Tue 2/16/16	Mon 4/4/16
11	**Traffic Analysis**	**180 days**	**Tue 12/22/15**	**Mon 8/29/16**
12	Forecast Options & Analysis Methods	60 days	Tue 12/22/15	Mon 3/14/16
13	Existing Conditions Evaluation	60 days	Tue 12/22/15	Mon 3/14/16
14	Travel Demand Forecasting	100 days	Tue 2/2/16	Mon 6/20/16
15	Alternative Analysis	40 days	Tue 4/26/16	Mon 6/20/16
16	Bike & Pedestrian Evaluation	40 days	Tue 4/26/16	Mon 6/20/16
17	Traffic Operations Analysis (TOAR)	120 days	Tue 3/15/16	Mon 8/29/16
18	**Engineering Technical Studies**	**150 days**	**Mon 10/12/15**	**Fri 5/6/16**
19	Utility Impacts	60 days	Tue 6/28/16	Mon 9/19/16
20	Prelim SC/TH Plans	30 days	Tue 6/28/16	Mon 8/8/16
21	Layout Plans & Profiles	60 days	Tue 6/28/16	Mon 9/19/16
22	Storm Water Data Report	60 days	Tue 9/20/16	Mon 12/12/16
23	Drainage Impact and Hydromod Evaluation	60 days	Tue 9/20/16	Mon 12/12/16
24	Location Hydraulic & Floodplain Eval.	60 days	Tue 9/20/16	Mon 12/12/16
25	Advance Planning Study	110 days	Tue 6/28/16	Mon 11/28/16
26	Geotech Impact Report	100 days	Tue 4/26/16	Mon 9/12/16
27	Construction Cost Estimate and Schedule	25 days	Tue 11/29/16	Mon 1/2/17
28	TMP Data	80 days	Tue 9/20/16	Mon 1/9/17
29	Design Exception Fact Sheets	80 days	Tue 9/20/16	Mon 1/9/17
30	Preliminary Landscape and Aesthetics Concept	40 days	Tue 9/20/16	Mon 11/14/16
31	Life Cycle Cost Analysis	30 days	Tue 9/20/16	Mon 10/31/16
32	Final Engineering Tech Reports	15 days	Tue 1/10/17	Mon 1/30/17
33	**Environmental Technical Studies**	**275 days**	**Tue 2/2/16**	**Mon 2/20/17**
34	Purpose & Need Expansion/Update	30 days	Tue 2/2/16	Mon 3/14/16
35	Air Quality & Conformity	80 days	Tue 8/30/16	Mon 12/19/16
36	Biological Studies	60 days	Tue 4/26/16	Mon 7/18/16
37	Cultural Resources (APE, ASR, HRER, HPSR)	120 days	Tue 6/7/16	Mon 11/21/16

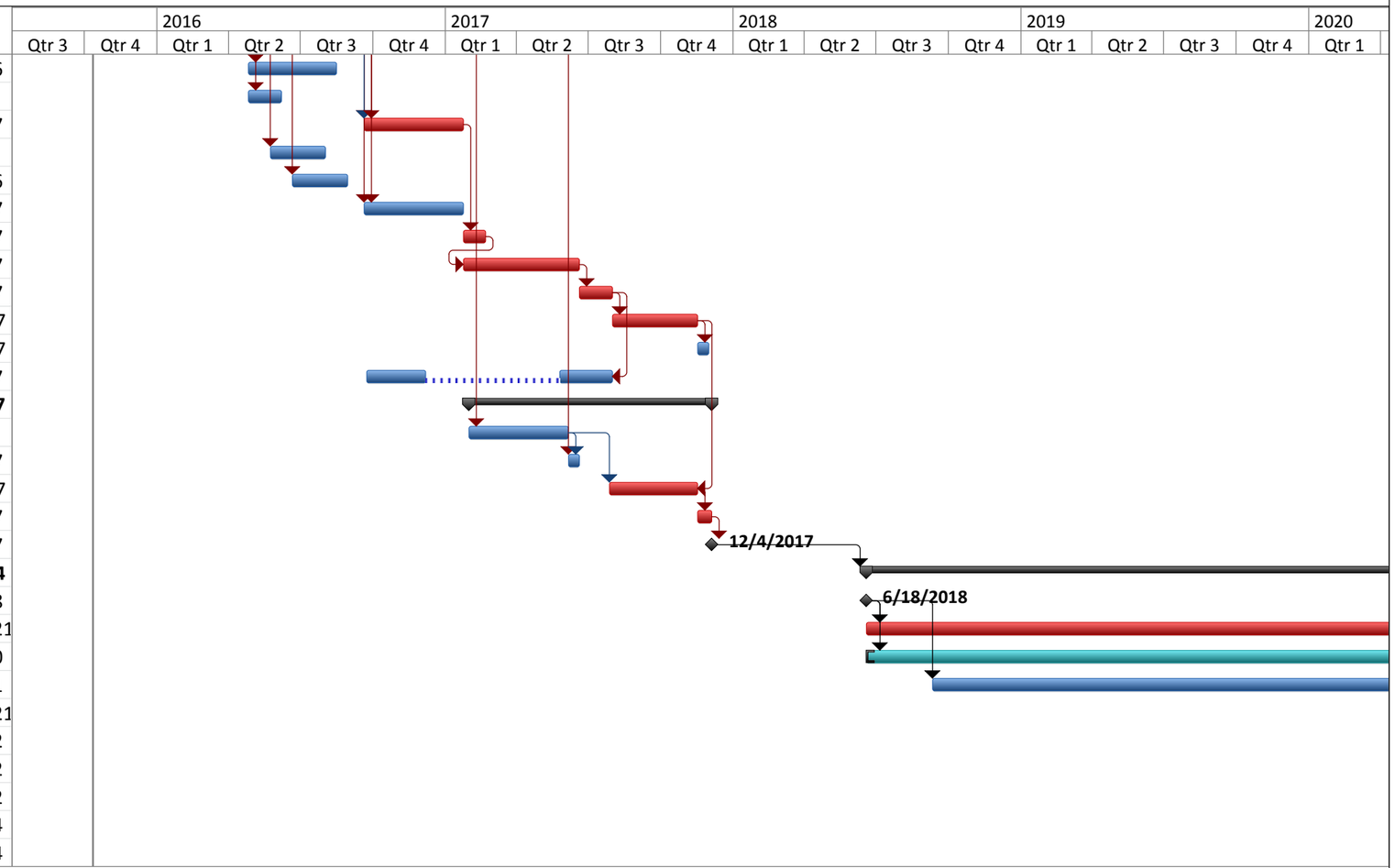


Project: US101-PenninsulaAve (2-
Date: Wed 4/8/15

Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline
Split	External Tasks	Inactive Summary	Manual Summary	Critical
Milestone	External Milestone	Manual Task	Start-only	Critical Split
Summary	Inactive Task	Duration-only	Finish-only	Progress

