03 - PLA - 80 – PM 0.1/2.2, PM 4.1/6.0
EA 03-3F230
June 2016

PROJECT REPORT

For Project Approval

On Route Interstate 80

Between Riverside Avenue

And Rocklin Road

I have reviewed the right-of-way information contained in this report and the right-of-way data sheet attached hereto, and find the data to be complete, current and accurate:

for Douglas Bo[illegible]

John Ballantyne, *CHIEF NORTH REGION RIGHT OF WAY*

APPROVAL RECOMMENDED: Rodney L Murphy

Rod Murphy, *PROJECT MANAGER*

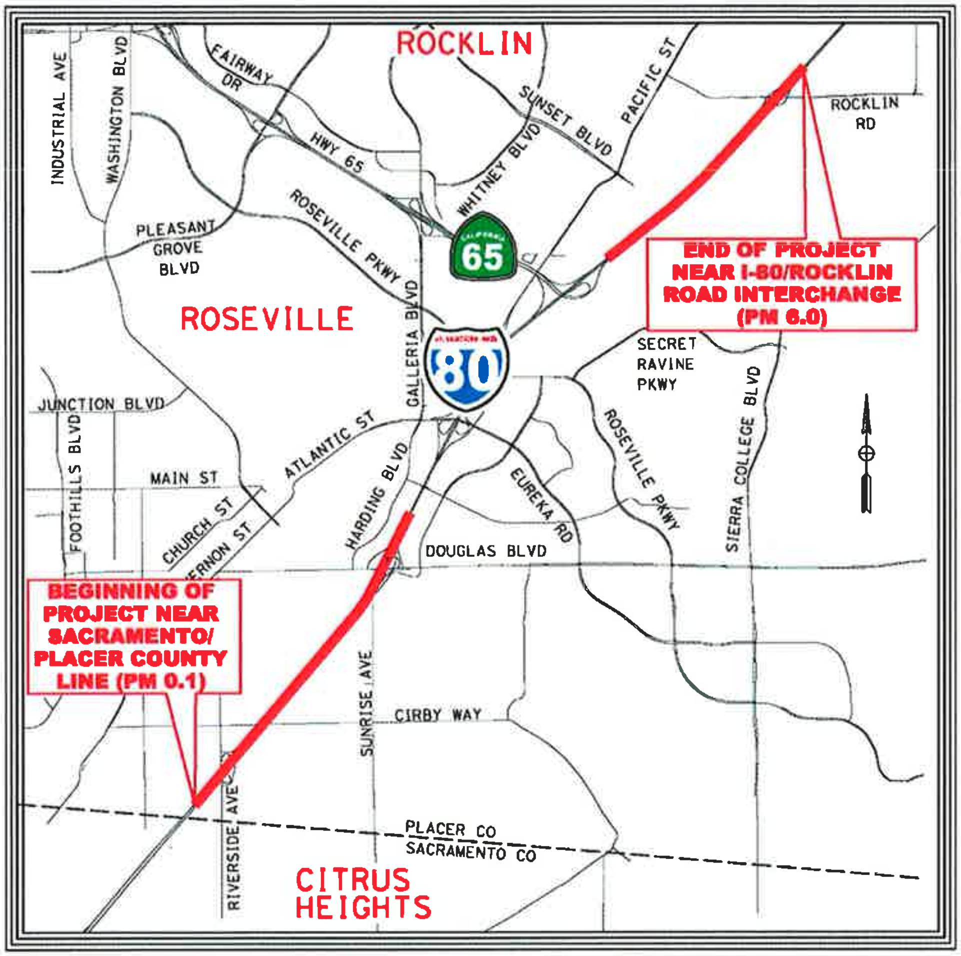
APPROVED: Amarjeet S. Benipal

Amarjeet S. Benipal, *DISTRICT DIRECTOR*

10-14-16

DATE

VICINITY MAP



In PLACER COUNTY
FROM 0.1 MILE EAST OF THE SACRAMENTO/PLACER COUNTY LINE to the DOUGLAS BOULEVARD INTERCHANGE and
from 0.8 MILE EAST OF THE ROUTE 65 CONNECTOR to the ROCKLIN ROAD INTERCHANGE

This Project Report 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.

REGISTERED CIVIL ENGINEER — 9/29/2016 *DATE*

REGISTERED PROFESSIONAL ENGINEER
Nathan J. Donnelly
No. C64459
Exp. 6/30/17
CIVIL
STATE OF CALIFORNIA

Table of Contents

1. INTRODUCTION

The Placer County Transportation Planning Agency (PCTPA), in cooperation with the California Department of Transportation (Caltrans), Placer County, City of Rocklin, and City of Roseville, propose to widen the existing Interstate 80 (I-80) adding an eastbound auxiliary lane from 0.8 miles east of State Route 65 (SR 65) to Rocklin Road, and a westbound fifth through lane from east of Douglas Boulevard to west of Riverside Avenue (where five through lanes currently exist). The project is located in Placer County, California. **Attachment A** provides a map of the project vicinity. This project has been assigned a Project Development Category 4B.

Three viable alternatives for the proposed improvements were identified by the Project Development Team (PDT). There were two proposed Build Alternatives (Alternative 1 - Eastbound and Westbound Auxiliary Lanes and Alternative 2 - Eastbound Auxiliary Lane and Westbound 5th Lane). Alternative 3 was a No Build alternative which proposed to maintain existing. On March 24, 2016, the PDT selected Alternative 2 as the Preferred Alternative.

Project Limits	03 - PLA - 80 – PM 0.1/2.2 and PM 4.1/6.0	
	Current Cost Estimate:	**Escalated Cost Estimate:**
Capital Outlay Support	$3,660,000	$3,660,000
Capital Outlay Construction	$14,357,600	$14,791,000
Capital Outlay Right-of-Way	$102,600	$105,348
Funding Source	Eastbound Auxiliary Lane – Federal High Priority Projects Program Westbound 5th Lane – Federal National Corridor Infrastructure Improvement Program	
Funding Year	2016	
Type of Facility	Access controlled interstate freeway	
Number of Structures	1 bridge widening, 4 non-standard retaining walls, 6 standard plan retaining walls 2 non-standard sound walls 1 standard plan sound walls	
Environmental Determination or Document	CEQA Initial Study with a Mitigated Negative Declaration NEPA Categorical Exclusion	
Project Development Category	4B	

2. RECOMMENDATION

It is recommended that the project be approved using the Preferred Alternative and that the project proceed to the design phase. The affected local agencies have been consulted with respect to the recommended plan, their views have been considered, and the local agencies are in general accord with the plan as presented.

3. BACKGROUND

A. Project History

A Project Study Report-Project Development Support (PSR-PDS) was developed by Caltrans for the Eastbound Auxiliary Lane in May 2012 and the signed cover page is included in **Attachment M**. A PSR-PDS was developed for the Westbound Auxiliary Lane in December 2000 and the signed cover page is also included in **Attachment M**.

The following changes have been made in the project scope since the PSR-PDS was approved.

- For the Eastbound alternative, all improvements on Rocklin Road as proposed in the PSR-PDS have been eliminated.

B. Community Interaction

In the two public meetings held to acquire feedback about the various design alternatives, on May 4, 2015 and May 7, 2015, two main points stand out:

- "The eastbound (I-80) soundwall needs to be extended. Sound does travel on that creek bed."
- "The westbound (I-80) soundwall needs to be replaced before construction of freeway lanes. Retain as many trees as possible."

As part of the circulation of the DPR and DED, public comments were solicited, and a public informational meeting was held, during which input and concerns from the community and special interest groups regarding the project were discussed.

Although right of way acquisition is required for the preferred alternative, no controversy associated with the acquisitions properties is anticipated. The acquisitions consist of sliver takes with minimal impact to the use of the properties. The Project Development Team (PDT) will initiate communication with property owners after the completion of the Project Approval and Environment Document (PA&ED) phase.

C. Existing Facility

I-80 is the principal east-west route through Northern California and a primary transcontinental freeway serving passenger and goods movement from the San Francisco Bay Area, Northern California, through the Midwest and extending to the eastern United States. Maintaining adequate passenger and goods movement on this critical component of the National Highway System is essential. SR 65 in Placer County is a major north-south facility and connects to I-80 from the north generally along the borders of the cities of Rocklin and Roseville. It is a major transportation corridor for the region and Northern California.

Eastbound

In the Eastbound direction within the project limits, the SR 65 SB entrance ramp to I-80 EB connects to I-80 with a 1,800-foot auxiliary lane. From the end of this auxiliary lane, I-80 carries three twelve foot wide through lanes for 4,300-feet to the beginning of the 1,400-foot auxiliary lane that is in advance of the EB single lane exit ramp to Rocklin Road. Past the gore point of this ramp, the single lane ramp quickly transitions into a three lane section with a dedicated left turn lane, a left-through-right turn lane, and a dedicated right turn lane. For a majority of the project limits, China Garden Road closely parallels the freeway which constrains the Right of Way (ROW) available for the project. China Garden Road, owned by a Local Agency, will not be realigned because of the project and will remain open for the duration of construction.

Drainage along this section of I-80 is handled by a network of existing storm sewer systems that outlet to the Secret Ravine watershed.

Existing structures consist of a 16-foot tall soundwall that is 900-feet long and located between I-80 and China Garden Road. There are also two cantilever overhead signs in advance of the eastbound exit ramp to Rocklin Road.

Westbound

In the Westbound direction within the project limits, I-80 in approach to the Douglas Interchange westbound exit ramp consists of five through lanes that are twelve feet wide. One of these through lanes transitions into the westbound dual exit ramp to Douglas Blvd. A four lane freeway section is then carried west past the Douglas Interchange WB loop entrance ramp and the WB slip entrance ramp. Both of these ramps merge with I-80 via a typical ramp merge with no auxiliary lanes. Continuing west past the Douglas Interchange, I-80 remains a four lane section for 8,900-feet where it transitions back to a five lane section at the Riverside Interchange WB slip entrance ramp. Within the Riverside Interchange, the WB single lane exit ramp departs from I-80 via a typical ramp diverge with no auxiliary lane and the WB single lane loop entrance ramp connects to I-80 via a typical ramp merge with no auxiliary lane. The following is a brief summary of the key features of the existing Douglas and Riverside interchange ramps within the project limits:

Douglas Interchange WB Dual Lane Exit Ramp

1. Dedicated auxiliary lane in advance of the ramp
2. 1,300-feet of vehicle storage available

Douglas Interchange WB Loop Entrance Ramp

1. Ramp meter
2. No HOV bypass lane

Douglas Interchange WB Slip Entrance Ramp

1. Single lane
2. Ramp meter
3. No HOV bypass lane

Riverside Interchange WB Single Lane Exit Ramp

1. No auxiliary lane in advance of the ramp
2. 1,350-feet of vehicle storage available

Riverside Interchange WB Single Lane Loop Entrance Ramp

1. Ramp meter
2. No HOV bypass lane

Stormwater within the project limits is conveyed by a storm sewer network to the Cirby Creek watershed.

Existing structures consist of the following:

1. Bridge – The Linda Creek Bridge (Br #19-0027) will be impacted by the project. This I-80 bridge over Cirby Creek is a continuous three span, cast-in-place, reinforced T-beam bridge with a total width of 149.5-feet and total length of 167.8-feet. The bridge crosses over Cirby Creek which is conveyed under the bridge via a concrete lined channel that also has a low flow notch in the middle of the channel. This concrete channel is also impacted by the project.
2. Soundwalls – For the westbound direction, there is an existing 14-foot tall soundwall on the existing ROW that extends 3,500-feet from near the Douglas WB Slip Entrance Ramp to 1,200-feet east of the Linda Creek Bridge. There is also a 10 to 12-foot soundwall that extends 1,200-feet east of the Linda Creek Bridge.
3. Overhead Signs – There are existing cantilever overhead signs in advance of the westbound exit ramps to the Douglas Interchange and the Riverside Interchange.

4. PURPOSE AND NEED

A. Problem, Deficiencies, Justification

Purpose:

The purpose of the project is to:

- Enhance through traffic capacity on I-80 in two locations: eastbound from State Route 65 through the Rocklin Road Interchange, and westbound from Douglas Boulevard through the Riverside Avenue Interchange;
- Reduce existing congestion and operational problems on I-80 that cause back up on I-80 and on local roadways, and;
- Improve safety by reducing stop and go traffic through enhanced capacity, merging and weaving facilities.

Need:

The project is needed because the freeway is experiencing operational problems caused by high peak period traffic volumes. Vehicle hours of delay, average speeds, travel times, and other traffic performance measures will continue to degrade as growth increases. I-80 is a primary transcontinental freeway which primarily serves as a transportation corridor for both passengers and goods throughout the United States. Additionally, growth in the South Placer County region has increased daily commuter traffic and traffic to major commercial and educational centers in the area. This increased traffic demand, together with increased demand generated from recreational facilities in the Sierra Nevada Mountains to the east and the San Francisco Bay Area to the west have resulted in reduced levels of service on I-80. This segment of I-80 serves the national movement of goods and passengers, as well as the City of Roseville, City of Rocklin, and Placer County and is heavily used throughout the day.

Justification:

As shown in Tables 1 & 2, the Preferred Alternative in the design year improves overall network performance as compared to the no build alternative. Travel time for westbound I-80 improves by more than 80 seconds during the AM peak hour and more than three and a half minutes during the PM peak hour with the Preferred Alternative.

B. Regional and System Planning

Identify Systems

I-80 is designated as an interstate.

State Planning

The May 2009 *I-80 and Capital City Freeway Corridor System Management Plan* (CSMP) serves as the route concept report for I-80 with the project limits. This document shows the concept facility for the WB lanes (Douglas to Riverside) to consist of three through lanes, one HOV lane and one auxiliary lane. For the EB lanes (SR65 to Rocklin) the concept facility consists of three through lanes with the ultimate facility adding an auxiliary lane. This project was identified after the 2009 CSMP was issued. This project is consistent with the identified goals and strategies of the CSMP which recognizes the mobility challenges of an incomplete set of freeway auxiliary lanes. This project is an incremental improvement to meeting these challenges.

Regional Planning

The project has been formally adopted into the Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Improvement Program (MTIP) as SACOG ID's PLA25519 for the eastbound auxiliary lane and PLA25542 and PLA25576 for the westbound fifth lane. The eastbound auxiliary lane is funded through the Federal High Priority Projects program, while the proposed westbound through lane is funded through the Federal National Corridor Infrastructure Improvement Program.

Multimodal Services

The project will add an HOV preferential lane for the westbound Douglas Ave on-ramp that can be accessed by the regional transit vehicles. No other multimodal features are planned.

C. Traffic

A Traffic Analysis Report has been prepared to develop forecast traffic volumes and operational analysis in the project area. The text of this Traffic Analysis Report is incorporated as **Attachment D** of this Project Report. Current and forecast traffic volumes for years 2012 and 2040 are shown in Table 14 and 15 of the Traffic Report and summarized below in Tables 1 and 2.

The traffic forecasts were developed using the macro and meso modeling platforms. The macro platform is a modified version of the regional SACMET model developed by the Sacramento Area Council of Governments (SACOG) for the Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy (SCS). The meso platform is the Visum sub-area trip assignment model, which was used to assign the trips generated from the SACMET model to a detailed roadway network within the study area.

TABLE 1: COMPARISON OF OVERALL NETWORK PERFORMANCE – 2040 DESIGN YEAR AM PEAK PERIOD

Performance Measure		Existing Conditions (2012)	Design Year Conditions (2040)	
			EB Aux and WB 5th Lane	No Build Alternative
Volume Served (% of total demand)		143,450 (100%)	207,310 (99%)	207,180 (99%)
Vehicle Miles of Travel (VMT)		645,270	951,770	946,050
Person Miles of Travel		786,260	1,134,890	1,128,530
Vehicle Hours of Travel (VHT)		13,760	22,420	22,850
Vehicle Hours of Delay (VHD) (% of VHT)		2,670 (19%)	6,060 (27%)	6,590 (29%)
Average Delay per Vehicle (min)		1.12	1.75	1.91
Person Hours of Delay		3,240	6,060	7,610
Average Speed		46.9	42.5	41.4
Average Speed for HOVs		47.0	45.0	44.1
Eastbound Travel Time: Auburn Blvd to Sierra College Blvd	SOV	6:41	6:41	6:40
	HOV	6:34	6:33	6:34
Westbound Travel Time: Sierra College Blvd to Antelope Rd	SOV	8:27	8:26	10:50
	HOV	8:18	8:18	9:03

Source: Fehr & Peers, 2015

TABLE 2: COMPARISON OF OVERALL NETWORK PERFORMANCE – 2040 DESIGN YEAR PM PEAK PERIOD				
Performance Measure		**Existing Conditions (2012)**	**Design Year Conditions (2040)**	
			EB Aux and WB 5th Lane	**No Build Alternative**
Volume Served (% of total demand)		198,170 (101%)	299,980 (100%)	288,830 (95%)
Vehicle Miles of Travel (VMT)		730,100	1,164,810	1,104,780
Person Miles of Travel		880,180	1,398,750	1,331,560
Vehicle Hours of Travel (VHT)		16,850	31,680	41,750
Vehicle Hours of Delay (VHD) (% of VHT)		3,950 (23%)	11,210 (35%)	22,320 (54%)
Average Delay per Vehicle (min)		1.20	2.24	4.64
Person Hours of Delay		4,670	13,050	25,850
Average Speed		43.3	36.8	26.5
Average Speed for HOVs		44.7	39.5	30.4
Eastbound Travel Time: Auburn Blvd to Sierra College Blvd	SOV	6:35	6:42	6:43
	HOV	6:23	6:37	6:37
Westbound Travel Time: Sierra College Blvd to Antelope Rd	SOV	8:11	8:24	17:11
	HOV	8:01	8:18	10:40
Source: Fehr & Peers, 2015				

The results presented in Tables 1 and 2 are summarized below:

- Overall, the Preferred Alternative improves network performance compared to the no build alternative.
- The volume served in the network is about the same across alternatives during the AM peak period, but the PM peak period volume served is lower for the no build alternative than for the Preferred Alternative.
- Travel time for westbound I-80 improves by more than 80 seconds during the AM peak hour and more than three and a half minutes during the PM peak hour with the Preferred Alternative.
- Travel time for eastbound I-80 is about the same for all alternatives.

Accident Rates

Traffic collision data was compiled from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) for I-80 westbound from Douglas Boulevard to the Placer County line (post mile 0.1 to 2.2), and eastbound from SR 65 to Rocklin Road (post mile 4.1 – 6.0). The data shown are for the three-year period between October 1, 2010 and

September 30, 2013. Within the study area, 230 collisions occurred in the three-year period. Table 3 summarizes collisions on I-80 by direction.

TABLE 3: ACCIDENT HISTORY

Direction	Total Accidents	Total Fatalities	Actual Collision Rate[1]			Average Collision Rate[1]		
			F	F&I	Total	F	F&I	Total
Westbound (PM 0.1-2.2)	130	0	0.000	0.27	0.68	0.004	0.29	0.93
Eastbound (PM 4.1-6.0)	100	1	**<u>0.008</u>**	0.26	0.84	0.004	0.27	0.87
Total	230	1	0.004	0.27	0.76	0.004	0.28	0.90

Notes: 1. The accident rate is accidents per million vehicle-miles.
"F" refers to the fatality rate, and "F&I" refers to the fatality and injury rate. Total number of accidents includes non-injury accidents, which are not listed separately. Bold and underline font indicates an actual rate that is greater than the average rate.
Source: Caltrans District 3 TASAS Table B, October 1, 2010 to September 30, 2013

The actual collision rate for fatalities was higher than statewide average for eastbound I-80. The one fatality was a side-swipe, multiple car accident which occurred near the Rocklin Road off-ramp. The remaining collision rates were lower than the statewide averages.

Table 4 categorizes the collisions by type. The most frequent collision type (57 percent) is a rear end collision, which is typical of congested conditions. The next most frequent collision types are side-swipe and hit object. The other collision types are collectively less than 7 percent of all collisions. The westbound direction has both a higher number of collisions and a higher number of rear end collisions.

TABLE 4: MAINLINE COLLISIONS BY TYPE

Direction	Head On	Side Swipe	Rear End	Broad-side	Hit Object	Over-turn	Auto-Ped	Other
Westbound	0	30	79	8	12	1	0	0
Eastbound	0	24	53	2	18	0	0	3
Total	0 (0%)	54 (23%)	132 (57%)	10 (4%)	30 (13%)	1 (0.4%)	0 (0%)	3 (1%)

Source: Caltrans District 3 TASAS - Table B, October 1, 2010 to September 31, 2013

5. ALTERNATIVES

A. Viable Alternatives

Three viable alternatives were studied in the Draft Project Report (DPR) with the same level of effort: Eastbound and Westbound Auxiliary Lanes (Alternative 1), Eastbound Auxiliary Lane and Westbound 5th Lane (Alternative 2) and No Build (Alternative 3). Both Alternative 1 and Alternative 2 meet the purpose and need of the project to the design year. On March 24, 2016, the PDT selected Alternative 2 as the Preferred Alternative.

Preferred Alternative – Alternative 2, Eastbound Auxiliary Lane and Westbound 5th Lane

Proposed Engineering Features

Conceptual geometrics, typical sections and profiles for the Preferred Alternative are included in **Attachment B**. This alternative includes the following eastbound and westbound improvements:

I-80 Eastbound Auxiliary Lane – SR 65 to Rocklin Road

1. Auxiliary Lane – An eastbound auxiliary lane is proposed to be constructed between the existing SR 65 eastbound entrance ramp auxiliary lane and the existing eastbound Rocklin Road exit ramp auxiliary lane. The proposed improvement will consist of a 12-foot lane and 10-foot shoulder.
2. Rocklin Interchange EB Exit Ramp – Due to traffic volumes in excess of that allowed for a single lane, the eastbound Rocklin Road off-ramp will be widened to a dual lane exit ramp. This will require the widening and reconstruction of approximately 900-feet of the 1100-foot long ramp. The new dual lane section will transition into the existing ramp at the existing three lane portion of the ramp.
3. Soundwalls – The existing 16-feet tall soundwall between I-80 and China Garden Road will remain and will be extended another 750-feet west towards SR-65. The extension will be 14 to 16-feet tall.
4. Retaining Walls – Due to the proximity of China Garden Road to the freeway and the need to avoid impacting this road, five retaining walls are required for the freeway widening. Two of these walls are standard plan retaining walls and do not require Advance Planning Studies (APS). The following is a summary of the APS walls which are also included in **Attachment E**:
    - Wall 177: Wall 177 is 400ft long, supports a 14ft sound wall and is proposed to be founded on a spread footing. Due to the proximity to the right-of-way a Type 5SWB wall is proposed. The maximum design height of the wall is 8ft.
    - Wall 188: This wall is located approximately 7 feet in front of the existing 16ft sound wall. The length of the wall is 376ft and the maximum wall height is 6ft. To minimize impacts to the existing sound wall foundation, a

soldier pile wall is proposed. Concrete lagging and troweled shotcrete is proposed to obtain an appropriate surface finish.

- Wall 197: Wall 197 is 650ft long and is proposed to be founded on a spread footing. Due to the proximity to the right-of-way a Type 7B wall is proposed. The maximum design height of the wall is 10ft.

5. Stormwater – The existing storm sewer network will be modified to continue to carry flows to the Secret Ravine watershed.
6. ROW - The project would require sliver right-of-way acquisitions from one parcel adjacent to I-80. See **Attachment F** for ROW needs.

I-80 Westbound 5th Lane – Douglas Boulevard to Riverside Avenue:

1. The Douglas Interchange WB exit ramp is a two lane exit ramp. Rather than terminate the WB 5th lane at this ramp, the No. 5 lane will carry past the ramp and the Douglas WB exit ramp will be converted to a single lane exit from a dual lane exit. There will be no auxiliary lane in advance of the new single lane exit ramp.
2. The Douglas Interchange WB loop entrance ramp will be slightly realigned and will merge into the new 5th lane per a standard ramp merge to a freeway.
3. The new 5th lane will carry past the WB exit ramp at the Riverside Interchange ramp and as such, the ramp will be a standard exit ramp from the freeway.
4. The Riverside Interchange WB loop Entrance Ramp currently joins the freeway by entering into its own lane which is the start of the existing 5th lane. The new 5th lane will extend past this ramp and the ramp will be realigned to join the freeway with a standard ramp merge.
5. Soundwalls – The existing 3,500-foot long soundwall on the ROW line will remain with the exception of a short segment of the wall that will be reconstructed to accommodate the slight realignment of the Douglas Interchange westbound slip ramp. The existing 1,200-foot long soundwall along the existing outside shoulder will be completely removed due to the widening of the freeway to accommodate the auxiliary lane. This soundwall will be replaced in kind at the new edge of shoulder and will extend an additional 700-feet to the west, across Cirby Creek on the Linda Creek Bridge. The extension will be 12-feet in height.
6. Linda Creek Bridge Widening (Br #19-0027) – To accommodate the auxiliary lane and wider shoulder, this I-80 bridge over Cirby Creek will be widened 14'-6" to a total width of 164'-0". The widening will be a cast-in-place reinforced concrete T-Beam to match the existing structure type. The bridge piers and Abutment 4 will be founded on driven piles, and Abutment 1 will be founded on a spread footing. The bridge Advance Planning Study (APS) is included in **Attachment E**.
7. Cirby Creek Concrete Lined Channel – Due to the addition of new columns for the Linda Creek Bridge widening, the Cirby Creek concrete lined channel will be extended 12.5' to provide protection for the foundation of the new bridge columns.

8. Walls – Five proposed retaining walls will be constructed alongside the proposed fifth lane to contain the improvements within existing ROW. See the GAD's in **Attachment B** for the locations of the five proposed retaining walls. Of the five walls, only one requires an APS:
    - Wall 45: Wall 45 is 1135' long and supports a sound wall. The first 210' of wall, starting at the east abutment of the Linda Creek Bridge and going east is a Type 5SWBP retaining wall with a 12' sound wall and is supported on piles. The remaining 925' is Type 5SWB retaining wall and is proposed to be supported on spread footings. The Type 5SWBP/5SWB walls are proposed due to the proximity to the ROW. The maximum design height of the wall is 14' near the Linda Creek Bridge, but varies from 8' to 12' for most of the wall. The wall Advance Planning Study (APS) is included in **Attachment E**.
9. Stormwater – The existing storm sewer network will be modified to continue to carry flows to the Cirby Creek watershed. Two bioswales will be added along this section of roadway. Bioswale #1 is adjacent to the Riverside Avenue westbound off-ramp. Bioswale #2 is located approximately 4,300 feet west of the Douglas Boulevard interchange.
10. ROW – The project would require right-of-way acquisitions from a few parcels adjacent to I-80. See **Attachment F** for ROW needs.

Nonstandard Mandatory and Advisory Design Features

The following are the anticipated mandatory and advisory design exceptions for the Build Alternatives:

- (Mandatory) Stopping Sight Distance Standards [HDM 201.1]: The project proposes to reconstruct the Riverside Ave loop on-ramp to WB I-80. The proposed ramp will have a sag vertical curve with a stopping sight distance of 273 feet, which has a design speed of 37 mph. The exit nose, which is at the end of the vertical curve, should have a stopping sight distance of 430 feet, which is a design speed of 50 mph. Providing for the proper stopping sight distance would require lengthening the loop on-ramp with a larger radius. Therefore, the entire Riverside Ave off-ramp would need to be realigned to the north. Approximately 27,000 square feet of additional right-of-way would be required. This land is environmentally sensitive and would have to be mitigated. As this is a sag vertical curve, proper lighting will mitigate the non-standard stopping sight distance. The existing ramp's sag vertical curve has a stopping sight distance of 204 feet, which is a 30 mph design speed. The proposed design improves the existing condition.
- (Mandatory) Distance Between Ramp Intersection and Local Road Intersection [HDM 504.3(5)]: The intersection of Douglas Road and the WB I-80 Off-Ramp is 390 feet from Harding Blvd, measured curb return to curb return. HDM 504.3(5), Minimum distance (curb return to curb return) between ramp intersections and local road intersections shall be 400 feet. Providing 400 feet between the off-ramp and Harding Blvd would require realigning 275' of Harding

Blvd, acquiring right-of-way from a Union 76, and the partial take of a commercial retail building. The relocation of three businesses, including a Bank of America and Starbucks Coffee would also be required.

- (Mandatory) Minimum Radius of Curve for Specific Design Speeds on Highways [HDM 203.2]: The Douglas Blvd. slip on ramp to WB I-80 will be reconstructed and widened. The existing slip on ramp has a radius of 200 feet, permitting a design speed of 24 mph. The proposed project moves the radius outwards to accommodate the proposed HOV lane; however the 200 foot radius is maintained. The minimum curve radius should be 300 feet, which provides for a 30 mph design speed. In order to make standard, the design would require lengthening the loop on-ramp with a larger radius. Acquisition of 9,300 square feet of right-of-way would also be required. This acquisition would eliminate up to 35 parking spots or at least a third of the parking available for the two accompanying commercial buildings. This loss of parking would require a portion of the commercial buildings to be unusable and condemned due to insufficient parking.
- (Advisory) Superelevation Transition [HDM 202.5(1)]: The project proposes to reconstruct the Rocklin Road off-ramp from a single lane exit lane to a two lane exit ramp. At the conform location, the superelevation transition from 10% to 0% will occur over 178 feet, less than the 240 feet per standard. Providing for the full transition at the conform location of the off-ramp would require lengthening the ramp approximately 50 feet to accommodate the greater distance between the reversing curves. This lengthening would shift the off-ramp south, requiring the relocation of approximately 700 feet of local road along with right of way acquisition and utility relocations. The proposed project will improve the existing superelevation transition which is currently at 150 feet.
- (Advisory) Side Slope Standards [HDM 304.1]: The project proposes to reconstruct WB Douglas Slip on-ramp and off-ramp. In order to prevent the acquisition of additional right-of-way, fill slopes are proposed to vary from 4:1 to 2:1. Significantly effective permanent erosion control will be used at locations of slopes steeper than 4:1.
- (Advisory) Vertical Curves – 2 Percent and Greater [HDM 204.4]: The project proposes to reconstruct the Riverside Ave loop on-ramp to WB I-80. The ramp will have a sag vertical curve with a length of 250 feet. The algebraic grade difference is 4.58 percent. The exit nose, which is at the end of the vertical curve, should have a design speed of 50 mph; therefore, the vertical curve should have a length of 500 feet. Providing for the proper length vertical curve would require lengthening the loop on-ramp with a larger radius. Therefore, the entire Riverside Ave Off-ramp would need to be realigned to the north. Approximately 27,000 square feet of additional right-of-way would be required. This land is environmentally sensitive and would have to be mitigated.