US 101/Peninsula Avenue Interchange Schedule

ID	Task Name	Duration	Start	Finish
38	Community Impact Assessment	80 days	Tue 4/26/16	Mon 8/15/16
39	Haz Mat/ISA Update	30 days	Tue 4/26/16	Mon 6/6/16
40	Noise Study	90 days	Tue 9/20/16	Mon 1/23/17
41	Paleontological Evaluation	50 days	Tue 5/24/16	Mon 8/1/16
42	Water Quality	50 days	Tue 6/21/16	Mon 8/29/16
43	Visual Impact Study	90 days	Tue 9/20/16	Mon 1/23/17
44	Final Env. Technical Studies	20 days	Tue 1/24/17	Mon 2/20/17
45	**Draft Environmental Document**	105 days	Tue 1/24/17	Mon 6/19/17
46	**Public Circulation and Meeting(s)**	30 days	Tue 6/20/17	Mon 7/31/17
47	**Final Environmental Document**	78 days	Tue 8/1/17	Thu 11/16/17
48	**Environmental Document Approval**	10 days	Fri 11/17/17	Thu 11/30/17
49	Community Outreach	100 days	Fri 9/23/16	Mon 7/31/17
50	**Project Report**	**220 days**	**Tue 1/31/17**	**Mon 12/4/17**
51	Draft Project Report	90 days	Tue 1/31/17	Mon 6/5/17
52	Value Analysis	10 days	Tue 6/6/17	Mon 6/19/17
53	Final Project Report	80 days	Fri 7/28/17	Thu 11/16/17
54	Project Report Approval	12 days	Fri 11/17/17	Mon 12/4/17
55	**PA&ED Complete**	0 days	Mon 12/4/17	Mon 12/4/17
56	**PS&E Design & Construction**	**1570 days**	**Mon 6/18/18**	**Mon 6/24/24**
57	Begin PS&E Design	0 days	Mon 6/18/18	Mon 6/18/18
58	PS&E	46 mons	Tue 6/19/18	Mon 12/27/21
59	Utility Design	26 mons	Tue 6/19/18	Mon 6/15/20
60	Right-of-Way Certification	36 mons	Tue 9/11/18	Mon 6/14/21
61	Complete PS&E Design (RTL Approval)	0 days	Mon 12/27/21	Mon 12/27/21
62	Utility Relocations	26 mons	Tue 6/16/20	Mon 6/13/22
63	Ready to List/Contract Award	26 wks	Tue 12/28/21	Mon 6/27/22
64	Begin Construction	0 days	Mon 6/27/22	Mon 6/27/22
65	Construction	26 mons	Tue 6/28/22	Mon 6/24/24
66	End Construction	0 days	Mon 6/24/24	Mon 6/24/24



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Date: Wed 4/8/15

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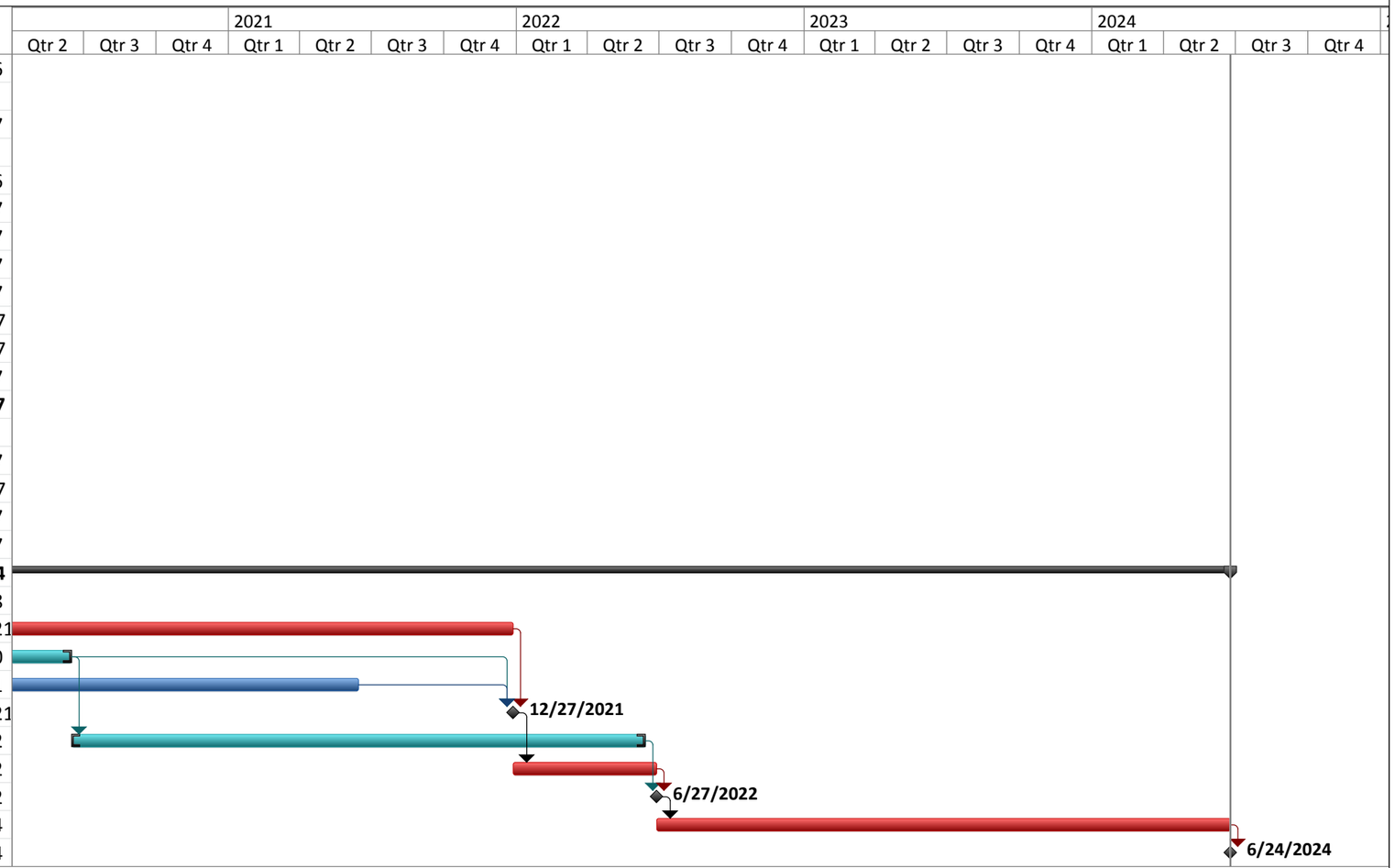

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ATTACHMENT L

RISK REGISTER

LEVEL 2/3 - RISK REGISTER	Project Name:	US 101/Peninsula Avenue Interchange	DIST- EA	04-4H460	Phase	PID	Project Manager	Richelle Perez	Risk Manager	Raoul Maltez	PID

						Risk Assessment													
Risk Identification						Probability		Cost Impact ($)				Time Impact (days)				Rationale	Risk Response				
Status	ID #	Category	Title	Risk Statement	Current status/assumptions	Low	High	Low	Most likely	High	Probable	Low	Most likely	High	Probable		Strategy	Response Actions	Risk Owner	Updated	Risk Rating
Active	1	Design	Ramp Metering	Per the Ramp Meter Design Manual, an HOV-preferential lane shall be provided at all ramp metering locations. The two lane on-ramp from Peninsula Avenue may require two mixed flow lanes to prohibit queuing to back up into the intersection during peak hours. If so, a Ramp Metering Policy Exception will be required. If not approved, a 3-lane on-ramp would be required, which would have significant (additional) right-of-way impacts.	Two mixed flow lanes will likely create an acceptable level of service and minimize the queues and delays during peak hours.	5	20				#VALUE!						Accept	Confirm if one HOV plus one mixed flow lane will provide an adeqaute LOS. If not, apply for the Ramp Metering Exception during the PA&ED phase stating that a third (HOV) lane will have a significant right-of-way impact.		2/23/2015	Low
Active	2	Design	Utility Relocations	Design may require relocation of utilities that were recently relocated by other projects.	Project could be financially responsible for the relocation of any utilities that were recently relocated by other projects.	5	10				#VALUE!						Mitigate	Identify existing low & high risk utilities and avoid relocation, where feasible.		11/3/2014	Low
Active	3	Design	Utility Relocations	Unexpected delays in the design of utility relocations could impact the schedule.	Large utilities (gas transmission, large water supply, high voltage power, etc.) can take 2 years to design AFTER the conflict areas are defined and the utility is notified, and another 2-3 years to contract and build.	20	40				#VALUE!						Mitigate	Coordinate with utility companies as early as possible.		2/25/2015	Medium
Active	4	Design	Constructability	New ramp structure ties into the existing structure (Peninsula Ave OC) perpendicularly, creating an atypical design. If the current design is deemed not feasible, widening of both sides of the Peninsula Ave OC may be required for all alternatives.	Structures have been evaluated, but a formal constructability review will not take place until the PA&ED phase.	10	30				#VALUE!						Accept	Constructability reviews will take place during PA&ED.		11/3/2014	Low
Active	5	Design	Seismicity	A major earthquake could damage the existing facility and require a change in the design.	Earthquakes on any Bay Area fault can occur at any time. The San Andreas Fault is approximately five miles from the project site.	0	5				#VALUE!						Accept	Evaluate accordingly after natural occurrence. If the Peninsula Ave OC requires replacement, the new structure could be constructed with the new on-ramps taken into consideration, making it easier for future construction of the on/off ramps.		11/3/2014	Low
Active	6	Design	Sea Level Rise	Long-term sea level rise is a consideration due to relatively low elevations near the San Francisco Bay.	New ramps are elevated, but the local road below may have to be depressed to satisfy vertical clearance requirements.	0	5				#VALUE!						Mitigate	Threat is not expected to be immediate, but measures will be taken, as necessary, to mitigate a future rise in sea level elevation.		11/3/2014	Low
Active	7	Environmental	Stakeholder Acceptance	Opponents may challenge the design alternatives and/or environmental report, delaying the start of design/construction or threatening loss of funding.	Two public outreach meetings are currently planned during the PID phase.	40	60				#VALUE!						Mitigate	Address concerns of stakeholders and public during the PA&ED phase. Schedule additional public outreach meetings, as necessary.		11/3/2014	High
Active	8	Environmental	Hazardous Materials	Unrecorded materials may be discovered during PA&ED, design or construction.	The Draft ISA noted the potential for petroleum hydrocarbons, chlorinated hydrocarbons, and residual amounts of aerially deposited lead to be present in surface soil and/or shallow groundwater.	60	80				#VALUE!						Mitigate	Conduct more detailed ISA during PA&ED and obtain samples during PS&E. Identify additional costs to dispose of hazardous material.		11/3/2014	High
Active	9	R/W	Property Acquisitions	The probability of proceeding to a commendation hearing is high.	Both alternatives entail significant impacts to properties, especially to those north of Peninsula Avenue.	70	90				#VALUE!						Accept	Adjust schedule for right of way activities accordingly.		2/23/2015	High

ATTACHMENT M

TRANSPORTATION PLANNING SCOPING INFORMATION SHEET

Transportation Planning Scoping Information Sheet

PROJECT INFORMATION

District	County	Route	Post Miles	Project ID No/ Expenditure Authorization No.
4	San Mateo	101	14.5/14.9	0413000210 / EA 04-4H460

Project Name and Description : US 101/Peninsula Avenue Interchange Project
The project will move the US 101 southbound on and off ramps from East Poplar Avenue to Peninsula Avenue to eliminate the partial interchange condition and create a single, full access interchange at Peninsula Avenue and Airport Boulevard.

Prepared by:

District Information Sheet Point of Contact*:	Name: Ramesh Sathiamurthy, URS Corporation	Functional Unit:	

* The District Information Sheet Point of Contact is responsible for completing Project Information, PDT Team and Stakeholder Information, and coordinating the completion of project-related information with the Transportation Planning Stakeholders. Upon completion, provides the Transportation Planning PDT Representative and Project Manager with a copy of the Information Sheet.

Project Development Team (PDT) Information		
Title	**Name**	**Phone Number**
Project Manager	Richelle Perez	(510) 286-4998
Project Engineer	Mimy Hew, Advance Planning	(510) 286-5578
Transportation Planning PDT Representative**	Trang Hoang, Advance Planning	(510) 286-5650

Transportation Planning Stakeholder Information		
Title	**Name**	**Phone Number**
Regional Planner	Blesilda Gebreyesus	(510) 286-5575
System Planner	Ina Gerhard	(510) 286-5598
Local Development-Intergovernmental Review (LD-IGR) Planner	Erik Alm	(510) 286-6035
Community Planner	Becky Frank	(510) 286-5536
Goods Movement Planner	Joseph Aguilar	(510) 286-5591
Transit Planner	Wingate Lew	(510) 622-5432
Bicycle and Pedestrian Coordinator	Beth Thomas	(510) 286-7227
Park and Ride Coordinator	Wingate Lew	(510) 622-5432
Native American Liaison	Lissa McKee	(510) 286-5618
Other Coordinators:		

Project Purpose and Need** – Refer to Section 3 of the PSR-PDS.