The design exception fact sheets are included in **Attachment N**.

High Occupancy Vehicle (Bus and Carpool) Lanes

High Occupancy Vehicle (HOV) preferential lanes will be added to the Douglas Interchange WB Slip Entrance Ramp and the existing HOV preferential lane will be perpetuated for the Douglas Interchange WB Loop Entrance Ramp. This on-ramp will include the required California Highway Patrol (CHP) enforcement areas.

An HOV preferential lane has not been added to the westbound Riverside Loop on-ramp. The ramp has a design year peak hourly volume of only 250 vehicles. Furthermore, the mixed flow lane geometry would have an inside horizontal radius of 12 feet, which is close to the limit to what is acceptable. Truck off tracking would require a much larger inside lane. The increase in pavement width from the additional lane, truck off-tracking, and the CHP enforcement area would also require a new retaining wall at the Riverside Ave OC. Due to the small peak hourly volume, adding an HOV preferential lane at this location is not a prudent use of available funds.

Ramp Metering

The existing ramp metering at the Douglas Interchange WB entrance ramps and the Riverside WB loop entrance ramp will be perpetuated with this project.

California Highway Patrol Enforcement Areas

CHP Enforcement Areas are proposed for all entrance ramps modified for the proposed alternative.

Maintenance Vehicle Pullouts (MVP) are recommended by the HDM to provide Maintenance and Operations personnel safe access to controller cabinets. MVPs are proposed for all on- and off-ramps for the Preferred Alternative.

Park and Ride Facilities

Existing park and ride facilities are not impacted by the project. No project actions are precluding the development of possible park and ride lots in the areas adjacent to the project.

Utility and Other Owner Involvement

A summary of utility involvements for the proposed project can be found on the Utility Information Sheet included as **Attachment F**. The following is a list of the existing utilities within the study area:

- AT&T
- Consolidated Communications
- City of Rocklin (Communications)
- City of Roseville (Electric, communications, sewer and water)
- Pacific Gas & Electric (Auburn District)
- South Placer MUD
- Wave Broadband

Potholing will be required to determine if the underground utilities within the project limits will require relocation. In order to determine the agency responsible for the costs involved with the design and construction of the utility relocations, research will be done to determine ownership and prior rights. After the determination of ownership and prior rights for each utility in the area, a "determination of liability" will be established in order to allocate funds appropriately for the design of the affected utilities.

Railroad Involvement

The proposed alternative will not affect any existing railroad corridors.

Highway Planting

Existing vegetation within the project area is mainly grass with a few scattered trees. Within Caltrans ROW, the minimum level of landscaping will be permanent erosion control revegetation on all exposed slopes and other disturbed areas. Existing landscaping and appurtenances will be protected in place, restored and maintained during construction and during the plant establishment period until contract acceptance. Irrigated plantings removed due to the project will be replaced at other acceptable locations within the project limits. Revegetation requirements set forth in the environmental document are also included in the highway planting work and plant establishment period.

Any above ground modifications to stormwater conveyance (bioswales, etc.) will be reviewed and approved by the District Landscape Architect.

A total of $84,000 has been included in the project cost estimate for highway planting and tree replanting.

Aesthetics

Aesthetics of new project features such as soundwalls and retaining walls will include a consistent aesthetic theme as the existing features. Any alternative aesthetic treatments must be approved by the District Landscape Architect. Aesthetic appurtenances removed due to the project will be replaced at other acceptable locations within the project limits.

All new above ground surfaces of the Linda Creek Bridge will be aesthetically consistent from the context in which the bridge is viewed, either by drivers or by residences. Also the proposed new channel lining will maintain aesthetic consistency with the existing lining.

Erosion Control

Costs for erosion control have been included in the project cost estimate. Erosion control plans will be prepared during the Plans, Specifications, and Estimate (PS&E) phase.

It is expected that permanent erosion control will be applied to all disturbed soil areas. Standard construction site Best Management Practices (BMPs) will be utilized to prevent erosion and storm water impacts during construction. Slopes steeper than 4:1 will require an erosion control plan to be approved by the District Landscape Architect and be reviewed and approved by the Office of Maintenance.

Noise Barriers

A Noise Study Report was prepared for the Build Alternatives and the No Build Alternative, to identify the change in traffic noise levels that would occur with the improvements, and to consider noise levels due to construction activities associated with the improvements. For the purpose of this analysis, the existing and future noise environments have been evaluated. Predicted noise levels were compared to the applicable Caltrans/FHWA noise abatement criteria. The analysis was performed in accordance with the guidelines of the Caltrans Traffic Noise Analysis Protocol.

Based on the results of the noise analysis, it was found that predicted noise levels at certain Eastbound and Westbound receivers would approach or exceed the FHWA/Caltrans noise abatement criteria with the construction of the project. Traffic noise impacts are therefore predicted to occur at these locations and noise abatement in the form of a sound wall should be considered. A Noise Abatement Decision Report was prepared to determine the reasonableness of the sound walls and is summarized in Section 6H of this document.

Non-motorized and Pedestrian Features

The Preferred Alternative only involves freeway widening and modifications to the ramps near the merge/diverge point of the freeway. As such, there are no improvements or modifications to existing non-motorized and pedestrian features.

Cost Estimates

For a complete estimate of construction costs for the Preferred Alternative, see **Attachment C**. To determine the most cost effective paving solution for a 55-year life span, a Life Cycle Cost Analysis (LCCA) was prepared for the proposed alternative. The LCCA compares the cost benefits between using flexible and rigid pavement solutions. **Attachment J** includes the Life Cycle Cost Analysis Forms for each pavement alternative analyzed in the LCCA. The LCCA showed that a 40 year composite pavement (rigid pavement) section had the lowest total life cycle cost. However, as none of the adjacent pavements were rigid pavements, the project development team advocated the use of a flexible pavement design. The LCCA showed that a 20 year Flexible pavement design had the lowest life cycle costs of the flexible pavements.

A summary of the costs for the Preferred Alternative is as follows:

Roadway Construction	$	9,813,600
Bridge/Wall Construction	$	4,440,000
Right of Way & Utility Relocation	$	102,600
Capital Cost Subtotal	$	14,375,000
Preliminary Engineering	$	2,000,000
Right of Way Support	$	90,000
Construction Engineering	$	1,570,000
Support Cost Subtotal	$	3,660,000
Project Total Cost (Alternative 2)	$	17,900,000

Right of Way Data

The Preferred Alternative will require the acquisition of private property to accommodate the proposed improvements. See **Attachment F** for the Right of Way Data Sheets and exhibit maps.

Effects of Projects Funded by Others on State Highway

The Preferred Alternative improvements will have a beneficial effect on I-80 mainline by reducing congestion and travel time on I-80 within the project limits. The existing and forecasted traffic volumes and travel time estimates are discussed in section 4C and have been documented in the Transportation Analysis Report (**Attachment D**).

Alternative 1 - Eastbound and Westbound Auxiliary Lanes

In the Eastbound direction, Alternative 1 is identical to the Preferred Alternative. In the Westbound direction, there is a four lane section for 2 miles between the Douglas Blvd. off ramp to the Riverside Interchange where a 5^{th} lane is added at the Riverside Loop entrance ramp. Alternative 1 would construct an auxiliary lane (12' lane with a 10' shoulder) from the Douglas loop on ramp to the Riverside off.

In comparison to Alternative 2, Alternative 1 does not add any additional bridge work, no additional soundwalls, no additional retaining walls and no additional ROW.

No Build Alternative – Alternative 3

This alternative assumes no improvements are made to I-80 within the project limits. The traffic vehicle delay for the No Build is presented in Table 1 and 2. Travel time for westbound I-80 improves by more than 80 seconds during the AM peak hour and more than three and a half minutes during the PM peak hour with the build alternatives versus the no build alternative.

B. Rejected Alternatives

Alternative 4 - Eastbound Rocklin Road Ramp Extension

At the July 17, 2014 PDT meeting, Fehr & Peers presented the forecast figures for the westbound and eastbound alternatives and reviewed the forecasting model used. PCTPA stated that the eastbound alternative which extends the Rocklin Rd off-ramp should be eliminated from discussion, and the full eastbound auxiliary lane should be the only alternative discussed. The traffic forecasting model demonstrated that the full auxiliary lane functions better than only the off-ramp widening and extension. The PDT concurred and the eastbound off-ramp extension alternative was removed from further consideration.

Alternative 5 – Westbound 6^{th} Lane

At the July 17, 2014 PDT meeting, the PDT discussed how the westbound 5^{th} lane plus the auxiliary lane addition from Douglas Blvd to Atlantic St (6th lane) also further improves operations; however, the Westbound 6^{th} lane alternative was removed from discussion due to the costs associated with construction. The PDT concurred and this alternative was removed from further consideration due to infeasible cost.

No additional viable alternatives have been developed since the PSR-PDS and later rejected.

6. CONSIDERATIONS REQUIRING DISCUSSION

A. Hazardous Waste

Initial Site Assessment

An Initial Site Assessment (ISA) for the project was approved in February 2015. The ISA evaluated whether the proposed project could be affected by any recorded or visible hazardous waste materials. Development of the ISA report entailed a governmental records search, select agency interviews, aerial photography and topographic map review, and visual site survey. The properties assessed for the ISA (Subject Properties) included existing Caltrans right-of-way, as well as two privately owned residential and four undeveloped properties immediately adjacent to the proposed improvements. Multiple other adjacent properties were assessed within a 1-mile radius of both Location 1 and 2.

At the time the ISA was prepared, it was unknown if the property at 1116 Melrose Ave (APN 014-231-009) would be acquired due to its proximity to the existing ROW. It has been determined a sliver acquisition not effecting the house is possible. It is not anticipated that any structures will be taken for this project.

Based on the results of the ISA evaluation, the Summary Table below describes evidence of the potential for Recognized Environmental Conditions (RECs) or Activity and Use Limitations (AULs) on the Subject Properties.

TABLE 5: ISA SUMMARY TABLE

Location	Description of REC Evidence Found	Description Associated AUL
Existing roadways within project boundaries including I-80, Rocklin Road, Douglas Boulevard, and Riverside Avenue	Potential lead and heavy metals associated with pavement striping. Implementation of improvements may require the removal and disposal of yellow traffic stripe and pavement marking materials (paint, thermoplastic, permanent tape, and temporary tape). Yellow paints made prior to 1995 may exceed hazardous waste criteria under Title 22, California Code of Regulations, and require disposal in a Class I disposal site.	None Found
Linda Creek Bridge	Previous study of the Linda Creek Bridge indicated evidence of asbestos containing material in the Metal Beam Guard Rail bearing pad shim. If removal of the bearing pad shims is necessary to widen the bridge, they will require removal and proper disposal by a licensed and certified asbestos abatement contractor in conjunction with the planned bridge widening. In order to complete the necessary asbestos abatement/removal, a Placer County Air Pollution Control District (PCAPD) permit for the Linda Creek Bridge will be attained.	None Found
Soils adjacent to I-80	Potential contaminated soils associated with aerially deposited lead. Implementation of improvements may require the disturbance and removal of contaminated soils. Disturbance of these soils will require a preparation of a Lead Compliance Plan and Lead Awareness Training. Further sampling and analysis of soil will be initiated during PS&E to determine the extent of lead-contaminated soils. Soils containing hazardous levels of aerially deposited lead will be excavated and disposed of at a Class 1 Disposal Facility or a Class 2 Disposal Facility permitted by the Central Valley Regional Water Quality Control Board (CVRWQCB) before completion of the proposed project.	None Found
Existing buildings that could be demolished/altered due to planned construction activities.	Potential for Asbestos Containing Materials (ACM). New uses of ACM were banned by the EPA in 1989. Revisions to regulations issued by the Occupational Safety & Health Administration (OSHA) on June 30, 1995, require that all thermal systems insulation, surfacing materials, and resilient flooring materials installed prior to 1981 be considered Presumed Asbestos Containing Materials (PAC) and treated accordingly. In order to rebut the designation as PAC, OSHA requires that these materials be surveyed, sampled, and assessed in accordance	None Found

TABLE 5: ISA SUMMARY TABLE		
Location	**Description of REC Evidence Found**	**Description Associated AUL**
	with 40 CFR 763 (Asbestos Hazard Emergency Response Act [AHERA]). ACM have also been documented in the rail shim sheet packing, bearing pads, support piers, and expansion joint material of bridges.	
Existing buildings that could be demolished/altered due to planned construction activities.	Potential lead-based paint on painted portions of existing buildings. Structures constructed prior to 1978 are presumed to contain lead-based paint unless proven otherwise, although buildings constructed after 1978 may also contain lead-based paints.	None Found

The ISA recommended the following actions to verify the presence/extent of RECs and to evaluate the potential for remediation during the PS&E phase of the project:

- To avoid impacts from pavement striping during construction it is recommended that testing and removal requirements for yellow striping and pavement marking materials be performed in accordance with Caltrans Standard Special Provisions for REMOVE TRAFFIC STRIPE AND PAVEMENT MARKINGS.
- The Linda Creek Bridge bearing pad shims will require removal and proper disposal by a licensed and certified asbestos abatement contractor in conjunction with the planned bridge widening. In order to complete the necessary asbestos abatement/removal, a Placer County Air Pollution Control District (PCAPD) permit for the Linda Creek Bridge will be attained.
- The proposed project will require a Non-Standard Special Provision (NSSP) for excavation and handling of soils contaminated with aerially deposited lead. The NSSP should address CCR Title 8, Section 1532.1, Lead, which includes a Lead Compliance Plan and Lead Awareness training.
- Further sampling and analysis of soil will be initiated during PS&E to determine the extent of lead-contaminated soils. Soils containing hazardous levels of aerially deposited lead will be excavated and disposed of at a Class 1 Disposal Facility or a Class 2 Disposal Facility permitted by the Central Valley Regional Water Quality Control Board (CVRWQCB) before completion of the proposed project.

As stated above, at the time the ISA was prepared, it was unknown if the 1116 Melrose property would be acquired due to its proximity to the existing ROW. It has been determined a sliver acquisition not effecting the house is possible. The ISA recommendations on the alteration or demolition of buildings are no longer required.

- Buildings constructed prior to 1989 may have been constructed using asbestos containing materials. Conduct asbestos surveys utilizing a certified consultant prior to any modification to, or demolition of the buildings or structures within the study area that may be altered or demolished to accommodate the planned construction. The survey should include a Health and Safety Plan for worker safety and Work Plan for removal/disposal of asbestos containing material, if encountered.

- Buildings constructed prior to 1978 are presumed to contain lead based paints. Conduct lead-based paint surveys utilizing a certified consultant prior to modifications/demolition of any existing buildings or structures within the study area that may be altered or demolished to accommodate the planned construction. The survey should include a Health and Safety Plan for worker safety and Work Plan for removal/disposal of lead-based paint, if encountered.
- Conduct an interior/exterior hazardous materials/hazardous wastes inspection of any existing structures that will be altered or demolished to accommodate the planned construction. Should the inspections indicate the presence of hazardous materials/hazardous wastes, a Health and Safety Plan for worker safety and Work Plan for removal/disposal of hazardous materials should be prepared, if encountered.

Unknown Hazards

As is the case for any project that proposes excavation, the potential exists for unknown hazardous contamination to be revealed during project construction (such as previously undetected petroleum hydrocarbon contamination from former underground storage tanks or potential explosive threat if a natural gas transmission pipeline is ruptured during construction). If known or previously unknown hazardous waste/material is encountered during construction, the procedures outlined in Section 7-107I of the Caltrans Construction Manual shall be followed.

B. Value Analysis

A Value Analysis (VA) Study will not be completed for this project since the construction value of the contract is $15 Million which is well below the "mandatory" threshold of $50M.

C. Resource Conservation

Energy conserving features of the project include freeway widening and ramp improvements that reduce congestion and move traffic more efficiently.

Energy conservation measures that will be considered for incorporation into the electrical portions of the project are signal design, and lighting design. It is anticipated that all signal faces and street lights will be of the light-emitting diode type.

Effort will be made to recycle any pavement removed during construction as fill or sub-base as is acceptable per the structural design by the geotechnical engineer during the PS&E phase. The reuse of existing signs will be applied wherever possible along widened sections of the project.

The Project fulfills resource conversation efforts in maximizing the use of in-place facilities on the existing roadways.

D. Right-of-Way Issues

Right of Way Required

Right of way acquisitions are required for the Preferred Alternative. A total of 6 parcels will require partials acquisitions comprised of 3 fee acquisitions and 3 dedications. These

6 parcels will also require Temporary Construction Easements. Refer to the Right of Way Data Sheet included in **Attachment F**.

Relocation Impact Studies

The proposed project will not require the displacement of any person or business and as such, relocation impact studies will not be produced for the project.

Airspace Lease Areas

The proposed project will have no effect on the navigable airspace of any airport.

E. Environmental Issues

Caltrans is the California Environmental Quality Act (CEQA) Lead Agency and the National Environmental Policy Act (NEPA) Lead Agency for this project.

As owner-operator of the State Highway System (SHS), Caltrans is the CEQA Lead Agency for all improvements on the SHS. Under Chapter 3 of Title 23, United States Code, Section 327 (23 U.S.C. 327), Caltrans has NEPA Delegation. President Obama signed the Moving Ahead for Progress in the 21st Century Act (MAP-21) (P.L. 112-141) into law on July 6, 2012, with an effective date of October 1, 2012.

MAP-21 creates a streamlined and performance-based surface transportation program, promotes accelerating project delivery and encourages innovation. Section 1313 of MAP-21 amends 23 U.S.C. 327 to establish a permanent Surface Transportation Project Delivery Program and allow any state to participate and for a state to renew its participation in the program. Previous to the passage of MAP-21, Caltrans was the only state in the nation to participate in the "Surface Transportation Project Delivery Pilot Program" (Pilot Program), pursuant to Section 6005 of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users act (SAFETEA-LU) beginning July 1, 2007 and ending September 30, 2012. Consequently, Caltrans continues to assume FHWA's responsibilities under NEPA as well as FHWA's consultation and coordination responsibilities under other Federal environmental laws for most highway projects in California. Accordingly, Caltrans is the Lead Agency under both CEQA and NEPA.

In compliance with CEQA, an Initial Study (IS)/Mitigated Negative Declaration (MND) has been prepared for this project in accordance with Caltrans environmental procedures and State environmental laws and regulations and is included in **Attachment L**. In compliance with NEPA, this project has been determined to be eligible for a Categorical Exclusion (CE) under 23 U.S.C. 327.

Various environmental technical reports have been prepared to support the IS/MND and CE, including an Archaeological Survey Report, Historic Property Survey Report, Air Quality Analysis, Community Impact Assessment, Noise Study Report, Noise Abatement Decision Report, Natural Environment Study, Water Quality Questionnaire, and Visual Impact Assessment. In addition, various engineering technical reports were prepared to support the Draft Environmental Document including a Traffic Operations Analysis, Bridge Advance Planning Study, Preliminary Material Report, Location Hydraulic Study, Storm Water Data Report, Preliminary Drainage Report, and Hazardous Waste Initial Site Assessment.

The IS/MND discusses the proposed project's potential to impact the human, physical and biological environment. Specifically, the IS/MND analyzes land use and planning, agricultural resources, population and housing, recreation, public services, utilities and service systems, transportation/traffic, aesthetics, hydrology and water quality, geology and soils, mineral resources, cultural resources, hazards and hazardous materials, air quality, noise, and biological resources. All potential impacts under CEQA associated with the project are addressed and discussed in the IS/MND as avoidance, minimization and/or mitigation measures. The IS/MND and the technical studies for the proposed project support the CE under NEPA.

If the scope of work (including utility relocation requirements-if any) or limits for this project change prior to completion of the preliminary engineering (PA&ED phase), or during the final design (PS&E phase) and/or during the construction phase, an Environmental Re-Evaluation will be required to confirm the IS/CE determined to be the appropriate environmental documentation for CEQA and NEPA remain appropriate and complete. An Environmental Certification will be required at the end of the PS&E phase, and Certificate of Compliance will be required following completion of construction of the project.

Wetlands and Flood Plains

The project area contains approximately 0.04 acres of wetlands, which were found adjacent to westbound I-80 as a result of ponding from roadside and commercial drainage and continues as a formalized, partially concrete lined drainage feature. The wetland feature contains standing water and hydrophytic vegetation such as cattails and sedges followed by a transition to willows and cottonwoods. The proposed project does not anticipate permanent or temporary impacts to any wetlands found within the project area.

In regard to flood plains, the improvements associated with this project encroach on the Floodway (Zone AE) as well as the Special Flood Hazard Area (Zone AE) of Cirby Creek. The Floodway (Zone AE) is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. The Special Flood Hazard Area (Zone AE) is an area subject to 100-year flooding for which a base flood elevation has been determined. The remaining project area lies within Zone X, which is defined as an area determined to be outside the 500-year floodplain.

The project will widen the existing Cirby Creek Bridge with two additional columns and will lengthen the existing Cirby Creek concrete channel lining approximately 15 feet. There are existing bridge bents (with 9 columns each) and a 22-foot wide concrete channel lining with an approximate 0.13 acres (5,700-square feet) encroachment on Zone AE (Floodway). The 100-year flow for Cirby Creek through the project site is 4,118 cubic feet per second (cfs), based on data provided in the LOMR (May 2003). The existing bridge currently has eighteen 3-feet by 5-feet rectangular columns within the floodplain. The widening of the bridge will add two more columns of the same size into the floodplain, displacing the base flood volume by 0.002 acre-ft. The hydraulic analysis shows that there is no change in water surface elevation and channel velocity due to this displacement. Therefore, significant impacts to the floodplain values associated with the natural moderation of floods are considered minimal and negligible for the project.

The proposed project layout and design has minimized both short-term and long-term impacts to the floodplain. The floodplain will be temporarily impacted during construction. These temporary impacts due to construction activity will be minimized through the implementation of construction Best Management Practices as well as additional measures that may be specified in the regulatory permits obtained for this project. Impacts to the floodplain resulting from the approach roadway widening have been minimized by reducing the grading limits where feasible.

Biological Resources

The project area lies within the Sierra Nevada Foothills, a biologically diverse ecosystem known to support unique and endemic species. Reconnaissance level surveys and a jurisdictional delineation were conducted to assess natural communities existing in the Biological Study Area (BSA). The proposed project's BSA is approximately 144 acres and encompasses the construction area with an approximate 20 to 50 foot buffer.

Surveys concluded that Cirby Creek and Sucker Ravine are jurisdictional waters of the U.S., State and CDFW (blue oak woodland), which warrant special concern within the BSA. No other natural communities of special concern exist within the BSA.

Literature research and biological surveys indicate that there is a potential for 4 special status species to occur: purple martin (*Progne subis*), western pond turtle (*Emys marmorata*), Central Valley fall and late fall-run Chinook salmon (fall-run Chinook salmon) (*Oncorhynchus tshawyscha*), and Central Valley steelhead (steelhead) (*Oncorhynchus mykiss*) within the BSA vicinity. In addition, Pacific Salmon Essential Fish Habitat (EFH) is also present within the BSA. No Critical Habitat for any species resides within the project area.

The project will result in approximately 0.01 acres of temporary impacts and less than 0.01 acres of permanent impacts to Cirby Creek, considered a water of the U.S. and state and Pacific Salmon EFH. Further, the project will temporarily impact less than 0.01 acres and permanently impact less than 0.01 acres of Valley Foothill Riparian (VRI) vegetation, considered a water of the state.

Caltrans initiated informal Section 7 Consultation with the National Marine Fisheries Service (NMFS), a division of the National Oceanic and Atmospheric Administration (NOAA) Fisheries for potential impacts to Central Valley Steelhead and Pacific Salmon EFH. Caltrans requested initiation of informal consultation with the NMFS on October 2, 2015. NMFS deemed the formal consultation package from Caltrans complete on October 29, 2015 and initiated formal consultation. On November 13, 2015, NMFS issued a Letter of Concurrence that the project may affect, but is not likely to adversely affect Central Valley Steelhead. Avoidance, minimization, and mitigation measures based on consultation are incorporated into the project's protective measures to minimize the project's potential effects to steelhead and Pacific Salmon EFH.

F. Air Quality Conformity

The proposed project is located in the Sacramento Valley Air Basin. The Placer County Air Pollution Control District is the agency responsible for monitoring and regulating air pollutant emissions from stationary, area, and indirect sources within Placer County. The District also has responsibility for monitoring air quality and setting and enforcing limits for source emissions. The California Air Resources Board (CARB) is the agency with the legal responsibility for regulating mobile source emissions. The District is precluded from such activities under State law. The Placer County Air Pollution Control District is the agency responsible for regional air quality plans under the State and Federal Clean Air Acts. The current regional clean air plan addresses ozone and particles of 10 micrometers or smaller (PM_{10}) and identifies strategies for progressive reduction in emissions of ozone precursors and particulate matter.

Under National Ambient Air Quality Standards, Placer County is in non-attainment for 8-hour ozone and $PM_{2.5}$, maintenance for carbon monoxide, and attainment or unclassified for other Federal criteria pollutants. Under California Ambient Air Quality Standards, Placer County is in non-attainment for ozone and PM10. It is in attainment or unclassified for other State criteria pollutants.

Regional Conformity

The proposed project is listed in the Sacramento Area Council of Governments (SACOG) financially constrained 2035 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) (SACOG 2016a). The Project is also included in the SACOG financially constrained 2015/2018 Metropolitan Transportation Improvement Program (MTIP) (SACOG 2016b). SACOG adopted the Final 2015/18 MTIP, Amendment #20 to the MTP/SCS 2035, and Air Quality Conformity Analysis on February 18, 2016. FHWA and FTA approved the 2015/18 MTIP and Air Quality Conformity Analysis on February 18, 2016. The design concept and scope of the proposed Project is consistent with the project description in the 2035 MTP, 2015/2018 MTIP, and the "open to traffic" assumptions of the SACOG 2014 Air Quality Conformity Analysis (SACOG 2016a).

The I-80 Auxiliary Lanes Project was included in the regional emissions analysis conducted by the Sacramento Area Council of Governments (SACOG) for the conforming *2015/18 Metropolitan Transportation Improvement Program.* The project's design concept and scope have not changed significantly from what was analyzed in the regional emission analysis. This analysis found that the plan, which takes into account regionally significant projects and financial constraint, will conform to the state implementation plan(s) (SIP(s)) for attaining and/or maintaining the National Ambient Air Quality Standards (NAAQS) as provided in Section 176(c) of the Clean Air Act. FHWA determined that the MTIP conforms to the SIP on March 8, 2016.

The Project meets the regional conformity requirements established by the Federal Clean Air Act.

Project-Level Conformity

The project is subject to PM conformity analysis because it is located within a PM2.5 nonattainment area. As the first step in demonstrating PM2.5/PM10 conformity, SACOG completed an Interagency Consultation to determine if it is a Project of Air Quality Concern (POAQC) as defined in 40 CFR 93.116 and 93.123 and U.S.EPA's Hot-Spot Guidance. SACOG obtained concurrence from both EPA and FHWA that the Project is not a POAQC on August 26, 2015.

Placer County is a carbon monoxide (CO) attainment area. In CO attainment areas, only projects that are likely to worsen air quality necessitate further analysis. Projects that worsen air quality are defined as those that significantly increase the percentage of vehicles in cold state mode, those that significantly increase traffic volumes, and those that worsen traffic flow. These criteria are evaluated when comparing Build and No Build scenarios. The determination of project-level CO impacts was carried out according to the Local Analysis flowchart that was provided in the CO Protocol document. Based on the answers, the flowchart concludes with "Project satisfactory, no further analysis is need."

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other construction related activities. Emissions from construction equipment also are expected and would include carbon monoxide (CO), nitrogen oxide (NOx), volatile organic compounds (VOCs), directly-emitted particulate matter (PM10 and PM2.5), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NOx and VOCs in the presence of sunlight and heat.

The project's construction is anticipated to take 12 months. The Project's construction emissions were estimated using the Roadway Construction Emissions Model by the Sacramento Metropolitan Air Quality Management District (SMAQMD 2014), which is the accepted model for all CEQA roadway projects throughout California. Construction activities from the Project would not exceed emission thresholds established by the PCAPCD.

G. Title VI Considerations

Title VI of the Civil Rights Act requires that no person be excluded from, denied the benefits of, or otherwise be subjected to discrimination under any program or activity receiving federal aid because of race, color, religion, national origin, gender, age, or handicap. Caltrans and FHWA policies demonstrate commitment to this requirement. The proposed Build Alternative will comply accordingly.

H. Noise Abatement Decision Report

A Noise Study Report (2015) was prepared for this project. The Noise Study Report analyzed existing and future noise at sensitive receptors in the project vicinity. The following information is from the approved Noise Study Report for the proposed project. Land uses in the project noise study area consist primarily of single and multi-family residences, commercial properties, and one school.

The design-year traffic noise modeling results for the Build Alternative range from 59 to 71 dBA L_{eq}. Noise levels for the design-year under the Build Alternative are expected to increase by up to 3 dB over design-year No-Build noise levels. Design-year No-Build noise levels are expected to increase by up to 2 dB over existing conditions, due to an increase in traffic volumes. Proposed improvements bring traffic closer to nearby receivers which results in increased noise levels. Build noise levels approach or exceed their respective Noise Abatement Criteria (NAC) Activity criteria at nine residences, therefore, a noise abatement evaluation was required.

The Noise Study Report found two walls feasible, which meets the Caltrans acoustical design goal of a 7 dB reduction. The two walls are SW-W1, stationed between 40+00 and 47+00, with the total length of the proposed Barrier SW-W1 being 700 feet, and SW-E1, stationed between 177+00 and 184+52, with the total length of the proposed Barrier SW-E1 being 752 feet. These two walls were further evaluated in the Noise Abatement

Decision Report (2015), included in **Attachment I**, to determine if they are reasonable to construct.

Barrier SW-W1 was found to be acoustically feasible at a height of 12 feet. From the 700 foot length, the number of benefited residences (10) yields a total reasonable allowance of $640,000 for each soundwall height. Based on the engineer's cost estimate including costs required to construct the abatement - cost of the wall, footings, traffic control, drainage, modified or additional plantings, and miscellaneous items, the 12-foot soundwall is estimated to cost $410,000 ($48.81 per square foot). Comparing the total reasonable allowances to the estimated construction costs, the soundwall SW-W1 is determined to be fiscally reasonable, within 10%, and is recommended to be constructed at a height of 12 feet.

Barrier SW-E1 is acoustically feasible at a height of 16 feet. From the 752 foot length, the number of benefited residences (5) yields a total reasonable allowance of $320,000 for each soundwall height. Based on the engineer's cost estimate including costs required to construct the abatement - cost of the wall, footings, traffic control, drainage, modified or additional plantings, and miscellaneous items, the 16-foot soundwall is estimated to cost $340,000 ($28.26 per square foot, respectively). Comparing the total reasonable allowances to the estimated construction costs, the soundwall SW-E1 is determined to be fiscally reasonable, within 10%, and is recommended to be constructed at a height of 16 feet.