** The Transportation Planning PDT Representative is responsible for providing the PDT with the system-wide and corridor level deficiencies identified by Transportation Planning. The PDT uses the information provided by Transportation Planning to develop the purpose and need with contributions from other Caltrans functional units and external stakeholders at the initiation of the PID and is refined throughout the PID process. As the project moves past the project initiation stage and more data becomes available, the purpose and need is refined. For additional information on purpose and need see: www.dot.ca.gov/hq/env/emo/purpose_need.htm

Project Funding:

a	List all known and potential funding sources and percent splits: (ie. State Transportation Improvement Program (STIP)/State Highway Operations and Protection Program (SHOPP)/Transportation Enhancement (TE)/Environmental Enhancement and Mitigation (EEM)/Safe Routes to School (SR2S)/etc.).
	Federal, State, City and San Mateo County Measure A (Sales Tax)… percent splits to be determined.
b	Is this a measure project? Yes_**X**_ /No__. If yes, name and describe the measure.
	The San Mateo County Transportation Authority (SMCTA) was formed in 1988 with the passage of the voter-approved half-cent sales tax for countywide transportation projects and programs, known as Measure A. *The original Measure A expired December 31, 2008. In 2004, county voters overwhelmingly approved a reauthorization of Measure A through 2033.*

1. Regional Planning:

a	Name of and contact information for Metropolitan Planning Organization (MPO) or Regional Transportation Planning Agency (RTPA).
	Jim McKim, SMCTA ; (650) 508-7944
b	Name of and contact information for local jurisdiction (City or County)
	Gary Heap, City of San Mateo ; (650) 522-7307
c	Provide the page number and project description as identified in the Regional Transportation Plan (RTP) and the date of adoption, or provide an explanation if not in RTP.
	The project is on page 22 (of 33) of the Final List of Plan Bay Area Transportation Projects (2040 RTP) RTP ID #240160, dated July 17, 2013. The project is described as, "Construct southbound on- and off-ramps to US 101 at Peninsula Avenue to add on and off ramps from southbound US 101".
d	Provide nexus between the RTP objectives and the project to establish the basis for the project purpose and need.
	The RTP's objective and the benefits provided by the build alternatives are consistent. Adding southbound on and off ramps at Peninsula Avenue will improve overall safety and traffic operations in the vicinity of the project. See Section 2 (Background) of the PSR-PDS for additional information on how the build alternatives were conceived.
e	Is the project located in an area susceptible to sea-level rise?
	Yes
f	Name of Air Quality Management District (AQMD)
	Bay Area Air Quality Management District
g	If the project is located in a federal non-attainment or attainment-maintenance area is the project: *For Federal standards, San Mateo County is designated marginal non-attainment for the 2008 8-hour ozone standard, moderate non-attainment for the 2006 PM 2.5 standard, and is a maintenance area for carbon monoxide.*
	• Regionally Significant? (per 40 (Code of Federal Regulations (CFR) 93.101) Y_**X**_/N__ *Yes, the project is on US 101, a freeway that serves significant regional transportation needs that is included in the Metropolitan Transportation Commission's regional modeling network. The project however only affects existing and proposed on- and off-ramps at East Poplar Avenue and Peninsula Avenue. No new through lanes are proposed.*
	• Exempt from conformity? (per 40 CFR 93.126 and 93.128) Y__/N_**X**_ *No, the project definition does not match the list of exempt projects in 40 CFR 93.126 or 93.128.*
	• Exempt from regional analysis? (per 40 CFR 93.127) Y_**X**_/N__ *Yes, the project would reconfigure the existing interchange on- and off-ramps at East Poplar Avenue by removing these ramps and replacing them at Peninsula Avenue to the north. Projects exempt from regional emissions analysis include "Interchange reconfiguration projects" (Table 3, 40 CFR 93.127). This project will have to be reviewed during the environmental review phase by the Bay Area Air Quality Task Force to determine its status with respect to whether it is a Project of Air Quality Concern (POAC) and if a hot spot analysis is required prior to making a project-level conformity determination during the*

	environmental review phase.
	• Not exempt from conformity (must meet all requirements)? Y__/N_X_

2. Native American Consultation and Coordination:

a	If project is within or near an Indian Reservation or Rancheria? If so, provide the name of Tribe.
	The project is not within or near an Indian Reservation or Rancheria.
b	Has/have the Tribal Government(s) been consulted? Y___/N_X_. If no, why not?
	Not applicable.
c	If the project requires Caltrans to use right-of-way on trust or allotted lands, this information needs to be included as soon as possible as a key topic in the consultation with the Tribe(s). Has the Tribe been consulted on this topic? Y___/N_X_. If no, why not?
	Not applicable.
d	Has the Bureau of Indian Affairs (BIA) been notified? Y__/N_X_
	Not applicable.
e	Have all applicable Tribal laws, ordinances and regulations [Tribal Employment Rights Ordinances (TERO), etc.] been reviewed for required contract language and coordination?
	Not applicable.
f	If the Tribe has a TERO, is there a related Memorandum of Understanding between the District and the Tribe?
	Not applicable.
g	Has the area surrounding the project been checked for prehistoric, archeological, cultural, spiritual, or ceremonial sites, or areas of potentially high sensitivity? If such areas exist, has the Tribe, Native American Heritage Commission or other applicable persons or entities been consulted?
	High sensitivity sites will be investigated in the PA&ED phase of the project.
h	If a Native American monitor is required for this project, will this cost be reflected in cost estimates?
	To be determined during the PA&ED phase.
i	In the event of project redesign, will the changes impact a Native American community as described above in d, e, or h?
	To be determined during the PA&ED phase.

3. System Planning:

a	Is the project consistent with the DSMP? Y__/N__. If yes document approval date. If no, explain.
b	Is the project identified in the TSDP? Y_X_/N__? If yes, document approval date: *12/1/11*. If no, explain.
	The project is identified on the "San Mateo County Table" on page 20-3 of the Transportation System Development Plan (TSDP), dated 12/1/11.
c	Is the project identified in the TCR/RCR or CSMP? Y__/N_X_. If yes, document approval date___. If no, explain. Is the project consistent with the future route concept? Y_X_/N__. If no, explain.
	The project was not conceived at the time of the CSMP approval (February 2011). The project is consistent with the 2035 route concept (no widening planned on US 101).
d	Provide the Concept Level of Service (LOS) through project area.
	Unknown at this time. The TOAR will be completed during the PA&ED phase.
e	Provide the Concept Facility – include the number of lanes. Does the Concept Facility include High Occupancy Vehicle lanes? Y_X_/N__.
	The concept facility provides the same number of lanes as the existing facility.
f	Provide the Ultimate Transportation Corridor (UTC) – include the number of lanes. Does the UTC include High Occupancy Vehicle Lanes? Y_X_/N__.
	The 2035 route concept described in the CSMP shows US 101 within the project area with the same

	number of lanes (8) as the existing facility.
g	Describe the physical characteristics of the corridor through the project area (i.e. flat, rolling or mountainous terrain...).
	The profile of US 101 is flat (< 1%) through the project area.
h	Is the highway in an urban or rural area? Urban_**X**_/Rural__. Provide Functional Classification.
	2 – Other freeway or expressway
i	Is facility a freeway, expressway or conventional highway?
	US 101 is a freeway.
j	Provide Route Designations: (i.e. Interregional Transportation Strategic Plan (ITSP) High Emphasis or Focus Route, Surface Transportation Assistance Act (STAA) Route, Scenic Route…).
	National Network (STAA) Truck Route
k	Describe the land uses adjacent to project limits (i.e. agricultural, industrial…).
	Recreational on the east side of US 101. Industrial and residential on the west side of US 101.
l	Describe any park and ride facility needs identified in the TCR/CSMP, local plans, and RTP.
	No park and ride facilities are identified in the project area.
m	Describe the Forecasted 10 and 20-year Vehicle Miles Traveled (VMT), Annual Average Daily Traffic (AADT), and Peak Hour truck data in the TCR. Include the source and year of Forecast, and names and types of traffic and travel demand analysis tools used.
	The 2009 AADT as shown in the 2010 CSMP is between 204,000 and 243,000 between PM 11.15 and 20.72 in San Mateo County. The forecasted VMT and AADT and peak hour truck data will be determined during PA&ED.
n	Has analysis on Daily Vehicle Hours of Delay (DVHD) from the Highway Congestion Monitoring Program (HICOMP) been completed and included? Y__/N__.
	Detailed traffic analyses will be performed during the PA&ED phase.

4. Local Development – Intergovernmental Review (LD-IGR):

List LD-IGR projects that may directly or indirectly impact the proposed Caltrans project or that the proposed Caltrans project may impact. (Attach additional project information if needed.)

LD-IGR Project Information		**Project**
a	County-Route-Postmile & Distance to Development.	*There are not any local development projects planned within the vicinity of the project.*
b	Development name, type, and size.	
c	Local agency and/or private sponsor, and contact information.	
d	California Environmental Quality Act (CEQA) status and Implementation Date.	
e	If project includes federal funding, National Environmental Policy Act (NEPA) status.	
f	All vehicular and non-vehicular unmitigated impacts and planned mitigation measures including Transportation Demand Management (TDM) and Transportation System Management (TSM) that would affect Caltrans facilities.	
g	Approved mitigation measures and implementing party.	
h	Value of constructed mitigation and/or amount of funds provided.	
i	Encroachment Permit, Transportation Permit, Traffic Management Plan, or California Transportation Commission (CTC) Access approvals needed.	
j	Describe relationship to Regional Blueprint, General Plans, or County Congestion Management Plans.	
k	Inclusion in a Regional Transportation Plan Sustainable	

	Community Strategy or Alternative Planning Strategy?	
l	Regional or local mitigation fee program in place?	

5. Community Planning:

	INITIAL PID INFORMATION
a	Has lead agency staff worked with any neighborhood/community groups in the area of the proposed improvements? Y__/N_X_. If yes, summarize the process and its results including any commitments made to the community. If no, why not?
	Public meetings and workshops will be scheduled during the PA&ED phase.
b	Are any active/completed/proposed Environmental Justice (EJ) or Community-Based Transportation (CBTP) Planning Grants in the project area? Y__/N_X_. If yes, summarize the project, its location, and whether/how it may interact with the proposed project.
c	Describe any community participation plans for this PID including how recommendations will be incorporated and/or addressed. Has a context sensitive solutions (CSS) approach been applied? Y__/N_X_
	This will be addressed during the PA&ED phase.
	FINAL PID INFORMATION
d	How will the proposed transportation improvements impact the local community? Is the project likely to create or exacerbate existing environmental or other issues, including public health and safety, air quality, water quality, noise, environmental justice or social equity? Y_X_/N__. Describe issues, concerns, and recommendations (from sources including neighborhood/community groups) and what measures will be taken to reduce existing or potential negative effects.
	Some issues, noise for example, will be created during construction. Measures taken to reduce the potential negative impacts will be discussed and identified during the PA&ED phase.
e	Does this highway serve as a main street? Y__/N_X_. If yes, what main street functions and features need to be protected or preserved?

6. Freight Planning:

	INITIAL PID INFORMATION
a	Identify all modal and intermodal facilities that may affect or be affected by the project.
	There are no modal or intermodal facilities within the vicinity of the project.
	FINAL PID INFORMATION
b	Describe how the design of this project could facilitate or impede Goods Movement and relieve choke points both locally and statewide through grade separations, lane separations, or other measures (e.g., special features to accommodate truck traffic and at-grade railroad crossings).
	Improvement of the traffic operations and safety of the southbound US 101 ramps will help improve (safer and with less delay) the movement of trucks carrying goods.
c	Describe how the project integrates and interconnects with other modes (rail, maritime, air, etc.). Do possibilities exist for an intermodal facility or other features to improve long-distance hauling, farm-to-market transportation and/or accessibility between warehouses, storage facilities, and terminals?
	The project does not integrate with other modes of transporting goods.
d	Is the project located in a high priority goods movement area, included in the Goods Movement Action Plan (GMAP) or on a Global Gateways Development Program (GGDP) route? Y__/N_X_. If yes, describe.
	North of San Francisco International Airport, US 101 is a Major International Trade Highway Route. South of the airport within the project area, US 101 is not identified to be on this route.
e	Is the project on a current and/or projected high truck volume route [e.g., Average Annual Daily Truck

	Traffic (AADTT) of 5 axle trucks is greater than 3000]? Yes__/N__X__. If yes, describe how the project addresses this demand.
	Truck volumes will be confirmed in the TOAR which will be completed during the PA&ED phase.
f	If the project is located near an airport, seaport, or railroad depot, describe how circulation (including truck parking) needs are addressed.
	The project is not located in the immediate vicinity of these types of facilities. San Francisco International Airport is located approximately 4.5 miles to the north.
g	Describe any other freight issues.
	There are no other freight-related issues.