7. OTHER CONSIDERATIONS AS APPROPRIATE

Public Hearing Process

An opportunity for a public hearing was offered to the public. Also, an item was brought forward to the Placer County Transportation Planning Agency board at a regular board meeting, which also forwarded an opportunity for public comment. A public hearing was not held as it was not requested during public circulation of the draft environmental document. Comment letters were received on the draft document. All comments and the responses to the comments are shown to in the Environmental Document. The local agencies are in general accord with the project as presented.

Route Matters

Because the freeway and ramps already exist, new-connection approvals are not required. The project has been assigned a Project Development Category 4B.

Permits

The following permits, reviews, and approvals will be required for project construction:

TABLE 6: PERMITS AND APPROVALS

Agency	Permit/Approval
National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS)	Section 7 Informal Consultation for Threatened and Endangered Species (Central Valley steelhead (steelhead) (*Oncorhynchus mykiss*) and Pacific Salmon Essential Fish Habitat (EFH) for fall and late fall-run Chinook salmon (fall-run Chinook salmon) (*Oncorhynchus tshawytscha*))
U.S. Army Corps of Engineers (USACE)	Section 404 Permit (Nationwide 14) for fill into Waters of the U.S.
Central Valley Regional Water Quality Control Board (RWQCB)	Section 401 Water Quality Certification for discharges to a water body
State Water Resources Control Board (SWRCB)	Project will be subject to Section 402 National Pollution Discharge Elimination System General Construction Permit and constructed under a SWPPP.
California Department of Fish and Wildlife (CDFW)	Section 1602 Streambed Alteration Agreement for modifications of the bed, bank, or channel of a stream, including impacts to vegetation

Cooperative Agreements

The project is a PCTPA lead effort. An existing cooperative agreement between PCTPA and Caltrans was executed on November 15, 2013 and covers Project Approval and Environmental Document (PA&ED) efforts. Cooperative Agreements for Plans, Specifications, and Estimate (PS&E), right of way, and construction will be executed prior to each phase.

Any additional cooperative agreements required will be in place as needed prior to construction.

Transportation Management Plan for Use During Construction

A preliminary Transportation Management Plan (TMP) was prepared for the PA&ED phase of the project and is included in **Attachment H**. The following measures are recommended:

- Because of high traffic volumes on I-80, work requiring traffic control on mainline, ramps, and shoulders will be allowed generally from late evening to early morning hours.
- Lane closures will be performed in accordance with Standard Plan Sheet T10, "Traffic Control System for Lane Closure on Freeways and Expressways".
- The use of stage construction K-rail will allow for daytime operations without restriction and roadway utilization by the public, and to minimize lane closures.
- When K-rail is used, gawk screen will be required to prevent excessive slowing of traffic through the project limits. However, during peak commute hours, the contractor may be ordered to halt all work behind K-rail, if adjacent traffic volumes become congested to the point where Public Safety and Public Convenience provisions of the contract apply.
- Ramps will be stage-constructed to remain open during daytime hours and

when complete nighttime closures are necessary, traffic will be detoured in accordance with traffic handling plans prepared by the Project Engineer during the PS&E design phase.

- No lane closures, shoulder closures, or other traffic restrictions will be allowed on Special Days, designated holidays and the day preceding designated holidays.
- Coordinating with the City of Roseville and the City of Rocklin is required to handle traffic through the work area.
- Coordinating with adjacent projects within, or nearby the project limits will be required to avoid conflicts.
- The Use of A+B Bidding is recommended to expedite the project.
- Incentive/disincentive provision in the contract is recommended.
- Ensure inside shoulders can support live traffic.
- Work at this location will require a full time COZEEP presence.
- Freeway Service Patrol (FSP) is recommended during construction.
- Portable changeable message signs will be required in direction of traffic during construction for each lane or shoulder closure.
- SSPs, detailed lane closure charts and cost estimate will be developed for the final TMP prior to PS&E

Stage Construction

Work activities will include construction of outside shoulder barriers, retaining walls, soundwalls, overhead signs, pavement widening and bridge widening along I-80. In order to construct, K-rail will be installed the full length of the mainline widening. The face of K-rail will be placed three feet into the slow lane from the edge of travel lane. This will provide one foot of space from back of K-rail to the widening sawcut which will be at the edge of travel way. As a result of the K-rail encroaching into the outside lane, the three existing outside lanes of I-80 will be temporarily reduced to 11 feet to accommodate the K-rail. Lane width reductions will utilize standard transition tapers. Lastly, interchange ramps will be stage constructed in order to remain open during daytime hours. When complete ramp night closures are necessary, traffic will be temporarily detoured.

- Lane closure charts should be prepared during the PS&E design phase
- Detours should be prepared during the PS&E design phase (Ensure trucks can safely make all necessary turning movements)

Accommodation of Oversize Loads

The project would not impact the ability for oversize loads to use I-80.

Graffiti Control

The project is not located within an identified graffiti-prone area. However, retaining and soundwall designs will be prepared with the potential for vandalism in mind.

Complete Streets

No Complete Street Features can be incorporated into this project due to the proposed work taking place on steep slopes adjacent to the highway mainline, which has access control that does not allow for bicycles and pedestrians.

Climate Change:

- **Preserve Prime Habitat Species:** The project is located in a highly urban environment where habitat and species within the project limits does not demonstrate prime habitat status. This project does not include elements which incorporate solutions to preserve or connect important natural resources.
- **Protect Wetlands and Surface Water:** The project is not located within, adjacent to, or connected with any wetlands, although a surface water, Cirby Creek, is present within the project limits under the Linda Creek Bridge. This project does not include elements to address or enhance adjacent wetlands, hydraulic connections and water functions, values, or existing deficiencies. The existing concrete channel lining will be extended to prevent scour of the additional piers associated with the bridge widening; however, this will not change the hydrologic function of Cirby creek. This project will though reduce the frequency and volume of herbicide use within the roadside environment.
- **Preserve Floodplain Functions**: This project is located within the 100-year AO and AE floodplain map; however, the project does not change or alter the existing natural floodplain functions.
- **Reduce Greenhouse Gas Emissions:** The project will reduce the frequency of maintenance personnel's requirements to access the slopes within the project limits from the highway shoulder. The project will also reduce the frequency of maintenance vehicle idle time associated with traffic control needed during shoulder maintenance activities. Additionally, the project will reduce the frequency and volume of materials on the slope migrating down into roadside drainage systems. This will reduce the frequency of maintenance vehicle idle time associated with traffic control and drain cleaning vehicles.
- **Manage Heat Island Effects:** This project will have an increase in the Heat Island Effect by decreasing the ratio of permeable surfaces to impermeable surfaces. Currently, the State Right of Way within the project limits contains approximately 14.8 acres of permeable surfaces. The slope paving proposed in this project will reduce the area of permeable surface by approximately 3.5 acres, resulting in 11.3 acres of permeable surfaces.

8. FUNDING/PROGRAMMING

Funding

The project is funded through both the Federal High Priority Projects (HPP) and National Corridor Infrastructure Improvement Program (NCIIP).

It has been determined that this project is eligible for Federal-aid funding.

Programming

Partial funding for the Preferred Alternative is currently programmed from the I-80 Bottleneck earmark savings. Full funding is anticipated based on a Placer County transportation sales tax measure planned for 2016, as well as other available state and federal funding sources. Funding for the Preferred Alternative is shown below.

Preferred Alternative – Demo High Priority Projects – SAFETEA-LU Funding

	Fiscal Year Estimate							
	Prior	2014/15	2015/16	2016/17	2017/18	2018/19	Future	Total
Component	In thousands of dollars ($1,000)							
PA&ED Support		350						350
PS&E Support				500				500
Right-of-Way Support								
Construction Support								
Right-of-Way				20				20
Construction						4,120		4,120
Total		350		520		4,120		4,990

Preferred Alternative – National Corridor Infrastructure Improvement Program Funding

	Fiscal Year Estimate							
	Prior	2014/15	2015/16	2016/17	2017/18	2018/19	Future	Total
Component	In thousands of dollars ($1,000)							
PA&ED Support		470						470
PS&E Support				630				630
Right-of-Way Support								
Construction Support								
Right-of-Way				20		500		520
Construction						4,790	3,200	7,990
Total		470		650		5,290		9,610

Preferred Alternative – Unfunded

	Fiscal Year Estimate							
	Prior	2014/15	2015/16	2016/17	2017/18	2018/19	Future	Total
Component	In thousands of dollars ($1,000)							
PA&ED Support								
PS&E Support				50				50
Right-of-Way Support				30	30	30		90
Construction Support						1,570		1,570
Right-of-Way								
Construction						1,645		1,645
Total				80	30	3,245		3,355

The support cost ratio is 14%.

Estimate
The total estimated capital cost for the Preferred Alternative is $18,050,000, which includes right of way and constructions costs. See section 5A for breakdown of the cost estimate.

9. SCHEDULE

Project Milestones		Milestone Date (Month Year)
PROGRAM PROJECT	M015	May 2014
BEGIN ENVIRONMENTAL	M020	May 2014
CIRCULATE DED EXTERNALLY	M120	Oct 2015
PA & ED	M200	Aug 2016
RIGHT OF WAY REQUIREMENTS	M224	Sept 2016
REGULAR RIGHT OF WAY	M225	Oct 2016
PS&E TO DOE	M377	Feb 2018
RIGHT OF WAY CERTIFICATION	M410	March 2018
READY TO LIST	M460	Aug 2018
FUND ALLOCATION	M470	Aug 2018
HEADQUARTERS ADVERTISE	M480	Sept 2018
AWARD	M495	Oct 2018
APPROVE CONTRACT	M500	Nov 2018
CONTRACT ACCEPTANCE	M600	Dec 2018
END PROJECT	M800	Dec 2019

10. RISKS

A risk register has been developed for the project as a part of the PA&ED process and is included in **Attachment K**. The plan will continue to be updated throughout PS&E by the project team as risk elements arise or change.

11. FHWA COORDINATION

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

As this project is not significantly modifying the existing interchanges within the project limits, a Modified Access Report (MAR) is not required for this project.

12. PROJECT REVIEWS

Caltrans Project Manager
Caltrans District Design Oversight
Caltrans District Hydraulics Engineer
Caltrans District Right of Way Project Delivery Coordinator
Caltrans District Traffic Forecasting & Modeling
Caltrans District Landscape Architect
Caltrans District NPDES Coordinator
Caltrans District Utility Coordinator
Caltrans Traffic operations

Caltrans Structures
Caltrans Environmental
Caltrans Design Coordinator
Caltrans Design Reviewer/ FHWA Liaison

13. PROJECT PERSONNEL

Project Managers

Rod Murphy Caltrans Project Manager Caltrans, District 3 703 B Street Marysville, CA 95901	(530) 701-1305
Luke McNeel-Caird PCTPA Project Manager Placer County Transportation Planning Agency 299 Nevada Street Auburn, CA 95603	(530) 823-4033
Liz Diamond Dokken Engineering Project Manager Dokken Engineering 110 Blue Ravine Road, #200 Folsom, CA 95630	(916) 858-0642

Project Engineer

Nathan Donnelly Dokken Engineering 110 Blue Ravine Road, #200 Folsom, CA 95630	(916) 858-0642

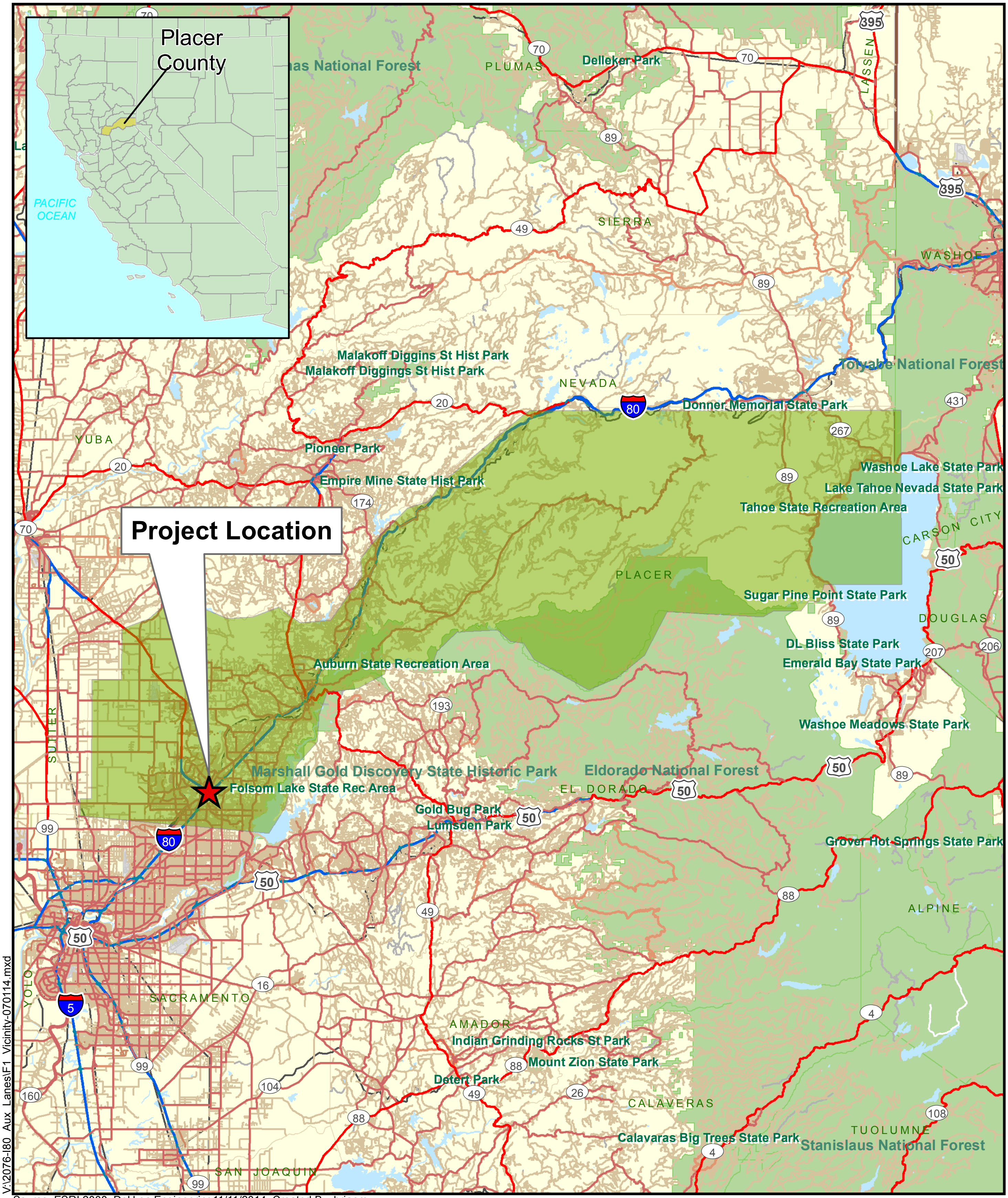
Environmental

Namat Hosseinion Environmental Manager Dokken Engineering 110 Blue Ravine Road, #200 Folsom, CA 95630	(916) 858-0642

14. ATTACHMENTS

A. Vicinity Map
B. Geometric Approval Drawings
C. Project Cost Estimate
D. Traffic Analysis Report
E. Advance Planning Studies
F. Right of Way and Utility Data Sheets with Needs Maps
G. Storm Water Data Report
H. Traffic Management Plan
I. Noise Abatement Decision Report
J. Life Cycle Cost Analysis
K. Risk Management Plan
L. Environmental Document
M. Project Study Report-Project Development Support Cover Pages
N. Advisory/ Mandatory Fact Sheet

Attachment A



Source: ESRI 2008; Dokken Engineering11/11/2014; Created By: brianm

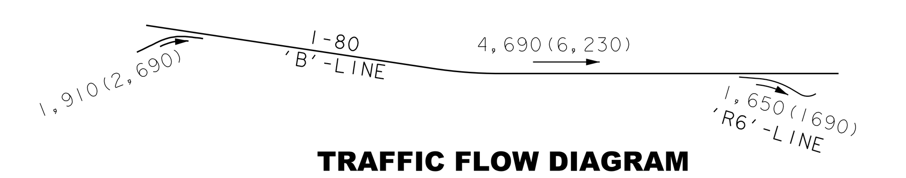
0 10 20 Miles

Attachment A
Project Vicinity
EA-03F230
Placer I-80 Auxiliary Lanes Project
Placer County, California

Attachment B

CURVE DATA

No. #	R	Δ	T	L
13	5999.43'	8° 33' 30"	448.91'	896.14'
14	1000'	26° 3' 45"	231.44'	454.88'
15	200'	64° 28' 10"	126.12'	225.04'



TRAFFIC FLOW DIAGRAM

AM(PM) PEAK HOUR 2040 TRAFFIC VOLUMES

EASTBOUND I-80
DESIGN DESIGNATION

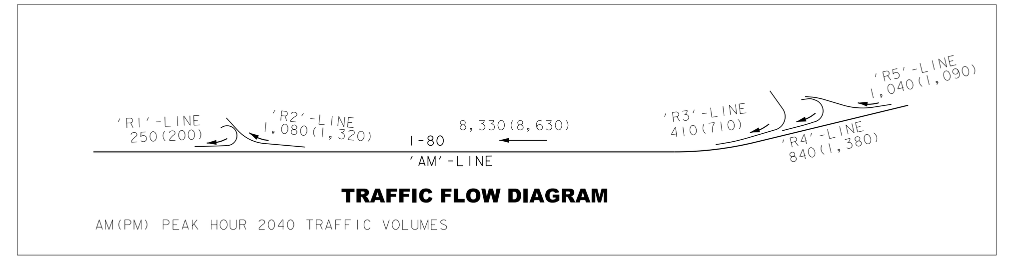
ADT (2015)	54 300	D	N/A
ADT (2040)	71 300	T	8%
DHV	6 220	V	70 mph
ESAL	64 977 000	TI_{20}	15.0

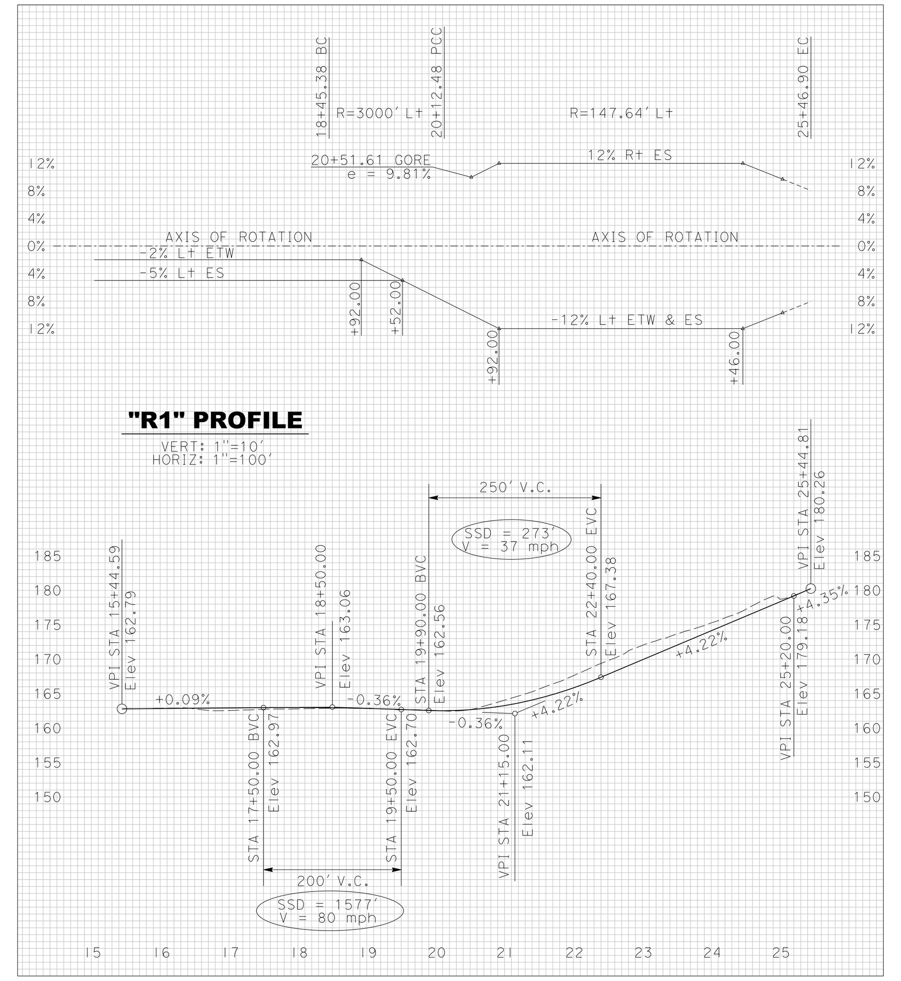
DOKKEN
ENGINEERING
110 BLUE RAVINE ROAD, SUITE 200
FOLSOM, CA 95630
PH: 916-858-0642 FAX: 916-858-0643

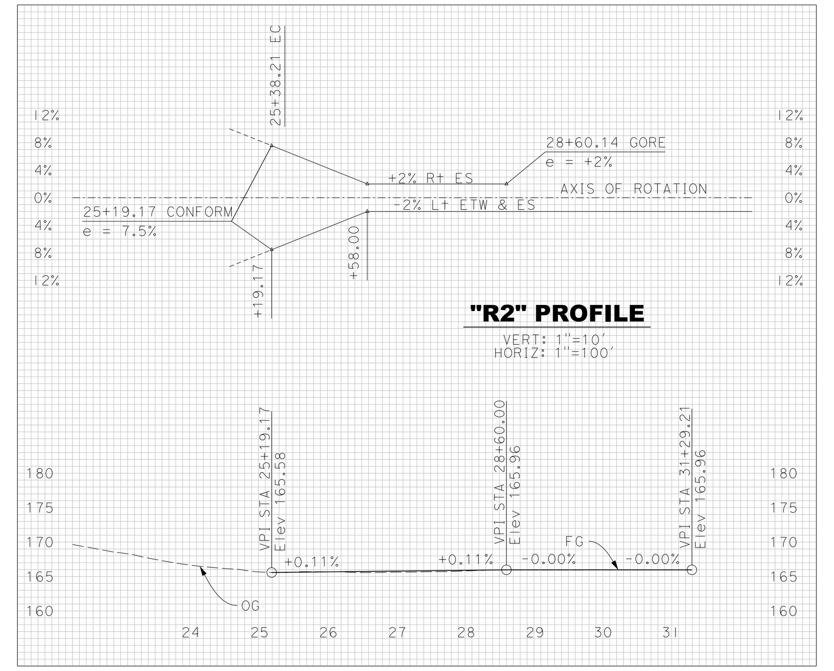
PLACER I-80 AUXILIARY LANES
LOCATION 1
GEOMETRIC APPROVAL DRAWING

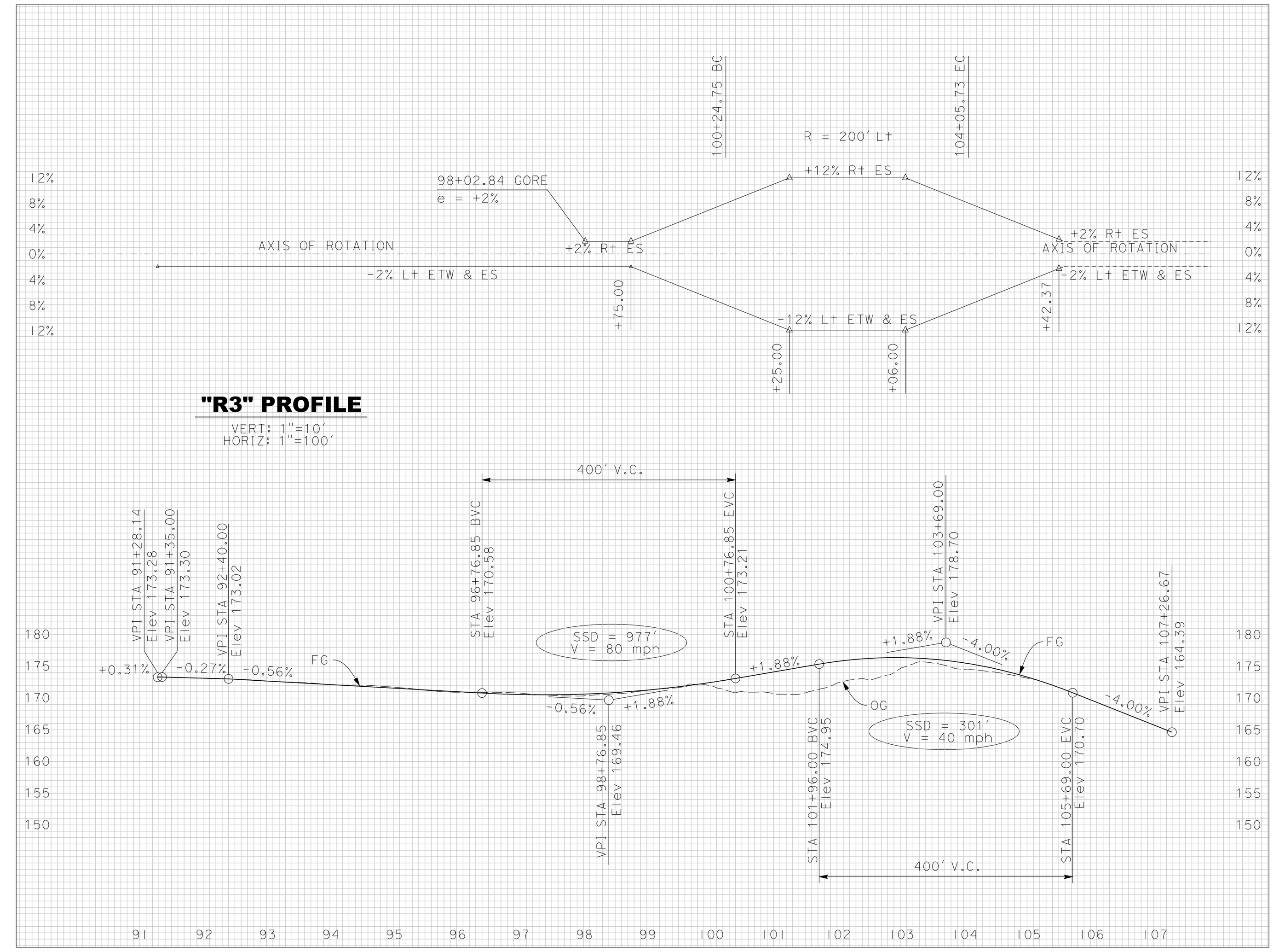
EASTBOUND AUXILIARY LANE
SHEET 1 of 2

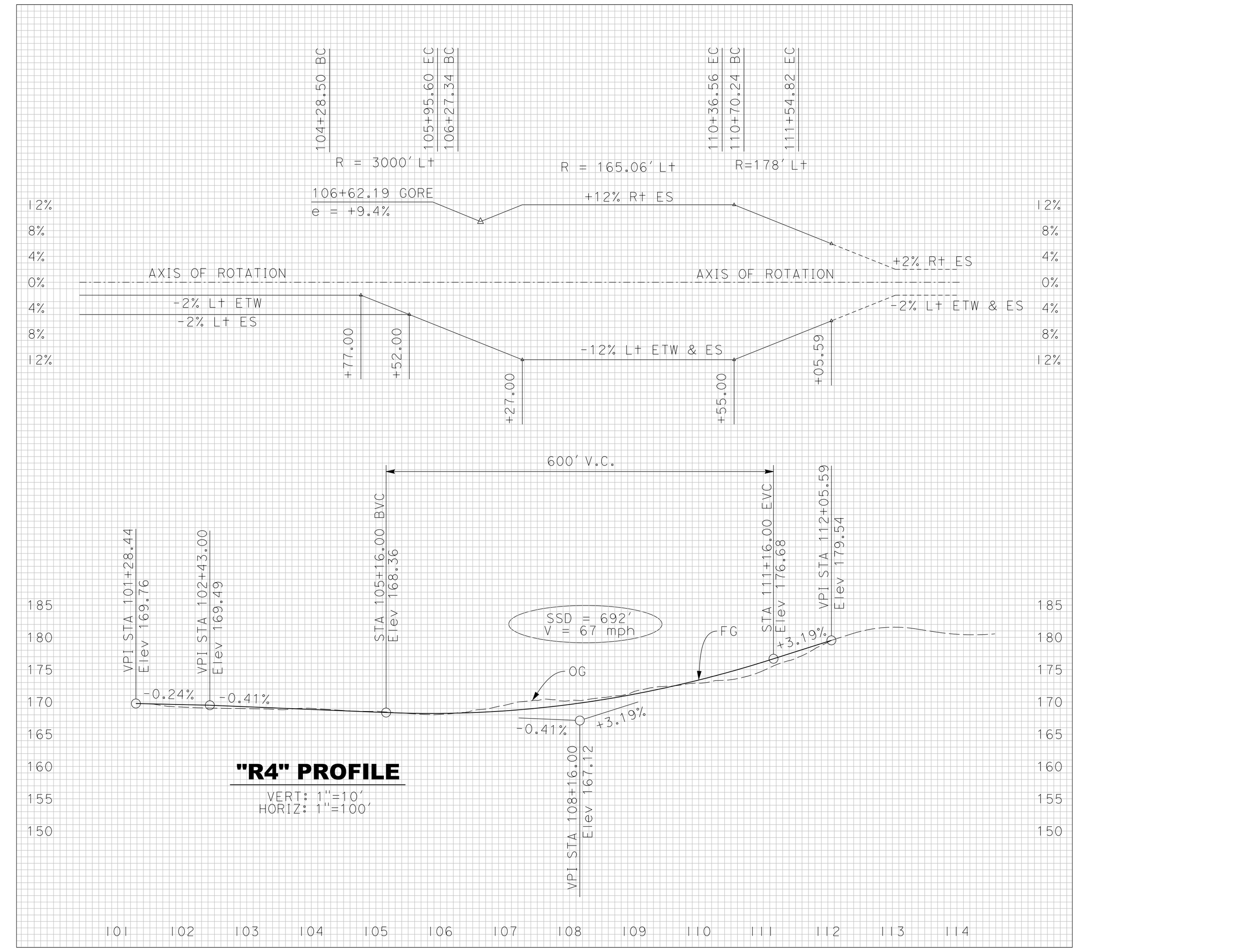
June 2016

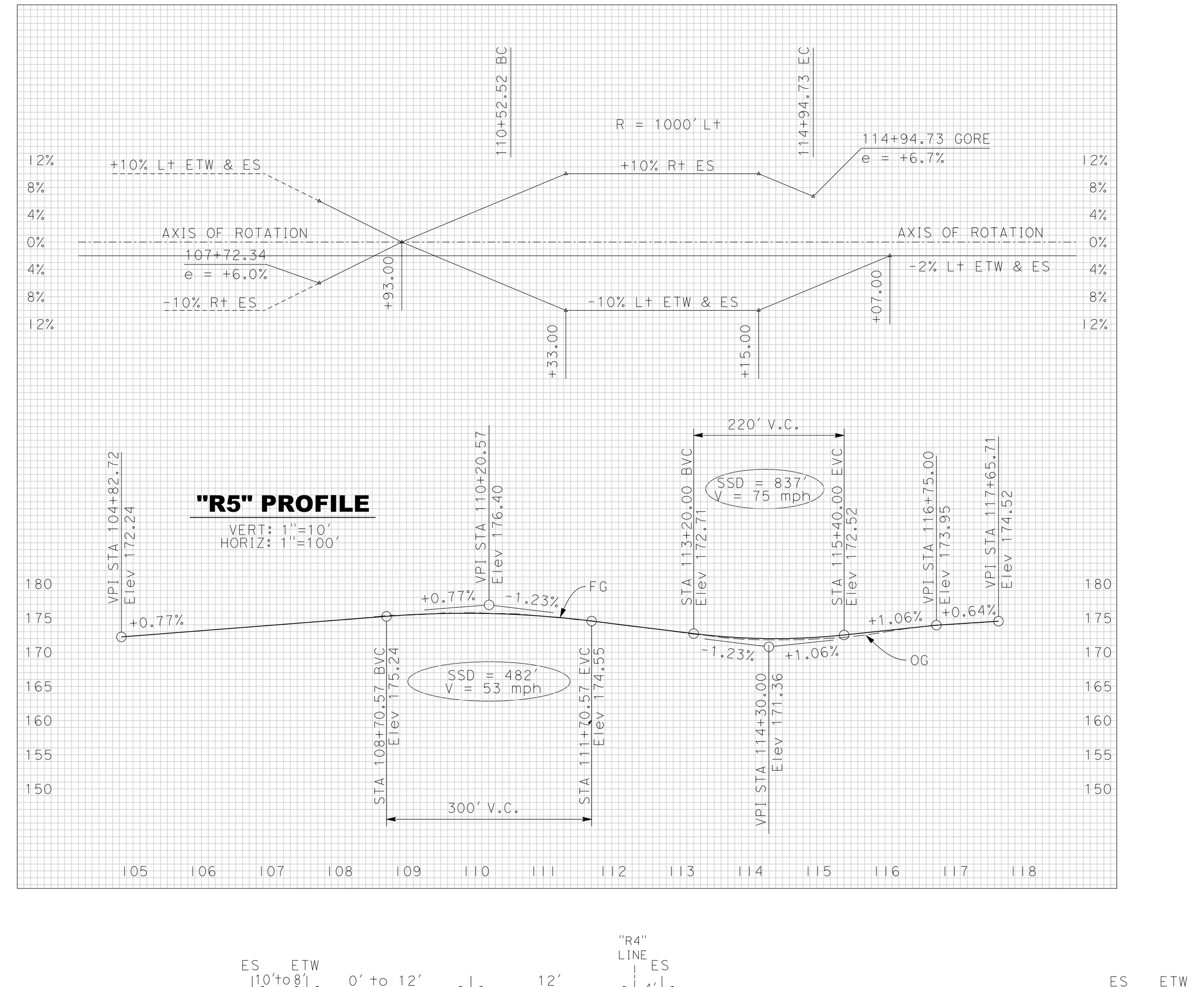












CURVE DATA

No. ⊕	R	Δ	T	L
1	3000′	3° 11′ 29″	83.57′	167.10′
2	147.64′	206° 35′ 05″	-	532.33′
3	600′	42° 50′ 33″	235.39′	448.65′
4	5000.00′	13° 36′ 14″	596.39′	1187.16′
5	3534.11′	4° 51′ 45″	150.05′	299.92′
6	3000.00′	3° 10′ 48″	83.28′	166.51′
7	200.00′	27° 13′ 27″	281.13′	380.98′
8	3000.00′	142° 3′ 7″	83.57′	167.10′
9	165.06′	3° 11′ 29″	480.06′	409.22′
10	178.00′	109° 8′ 32″	43.10′	84.58′
11	1052.96′	15° 45′ 33″	145.73′	289.62′
12	1000.00′	25° 20′ 12″	224.78′	442.21′