7. Transit (bus, light rail, commuter rail, intercity rail, high speed rail):

	INITIAL PID INFORMATION
a	List all local transit providers that operate within the corridor.
	San Mateo County Transit (SamTrans) for bus transit and Caltrain for rail transit.
b	Have transit agencies been contacted for possible project coordination? Y__/N__X__. If no, why not?
	Coordination with these agencies will take place during the PA&ED phase.
c	Describe existing transit services and transit features (bus stops, train crossings, and transit lines) within the corridor.
	Caltrain has two stations within the vicinity of the project: The Burlingame Station is approximately 5,000 feet southwest and the San Mateo Station is approximately 6,000 feet southeast of the Peninsula Avenue Overcrossing. *SamTrans' Route 252 provides service to Caltrain's San Mateo Station. Route 252 travels through the project area along North Bayshore Boulevard, Peninsula Avenue and North Humboldt Street. There are no bus stops within the construction footprint of the project.*
d	Describe transit facility needs identified in short- and long-range transit plans and RTP. Describe how these future plans affect the corridor.
	There are no known short- or long-range transit plans identified within the project's vicinity.
	FINAL PID INFORMATION
e	Describe how the proposed project integrates transit and addresses impacts to transit services and transit facilities.
	The project is not expected to impact any transit services or facilities; however, the project team will coordinate with Caltrans and SamTrans, as needed, during the PA&ED and PS&E phases of the project.
f	Have transit alternatives and improvement features been considered in this project? Y__/N__X__ If yes, describe. If no, why not?
	Improvement features, if any, will be identified during the PA&ED phase.

8. Bicycle:

	INITIAL PID INFORMATION
a	Does the facility provide for bicyclist safety and mobility needs? If no, please explain.
	Yes, the project will incorporate features (additional pavement markings, for example) to enhance bicycle safety and mobility.
b	Are any improvements for bicyclist safety and mobility proposed for this facility by any local agencies or included in bicycle master plans? If yes, describe (including location, time frame, funding, etc.).
	The City will be implementing a "Sustainable Streets Plan" in 2015. One of their goals is to re-stripe the lanes on the Peninsula Avenue Overcrossing to allow for at least 2 feet of buffer between the right edge of traveled way and the bike lane.
c	Are there any external bicycle advocacy groups and bicycle advisory committees that should be included in the project stakeholder list? If so, provide contact information.
	City/County Association of Government (C/CAG) Bicycle and Pedestrian Advisory Committee *Contact: Ellen Barton, (650) 599-1420, ebarton@smcgov.org* *Silicon Valley Bicycle Coalition* *Contact: Emma Shlaes, (408)287-7259 x228, emma@bikesiliconvalley.org*

	FINAL PID INFORMATION
d	Will bicycle travel deficiencies be corrected? How or why not?
	No deficiencies have been identified.
e	How will this project affect local agency plans for bicycle safety and mobility improvements?
	The project is not expected to adversely affect the City's bicycle plans.
f	If the project is the construction of a new freeway or modification to an existing freeway, will it sever or destroy existing provisions for bicycle travel? If yes, describe how bicycle travel provisions will be included in this project.
	The project will not sever any existing bicycle routes.

9. Pedestrian including Americans with Disabilities Act (ADA):

	INITIAL PID INFORMATION
a	Does this facility provide for pedestrian safety and mobility needs? If so, describe pedestrian facilities. Do continuous and well-maintained sidewalks exist? Are pedestrians forced to walk in the roadway at any locations due to lack of adequate pedestrian facilities? Please explain.
	Yes, the project will provide for pedestrian safety and mobility needs. Local streets are proposed to be widened in some locations with sidewalks included. Sidewalks are provided on each side of the Peninsula Avenue Overcrossing. There are no locations where pedestrians are forced to walk in the roadway.
b	Are pedestrian crossings located at reasonable intervals?
	Yes
c	Are all pedestrian facilities within the corridor ADA accessible and in compliance with Federal and State ADA laws and regulations?
	Yes
	FINAL PID INFORMATION
d	Will pedestrian travel deficiencies be corrected? How or why not?
	No deficiencies have identified. The project proposes to add a crosswalk at the Peninsula Avenue/ North Bayshore Boulevard intersection to enhance mobility.
e	How will this project affect local agency plans for pedestrian safety and mobility improvements?
	This project will enhance pedestrian safety and mobility. Sidewalks will be maintained where they exist today and added in some locations where they do not exist.
f	If the project is the construction of a new freeway or modification to an existing freeway, will it sever or destroy existing provisions for pedestrian travel? If yes, describe how pedestrian travel provisions will be included in this project.
	The project will not sever any existing pedestrian routes.
g	Are there any external pedestrian advocacy groups and advisory committees that should be included in the project stakeholder list? If so, provide contact information.
	C/CAG Bicycle and Pedestrian Advisory Committee *Contact: Ellen Barton, (650) 599-1420, ebarton@smcgov.org*
h	Have ADA barriers as noted in the District's ADA Transition Plan been identified within the project limits? If not included in the project, provide justification and indicate whether District Design coordinator approval was obtained.
	No ADA barriers have been identified at this time, but this will be confirmed during the PA&ED phase.

10. Equestrian:

	INITIAL PID INFORMATION
a	If this corridor accommodates equestrian traffic, describe any project features that are being considered to improve safety for equestrian and vehicular traffic?
	There are no existing accommodations for equestrian traffic in the immediate vicinity of the project.
	FINAL PID INFORMATION

b	Have features that accommodate equestrian traffic been identified? If so, are they included a part of this project? Describe. If no, why not?
	See response to previous question.

11. Intelligent Transportation Systems (ITS):

	INITIAL PID INFORMATION
a	Have ITS features such as closed-circuit television cameras, signal timing, multi-jurisdictional or multimodal system coordination been considered in the project? Y_X_/N__. If yes, describe. If no, explain.
	Signal timing and ramp metering will be considered for this project and evaluated in greater depth during the PA&ED phase.
	FINAL PID INFORMATION
b	Have ITS features been identified? If so, are they included a part of this project? Describe. If no, why not?
	See response to previous question.

ATTACHMENT N

CONCEPTUAL COST ESTIMATE – RIGHT OF WAY COMPONENT

CONCEPTUAL COST ESTIMATE – RIGHT OF WAY COMPONENT

To: Kristin L. Schober, Senior Right of Way Agent
Caltrans, Right of Way Local Programs

Date: April 10, 2015
04-SM-101-PM 14.5/14.9
Project ID: 0413000210
EA 04-4H460

From: Peter DeStefano
URS Corporation
(925) 446-3819

A Field Review was conducted X Yes ____No

Scope of the Right of Way

Provide a general description of the right of way including the location attributes.
Right of Way Required X Yes ____No
Number of Parcels ____ 1-10 ____ 11-25 X 26-50 ____51-100 ____>100
X Urban ____Rural
Land Area: Fee **3-5 Acres** Easement **0.5-1 Acres**
Displaced Persons/Businesses X Yes ____No
Demolition/Clearance X Yes ____No
Railroad Involvement ____Yes X No
Utility Involvements X Yes ____No **10-15** Number of Utilities in area

Cost Estimates

Support Costs	____$0-$25,000	____$500,001-$1,000,000
	____$25,001-$100,000	X $1,000,001-$5,000,000
	____$100,001-$250,000	____$5,000,001-$10,000,000
	____$250,001-$500,000	____>$10,000,000
Capital Costs	____$0-$100,000	____$5,000,001-$15,000,000
	____$100,001-$500,000	X $15,000,001-$50,000,000
	____$500,001-$1,000,000	____$50,000,001-$100,000,000
	____$1,000,001-$5,000,000	____>$100,000,000

Schedule

Right of Way will require **36** months to deliver a Right of Way Certification #1 from Final R/W Maps. This estimate is based on a Right of Way Certification date of **June 2021**.