CURVE DATA

No. ⊕	R	Δ	T	L
1	3000′	3° 11′ 29″	83.57′	167.10′
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PLACER I-80 AUXILIARY LANES
LOCATION 2
GEOMETRIC APPROVAL DRAWING

WESTBOUND 5TH LANE
SHEET 2 of 2

June 2016

Attachment C

Preliminary Cost Estimate

Project ID: 03-3F230

Type of Estimate :	Project Report (PR)
Program Code :	
Project Limits :	03-PLA-80, PM 0.1/2.3 and 4.1/6.0
Description:	Propose to widen the existing Interstate 80 (I-80) adding an eastbound auxiliary lane and convert the proposed westbound auxiliary lane into a fifth through lane.
Scope :	Pavement Widening, Bridge Widening, Retaining Walls, Sound Walls, Barriers, Overhead Signs
Alternative :	Eastbound Auxiliary Lane and Westbound 5th Lane Extension - Alternative 2

		Current Cost		Escalated Cost
ROADWAY ITEMS	**$**	**9,813,600**	**$**	**10,110,962**
STRUCTURE ITEMS	**$**	**4,440,000**	**$**	**4,574,536**
SUBTOTAL CONSTRUCTION COST	**$**	**14,253,600**	**$**	**14,685,498**
RIGHT OF WAY	**$**	**102,600**	**$**	**105,348**
TOTAL CAPITAL OUTLAY COST	**$**	**14,357,000**	**$**	**14,791,000**
PR/ED SUPPORT	**$**	**820,000**	**$**	**820,000**
PS&E SUPPORT	**$**	**1,180,000**	**$**	**1,180,000**
RIGHT OF WAY SUPPORT	**$**	**90,000**	**$**	**90,000**
CONSTRUCTION SUPPORT	**$**	**1,570,000**	**$**	**1,570,000**
TOTAL CAPITAL OUTLAY SUPPORT COST*	**$**	**3,660,000**	**$**	**3,660,000**
TOTAL PROJECT COST	**$**	**18,050,000**	**$**	**18,500,000**

If Project has been programmed enter Programmed Amount $ -

	Month / Year
Date of Estimate (Month/Year)	6 / 2015
Estimated Date of Construction Start (Month/Year)	3 / 2017
Number of Working Days	220 Working Days
	Month / Year
Estimated Mid-Point of Construction (Month/Year)	8 / 2017
Number of Plant Establishment Days	Days

Estimated Project Schedule

PID Approval	
PA/ED Approval	May-16
PS&E	April-17
RTL	January-17
Begin Construction	Mar-17

Approved by Project Manager 916-858-0642

Project Manager	**Date**	**Phone**

I. ROADWAY ITEMS SUMMARY

	Section	Cost
1	Earthwork	$ 523,800
2	Pavement Structural Section	$ 2,662,000
3	Drainage	$ 150,000
4	Specialty Items	$ 1,227,900
5	Environmental	$ 317,100
6	Traffic Items	$ 1,682,100
7	Detours	$ -
8	Minor Items	$ 328,200
9	Roadway Mobilization	$ 689,200
10	Supplemental Work	$ 346,600
11	State Furnished	$ 40,000
12	Contingencies	$ 1,280,100
13	Overhead	$ 566,600

TOTAL ROADWAY ITEMS	$ 9,813,600

Estimate Prepared By

Name and Title Date Phone

Estimate Reviewed By

Name and Title Date Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

Roadway $	$ 6,574,000
SQFT	533061
$/SQFT	$ 12.33

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
160101	Clearing & Grubbing	LS	1	x	22,500.00	=	$	22,500
170101	Develop Water Supply	LS	1	x	20,000.00	=	$	20,000
190101	Roadway Excavation	CY	24,065	x	20.00	=	$	481,300
190103	Roadway Excavation (Type Y) ADL	CY		x		=	$	-
190105	Roadway Excavation (Type Z-2) ADL	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
198001	Impored Borrow	CY		x		=	$	-
198007	Imported Material (Shoulder Backing)	TON		x		=	$	-
XXXXXX	Some Item			x		=	$	-

TOTAL EARTHWORK SECTION ITEMS	**$**	**523,800**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
150305	Obliterate Surfacing	SQYD	731	x	5.50	=	$	4,021
1532XX	Remove Concrete (type)	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY	25,500	x	45.00	=	$	1,147,500
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	45	x	110.00	=	$	4,950
390129	Hot Mix Asphalt (Type C)	TON	12,600	x	80.00	=	$	1,008,000
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON	5,240	x	80.00	=	$	419,200
39405X	Shoulder Rumber Strip *(HMA, Type XX Indentation)*	STA		x		=	$	-
394076	Place Hot Mix Asphalt Dike (Type E)	LF	1,700	x	5.00	=	$	8,500
394090	Place Hot Mix Asphalt (Misc. Area)	SQYD		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
401000	Concrete Pavement	CY		x		=	$	-
731502	Minor Concrete (Misc. Const)	CY		x		=	$	-
731530	Minor Concrete (Textured Paving)	SQFT	7,570	x	9.75	=	$	73,808
XXXXXX	Some Item			x		=	$	-

TOTAL STRUCTURAL SECTION ITEMS	**$**	**2,662,000**

Note: Structureal Section based on 20 year Flexible with thinned shoulder

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
XXXXXX	Additional Drainage	LS	1	x	150,000.00	=	$	150,000

TOTAL DRAINAGE ITEMS	**$**	**150,000**

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
80050	Progress Schedule (Critical Path Method)	LS		x		=	$	-
150661	Remove Guardrail	LF	1,200	x	7.00	=	$	8,400
150668	Remove Flared End Section	EA	6	x	400.00	=	$	2,400
150655	Remove Barrier	LF	1,200	x	15.00	=	$	18,000
153253	Remove Sound Wall	SQFT	13,100	x	5.00	=	$	65,500
70030	Lead Compliance Plan	LS	1	x	5,000.00	=	$	5,000
498016	16" Cast-In-Drilled-Hole Concrete Piling (Sound Wa	LF	3,115	x	55.00	=	$	171,325
518002	Sound Wall (Masonry Block)	SQFT	24,351	x	20.00	=	$	487,020
152380	Relocate Chain Link Fence	LF	250	x	20.00	=	$	5,000
832005	Midwest Guardrail System	LF	860	x	40.00	=	$	34,400
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
839543	Transition Railing *(Type WB-31)*	EA	8	x	4,000.00	=	$	32,000
8395XX	Terminal System (Type CAT)	EA		x		=	$	-
839585	Alternative Flared Terminal System	EA	7	x	2,550.00	=	$	17,850
839581	End Anchor Assembly (Type SFT)	EA	1	x	700.00	=	$	700
839561	Rail Tensioning Assembly	EA		x		=	$	-
156590	Remove Crash Cushion (Sand Filled)	EA	19	x	100.00	=	$	1,900
839701	Concrete Barrier *(Type 60)*	LF	3,010	x	70.00	=	$	210,700
839734	Concrete Barrier (Type 736SV)	LF	1,156	x	145.00		$	167,620
XXXXXX	Some Item			x		=	$	-

TOTAL SPECIALTY ITEMS	**$**	**1,227,900**

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
	Biological Mitigation	LS		x		=	$	-
	Tree Replanting	EA	1,200	x	58.00		$	69,600
141000	Temporary Fence (Type ESA)	LF	3,000	x	5.00		$	15,000

Subtotal Environmental *$ 84,600*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost
210430	Hydroseed	SQFT	116,000	x	0.12		$	13,920
XXXXXX	Some Item							

Subtotal Landscape and Irrigation *$ 13,920*

5C - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost
130100	Job Site Management	LS	1	x	40,000.00	=	$	40,000
130300	Prepare SWPPP	LS	1	x	8,000.00	=	$	8,000
130550	Temporary Hydroseed	SQYD	15,000	x	1.00	=	$	15,000
130500	Temporary Erosion Control Blanket	SQYD	15,000	x	2.00	=	$	30,000
130640	Temporary Fiber Roll	LF	24,000	x	2.00	=	$	48,000
130900	Temporary Concrete Washout	LS	1	x	10,000.00	=	$	10,000
130710	Temporary Construction Entrance	EA	2	x	3,000.00	=	$	6,000
130610	Temporary Check Dam	LF	3,200	x	4.00	=	$	12,800
130505	Move In/ Move Out (Temporary Erosion Cont	EA	2	x	750.00	=	$	1,500
130620	Temporary Drainage Inlet Protection	EA	25	x	170.00	=	$	4,250
130730	Street Sweeping	LS	1	x	30,000.00	=	$	30,000
130900	Temporary Concrete Washout (Portable)	LS	1	x	13,000.00	=	$	13,000
130680	Temporary Silt Fence	LF	150	x	5.00	=	$	750

Supplemental Work for NPDES

(These costs are not accounted in total here but under Supplemental Work on sheet 7 of 11).

066595	Water Pollution Control Maintenance Sharing	LS	1	x	6,400.00	=	$	6,400
066596	Additional Water Pollution Control**	LS	1	x	6,000.00	=	$	6,000
066597	Storm Water Sampling and Analysis***	LS	1	x	8,000.00	=	$	8,000
XXXXXX	Some Item							

Subtotal NPDES (Without Supplemental Work) *$ 218,550*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

TOTAL ENVIRONMENTAL $ 317,100

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
150760	Remove Sign Structure	EA	3	x	6,000.00	=	$	18,000
151581	Reconstruct Sign Structure	EA		x		=	$	-
152641	Modify Sign Structure	EA		x		=	$	-
5602XX	Furnish Sign Structure	LB	80,000	x	4.25	=	$	340,000
5602XX	Install Sign Structure	LB	80,000	x	0.40	=	$	32,000
56XXXX	XXX" CIDHC Pile (Sign Foundation)	LF	88	x	1,200.00	=	$	105,600
860090	Maintain Existing Traffic Management System Elements During	LS	1	x	10,000.00	=	$	10,000
860810	Inductive Loop Detectors	EA		x		=	$	-
86055X	Lighting & Sign Illumination	LS	1	x	400,000.00	=	$	400,000
8609XX	Traffic Monitoring Stations	LS	2	x	50,000.00	=	$	100,000
860XXX	Signals & Lighting	LS		x		=	$	-
8611XX	Ramp Metering System (Location 1)	LS	1	x	15,000.00	=	$	15,000
8611XX	Ramp Metering System (Location 2)	LS	1	x	25,000.00	=	$	25,000
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Modify Closed Circuit Television System	LS	1	x	50,000.00		$	50,000

Subtotal Traffic Electrical *$ 1,045,600*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
120090	Construction Area Signs	LS	1	x	25,000.00	=	$	25,000
141103	Remove Yellow Thermoplastic Traffic Stripe (Hazardous Waste)	LF	8,680	x	3.00	=	$	26,040
150714	Remove Thermoplastic Traffic Stripe	LF	48,300	x	0.50	=	$	24,150
150715	Remove Thermoplastic Pavement Marking	SQFT	126	x	10.00	=	$	1,260
150742	Remove Roadside Sign	EA		x		=	$	-
152320	Reset Roadside Sign	EA		x		=	$	-
152390	Relocate Roadside Sign	EA	18	x	250.00	=	$	4,500
566011	Roadside Sign (One Post)	EA		x		=	$	-
566012	Roadside Sign (Two Post)	EA		x		=	$	-
560XXX	Furnish Sign Panels	SQFT		x		=	$	-
560XXX	Install Sign Panels	SQFT		x		=	$	-
82010X	Delineator (Class X)	EA		x		=	$	-
840501	Thermoplastic Traffic Stripe	LF	115,000	x	1.00	=	$	115,000
840515	Thermoplastic Pavement Marking	SQFT	55	x	18.00	=	$	990

Subtotal Traffic Signing and Striping *$ 196,940*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120100	Traffic Control System	LS	1	x	30,000.00	=	$	30,000
120120	Type III Barricade	EA		x		=	$	-
120151	Temporary Traffic Stripe (Tape)	LF	68,000	x	1.50	=	$	102,000
12016X	Channelizer	EA		x		=	$	-
128651	Portable Changeable Message Signs	EA	5	x	2,500.00	=	$	12,500
129000	Temporary Railing (Type K)	LF	18,000	x	15.00	=	$	270,000
129110	Temporary Crash Cushion	EA	10	x	2,500.00	=	$	25,000
129099A	Traffic Plastic Drum	EA		x		=	$	-
839603A	Temporary Crash Cushion (ADIEM)	EA		x		=	$	-
XXXXXX	Some Item							

Subtotal Stage Construction and Traffic Handling *$ 439,500*

TOTAL TRAFFIC ITEMS $ 1,682,100

SECTION 7: DETOURS

Include constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)			Cost
0713XX	Temporary Fence (Type X)	LF		x		=	$	-
07XXXX	Temporary Drainage	LS		x		=	$	-
120143	Temporary Pavement Delineation	LF		x		=	$	-
1286XX	Temporary Signals	EA		x		=	$	-
129000	Temporary Railing (Type K)	LF		x		=	$	-
190101	Roadway Excavation	CY		x		=	$	-
198001	Imported Borrow	CY		x		=	$	-
198050	Embankment	CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
260201	Class 2 Aggregate Base	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON		x		=	$	-

TOTAL DETOURS $ -

SUBTOTAL SECTIONS 1-7 $ 6,562,900

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items							
ADA Items				0.0%		$	-
8B - Bike Path Items							
Bike Path Items				0.0%		$	-
8C - Other Minor Items							
Other Minor Items				5.0%		$	328,145
Total of Section 1-7	$	6,562,900	x	5.0%	=	$	328,145

TOTAL MINOR ITEMS $ 328,200

SECTIONS 9: MOBILIZATION

Item code								
999990	Total Section 1-8	$	6,891,100	x	10%	=	$	689,110

TOTAL MOBILIZATION $ 689,200

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)			Cost
066015	Federal Trainee Program	LS	1	x	7,200.00	=	$	7,200
066063	Traffic Management Plan - Public Information	LS	1	x	100,000.00	=	$	100,000
066090	Maintain Traffic	LS	1	x	100,000.00	=	$	100,000
066094	Value Analysis	LS		x		=	$	-
066204	Remove Rock & Debris	LS		x		=	$	-
066222	Locate Existing Cross-Over	LS		x		=	$	-
066670	Payment Adjustments For Price Index Fluctuatior	LS		x		=	$	-
066700	Partnering	LS	1	x	35,000	=	$	35,000
066866	Operation of Existing Traffic Management Systen	LS		x		=	$	-
066920	Dispute Review Board	LS	1	x	15,000	=	$	15,000
XXXXXX	Some Item			x		=	$	-

*Cost of **NPDES** Supplemental Work specified in Section 5C* = $ 20,400

Total Section 1-8	$	6,891,100	1%	=	$	68,911

TOTAL SUPPLEMENTAL WORK $ 346,600

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066063	Public Information	LS		x		=	$0
066105	RE Office	LS		x		=	$0
066803	Padlocks	LS		x		=	$0
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066901	Water Expenses	LS		x		=	$0
066062A	COZEEP Expenses	LS	1	x	40,000.00	=	$40,000
06684X	Ramp Meter Controller Assembly	LS		x		=	$0
06684X	TMS Controller Assembly	LS		x		=	$0
06684X	Traffic Signal Controller Assembly	LS		x		=	$0
XXXXXX	Some Item						
	Total Section 1-8	$	6,891,100		0%	=	$ -

TOTAL STATE FURNISHED $40,000

SECTION 12: TIME-RELATED OVERHEAD

Estiamted Time-Releated Overhead (TRO) Percentage (0% to 10%) = 5%

Item code		Unit	Quantity		Unit Price ($)		Cost
070018	Time-Related Overhead	WD	220	X	2575	=	$566,600

TOTAL TIME-RELATED OVERHEAD $566,600

SECTION 13: CONTINGENCY

(Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11	$	8,533,500	x	15%	=	$1,280,025

TOTAL CONTINGENCY $1,280,100

II. STRUCTURE ITEMS

BRIDGE

DATE OF ESTIMATE	04/08/15
Bridge Name	Linda Creek Bridge (Widen)
Bridge Number	19-0027
Structure Type	CIP Reinf Concrete T-Beam
Width (Feet) [out to out]	14.50 LF
Total Bridge Length (Feet)	167.79 LF
Total Area (Square Feet)	2433 SQFT
Structure Depth (Feet)	5.00 LF
Footing Type (pile or spread)	Pile
Cost Per Square Foot	$283.60

COST OF EACH STRUCTURE	**$690,000.00**

Retaining Walls

WALL NUMBER	WALL TYPE	QUANTITY	UNIT	COST	COST
174	Type 1	1600	FT^2	$118.75	$190,000
177	Type 5SWB	2280	FT^2	$144.74	$330,000
188	Soldier Pile	2256	FT^2	$159.57	$360,000
193	Type 5	940	FT^2	$159.57	$150,000
197	Type 7B	4986	FT^2	$116.34	$580,000
45	Type 5SWB	9682	FT^2	$134.28	$1,300,000
75	Type 5	1766	FT^2	$158.59	$280,000
86	Type 5	340	FT^2	$176.47	$60,000
91	Type 5	1750	FT^2	$148.57	$260,000
102	Type 5	1763	FT^2	$136.12	$240,000

TOTAL COST OF BRIDGES	**$690,000.00**
TOTAL COST OF RETAINING	**$3,750,000.00**

TOTAL COST OF STRUCTURES[1]	**$4,440,000.00**

Estimate Prepared By: Rosa Griggs, PE

40682
Date

[1]Structure's Estimate includes Overhead and Mobilization.

Attachment D

Placer I-80 Auxiliary Lanes

Transportation Analysis Report

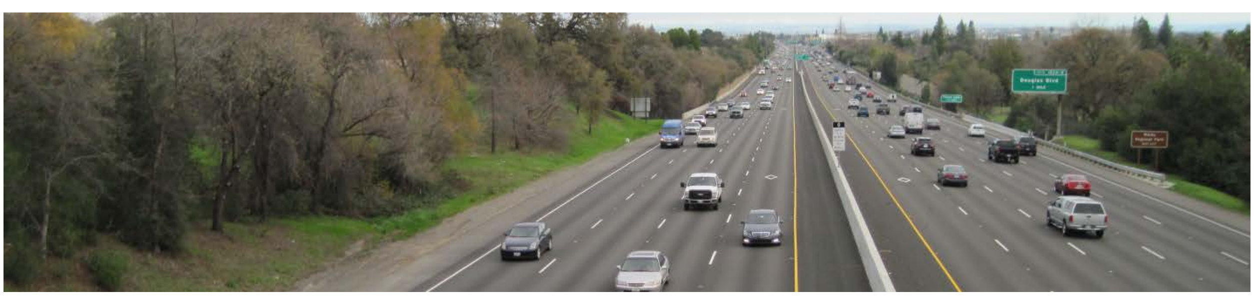
Placer County, CA

03-PLA-80-PM 0.1 to 2.2 and 4.1 to 6.0

EA 03-03F230
Project ID HPLUNCIIP-6158(063)

July 2015

PLACER COUNTY TRANSPORTATION PLANNING AGENCY



Transportation Analysis Report

Placer I-80 Auxiliary Lanes

03-PLA-80-PM 0.1 to 2.2 and 4.1 to 6.0

EA 03-03F230
Project ID HPLUNCIIP-6158(063)

July 2015

Prepared By: David Stanek, PE Date: ____________

Phone Number	916-773-1900
Firm Name	Fehr & Peers
Location	Roseville, CA

Planning
Approved By: ____________ Date: 7/30/15

Name	Nicholas Deal
Title	Senior Transportation Planner
Phone Number	530-741-5151
Office Name	Travel Forecasting & Modeling
District/Region	District 3 North Region

Traffic Operations
Approved By: ____________ Date: July 28, 2015

Name	Christine M. Zdunkiewicz
Title	Transportation Engineer
Phone Number	(916) 859-7949
Office Name	District 3 Freeway Operations
District/Region	District 3/North Region

Transportation Analysis Report

Placer I-80 Auxiliary Lanes

03-PLA-80-PM 0.1 to 2.2 and 4.1 to 6.0

EA 03-03F230
Project ID HPLUNCIIP-6158(063)

July 2015

This report was prepared under my direction and responsible charge. I attest to the technical information contained herein and have judged the qualification of any technical specialists providing engineering data upon which recommendations, conclusions, and decisions are based.

REGISTERED PROFESSIONAL ENGINEER
DAVID M STANEK
No. C 60390
CIVIL
STATE OF CALIFORNIA

David Stanek   July 6, 2015

David Stanek, P.E.   Date
Registered Professional Civil Engineer
Fehr & Peers

RS14-3242

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Chapter 1. Introduction

This transportation analysis report was prepared for the Placer Interstate 80 (I-80) Auxiliary Lanes project. The report contains the results and findings of the traffic forecasts and traffic operation analysis, while the detailed analysis calculations are compiled in a separately bound appendix.

1.1. Purpose of the Transportation Analysis Report

The purpose of this report is to analyze project design alternatives and their effects on the highway and arterial transportation network. The report focuses on a comparison of alternatives that are each designed to improve future traffic operations and safety for the I-80 corridor consistent with the purpose and need statement. Portions of the analysis results will also be used to comply with environmental impact analysis requirements for the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).

1.2. Project Description

The proposed project is located on I-80 in Placer County in the cities of Roseville and Rocklin. Figure 1 shows the project vicinity and location map. The project proposes to widen the existing I-80 by adding an eastbound auxiliary lane between State Route 65 (SR 65) and Rocklin Road and a westbound auxiliary lane between Douglas Boulevard and Riverside Avenue. An alternative is also under consideration that would convert the proposed westbound auxiliary lane into a fifth through lane from east of Douglas Boulevard to west of Riverside Avenue, where five lanes currently exist.

1.3. Project Purpose and Need

The current purpose and need statement for the Placer I-80 Auxiliary Lanes project is provided below.

The purpose of this project is to:

- Enhance through capacity on I-80 in two locations: eastbound from SR 65 through the Rocklin Road interchange and westbound from Douglas Boulevard though the Riverside Avenue interchange;
- Reduce existing congestion and operational problems on I-80 that cause back up on I-80 and on local roadways; and
- Improve safety by reducing stop and go traffic through enhanced capacity, merging and weaving facilities.

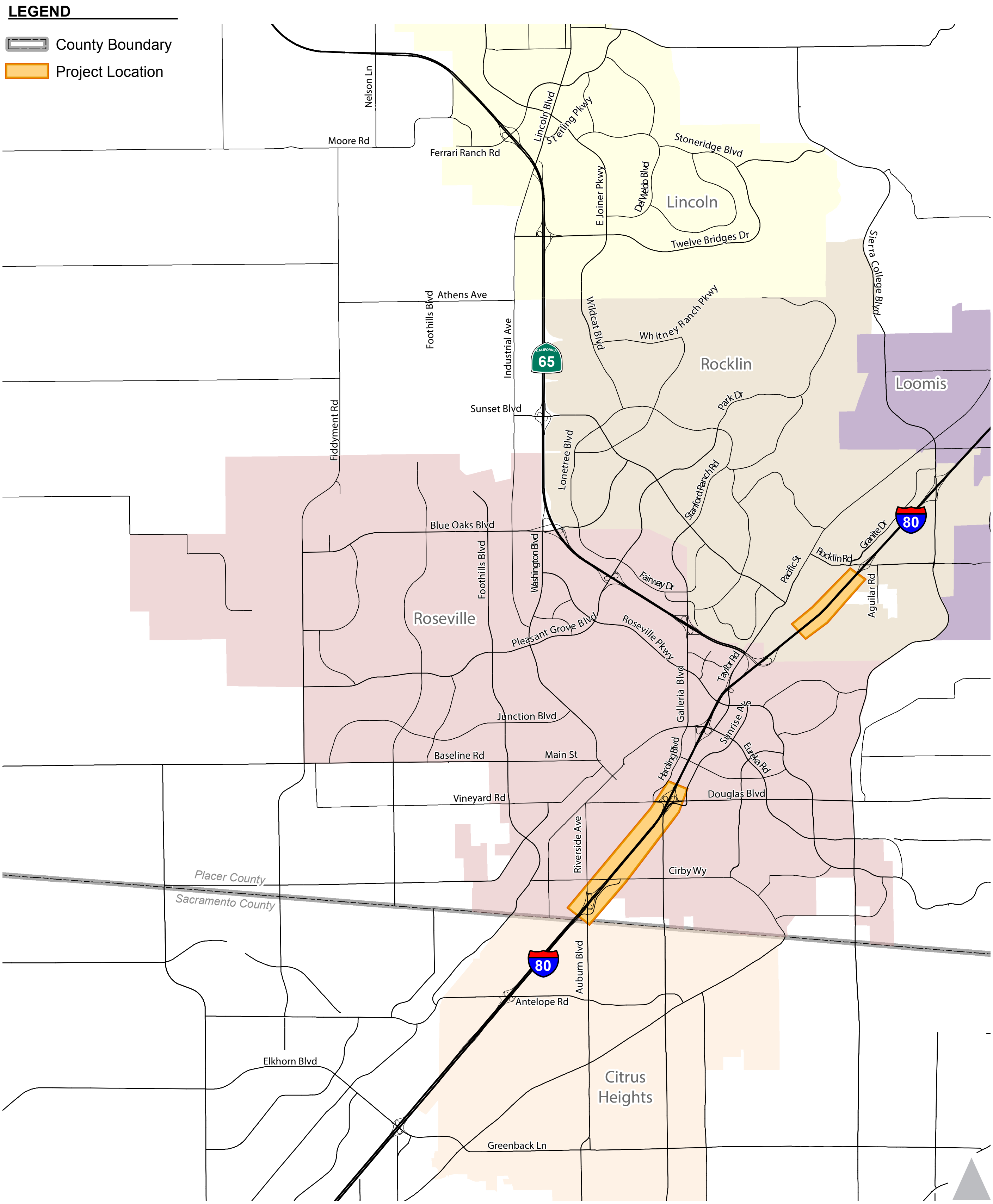

Figure 1

Project Vicinity

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The project is needed because the freeway is experiencing operational problems caused by high peak period traffic volumes. Vehicle hours of delay, average speeds, travel times, and other traffic performance measures will continue to degrade as growth increases. I-80 is a primary transcontinental freeway which primarily serves as a transportation corridor for both passengers and goods throughout the United States. Additionally, growth in the South Placer County region has increased daily commuter traffic and traffic to major commercial and educational centers in the area. This increased traffic demand, together with increased demand generated from recreational facilities in the Sierra Nevada Mountains to the east and the San Francisco Bay Area to the west have resulted in reduced levels of service on I-80. This segment of I-80 serves the national movement of goods and passengers, as well as the City of Roseville, City of Rocklin, and Placer County and is heavily used throughout the day.

1.3.1. Logical Termini and Independent Utility

Project limits for proposed improvements were developed through an iterative process involving engineering design and traffic operations analysis. Preliminary design concepts were tested with the traffic operations analysis model to evaluate how lane transitions and weaving influenced peak hour conditions. Refinements were made to ensure that mainline lane balance was logical and that transitions did not cause unacceptable traffic operations such as extensive queuing or reduced speeds.

1.4. **Project Alternatives**

The following project alternatives were analyzed.

1. Eastbound and Westbound Auxiliary Lanes
2. Eastbound Auxiliary Lane and Westbound 5th Lane
3. No Build (No Project)

Each of the alternatives is described below. See Figures 13, 14, and 15 for lane configuration details.

Alternative 1 would add an eastbound lane on I-80 between SR 65 and Rocklin Road. Currently, eastbound I-80 has a lane reduction at about 0.4 miles east of the SR 65 on-ramp. And, the eastbound off-ramp to Rocklin Road has a deceleration lane of about 0.15 miles. The project would widen eastbound I-80 for about 0.75 miles to connect these two lanes. In addition, the off-ramp gore would be widened to two lanes to provide both an exit-only lane and an optional exit lane. The off-ramp widening would end where the ramp currently widens to two lanes before the ramp terminal intersection.

In the westbound direction, Alternative 1 would add a westbound auxiliary lane at the westbound Douglas Boulevard (loop) on-ramp to the Riverside Avenue off-ramp. The merge area for the eastbound Douglas Boulevard (slip) on-ramp would be shifted to the outside to accommodate the auxiliary lane. Additionally, this on-ramp would be widened to provide a high occupancy vehicle (HOV) preferential lane at the ramp meter.

Alternative 2 would include the eastbound lane addition as described above under Alternative 1. In the westbound direction, the mainline lane that currently terminates at the Douglas Boulevard off-ramp would be extended through both the Douglas Boulevard and Riverside Avenue interchanges so that five mainline lanes would be provided between SR 65 in Roseville and SR 51 (Capital City Freeway) in Sacramento. With the lane addition, the Douglas Boulevard off-ramp would be narrowed to a single-lane exit. The merge areas at the westbound and eastbound Douglas Boulevard on-ramps would be shifted to the outside to accommodate the lane addition. As in Alternative 1, the eastbound Douglas Boulevard on-ramp would be widened to provide a HOV preferential lane at the ramp meter. At the Riverside Avenue interchange, the current off-ramp configuration would be maintained, and the northbound (loop) on-ramp would be modified to merge with the mainline instead of the current lane addition configuration.

Under the No Build (or No Project) Alternative, no widening of the I-80 mainline eastbound would be made between SR 65 and Rocklin Road and westbound between Douglas Boulevard and Riverside Avenue. However, numerous transportation capacity expansion projects are planned to be constructed within the study area under construction year (2020) and design year (2040) conditions as displayed in Figures 2 and 3, respectively. In addition, Caltrans plans to install ramp meters to all local street on-ramps in the study area. The planned projects – including ramp metering during both peak periods – are assumed to be in place under all alternatives. The Lincoln Bypass and the Eureka Road widening at Taylor Road are shown as future projects because the traffic data for existing conditions was collected before these project were completed. Please see Chapter 2 for further details.

1.5. **Design Options**

As part of the alternative development process, an option for eastbound I-80 between SR 65 and Rocklin Road was evaluated at a conceptual level. In this option, the mainline improvements only included lengthening of the existing deceleration lane at the Rocklin Road off-ramp to the length recommended in the current edition of the *Highway Design Manual* (Caltrans, 2014). While the longer deceleration lane would provide additional storage in the event of queuing on the off-ramp, the additional distance would not improve mainline traffic operations as the full lane would. Additionally, the gap between the existing lane drop on eastbound I-80 and the start of the lengthened deceleration lane would be relatively short, which may confuse drivers who are anticipating the Rocklin Road exit. As a result, this option was dropped from further consideration.

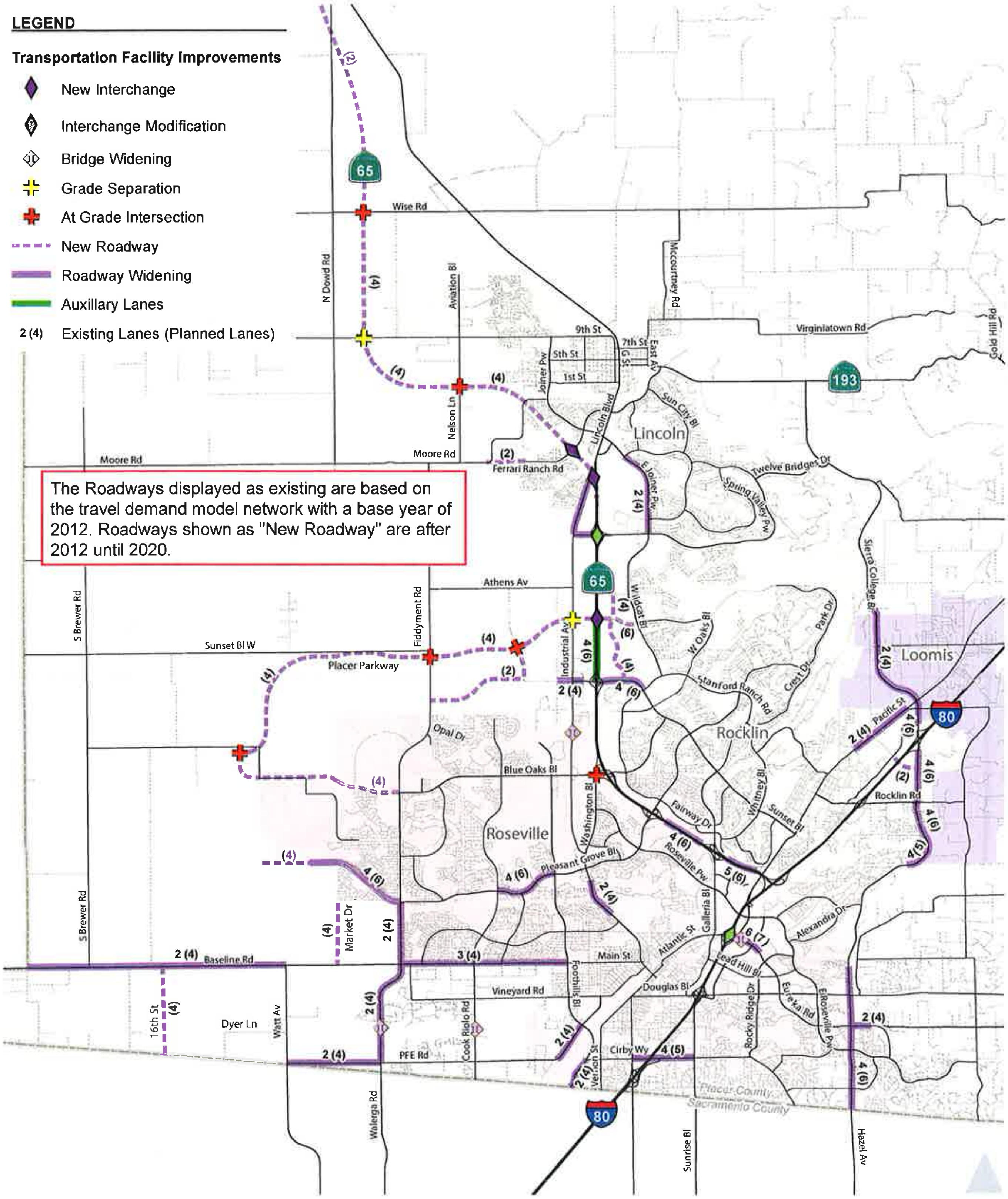

Figure 2

Roadway Improvements Assumed to be Constructed by 2020

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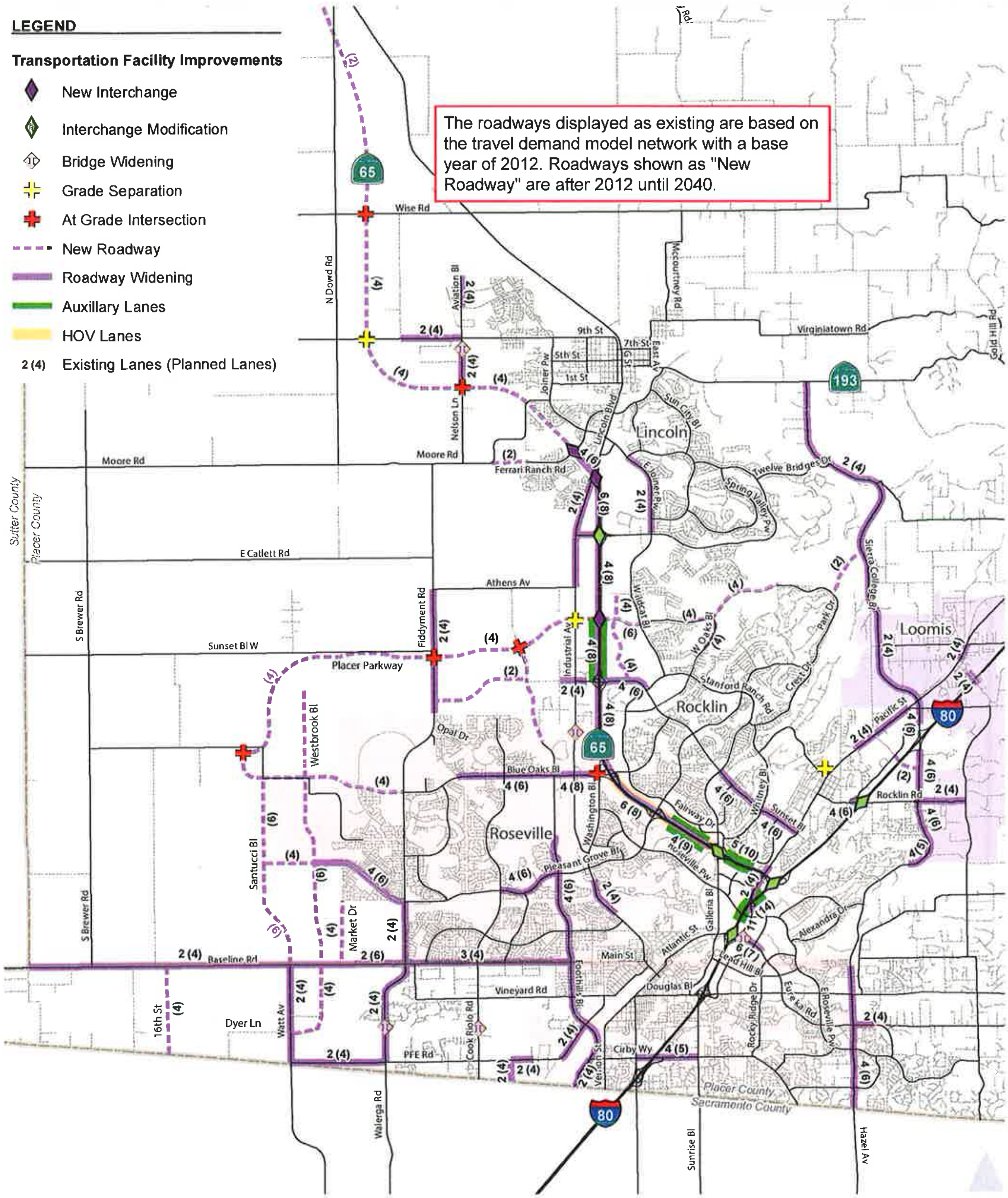

Figure 3

Roadway Improvements Assumed to be Constructed by 2040

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For the westbound direction, a design option that included both the fifth lane and a two-lane exit at Douglas Boulevard was evaluated at a conceptual level. To maintain the two-lane off-ramp, an auxiliary lane would be constructed from the acceleration lane at the Atlantic Street on-ramp to Douglas Boulevard. While the auxiliary lane would improve freeway operations, the widening to provide recommended lane and shoulder widths would require right-of-way acquisition and replacement of the Lead Hill Boulevard overcrossing.

The analysis results for Alternative 2, which has a fifth lane and a one-lane exit at Douglas Boulevard, did not show the need for the two-lane exit. The design year volume forecast (Figure 14) shows the peak hour volume to be lower than the threshold for providing a two-lane off-ramp (1,500 vehicles per hour, per the *Highway Design Manual*, Chapter 504.3). The design year freeway operations are LOS E or better for Alternative 2 between Atlantic Street and Douglas Boulevard (Tables 16 and 17). As a result, the design option to provide an auxiliary lane between Atlantic Street and Douglas Boulevard with a two-lane exit was dropped from further consideration.

Chapter 2. Analysis Methodology

2.1. Study Area

The project study area for transportation analysis extends beyond the immediate vicinity of the I-80 corridor as shown in Figure 4. The larger study area for transportation analysis purposes was based on two key factors.

1. The area needed to be large enough to capture the influence of potential changes along the I-80 corridor. This was determined through field observations and travel forecasting analysis that assessed traffic volume changes associated with the project's lane changes. This information revealed peak period traffic operations on I-80 influence upstream and downstream conditions through multiple local interchanges and the adjacent SR 65 corridor.

2. The Placer County Transportation Planning Agency (PCTPA) developed a travel forecasting and traffic operations model for the I-80/SR 65 Interchange Improvements project that would be used for future projects such as the Placer I-80 Auxiliary Lanes project.

Depending on the analysis scenario, up to 155 individual analysis locations are included in the study area. These locations consist of freeway mainline segments, freeway ramp junctions, freeway weaving areas, and intersections. For a complete listing of all analysis locations, refer to the appendix.

2.2. Data Collection Methods

This section describes the data that were collected for use in the traffic analysis.

2.2.1. Geometric Data

Roadway geometric data were gathered using aerial photographs, design plans (for the I-80 carpool lane project through the City of Roseville), and field observations. The lane configurations that were taken initially from aerial photographs were confirmed or revised based on field observations.

2.2.2. Traffic Control Data

Traffic control data (i.e., signal phasing/timings) were provided by the responsible operating agencies including Caltrans, the City of Roseville, the City of Rocklin, and Placer County. The Caltrans Traffic Operations Sacramento Area office provided timing information for the ramp meters that were operating when the traffic counts were collected. The posted speed limits for the network were collected during field observations.

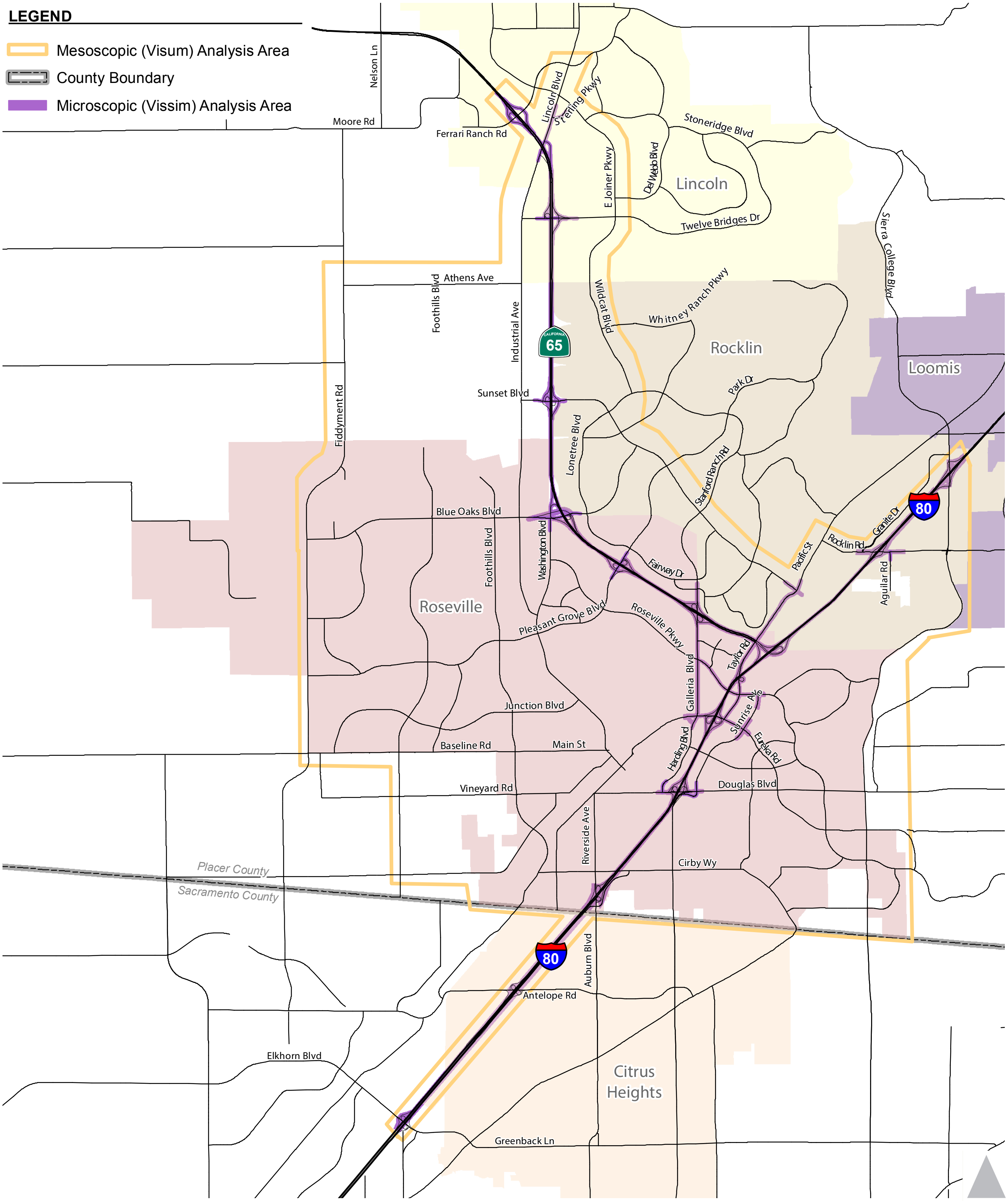

Figure 4

Study Area

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Traffic signals are modeled as either free operation or coordinated according to the control plans specified in the controller. Traffic control at unsignalized intersections were taken from aerial photographs and confirmed during field observations.

2.2.3. Traffic Flow Data

Freeway and intersection traffic counts were collected in 15-minute intervals for the 6 to 10 AM and 3 to 7 PM peak periods during January and February 2012. At intersections, cars, trucks, bicycles, and pedestrians were counted by turning movement. For freeways, traffic counts include vehicle classification by number of occupants for passenger cars and vehicle type. Table 1 contains the hourly HOV and truck percentages at the freeway gateway locations from the traffic counts (complete traffic count data are contained in the appendix).

TABLE 1: HOURLY HOV AND TRUCK PERCENTAGE

	Eastbound I-80 at Riverside Ave		Westbound I-80 at Sierra College Blvd		Southbound SR 65 at Twelve Bridges Dr	
Hour	HOV	Truck	HOV	Truck	HOV	Truck
6 to 7 AM	12.4%	7.9%	11.6%	3.8%	13.1%	1.8%
7 to 8 AM	13.7%	3.7%	10.7%	3.8%	10.5%	1.4%
8 to 9 AM	15.6%	4.0%	13.9%	5.2%	14.8%	1.1%
9 to 10 AM	18.3%	5.3%	18.1%	5.9%	19.0%	2.2%
3 to 4 PM	20.0%	3.2%	24.3%	7.5%	31.1%	1.7%
4 to 5 PM	19.2%	2.6%	24.5%	5.1%	26.6%	0.9%
5 to 6 PM	13.9%	2.2%	18.8%	5.1%	31.0%	1.0%
6 to 7 PM	12.7%	2.8%	17.1%	5.2%	29.5%	1.5%

Source: Fehr & Peers, 2015

2.2.4. Travel Time Data

Travel time surveys were conducted during the same day of the mainline counts using global positioning system (GPS) units. The following routes were traveled for a minimum of every 15 minutes during the morning and evening peak periods.

- Southbound SR 65 at Blue Oaks Boulevard to westbound I-80 at Elkhorn Boulevard
- Eastbound I-80 at Elkhorn Boulevard to northbound SR 65 at Blue Oaks Boulevard
- Westbound I-80 from Sierra College Boulevard to Elkhorn Boulevard
- Eastbound I-80 from Elkhorn Boulevard to Sierra College Boulevard

2.3. **Travel Forecasting Methodology**

The transportation analysis used an integrated modeling approach that has three different levels of detail: macro, meso, and micro. At the macro level, the regional travel forecasting model (SACMET) was used to forecast peak period origin-destination (OD) traffic volume flows between traffic analysis zones both internal and external to the study area. At the meso level, the peak period OD flows were divided into four one-hour trip tables and disaggregated into three modes – single occupant vehicle (SOV), HOV, and truck – and then assigned to the sub-area roadway network using the Visum software. The assignment process was based on congested travel times that reflect roadway link speeds and capacity. At the micro level, the traffic volumes were converted to individual vehicles that were assigned to the operational study area using the Vissim software that contains detailed inputs governing traffic controls (signal timings), geometrics (lane configurations), and driver behavior.

The traffic forecasts were developed using the first two modeling platforms (macro and meso). The first platform is a modified version of the regional SACMET model developed by the Sacramento Area Council of Governments (SACOG) for the Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy (SCS). The second platform is the Visum sub-area trip assignment model, which was used to assign the trips generated from the SACMET model to a detailed roadway network within the study area. Figure 4 above shows the mesoscopic and microscopic analysis areas.

The SACMET and Visum models were calibrated and validated according to the *2010 California Regional Transportation Guidelines (*California Transportation Commission, 2010) and criteria approved by the PDT. Both models passed applicable static and dynamic validation tests. The detailed validation results are contained in Chapter 4 of the *I-80/SR 65 Interchange Improvements Transportation Analysis Report* (August 2014).

Traffic volume forecasts were developed for construction year (2020) and design year (2040) conditions. The forecasts relied on modified inputs to the MTP/SCS SACMET model based on refinements by the I-80/SR 65 Interchange Improvements PDT to land use projections and the planned roadway network as explained below.

2.3.1. Socioeconomic Forecasts

The traffic volume forecasts are derived from future socioeconomic projections that started with regional socioeconomic projections developed by SACOG for the regional MTP/SCS. These were reviewed by the I-80/SR 65 Interchange Improvements PDT and modified to better reflect local plans. Figure 5 displays the final growth projections within the study area. Socioeconomic projections are the largest single influence on traffic volume forecasts, so they will affect volume projections to a greater extent than the roadway network changes or any other modeling component. If these forecasts vary in reality, it will have a direct effect on future traffic volumes.

2.3.2. Planned Transportation Network

The traffic volume forecasts are also influenced by modifications to the existing transportation network according to improvement projects anticipated to be constructed by the construction and design years (refer to Figures 2 and 3). These projects are based on the financially constrained project list contained in the MTP/SCS, but also consider projects the I-80/SR 65 Interchange Improvements PDT agreed would likely be constructed by the design year. The rationale for adding projects to the MTP/SCS list was that the design year is five years beyond the 2035 horizon of the MTP/SCS. This creates a longer timeframe for revenue to accumulate. Further, the additional socioeconomic growth added to the model would also be contributing to transportation revenue to help pay for these improvements. A list of the planned projects is provided in Table 2. Related projects are shown in bold.

2.4. Traffic Operations Analysis Methodology

Because the study area already experiences peak period congestion, which is forecast to worsen, the traffic operations analysis required the use of simulation-based analysis. A congested network is very sensitive to any change in capacity or demand and the analysis tools need to be able to capture how changes in one location of the network affect the overall performance. Therefore, a Vissim (version 5.4-06) traffic simulation model was developed as follows.

- The model was constructed from roadway network (lane configuration), traffic volume (traffic counts), and traffic control (traffic signal and ramp meter) data.
- Additional detail was incorporated into the Vissim network (posted speed limits, grades, etc.) to reflect observed field conditions.
- Driver behavior parameters were adjusted based on field observations.
- The distribution of vehicle types was calibrated to local conditions so that the percentages of trucks and HOVs match the traffic counts.

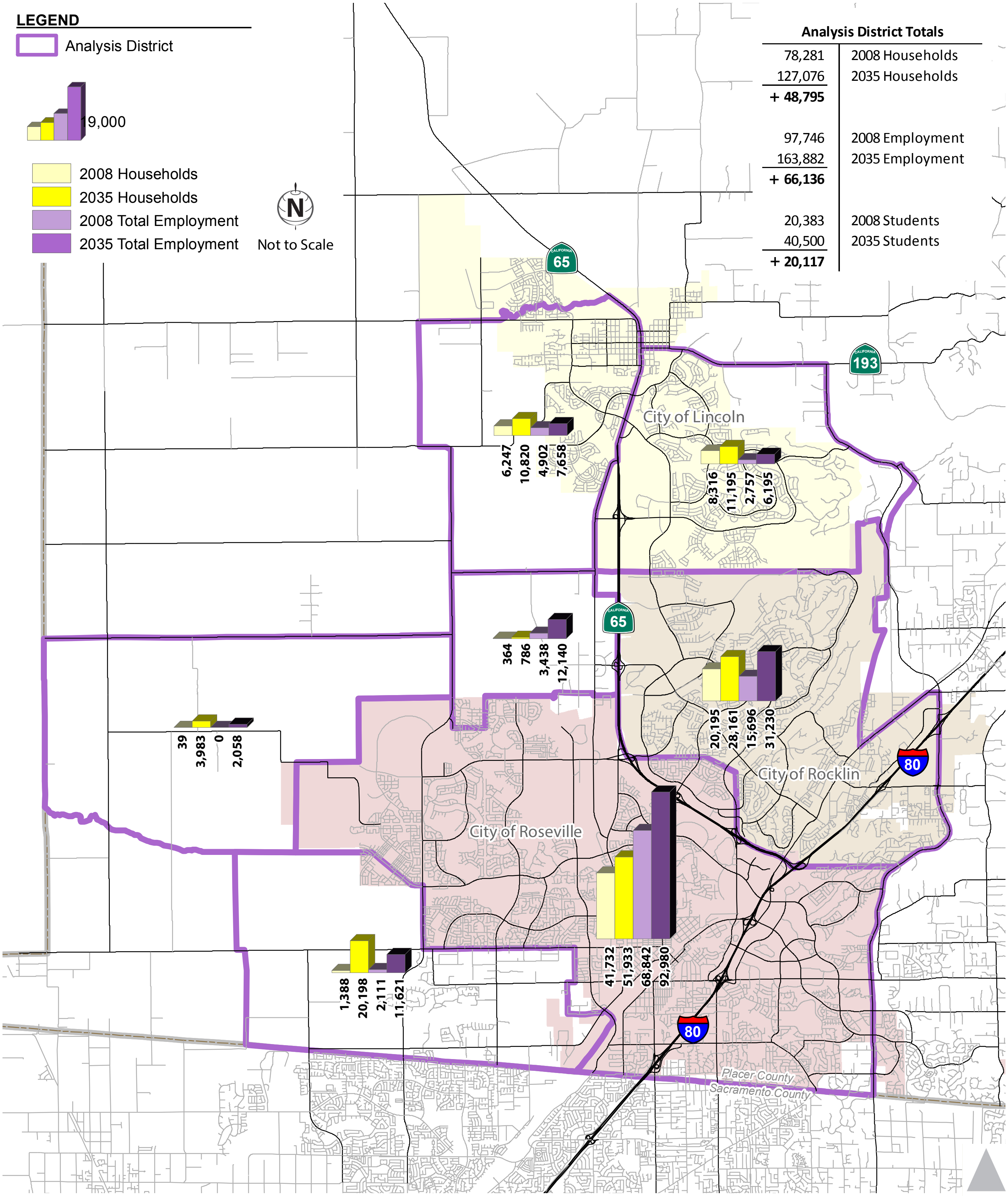

Figure 5

Modified SACMET Land Use Summary by Analysis District

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TABLE 2: PLANNED SEPARATE PROJECTS

Category	Project
Complete by 2020 (Construction Year)	• Atkinson St: widen from 2 to 4 lanes from Foothills Blvd to south of Dry Creek • Baseline Rd: widen from 3 to 4 lanes from Brady Ln to Fiddyment Rd • Baseline Rd: widen from 2 to 4 lanes from Fiddyment Rd to Watt Ave • Baseline Rd: widen from 2 to 4 lanes from Watt Ave to (future) 16th St • Baseline Rd: widen from 2 to 4 lanes from (future) 16th St to county line • Blue Oaks Blvd: construct 4 lanes from Fiddyment Rd to Hayden Pkwy and 2 lanes from Hayden Pkwy to Westbrook Blvd • Blue Oaks Blvd: widen from 2 to 4 lanes from Hayden Pkwy to Westbrook Blvd and construct 4 lanes from Westbrook Blvd to Santucci Blvd • Blue Oaks Blvd/Washington Blvd Widening • Cirby Way: widen from 4 to 5 lanes from Riverside Ave to Regency Ave • Cook Riolo Rd: widen from 1 to 2 lanes Dry Creek Bridge • Domiguez Rd: construct 2 lanes from Granite Dr to Sierra College Blvd • East Joiner Pkwy: widen from 2 to 4 lanes from Del Webb Pkwy to Twelve Bridges Dr • Eureka Rd: widen from 2 to 4 lanes from Sierra College Blvd to city limits • Ferrari Ranch Rd: construct 2 lanes from city limit to Moore Rd • Fiddyment Rd: widen to 4 lanes from Pleasant Grove Blvd to Baseline Rd • I-80/Eureka Rd On-ramp Improvements • **I-80/SR 65 Interchange Improvements Phase 1** • Industrial Ave: widen from 2 to 4 lanes from SR 65 to Twelve Bridges Dr • Industrial Ave: replace 2 lane bridge at Pleasant Grove Creek • Market St: construct 2 lanes from Baseline Road to Pleasant Grove Blvd • Pacific St: widen to 4 lanes from Sierra Meadows Dr to Loomis town limits • PFE Rd: widen from 2 to 4 lanes from Watt Ave to Walerga Rd • Placer Pkwy: construct 4-lane expressway from SR 65 to Santucci Blvd • Pleasant Grove Blvd: widen from 4 to 6 lanes from Foothills Blvd to Woodcreek Oaks Blvd • Pleasant Grove Blvd: widen from 2 to 4 lanes from Fiddyment Road to Santucci Blvd • Rocklin Rd: widen from 4 to 6 lanes from Granite Dr to I-80 Westbound Ramps • Roseville Rd: widen from 2 to 4 lanes from city limits to Cirby Way • Santucci Blvd: construct 4 lanes from Baseline Road to Blue Oaks Blvd • Sierra College Blvd: widen to 6 lanes from county line to Olympus Dr • Sierra College Blvd: widen from 4 to 5 lanes from Nightwatch Dr to Aguilar Tributary • Sierra College Blvd: widen from 4 to 6 lanes from Aguilar Tributary to I-80 • Sierra College Blvd: widen from 4 to 6 lanes from Granite Dr to Bankhead Rd • Sierra College Blvd: widen from 2 to 4 lanes from Taylor Rd to north town limits • SR 65 Lincoln Bypass – Phase 1 & 2A • SR 65/Ferrari Ranch Rd Interchange • SR 65/Whitney Ranch Pkwy: construct interchange • Sunset Blvd: construct 2 lanes from Fiddyment Rd to Foothills Blvd • Sunset Blvd: widen from 2 to 4 lanes from Cincinnati Ave to SR 65 • Sunset Blvd: widen to 6 lanes from SR 65 to West Stanford Ranch Rd • Twelve Bridges Dr: widen from 2 to 4 lanes from Industrial Ave to SR 65 including interchange • University Ave: construct 4 lanes from Whitney Ranch Pkwy to Ranch View Dr • University Ave: construct 4 lanes from Sunset Blvd to Whitney Ranch Pkwy • Walerga Rd: widen from 2 to 4 lanes from Baseline Rd to county line