Areas of Concern

1. Some of the affected commercial properties for the project may contain hazardous materials. A thorough investigation will take place during the PA&ED phase.

2. The eminent domain process may be required for some properties.

3. A Utility Policy Variance Request (UPVR) will be requested for Alternative 2 to avoid relocation of a 230 kV electrical line that runs along North Amphlett Boulevard. The 600-foot auxiliary lane encroaches on this electrical line, leaving it within Caltrans' ultimate right-of-way.

Assumptions and Limiting Conditions

1. The project footprint was superimposed onto an aerial photograph to estimate which properties would be affected and by how much.

2. Parcel lines were drawn and approximated from assessor's maps.

3. If a portion of a building was determined to be impacted and that building occupied a majority of the parcel, it was assumed that the entire property would have to be acquired even if the project does not require full acquisition of the parcel. See Note 6 regarding the resale value of a portion of these parcels.

4. If a building demolition was determined to be required and that building did not impact the entire parcel, then only partial acquisition of the parcel was assumed.

5. Until more accurate information on right of way costs are provided, the following estimates were used:
    - Property Acquisition: $90/sqft (~$4M/acre)
    - Building Demolition: $30/sqft
    - Relocation Assistance: 3% of the total acquisition cost

6. Right-of-way costs were not adjusted due to the partial resale of full-take parcels in situations where the project did not require full acquisition. See Note 3.

ATTACHMENT O

TRAFFIC ENGINEERING PERFORMANCE ASSESSMENT

Traffic Engineering Performance Assessment (TEPA)

This Traffic Engineering Performance Assessment (TEPA) is for the Project Initiation Document (PID) phase of the US 101/Peninsula Avenue Project. The project site is located in San Mateo County on US 101 in the vicinity of Peninsula Avenue, approximately 2.5 miles north of the Route 92/US 101 interchange and 4 miles south of San Francisco International Airport. See Attachment A for the Project Location Map.

The TEPA uses traffic data and information available within the public domain and applies macro level analysis and evaluation techniques to provide a technical foundation for developing a preliminary purpose and need for the proposed project. Existing traffic data is derived from Caltrans Census Data.

Existing Conditions

The intersection of East Poplar Avenue/US 101 with North Amphlett Boulevard currently operates as a three-way stop controlled intersection except for traffic exiting the freeway, which does not stop. During both AM and PM peak hours, the eastbound traffic queue on East Poplar Avenue spills back from the Amphlett Boulevard intersection to North Humboldt Street and beyond because eastbound traffic on East Poplar Avenue must yield the right of way to the oncoming traffic from the freeway. In addition, long queues were observed on southbound North Amphlett Boulevard during both peak hours.

As described in the US 101/Peninsula Avenue Interchange Capital Project Charter, the City of San Mateo has interim improvements planned along East Poplar Avenue from North Amphlett Boulevard to North Humboldt Street. These improvements are currently in the design phase with construction expected to commence before the end of 2015.

Existing Intersections

Existing (2015) traffic volumes and turning movements will be collected during the Project Approval & Environmental Document (PA&ED) phase and Level of Service (LOS) calculations for the unsignalized intersections will be based on the criteria shown in Table 1.

Table 1: HCM 2000 LOS Criteria for Unsignalized Intersections

Level of Service	Average Control Delay per Vehicle (Seconds)
A	10.0 or less
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater 50.0

Source: Transportation Research Board, 2000 HCM.

Existing Freeway and Ramps

Southbound US 101 has five lanes including one auxiliary lane in this section between Broadway and East Poplar Avenue. Queues have been observed on this section of southbound US 101 during the AM and PM peak hours.

The freeway mainline and ramp counts shown in Table 2 were extracted from 2013 Caltrans' Census Database.

Table 2: Existing US 101 Mainline and Ramp Counts

Segment	AM Peak Hour (7-8 am)	PM Peak Hour (4-5 pm)
US 101 SB mainline north of Peninsula Ave	8,069	8,224
US 101 SB off-ramp to Poplar Avenue	397	584
US 101 SB on-ramp from Poplar Avenue	912	863

Source: 2013 Caltrans Census Data.

Accident Data and Analysis

Accident data on the freeway mainline and ramps was provided by Caltrans via their Traffic Accident Surveillance and Analysis System (TASAS) and is shown in Table 3.

Table 3: US 101 Mainline and Ramp Accident Data

Post Mile	Location	Number of Accidents			Actual Accident Rate			Average Accident Rate		
		Total	Fatal	F+I	Total	Fatal	F+I	Total	Fatal	F+I
13.591	SB off-ramp to Third Avenue	3	0	1	0.22	0.000	0.07	0.25	0.002	0.08
14.301	SB on-ramp from East Poplar Avenue	2	0	0	0.16	0.000	0.00	0.46	0.001	0.13
14.361	SB off-ramp to Poplar Avenue	4	0	2	0.49	0.000	**0.24**	0.54	0.001	0.17
16.461	SB on-ramp from Broadway	1	0	0	0.06	0.000	0.00	0.18	0.001	0.06
13.2/16.2	SB US 101	296	5	98	0.76	**0.013**	0.25	1.10	0.004	0.34

Notes:

1. Source: Caltrans TASAS Table B, data from April 1, 2009 to March 31, 2012.
2. Accident rate for the mainline is expressed as number of accidents per million vehicle miles.
3. Accident rate for the ramps is expressed as number of accidents per million vehicles.
4. **Bold red** text denotes locations that exceed the statewide average for a similar facility.

Accident data for the intersections in the study area were provided by the City of San Mateo. The records include accidents that occurred within 40 feet of any intersection in the study area for the time period beginning October 1, 2000 and ending September 30, 2010. Prior to 2007, the San Mateo Police Department kept track of all accidents. Since 2007, the accident records include only injury accidents and self-reported, property damage only (PDO) accidents. Thus, accident rates were based on collision data prior to 2007. As shown in Table 4, the accident rate at East Poplar Avenue and North Amphlett Boulevard is slightly above the statewide average. The accident type breakdown at this intersection shows primarily rear end collisions, sideswipe collisions, and broadside collisions. There were three accidents involving vehicles getting off the freeway hitting other cars.