TABLE 2: PLANNED SEPARATE PROJECTS

Category	Project
	• Washington Blvd: widen to 4 lanes from Sawtell Rd to Pleasant Grove Blvd • Whitney Ranch Pkwy: construct 6 lanes from SR 65 to east of Wildcat Blvd
Complete by 2035	• Aviation Blvd: widen from 2 to 4 lanes from Venture Dr to 0.5 mi north of Venture Dr • Dyer Ln: construct 4 lanes from Watt Ave to Baseline Rd • Fiddyment Rd: widen from 2 to 4 lanes from Roseville city limits to Athens Rd • Foothills Blvd: construct 2 lanes from Roseville city limits to Sunset Blvd • I-80/Horseshoe Bar Rd Interchange: widen overcrossing from 2 to 4 lanes • I-80/Rocklin Rd Interchange improvements • Industrial Ave: widen from 2 to 4 lanes from Twelve Bridges Dr to Athens Ave • Nicolaus Rd: widen from 2 to 4 lanes from Airport Rd to Aviation Blvd • Midas Ave: construct grade separation at UPRR • Rocklin Rd: widen from 2 to 4 lanes from Sierra College Blvd to Loomis town limits • Rocklin Rd: widen from 2 to 4 lanes from west Loomis town limits to Barton Rd • North Antelope Rd: widen from 2 to 4 lanes from county line to PFE Rd • Sierra College Blvd: widen from 2 to 4 lanes from SR 193 to Loomis town limits • Sierra College Blvd: widen to 4 lanes from (future) Valley View Pkwy to Loomis town limits • SR 65/Galleria Blvd Interchange Improvements (Phase II) • Sunset Blvd: widen from 4 to 6 lanes from Stanford Ranch Rd to Topaz Ave • Sunset Blvd: widen from 4 to 6 lanes from Topaz Ave to Whitney Blvd • Sunset Blvd: widen from 4 to 6 lanes from Whitney Blvd to Pacific St • Taylor Rd: widen from 2 to 4 lanes from Horseshoe Bar Rd to King Rd • Valley View Pkwy: construct 2 lanes from Park Dr to Sierra College Blvd • West Oaks Blvd: construct 4 lanes from terminus to (future) Whitney Ranch Pkwy • Whitney Ranch Pkwy: construct 4 lanes from terminus to Whitney Oaks Dr • Watt Ave: widen from 2 to 4 lanes from Baseline Rd to county line
Assumed to be Complete by 2040 (Design Year)	• Baseline Rd: widen from 4 to 6 lanes from Fiddyment Rd to Watt Ave • Blue Oaks Blvd: widen to 6 lanes from Crocker Ranch Rd to Foothills Blvd • Blue Oaks Blvd: widen to 8 lanes from Foothills Blvd to Washington Blvd • Foothills Blvd: widen to 6 lanes from Cirby Way to Misty Wood Dr • I-80 at Douglas Blvd and Riverside Ave: widen to provide an additional mainline lane • **I-80/SR 65 Interchange Improvements: Collector-Distributor System Ramps Alternative** • Nelson Ln: widen from 2 to 4 lanes from SR 65 (Lincoln Bypass) to Nicolaus Rd • PFE Rd: widen from 2 to 4 lanes from North Antelope Rd to Roseville city limits • Santucci Blvd: construct 6 lanes from Baseline Road to Blue Oaks Blvd • **SR 65 Capacity and Operational Improvements: General Purpose Lane Alternative** • **SR 65 Widening from Pleasant Grove Blvd to Ferrari Ranch Rd** • Taylor Rd: widen from 2 to 4 lanes from Roseville Pkwy to I-80 • Taylor Rd: widen from 2 to 4 lanes from I-80 to city limits • Westbrook Blvd: construct new road from Baseline Rd to Pleasant Grove Blvd • Westbrook Blvd: construct new road from Pleasant Grove Blvd to Blue Oaks Blvd • Westbrook Blvd: construct new road from Blue Oaks Blvd to city limits

Sources: SACOG, 2012 and Fehr & Peers, 2015

The Vissim model was validated to existing conditions using the criteria contained in *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software* (Federal Highway Administration, 2004). The default Vissim parameters for geometrics and driver behavior were iteratively adjusted until the model was validated to observed conditions (refer to the appendix for a complete summary of the Vissim model validation). Since microsimulation models, like Vissim, rely on the random arrival of vehicles, multiple runs are needed to provide a reasonable level of statistical accuracy and validity. Therefore, the results of 10 separate runs (each using a different random seed number) were averaged to determine the final results.

The calibrated and validated model was used to generate a variety of traffic operations performance measures including person throughput, vehicle throughput, vehicle delay, passenger car density, travel time, speed, and percent demand served. Some of these measures were used to determine level of service (LOS) values for analysis locations consistent with the methodology contained in the *Highway Capacity Manual* (HCM) (Transportation Research Board, 2010).

The HCM methods use quantitative performance measures to determine LOS for analysis locations under AM and PM peak hour conditions. LOS is a qualitative measure of traffic operations from a driver's perspective, which varies from LOS A (the best) to LOS F (the worst), and is one of the main evaluation criteria for this study. Tables 3 and 4 describe the LOS thresholds from the HCM for freeway sections and signalized intersections, respectively.

To analyze construction year and design year conditions, Vissim models were built for each alternative based on the calibrated/validated existing conditions model. The network changes for each alternative were coded into the respective models. All models included separately planned projects (listed in Table 2) that were located in the microsimulation analysis area.

The Placer I-80 Auxiliary Lanes study has a study intersection – Riverside Avenue/Westbound I-80 Ramps – that was not included in the Vissim model for the I-80/SR 65 Interchange Improvements analysis. For efficiency, the Vissim model was not modified to include the intersection. Instead, the intersection is evaluated using the Synchro/SimTraffic microsimulation software (version 8, build 805) as a stand-alone model. This analysis tool provides the delay and queue estimates in a manner similar to Vissim. To account for conditions in the Vissim model, the Synchro/SimTraffic model uses the volume throughput from the Vissim model as the volume input where the models connect, which is at the I-80 westbound off-ramp to Riverside Avenue.

TABLE 3: FREEWAY LOS THRESHOLDS

LOS	Average Density (vplpm) Basic Sections	Average Density (vplpm) Ramp Junction & Weave Sections	Description
A	< 11	< 10	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver.
B	> 11 to 18	> 10 to 20	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.
C	> 18 to 26	> 20 to 28	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.
D	> 26 to 35	> 28 to 35	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.
E	> 35 to 45	> 35 to 43	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.
F	> 45	> 43	Represents a breakdown in flow.

Note: vplpm = vehicles per lane per mile
Source: *Highway Capacity Manual* (Transportation Research Board, 2010)

TABLE 4: SIGNALIZED INTERSECTION LOS THRESHOLDS

LOS	Average Delay (sec/veh)	Description
A	< 10	Very low delay occurs with favorable progression and/or short cycle length.
B	> 10 to 20	Low delay occurs with good progression and/or short cycle lengths.
C	> 20 to 35	Average delays result from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.
D	> 35 to 55	Longer delays occur due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop and individual cycle failures are noticeable.
E	> 55 to 80	High delay values indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.
F	> 80	Delays are unacceptable to most drivers due to over-saturation, poor progression, or very long cycle lengths.

Note: sec/veh = seconds per vehicle
Source: *Highway Capacity Manual* (Transportation Research Board, 2010)

The roadway assumptions for the separately planned projects are listed below.

- Blue Oaks Boulevard Widening (design year only) – widening from four to eight through lanes from Foothills Boulevard to SR 65
- Blue Oaks Boulevard/Washington Boulevard Widening – widening of Washington Boulevard to provide a second northbound right turn pocket lane (a requirement for the second phase of the Parcel 49 development)
- I-80/Eureka Road On-ramp Improvements – widening of westbound Eureka Road from Sunrise Avenue to Taylor Road and the westbound to eastbound on-ramp to I-80 (project completed in 2013)
- I-80/Rocklin Road Interchange (design year only) – widening Rocklin Road to six lanes from Granite Drive to Aguilar Road, with dual left-turn lanes eastbound at Granite Drive, westbound at westbound I-80, and eastbound at eastbound I-80[1]
- I-80/SR 65 Interchange Improvements Phase 1 (construction year only) – adding a lane to northbound SR 65 from the I-80 westbound connector ramp to Pleasant Grove Boulevard and southbound SR 65 from the Pleasant Grove Boulevard westbound on-ramp to the Galleria Boulevard overcrossing[2]
- I-80/SR 65 Interchange Improvements (design year only) – reconstructing the interchange to provide a direct connector for the eastbound to northbound movement, widening of all connector ramps by one lane, the addition of median HOV-only connector ramps from eastbound to northbound and southbound to westbound, widening of SR 65 from I-80 to Pleasant Grove Boulevard, widening of Taylor Road to four lanes between Roseville Parkway and the Rocklin city limits, adding a collector-distributor roadway on eastbound I-80 between Eureka Road and SR 65, and widening of westbound I-80 between SR 65 at Atlantic Street
- SR 65 Capacity and Operational Improvements (design year only) – widening of southbound SR 65 from Blue Oaks Boulevard to Pleasant Grove Blvd to provide an additional general purpose lane, widening in both directions to provide a general purpose lane at Pleasant Grove Boulevard, and adding auxiliary lanes between Stanford Ranch Road/Galleria Boulevard and Pleasant Grove Boulevard, Blue Oaks Boulevard and Sunset Boulevard, and Whitney Ranch Parkway/Placer Parkway and Twelve Bridges Drive

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[1] This configuration is based on one of the alternatives developed for the I-80/Rocklin Road Interchange PSR. In the meantime, the City of Rocklin has moved ahead with plans to construct a roundabout at Rocklin Road/Granite Drive by the construction year of 2020. Since this occurred after the start of this project, the planned roundabout is not included.

[2] Funding for this project was secured after the forecasts were prepared, so the project is only included in the Vissim operational models.

- SR 65 Lincoln Bypass Phase 1 – realigning SR 65 and constructing the Lincoln Boulevard and Ferrari Ranch Road interchanges (project completed in 2013)
- SR 65/Stanford Ranch Road Interchange Phase II Improvements (design year only) – reconstructing the northbound ramp terminal intersection to control all movements at the signal and adding a second northbound left-turn lane, a third northbound through lane, a second eastbound right-turn lane, and a second westbound right-turn lane
- SR 65/Twelve Bridges Drive Interchange – widening Twelve Bridges Drive from one to two through lanes in both directions and widening the southbound off-ramp to provide a second left-turn pocket lane
- SR 65/Whitney Ranch Parkway/Placer Parkway Interchange – constructing a partial cloverleaf interchange with connections to Whitney Ranch Parkway to the east and Placer Parkway to the west and auxiliary lanes to and from Sunset Boulevard to the south
- SR 65 Widening from Pleasant Grove Boulevard to Ferrari Ranch Road (design year only) – widening to provide an additional general purpose lane northbound from south of Pleasant Grove Boulevard off-ramp to Ferrari Ranch Road and southbound from Ferrari Ranch Road to south of the Blue Oaks Boulevard off-ramp[3]
- Sunset Boulevard Widening (design year only) – widening of Sunset Boulevard at Pacific Street to provide a third northbound and eastbound left-turn lanes and a second southbound right-turn lane.

2.5. **Evaluation Criteria**

The analysis evaluation criteria from the I-80/SR 65 Interchange Improvements project are applied to this project since the study area is the same. The criteria were developed in collaboration with the PDT because the project has the potential to affect traffic operations across multiple jurisdictions. The main criteria used for this study is LOS as described below since each affected agency has establish policies and thresholds related to LOS expectations.

According to the *Interstate 80 and Capital City Freeway Corridor System Management Plan* and the *State Route 65 Corridor System Management Plan* (Caltrans District 3, May 2009), Caltrans has identified the route concept LOS for the following segments.

- LOS F for I-80 from Riverside Avenue/Auburn Boulevard to Sierra College Boulevard
- LOS F for SR 65 from I-80 to Blue Oaks Boulevard

[3] This project was originally part of the SR 65 Capacity and Operational Improvements project.

- LOS E for SR 65 from Blue Oaks Boulevard to Industrial Avenue (Lincoln Boulevard)

LOS E conditions are desired when feasible but LOS F conditions are likely to occur in the study area under no build conditions as recognized by the concept LOS thresholds. The LOS E threshold will be used to identify minimum acceptable operations (that is, deficiencies) and potential impacts to State highway mainline segments, ramp junctions, weaving segments, and ramp terminal intersections. For locations with LOS F under the no build condition, an impact would occur if the project alternatives would worsen the LOS F condition based on the quantitative performance measure associated with the specific type of analysis.

For study intersections within the City of Lincoln, the City of Lincoln General Plan (Adopted March 2008) contains the following LOS policies:

- Strive to maintain a LOS C at all signalized intersections in the City during the PM peak hours.
- The City shall coordinate with Caltrans in order to strive to maintain a minimum LOS "D" for SR 65 and SR 193.

With the construction of the SR 65 bypass, the analysis locations on Lincoln Boulevard in Lincoln are local intersections. As a result, LOS C will serve as the minimum acceptable LOS for the intersections on Lincoln Boulevard and Twelve Bridges Drive for both AM and PM peak hours.

For study intersections within the City of Roseville, the City of Roseville General Plan (Adopted May 5, 2010) LOS policy states:

- Maintain a level of service (LOS) "C" standard at a minimum of 70 percent of all signalized intersections and roadway segments in the City during the PM peak hours.

Some of the study intersections are shown in the General Plan to operate at worse than LOS C under 2025 conditions. For this project, the following criteria are proposed.

- For intersections shown to be operating at LOS C or better in the General Plan under 2025 conditions, LOS C will be used as the minimum acceptable LOS.
- For intersections shown to be operating at LOS D in the General Plan under 2025 conditions, LOS D will be used as the minimum acceptable LOS.
- For intersections shown to be operating at LOS E in the General Plan under 2025 conditions, LOS E will be used as the minimum acceptable LOS.
- For intersections shown to be operating at LOS F in the General Plan under 2025 conditions, LOS F and the corresponding delay will be used as the minimum acceptable LOS.

Using the above criteria, the Stanford Ranch Road/Galleria Boulevard ramp terminal, Roseville Parkway/Taylor Road, and Douglas Boulevard/Sunrise Avenue intersections will have a LOS D threshold, and the Galleria Boulevard/Roseville Parkway, Roseville Parkway/Sunrise Avenue, Eureka Road/Taylor Road/I-80 Eastbound Ramps, and Douglas Boulevard/Harding Boulevard intersections will have a LOS E threshold. All other Roseville intersections will have a LOS C threshold. These thresholds will be used for both the AM and PM peak hours in both the construction and design year analysis.

For study intersections within the City of Rocklin, the City of Rocklin General Plan (October 2012), Policy C-10 states (in part):

- Maintain a minimum traffic Level of Service "C" for all signalized intersections during the p.m. peak hour on an average weekday

Based on this standard and for the purposes of this study, LOS C is the minimum acceptable LOS for intersections in the City of Rocklin during both AM and PM peak hours.

For this report, a project impact must satisfy two conditions. First, the study location must operate at a worse LOS than the threshold identified above. Second, the study location must operate at a worse condition (higher delay for intersections or higher density for freeway segments) than the similar case for Alternative 3 (No Build).

Chapter 3. Existing (2012) Conditions

The existing conditions analysis includes meso-scale network performance, micro-scale traffic operations, and traffic safety. The meso-scale network performance evaluates the entire network within the meso-scale study area based on vehicle miles of travel (VMT), vehicle hours of travel (VHT), vehicle hours of delay (VHD), and freeway VHD. VHD includes all hours of travel below the free-flow speed (for example, the free-flow speed on freeways is 65 miles per hour). Freeway VHD includes only hours of freeway travel below 35 miles per hour (mph). The operations analysis is more detailed and analyzes individual facilities with separate discussions for freeways and arterial intersections. The traffic safety evaluation focuses on freeway facilities.

3.1. Meso-Scale Network Performance

Table 5 contains estimates of existing (2012) meso-scale study area VMT, VHT, VHD, and Freeway VHD for AM and PM peak period conditions. This information shows that the PM peak period has the highest level of travel with VHD equal to almost 35 percent of all VHT. The AM peak period also experiences congested conditions with a VHD at approximately 25 percent of all VHT.

TABLE 5: PEAK PERIOD MESO-SCALE NETWORK PERFORMANCE SUMMARY – EXISTING (2012) CONDITIONS

Measure of Effectiveness	AM Peak Period (6:00 to 10:00)	PM Peak Period (3:00 to 7:00)	AM & PM Peak Periods
VMT	1,182,073	1,562,794	2,744,867
VHT	31,314	49,967	81,281
VHD	7,807	17,423	25,230
Freeway VHD	1,459	4,564	6,023

Source: Fehr & Peers, 2015

3.2. Traffic Operations

Traffic operations were analyzed for existing (2012) conditions under AM and PM peak period and peak hour conditions. This analysis relied on the AM and PM four-hour, peak period Vissim models from which peak hour results were extracted. The Vissim model only includes the freeway network and the immediate arterial network around the I-80/SR 65 interchange. As a result, performance measures such as VMT and VHT reported from this model will contain much smaller values compared to the larger meso-scale network results presented in Table 5. Overall traffic operations performance of the micro-scale network is summarized in Table 6.

TABLE 6: PEAK PERIOD MICRO-SCALE NETWORK PERFORMANCE SUMMARY – EXISTING (2012) CONDITIONS		
Measure of Effectiveness	**AM Peak Period (6:00 to 10:00)**	**PM Peak Period (3:00 to 7:00)**
VMT	645,270	730,100
VHT	13,760	16,850
VHD	2,670	3,950
Average Travel Speed (mph)	46.9	43.3
Source: Fehr & Peers, 2015		

Similar to the Table 5 results, the PM peak period has the highest level of travel and delay with the most congestion lasting up to three hours for select segments.

3.2.1. Freeway Operations

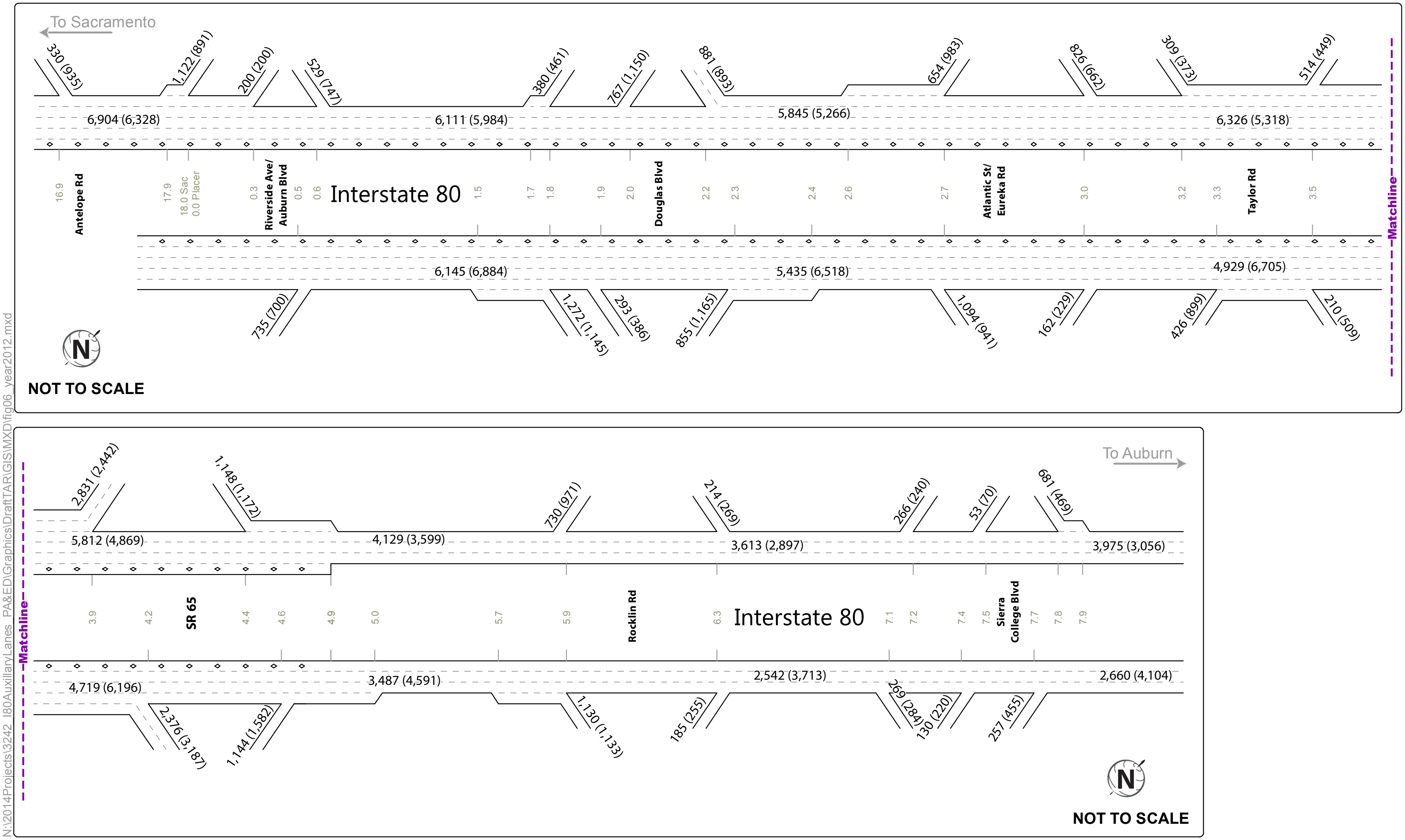
Detailed freeway operations were analyzed for the entire four-hour AM and PM peak periods. The AM (7:30 to 8:30) and PM (4:30 to 5:30) peak hour results are reported in this section and reflect conditions based on estimates of peak hour freeway mainline and ramp traffic volumes for 2012 conditions shown in Figure 6. The existing conditions analysis confirmed field observations and provided some insight as to specific bottleneck locations, causes, and duration. Figure 7 and 8 below show the PM peak hour queue extending back from the eastbound I-80 on-ramp junction with the northbound SR 65 connector.

The existing (2012) conditions analysis of freeway and arterial performance matched observed conditions such as those shown in the photos above. Specific examples are listed below.

- Bottleneck areas have poor LOS results as highlighted in Table 7, which contains select LOS results for freeway operations. See the appendix for all study location results.

The speed contour maps of the I-80 and SR 65 corridors produced from the Vissim models show reduced speeds in bottleneck areas (see Figures 9 through 12 below).

During the AM peak hour, eastbound I-80 conditions are good with LOS D or better operations. Westbound I-80 has LOS E conditions between Douglas Boulevard and Riverside Avenue. Congested LOS F conditions occur on northbound SR 65 at the I-80 on-ramp and southbound SR 65 between Blue Oaks Boulevard and Pleasant Grove Boulevard. On northbound SR 65, the merging of the westbound I-80 on-ramp causes congestion. For southbound SR 65, the constraint is the high demand from the mainline combined with the Pleasant Grove Boulevard on-ramp volume.



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AM (PM) Peak Hour Traffic Volume for 2020 Conditions

10.1 Postmile

Note: Traffic volumes collected in February 2012.

Figure 6

Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions

Figure 7 – Eastbound I-80 from Taylor Road Overcrossing (PM Peak Hour)

Figure 8 – Eastbound I-80 from Roseville Parkway Overcrossing (PM Peak Hour)

TABLE 7: SELECTED FREEWAY OPERATIONS RESULTS – EXISTING (2012) CONDITIONS

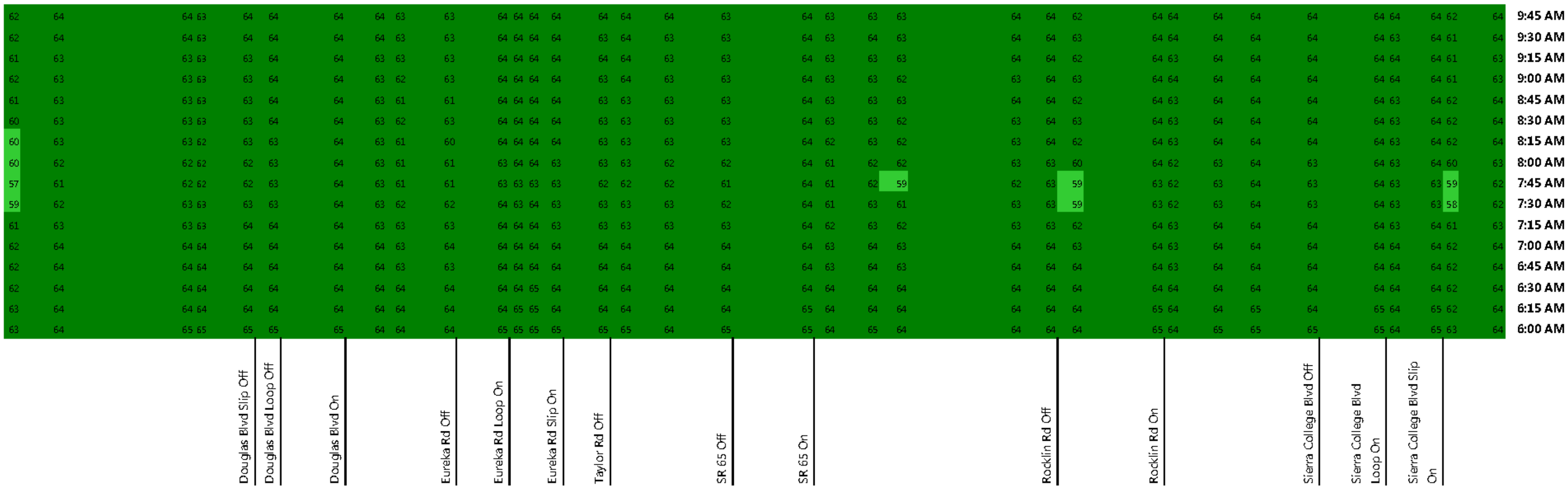
Freeway	Location	Type	AM Peak Hour	PM Peak Hour
EB I-80	Eureka Rd Off-ramp	Diverge	C / 26	**F / 46**
	Eureka Rd Off to On-ramp	Basic	C / 21	C / 23
	Eureka Rd EB On-ramp	Merge	B / 19	B / 20
	Eureka Rd to Taylor Rd	Weave	C / 23	E / 42
	Taylor Rd to SR 65	Basic	D / 28	E / 42
	SR 65 Off-ramp	Diverge	C / 28	**F / 52**
	SR 65 On-ramp	Merge	C / 21	C / 22
	SR 65 to Rocklin Rd	Basic	C / 25	D / 28
	Rocklin Rd Off-ramp	Diverge	C / 22	C / 24
WB I-80	SR 65 Off-ramp	Diverge	B / 18	E / 35
	Douglas Blvd Off-ramp	Diverge	D / 32	C / 26
	Douglas Blvd WB On-ramp	Merge	E / 36	D / 34
	Douglas Blvd EB On-ramp	Merge	E / 42	E / 37
	Douglas Blvd to Riverside Ave	Basic	D / 33	D / 31
	Riverside Ave Off-ramp	Diverge	E / 40	E / 36
NB SR 65	I-80 WB On-ramp	Merge	**F / 53**	**F / 95**
	I-80 to Stanford Ranch Rd	Basic	D / 32	**F / 77**
	Stanford Ranch Rd Off-ramp	Diverge	D / 33	**F / 62**
SB SR 65	Blue Oaks Blvd WB On-ramp	Merge	**F / 60**	B / 20
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	**F / 75**	C / 21
	Pleasant Grove Blvd Off to On-ramp	Basic	**F / 89**	C / 25
	Pleasant Grove Blvd WB On-ramp	Merge	**F / 72**	D / 31
	Pleasant Grove Blvd EB On-ramp	Merge	**F / 53**	E / 39
	Pleasant Grove Blvd to Galleria Blvd	Basic	E / 36	D / 32
	Galleria Blvd Off-ramp	Diverge	E / 35	D / 32

Note: Bold and underline font indicate LOS F conditions. The level of service and average density for the study segment are reported.

Source: Fehr & Peers, 2015

FIGURE 9 – I-80 EASTBOUND EXISTING CONDITIONS SPEED CONTOUR MAPS

AM PEAK PERIOD



PM PEAK PERIOD

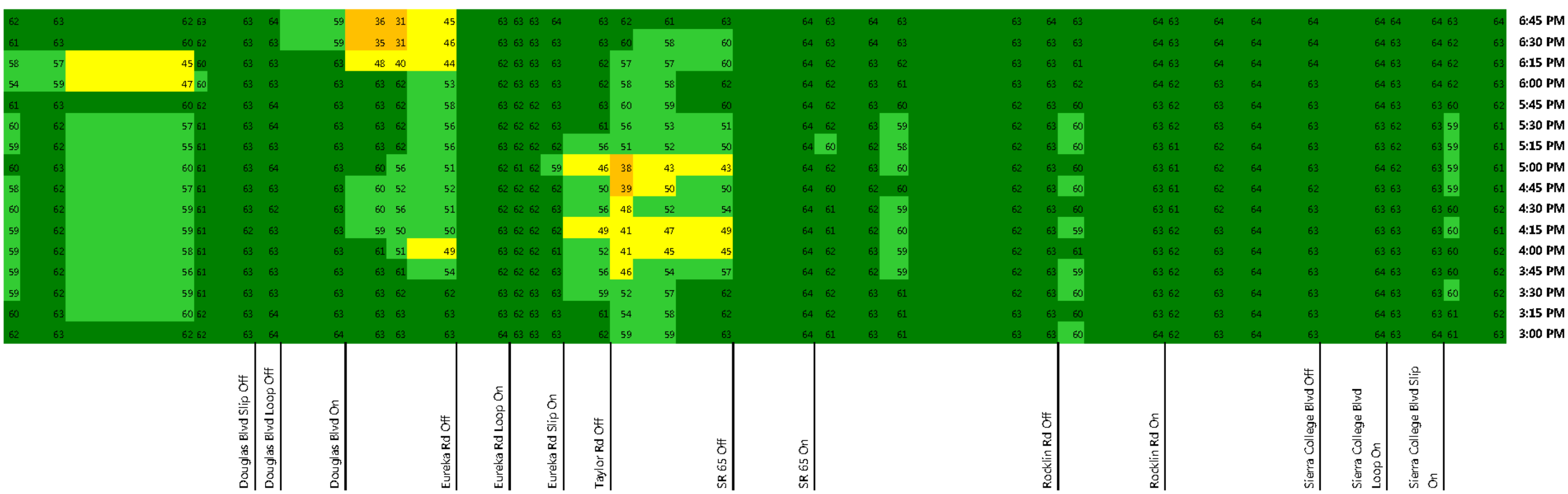
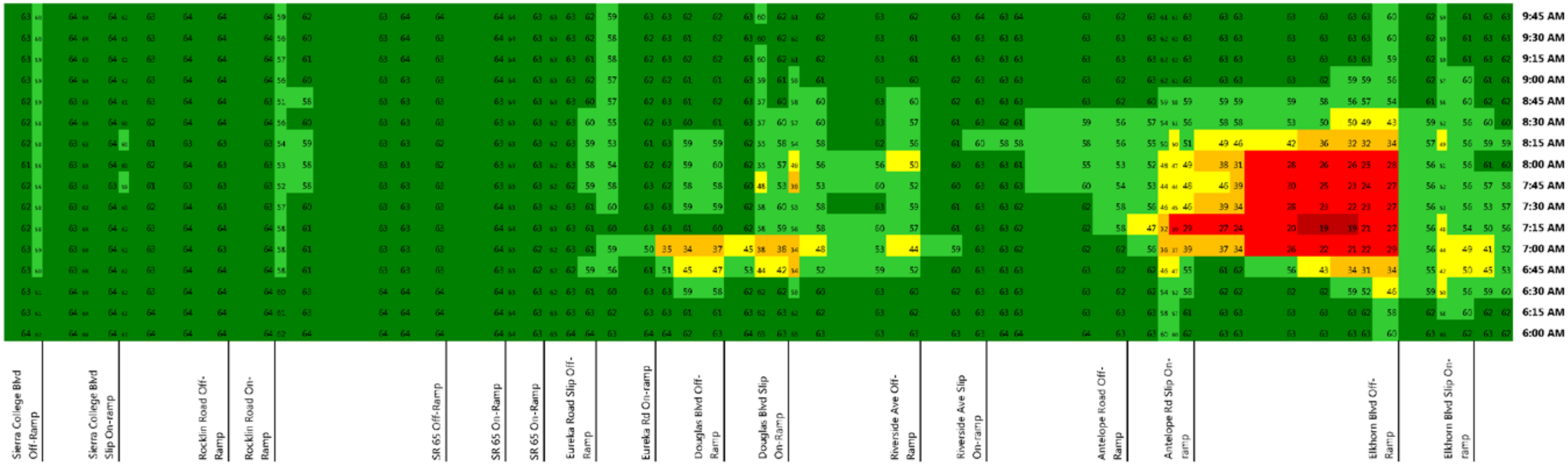


FIGURE 10 – I-80 WESTBOUND EXISTING CONDITIONS SPEED CONTOUR MAPS

AM PEAK PERIOD



PM PEAK PERIOD

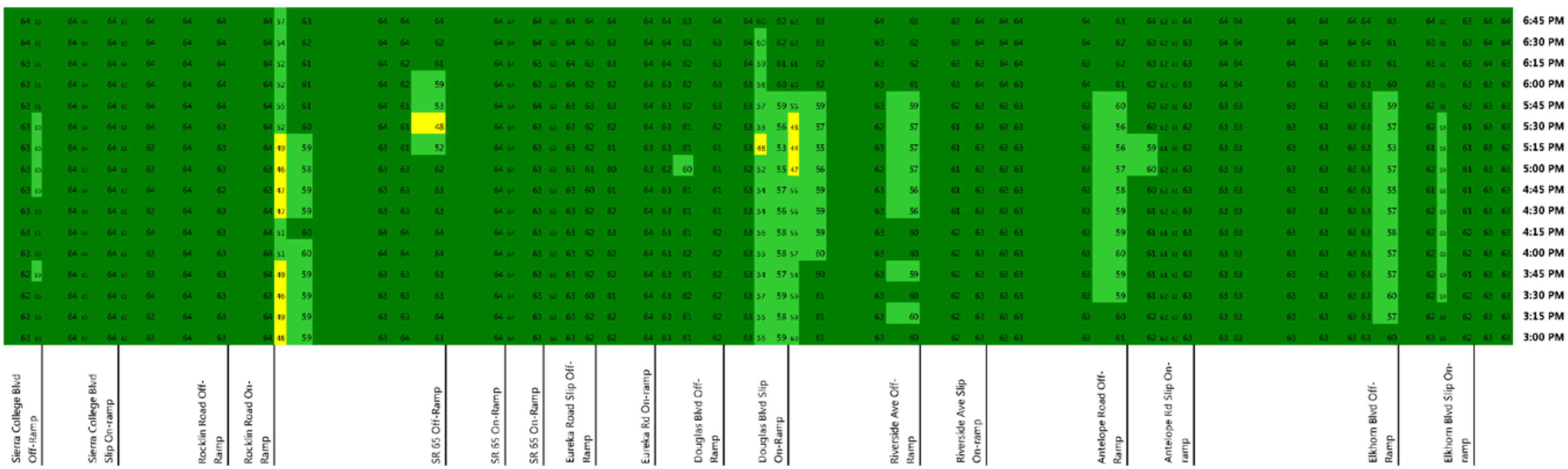
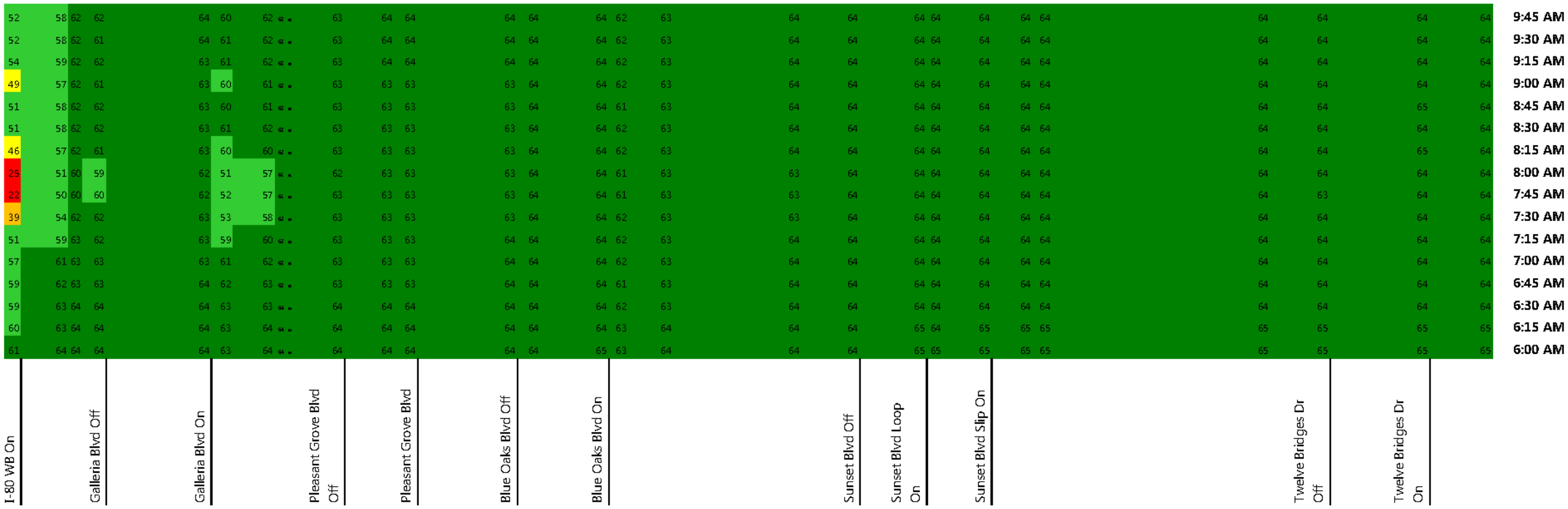


FIGURE 11 – SR 65 NORTHBOUND EXISTING CONDITIONS SPEED CONTOUR MAPS

AM PEAK PERIOD



PM PEAK PERIOD

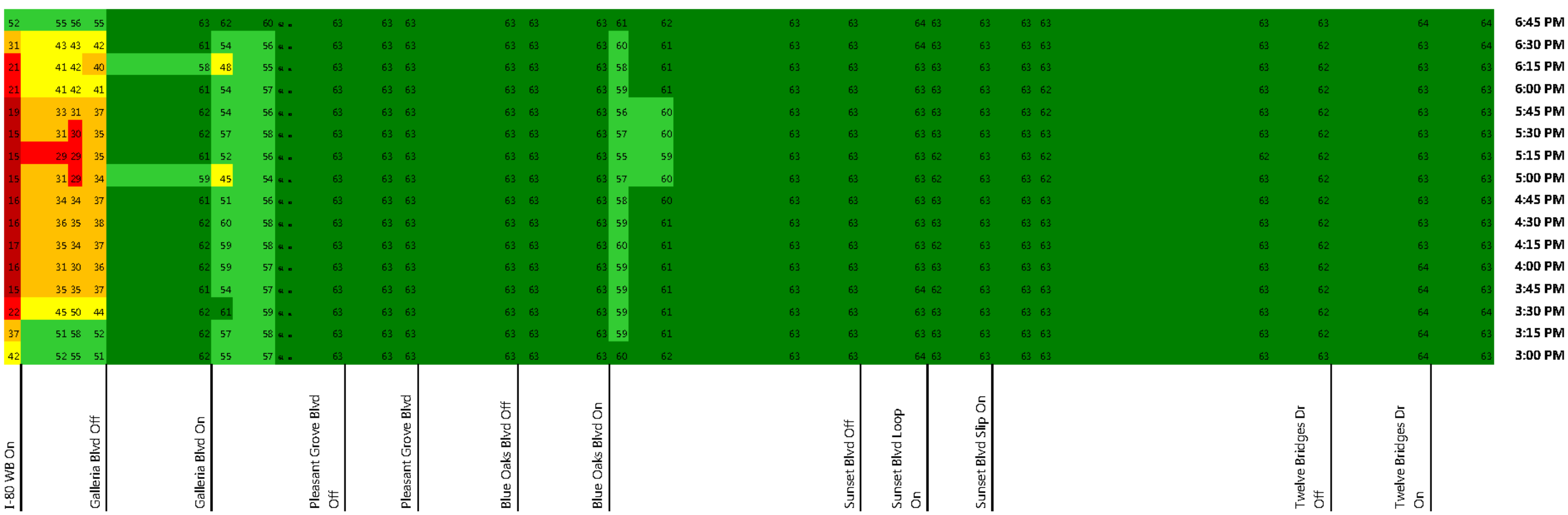
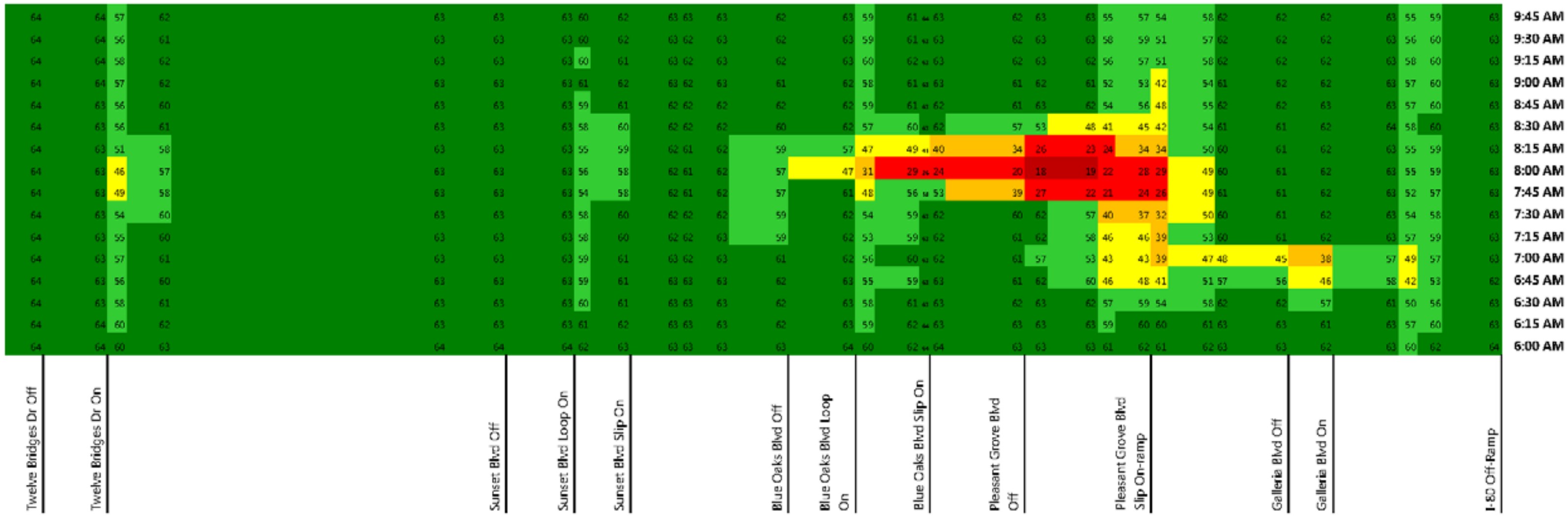
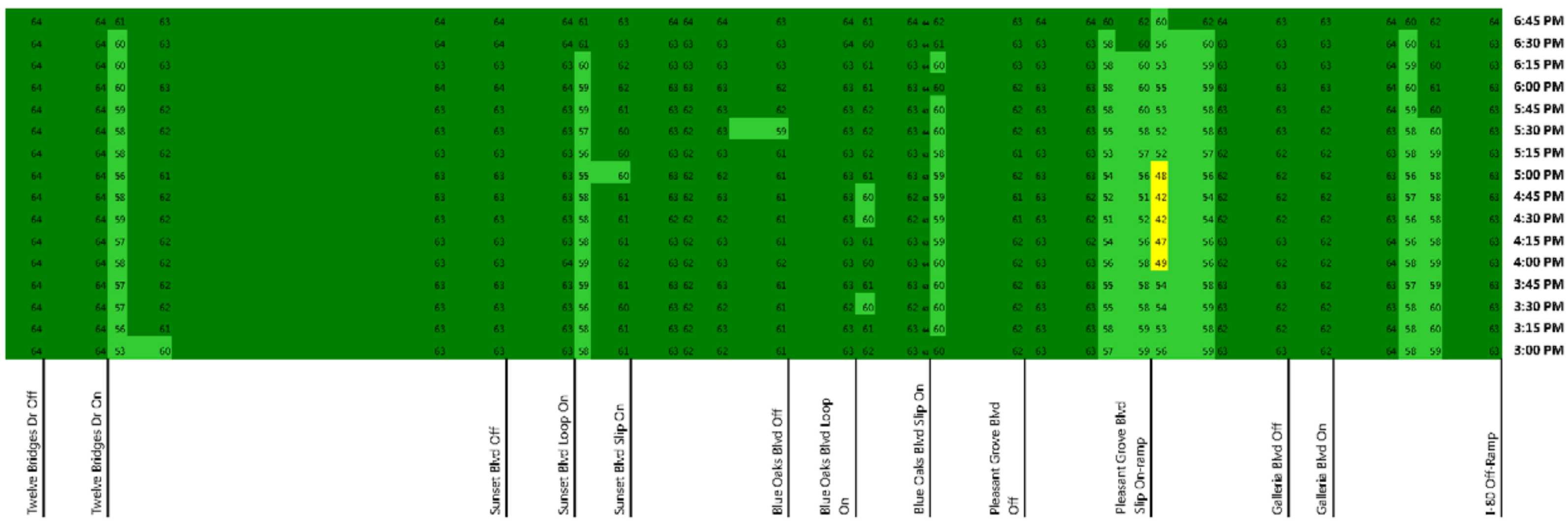


FIGURE 12 – SR 65 SOUTHBOUND EXISTING CONDITIONS SPEED CONTOUR MAPS

AM PEAK PERIOD



PM PEAK PERIOD



During the PM peak hour, the primary bottleneck is northbound SR 65 at the on-ramp from westbound I-80. This bottleneck results in LOS F conditions on eastbound I-80 at the SR 65 off-ramp. LOS E conditions exist from Taylor Road to Eureka Road, with the rightmost lanes mostly congested (queued from the SR 65 off-ramp) while the left lanes operate with higher speeds. The Eureka Road off-ramp has LOS F conditions due to queues spilling back from the ramp terminal intersection. (During summer 2012, queues regularly extended to the mainline occurred due to recreational trips generated by the water park on Taylor Road. After the Eureka Road widening project was completed in 2013, the peak hour off-ramp queues no longer extend to the mainline.) Westbound I-80 has LOS E conditions at the SR 65 off-ramp due to the same bottleneck. LOS D/E conditions occur further north on northbound SR 65 between Stanford Ranch Road and Pleasant Grove Boulevard. If the bottleneck at I-80 were relieved, this downstream will likely become congested.

3.2.2. Arterial Intersection Operations

In general, arterial intersections operate better than freeway locations during the peak hours. Table 8 shows the LOS and average delay at key study intersections under existing (2012) conditions. Based on the evaluation criteria for this study, all of the study intersections operate acceptably. See the appendix for all study intersection results.

The AM peak hour intersection LOS results indicate all intersections operate at LOS C or better, except for the Roseville Parkway/Sunrise Avenue and Blue Oaks Boulevard/Washington Boulevard intersections which operate at LOS D. The Roseville Parkway/Sunrise Avenue intersection operates with split phasing to accommodate the hospital driveway, which leads to less efficient operations. The Blue Oaks Boulevard intersection (which has a LOS C threshold) experiences high peak period peak direction traffic flows because it serves both inbound (employees) and outbound (residents) commuters for west Roseville.

During the PM peak hour, five intersections operate at LOS D or E:

- Galleria Boulevard/Roseville Parkway
- Roseville Parkway/Sunrise Avenue
- Eureka Road/Taylor Road/I-80 Eastbound Ramps
- Douglas Blvd/Sunrise Avenue
- Rocklin Road/Granite Drive

Like the Blue Oaks Boulevard intersection in the AM peak hour, the Roseville Parkway and Eureka Road corridors serve both inbound (residents and shoppers) and outbound (employees) commuters. Additionally, reduced speeds occur on eastbound Eureka Road approaching the I-80 interchange. A project that widened eastbound Eureka Road at Taylor Road was completed in 2013 (after the existing conditions analysis). All other intersections operate at LOS C or better during the PM peak hour.

TABLE 8: SELECTED INTERSECTION OPERATIONS RESULTS – EXISTING (2012) CONDITIONS

Intersection	Threshold	AM Peak Hour	PM Peak Hour
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	C	**D / 43**	C / 33
10. Stanford Ranch Rd / Five Star Blvd	C	B / 19	C / 32
11. Stanford Ranch Rd / SR 65 NB Ramps	D	A / 9	B / 15
12. Galleria Blvd / SR 65 SB Ramps	D	B / 13	B / 19
13. Galleria Blvd / Antelope Creek Dr	C	B / 10	C / 24
14. Galleria Blvd / Roseville Pkwy	E	C / 30	D / 36
15. Roseville Pkwy / Creekside Ridge Dr	C	A / 6	B / 17
16. Roseville Pkwy / Taylor Rd	D	C / 30	C / 28
17. Roseville Pkwy / Sunrise Ave	E	D / 37	D / 37
18. Atlantic St / Wills Rd	C	B / 10	B / 12
19. Atlantic St / I-80 WB Ramps	C	A / 7	B / 11
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	E	C / 26	E / 61
21. Eureka Rd / Sunrise Ave	C	C / 24	C / 30
26. Douglas Blvd / Sunrise Ave	D	C / 26	D / 35
28. Pacific St / Sunset Blvd	C	B / 18	C / 29
29. Rocklin Rd / Granite Dr	C	B / 15	**D / 37**
30. Rocklin Rd / I-80 WB Ramps	C	C / 21	B / 17
31. Rocklin Rd / I-80 EB Ramps	C	B / 17	B / 20
32. Rocklin Rd / Aguilar Rd	C	A / 8	B / 13
50. Riverside Ave / I-80 WB Ramps	C	A / 6	B / 11

Note: Bold and underline font indicate unacceptable operations. The LOS and average delay in seconds per vehicle are reported.
Source: Fehr & Peers, 2015

3.3. **Traffic Safety**

Traffic collision data was compiled from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) for Interstate 80 (I-80) westbound from Douglas Boulevard to the Placer County line (post mile 0.1 to 2.2), and eastbound from SR 65 to Rocklin Road (post mile 4.1 – 6.0). The data shown are for the three-year period between October 1, 2009 and September 30, 2012. Within the study area, 218 collisions occurred in the three-year period. Table 9 summarizes collisions on I-80 by direction.

TABLE 9: ACCIDENT HISTORY								
Direction	Total Accidents	Total Fatalities	Actual Collision Rate[1]			Average Collision Rate[1]		
			F	F&I	Total	F	F&I	Total
Westbound (PM 0.1-2.2)	125	0	0.000	0.23	0.67	0.004	0.29	0.92
Eastbound (PM 4.1-6.0)	93	1	**0.008**	0.24	0.78	0.004	0.27	0.87
Total	218	1	0.004	0.24	0.73	0.004	0.28	0.90

Notes: 1. The accident rate is accidents per million vehicle-miles.
"F" refers to the fatality rate, and "F&I" refers to the fatality and injury rate. Total number of accidents includes non-injury accidents, which are not listed separately. Bold and underline font indicates an actual rate that is greater than the average rate.

Source: Caltrans District 3 TASAS Table B, October 1, 2009 to September 30, 2012

The actual collision rate for fatalities was higher than statewide average for eastbound I-80. The one fatality was a side-swipe, multiple car accident which occurred near the Rocklin Road off-ramp. The remaining collision rates were lower than the statewide averages.

Table 10 categorizes the collisions by type. The most frequent collision type (56 percent) is a rear end collision, which is typical of congested conditions. The next most frequent collision types are side-swipe and hit object. The other collision types are collectively less than 5 percent of all collisions. The westbound direction has both a higher number of collisions and a higher number of rear end collisions.

TABLE 10: MAINLINE COLLISIONS BY TYPE								
Direction	Head On	Side Swipe	Rear End	Broad-side	Hit Object	Over-turn	Auto-Ped	Other
Westbound	0	26	73	6	19	0	0	1
Eastbound	0	23	50	1	17	0	1	1
Total	0 (0%)	49 (22%)	123 (56%)	7 (3%)	36 (17%)	0 (0%)	1 (0.5%)	2 (1%)

Source: Caltrans District 3 TASAS - Table B, October 1, 2009 to September 31, 2012

Chapter 4. Travel Demand Forecasts

The travel demand forecasts were developed using a validated sub-area model derived from the SACMET regional travel demand forecasting (TDF) model developed by SACOG[4]. The approach to developing travel demand forecasts started with the recognition that regional travel demand models do not contain sufficient detail or sensitivity for local applications like developing directional freeway mainline and ramp volume forecasts. Instead, the regional model provides a starting point for creating a more detailed sub-area model along the freeway corridor. Having a valid sub-area model is a critical step in ensuring a high level of confidence in the traffic volume forecasts that will be used to evaluate the effects of improving the SR 65 corridor.

4.1. **Sub-Area Model Development and Model Validation**

The forecast modeling for the Placer I-80 Auxiliary Lanes project used the same sub-area model developed for the I-80/SR 65 Interchange Improvements project. Please refer to Chapter 4 of the *I-80/ SR 65 Interchange Improvements Transportation Analysis Report* (August 2014).

4.2. **Future Year Forecasts**

Traffic forecasts for design and construction year analysis were developed for the following project alternatives.

1. Eastbound and Westbound Auxiliary Lanes
2. Eastbound Auxiliary Lane and Westbound 5th Lane
3. No Build

4.2.1. Design Year Forecasts

From a macro perspective, the proposed project alternatives – freeway corridor widening – are not expected to change regional travel demand. A sensitivity test of the SACMET model showed almost no change in travel demand with a change in capacity at the I-80/SR 65 interchange. Instead, the most significant effects on future traffic volumes will occur in terms of trip routing within the meso-scale study area due to travel time differences caused by the alternatives. Therefore, the same set of trip tables is used for the project alternatives, which means that volumes at the sub-area boundaries are the same across all alternatives.

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[4] The SACMET model used for this project was released in May 2011 and was developed to be consistent with the Sacramento Area Council of Governments Metropolitan Transportation Plan/Sustainable Communities Strategy 2035.

The volume forecast process began with isolating the incremental peak period volume growth (2008 to 2035) between traffic analysis zones (TAZs) in the sub-area using the modified SACMET model (macro level). This incremental growth was then added to the base year Visum trip table (meso level) that was derived from the Airsage cell phone data. The incremental SACMET growth was inspected to verify that the changes in origin-destination trips were commensurate with the location of socioeconomic growth. Individual origin-destination pair volumes were not allowed to decrease between base and cumulative years.

In the next step, the four-hour peak period trip tables were divided into hourly trip tables by mode: SOV, HOV, and truck. The conversion from peak period to hourly trip tables used the existing ratio of hourly traffic volume to peak period volume. The mode share for HOVs was based on the relative peak period mode share in the 2035 SACMET model. For the entire meso study area, the overall forecast HOV shares are 18 and 19 percent during the AM and PM peak periods, respectively. The truck share is assumed to increase from 2.7 and 1.4 percent under existing conditions to 3.0 and 2.0 percent under the design year for the AM and PM peak periods, respectively.

Some adjustments were made to the HOV shares for select locations based on previous comments from Caltrans about HOV forecasts being lower than observed conditions on I-80. Table 11 shows the AM and PM peak hour HOV percentages for the I-80 western gateway from the 2035 SACMET model, the 2012 traffic counts, and the proposed 2040 forecast values. The 2008 and 2035 SACMET model forecasts show similar values of 11 to 13 percent at this gateway. These values are lower than the traffic counts that were collected in 2012. The proposed 2040 HOV percentages use the 2012 traffic count percentages for the off-peak directions. In the peak direction, a five percentage point increase was assumed to compensate for the difference between model estimates and counts. Additionally, traffic congestion is expected to be more severe in the design year, which would encourage the formation of carpools.

TABLE 11: PEAK PERIOD HOV PERCENTAGE FOR I-80 WESTERN GATEWAY

Direction	2035 SACMET		2012 Counts		2040 Forecast	
	AM	PM	AM	PM	AM	PM
Eastbound	11%	13%	15%	17%	15%	22%
Westbound[1]	13%	13%	14%	18%	19%	18%

Note: 1. The count location was at the Riverside Ave/Auburn Blvd overcrossing, but the westbound study area gateway is between Elkhorn Blvd and Madison Ave.

Source: Fehr & Peers, 2015

The five percentage point increase was also validated based on a June 2012 sampling of traffic volumes at the I-80/Douglas Boulevard, I-80/Eureka Road, and SR 65/Galleria Boulevard on-ramps, which found HOV percentages ranging from 9 to 25 percent for the AM peak hour and 14 to 36 percent for the PM peak hour. The AM and PM peak hour averages of 16 and 24 percent from these samples are generally similar to the 2035 SACMET forecasts of 18 and 19 percent, respectively. However, peak direction HOV percentages were some of the largest values observed. The adjustments noted in Table 13 result in HOV volume forecasts that are at or near the carpool lane operating capacity under design year conditions, so they were considered reasonable for purposes of this study.

The future year Visum trip tables were then assigned to each project alternative network. These networks included all the planned transportation improvements shown in Figures 2 and 3 plus unique features of each alternative. The preliminary forecasts from this step were reviewed and adjusted for anomalies such as unexpected decreases in traffic volumes when compared to existing conditions. The expected decreases that occurred are noted below.

- Riverside Avenue slip on-ramp to westbound I-80 – This ramp shows a decrease over existing volumes. This decrease is allowed since the cumulative roadway network includes several projects that increase parallel capacity between west Roseville and Sacramento County (widening Baseline Road/Riego Road between SR 99 and Foothills Boulevard, widening Watt Avenue, etc.). These capacity enhancements redistribute some existing long-distance trips from Placer County to Sacramento County to alternative routes.
- Sunset Boulevard loop on-ramp to southbound SR 65 – The construction of the SR 65/Whitney Ranch Parkway/Placer Parkway interchange provides an alternate route so that the demand at SR 65/Sunset Boulevard is lower.
- Taylor Road off-ramp from eastbound I-80 – With the widening of the eastbound to northbound freeway connector, traffic destined to Rocklin can use SR 65 to Stanford Ranch Road rather than the more indirect route of Taylor Road and Pacific Street to Sunset Boulevard.

Although the decrease in traffic volume was allowed, the actual future volume may be subject to the induced travel effect (discussed below in section 4.2.6) that could result in a volume that is higher than predicted. The final trip tables and the associated travel paths from the Visum assignment were transferred to Vissim for final assignment and analysis.