The accident rate at East Poplar Avenue and North Idaho Street is much higher than average when compared to statewide average. The accident type breakdown at this intersection shows primarily broadside collisions. Almost all of the broadside collision involved vehicles proceeding northbound on North Idaho Street getting hit by cars proceeding westbound on East Poplar Avenue. At this intersection, East Poplar Avenue is not controlled and only North Idaho Street is controlled by stop signs.

The accident rate at East Poplar Avenue and North Humboldt Street is slightly below average when compared to the statewide average.

Table 4: Intersection Accident Data

Intersections	Accidents	Daily Vehicles	Rate	California Average
East Poplar Ave/North Amphlett Blvd	17	14,760	0.39	0.34
East Poplar Ave/North Idaho Street	25	8,530	1.00	0.34
East Poplar Ave/North Humboldt St	19	13,830	0.47	0.58

Notes:

1. Accident data for the intersections was provided by the City of San Mateo. The records include accidents that occurred within 40 feet of the intersection for the 10-year period from October 1, 2000 to September 30, 2010.
2. Accident rates are based on collision data prior to 2007 and are expressed as number of accidents per million vehicles.
3. The "California Average" rate is based on 2006 collision data on California State Highways.

Future Conditions

For purposes of the PSR-PDS streamlined intent, the team would only evaluate the no build and two build alternatives.

The minimum geometric design alternative (Tight Diamond Interchange – Attachment B) will be based on Option 15 (Revised) developed by the City of San Mateo, however the current project team will refine this alternative, as necessary, based on feedback from SMCTA, the City of San Mateo and Caltrans. This alternative is considered cost effective because it utilizes the existing Peninsula Avenue Overcrossing for the off ramp termination and on ramp beginning in the southbound direction, and minimizes the right of way impacts along North Amphlett Boulevard. This alternative includes local

street and alley modifications/widening in order to maintain the existing local street configuration and access to residential and commercial properties to the greatest extent possible.

A second build-alternative will be a less compact interchange configuration (Partially Spread Diamond Interchange – Attachment C). This alternative will be similar to the tight diamond interchange alternative except that it will increase the spacing between the on and off-ramps and North Bayshore Boulevard, and will minimize design exceptions to the greatest extent possible.

2044 Future Intersection Analysis

Based on the schedule shown in the PSR-PDS, construction of the build alternative will be completed in 2024. As a result, future traffic volumes and analysis to be completed in the PA&ED phase will be based on a design year twenty years after construction is complete (2044).

In the build alternative, the level of service at the intersections along East Poplar Avenue is expected to improve significantly due to a substantial reduction in traffic volumes. Volumes on Peninsula Avenue are expected to increase and these intersections will be analyzed in the PA&ED phase.

In the No Build Alternative, the level of service and delays at the intersections along East Poplar Avenue are expected to worsen.

TEPA Findings and Recommendations

As described above in this TEPA, construction of interim improvements along East Poplar Avenue is expected to begin in 2015. These features will be documented as existing conditions when the PA&ED phase begins.

The TEPA Work Plan development process is used as a scoping tool in refining the extent of the study locations to be evaluated in the upcoming PA&ED phase.

Recommended Scope for PA&ED

During the PA&ED phase of the project, a Traffic Operational Analysis Report will be prepared. The traffic study area will include the following intersections (See Attachment D):

- Peninsula Avenue/North Humboldt Street
- Peninsula Avenue/US 101 Southbound Ramps (Build Alternative)
- Peninsula Avenue/North Bayshore Boulevard
- Peninsula Avenue/Airport Boulevard
- East Poplar Avenue/North Humboldt Street
- East Poplar Avenue/North Idaho Street
- East Poplar Avenue/North Amphlett Boulevard

In addition, the need for a slip ramp on eastbound Peninsula Avenue, just east of North Humboldt Street will be studied in the PA&ED phase. Southbound US 101 within the study area will also need to be analyzed in the PA&ED phase of the project.

As part of the PA&ED effort, new data will be collected to reflect the most current conditions. New traffic forecast will be developed for the Opening Year (2023) and Design Year (2043) using the latest version of the County's travel demand model. The accident analysis will be updated with the latest accident data.

The volumes on Peninsula Avenue between North Humboldt Street and North Bayshore Boulevard are expected to increase due to the new US 101 southbound ramps at Peninsula Avenue. Intersection spacing and vehicle queuing at the intersections on Peninsula Avenue will be evaluated in the PA&ED phase to ensure that the freeway ramps and mainline operations will not be affected.

Since ramp metering is scheduled to be in place in both directions of US 101 in the vicinity of this project by mid-2015, the traffic studies in the PA&ED phase will account for ramp metering at the on-ramps in the existing and future conditions.

In conclusion, this TEPA presents the current study area performance deficiencies associated with the project and is used as a tool to determine the scope of the traffic analysis that will be produced during the PA&ED phase of the project.

Attachments

Attachment A	Project Location Map
Attachment B	Alternative 1 (Tight Diamond Interchange)
Attachment C	Alternative 2 (Partially Spread Diamond Interchange)
Attachment D	PA&ED Phase – Preliminary Traffic Study Areas

ATTACHMENT P

STORM WATER DATA REPORT (COVER PAGE)

APPENDIX E

Long Form - Storm Water Data Report

Dist-County-Route: 04-SM-101

Post Mile Limits: PM 14.5/14.9

Project Type: Interchange Improvements

Project ID (or EA): 0413000210 (EA 04-4H460)

Program Identification: HB4C

Phase: ☒ PID PSR-PDS

☐ PA/ED

☐ PS&E

Regional Water Quality Control Board(s): San Francisco Bay Region (2)

Is the Project required to consider Treatment BMPs? Yes ☒ No ☐

If yes, can Treatment BMPs be incorporated into the project? Yes ☒ No ☐

If No, a Technical Data Report must be submitted to the RWQCB at least 30 days prior to the projects RTL date. List RTL Date: _____

Total Disturbed Soil Area: Alt 1: 7.4 acres; Alt 2: 7.6 acres Risk Level: 2

Estimated: Construction Start Date: TBD Construction Completion Date: TBD

Notification of Construction (NOC) Date to be submitted: TBD

Erosivity Waiver	Yes ☐	Date: _____	No ☐
Notification of ADL reuse (if Yes, provide date)	Yes ☐	Date: TBD in PS&E Phase	No ☐
Separate Dewatering Permit (if yes, permit number)	Yes ☐	Permit # _____	No ☐

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E.

Sherina Lam, Registered Project Engineer — Date: 4/1/2015

I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:

Richelle Perez, Project Manager — Date: 04.13.2015

Robert Braga, Designated Maintenance Representative — Date: 4/6/15

David Yam, Designated Landscape Architect Representative — Date: 4.6.2015

Norman Gonsalves, District/Regional Design SW Coordinator or Designee — Date: 04/02/2015

[Stamp Required for PS&E only)