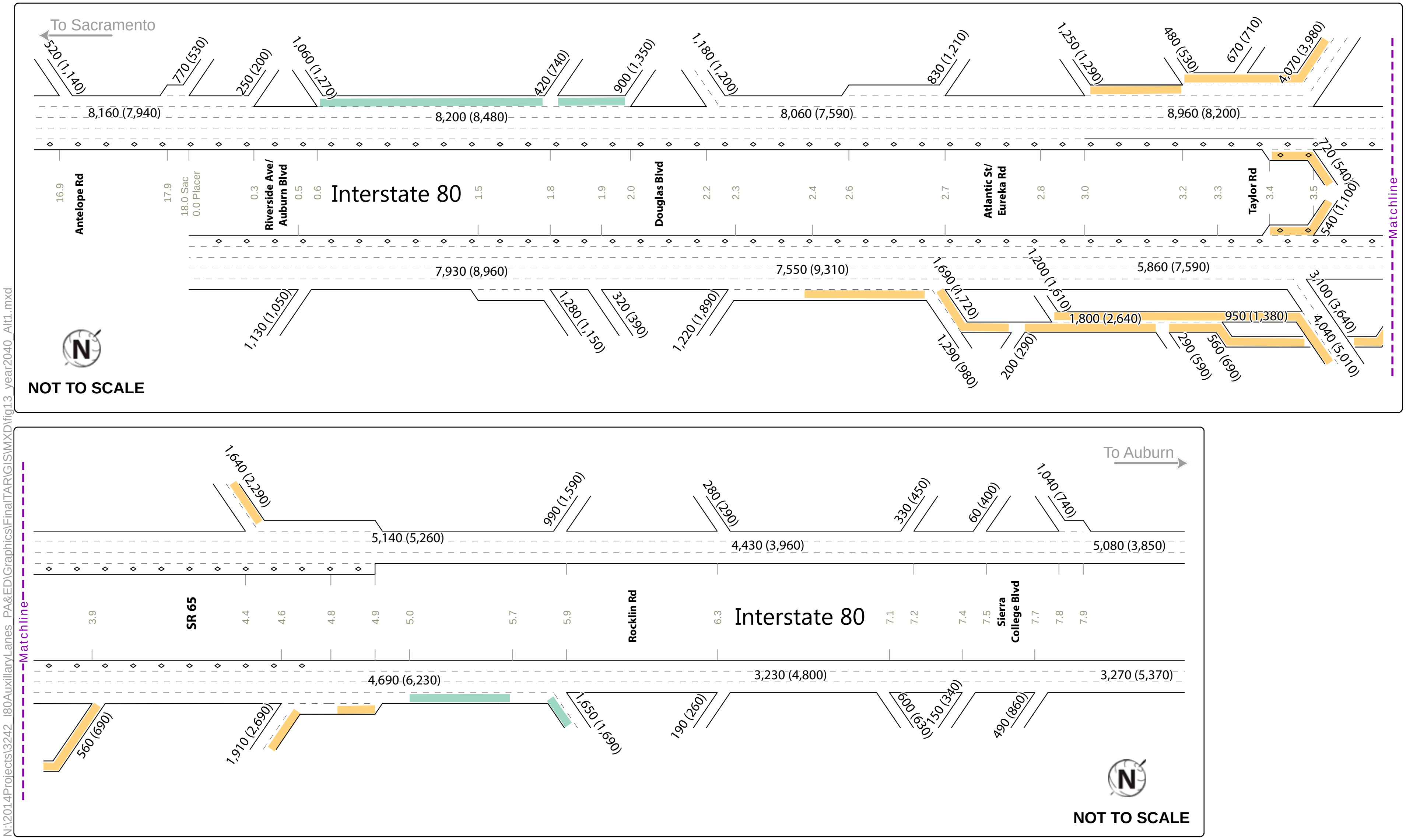
A final volume adjustment was made in the northern end of the study area to account for recent land use planning decisions in the City of Lincoln. With the opening of the Lincoln Bypass, development is now planned to occur in the western portion of the city rather than the central and eastern areas. The forecast model prepared for the South Placer Regional Transportation Authority (SPRTA) fee study used the new land use values. By comparing the initial model volumes between the I-80/SR 65 Interchange and SPRTA fee study versions of the SACMET model, an adjustment process was developed to shift a portion of the volume from Lincoln Boulevard north of Sterling Parkway to SR 65 north of Ferrari Ranch Road. For further details, please see the technical memorandum on this topic in the appendix.

Figures 13 through 15 display the specific freeway lane configurations associated with each alternative, along with the AM and PM peak hour traffic volume forecasts for the I-80 study corridor. These volumes represent traffic demand that may not be fully accommodated during the peak hour, which is determined as part of the Vissim analysis. The SR 65 study corridor lane configurations and traffic forecasts and the study intersection traffic forecasts are provided in the appendix.

Figures 16 and 17 show design year volume comparison plots between project alternatives. The orange and red colors indicate a volume decrease for the AM and PM peak hours, respectively. The blue and green colors indicate a volume increase for the AM and PM peak hours, respectively. For these bandwidth plots, the freeway carpool lane links have been turned off so that the changes to the regular mainline lanes can be shown.

Figure 16 shows a comparison of Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) and 3 (No Build). With the additional capacity on I-80 under the build alternative, volumes are higher eastbound from SR 65 to Rocklin Road and westbound from Atlantic Street to Riverside Avenue. Volume increases also occur on arterials that access I-80, Eureka Road in particular. Routes parallel to the freeway segment show decreases. For the eastbound auxiliary lane, the parallel arterials are Pacific Street and Rocklin Road west of the freeway and Sierra College Boulevard east of the freeway. For the westbound lane addition, volumes are lowered on Douglas Boulevard and Riverside Avenue to the west and Sunrise Avenue and Cirby Way to the east. The differences between Alternatives 1 (Eastbound and Westbound Auxiliary Lanes) and 3 (No Build) are similar.

Figure 17 shows the volume differences between Alternatives 1 (Eastbound and Westbound Auxiliary Lanes) and 2 (Eastbound Auxiliary Lane and Westbound 5th Lane). Since both alternatives would have the same improvements to eastbound I-80, the figure shows only the westbound I-80 project area. Although both alternatives would widen westbound I-80, the second alternative provides more capacity. As a result, the westbound peak hour volume is higher on I-80 for Alternative 2 (shown as blue and green colors in the figure). The pattern of volume differences between Alternatives 1 and 2 is similar to the pattern of volume differences between Alternatives 2 and 3 shown in Figure 16. The lane addition in Alternative 2 shifts volume from parallel arterials to the freeway. However, the magnitude of the volume changes is different. The largest difference shown in Figure 17 is about 400 vehicles per hour (vph), but the largest difference in Figure 16 is about 800 vph on westbound I-80 (or about a 10 percent increase).



AM (PM) Peak Hour Traffic Volume for 2040 Conditions

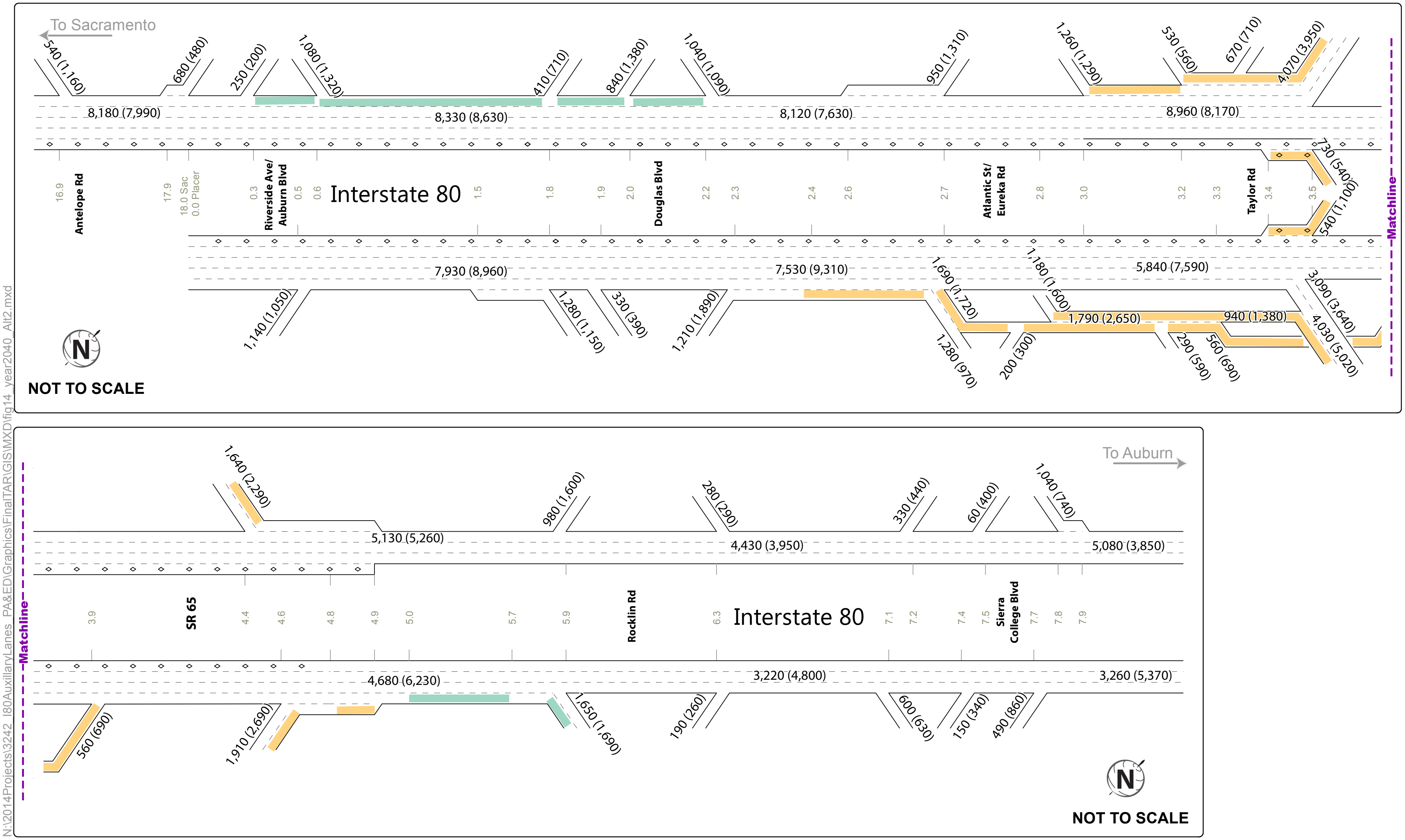
10.1 Postmile

Alternative 1

I-80/SR 65 Interchange Improvements

Figure 13

Design Year Peak Hour Traffic Volumes and Lane Configurations - Eastbound and Westbound Auxiliary Lanes (Alternative 1)



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AM (PM) Peak Hour Traffic Volume for 2040 Conditions

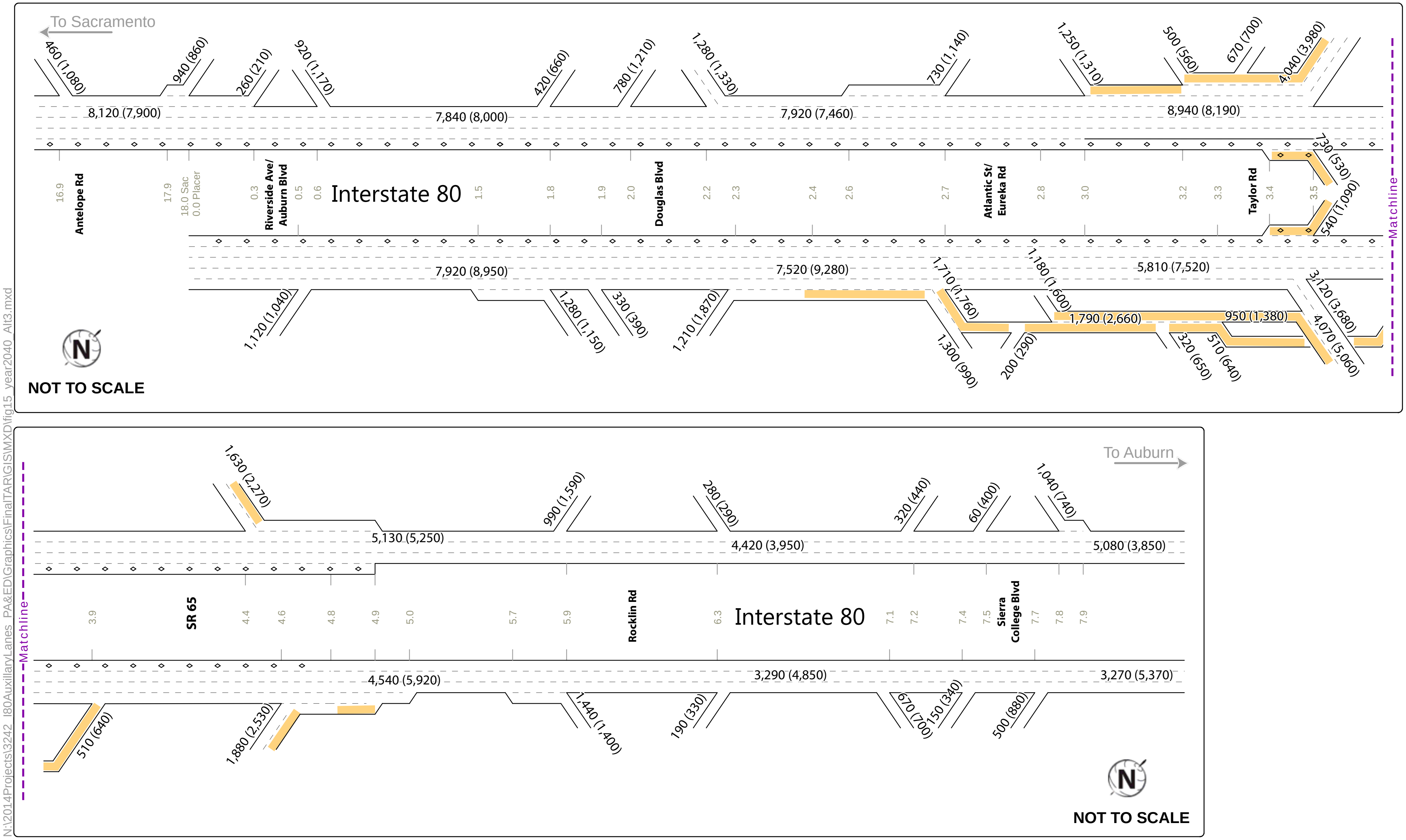
10.1 Postmile

Alternative 2

I-80/SR 65 Interchange Improvements

Figure 14

Design Year Peak Hour Traffic Volumes and Lane Configurations - Eastbound Auxiliary Lane and Westbound 5th Lane (Alternative 2)



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AM (PM) Peak Hour Traffic Volume for 2040 Conditions

10.1 Postmile

I-80/SR 65 Interchange Improvements

Figure 15

Design Year Peak Hour Traffic Volumes and Lane Configurations - No Build (Alternative 3)

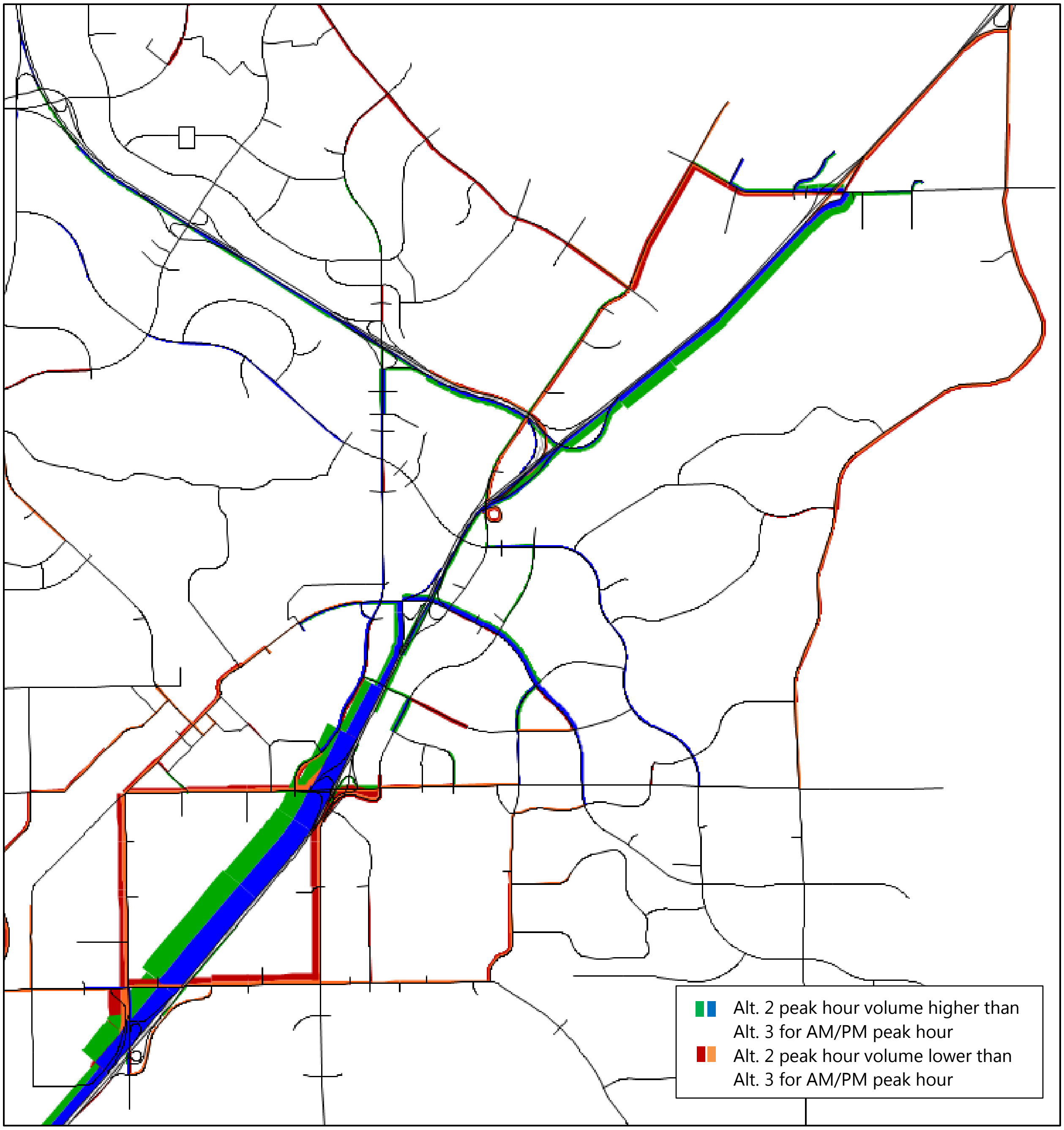


Figure 16 – Volume Comparison of Alternatives 2 and 3

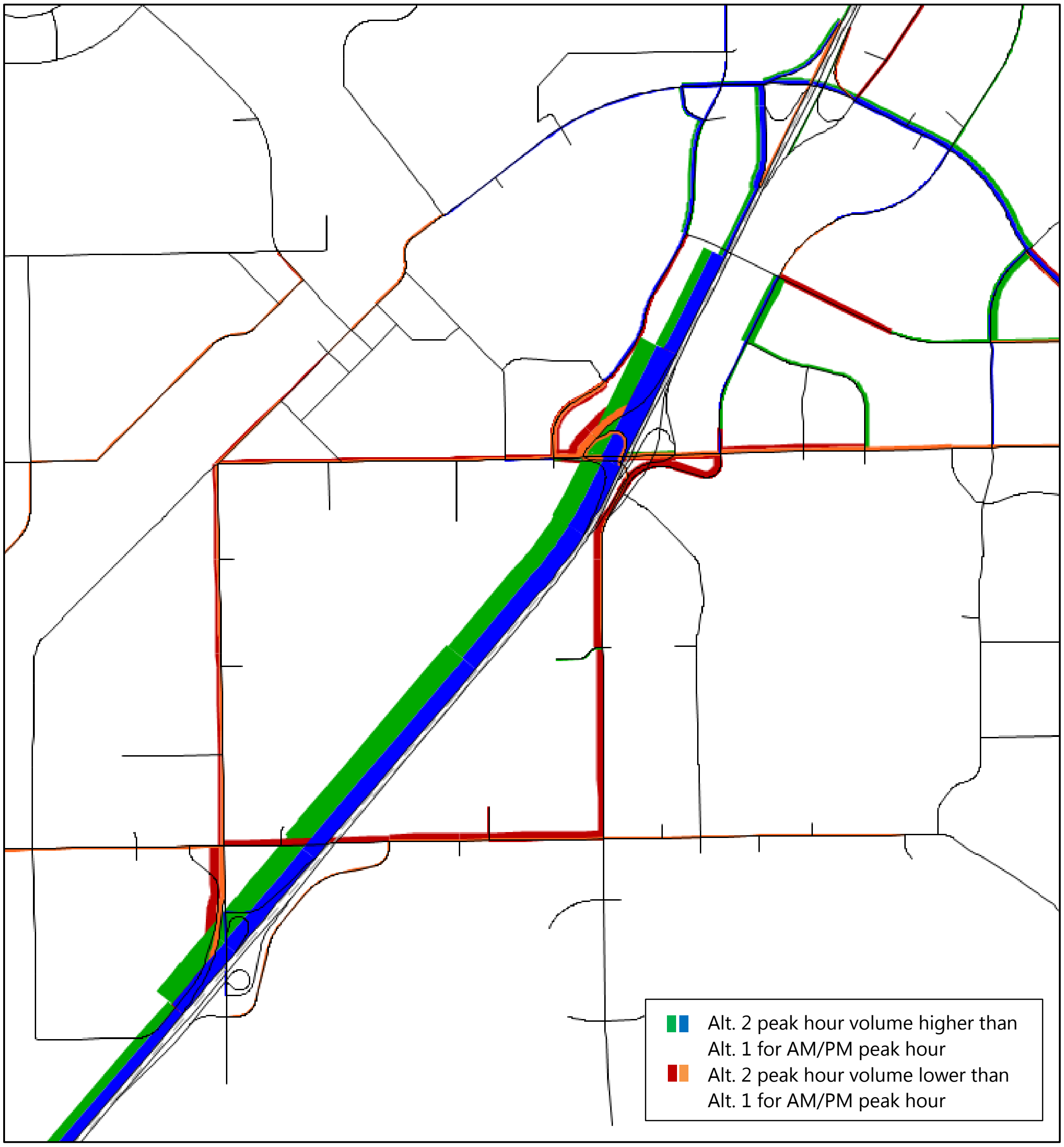


Figure 17 – Volume Comparison of Alternatives 1 and 2

4.2.2. HOV Volume Forecasts

The Visum model includes carpool lanes as separate roadway links to account for the additional HOV-only capacity. Due to the close-spacing of the ramps, access to the HOV direct connectors at the I-80/SR 65 interchange is restricted in the model to traffic west of Eureka Road/Atlantic Street and north of Stanford Ranch Road/Galleria Boulevard. The resulting HOV lane projections for the project alternatives are listed in Table 12.

TABLE 12: CARPOOL LANE PEAK HOUR VOLUME FOR DESIGN YEAR CONDITIONS						
Location	Alternative 1		Alternative 2		Alternative 3	
	AM	PM	AM	PM	AM	PM
Eastbound I-80: Douglas Blvd to Eureka Rd	1,070	1,490	1,070	1,490	1,070	1,510
Eastbound I-80 to Northbound SR 65 Median Ramp	540	1,100	530	1,110	540	1,090
Southbound SR 65 to Westbound I-80 Median Ramp	710	540	720	540	720	520
Westbound I-80: Atlantic St to Douglas Blvd	1,550	1,300	1,350	1,230	1,630	1,370
Source: Fehr & Peers, 2015						

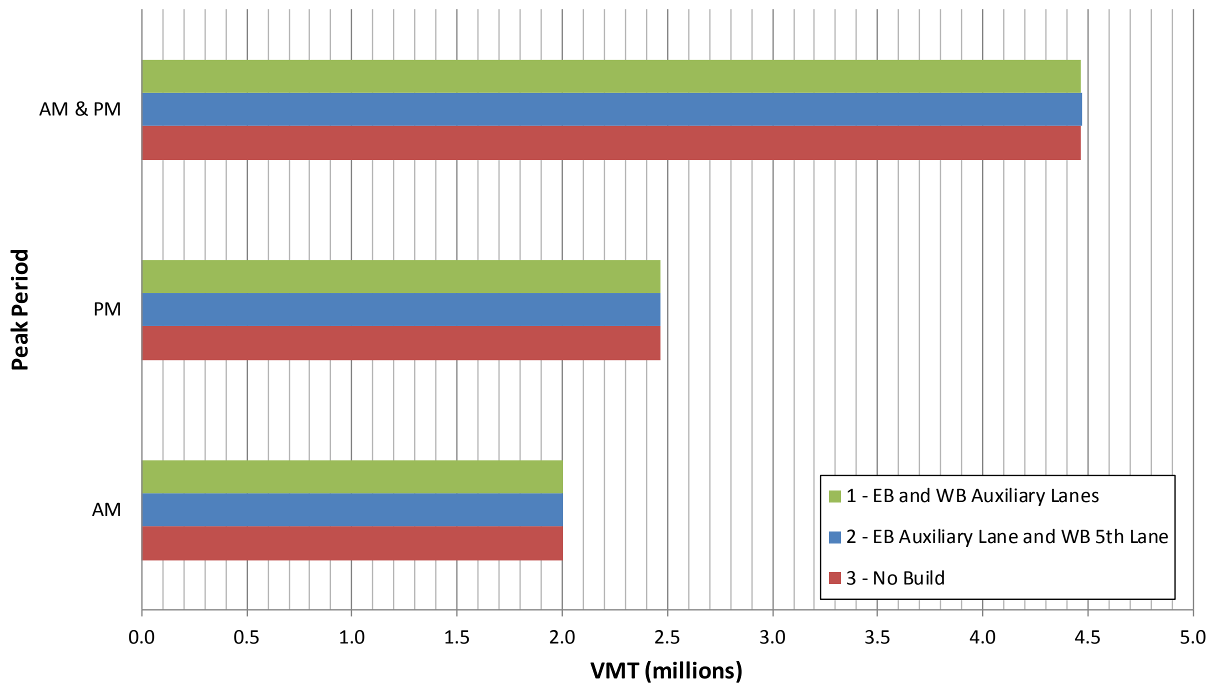
In the eastbound direction, the three alternatives have similar carpool lane forecasts. The proposed changes under the build alternatives are located downstream of the carpool lane, so they do not affect carpool lane volumes. In the westbound direction, the median carpool-only lane also has similar traffic forecasts across the improvements. However, downstream volumes in the westbound carpool lane are affected by the capacity of the adjacent general purpose lanes. Alternative 3 (No Build) would have the highest carpool lane volume. The auxiliary lane constructed under Alternative 1 would provide additional capacity such that the demand for the carpool lane would be reduced by about 100 vph during the peak hours. The lane addition under Alternative 2 would further reduce congestion such that the carpool lane demand would reduce by an additional 200 vph during the AM peak hour and 70 vph during the PM peak hour.

4.2.3. Meso-Scale Network Performance for Design Year

In addition to generating traffic volume forecasts for input to the Vissim microsimulation traffic operations model, the Visum model was used to produce the same meso-scale network performance measures reported for existing conditions. Figures 18 through 22 compare network performance across the project alternatives for design year conditions during the AM, the PM, and both the AM and PM peak periods. The reported performance measures are VMT, VHT, VHD, freeway VHD, and project-area freeway VHD, where the project area is the I-80 corridor.

The build alternatives increase VMT although the change is only about 0.5 percent (VMT is reported by 5-mph speed bin in the appendix). The results generally show that the build alternatives improve network efficiency by lowering VHT and VHD compared to the No Build Alternative. Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) has more VMT, but lower VHT and VHD, than Alternative 1 (Eastbound and Westbound Auxiliary Lanes). Figure 22 shows that the build alternatives would reduce freeway delay by at least 12 percent in the project area.

Alternative	Vehicle Miles of Travel (millions) AM	PM	AM & PM	Percent Change from No Build AM	PM	AM & PM
1 - EB and WB Auxiliary Lanes	2.00	2.47	4.47	0.07%	0.03%	0.05%
2 - EB Auxiliary Lane and WB 5th Lane	2.00	2.47	4.47	0.10%	0.05%	0.07%
3 - No Build	2.00	2.46	4.47	-	-	-



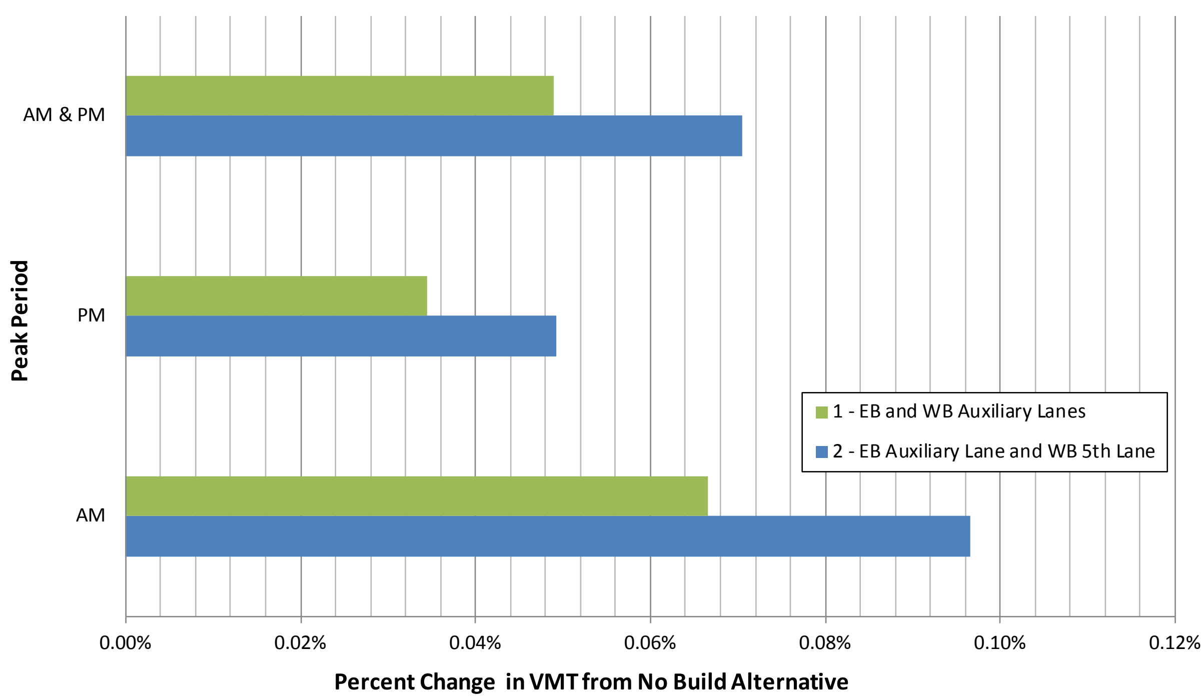
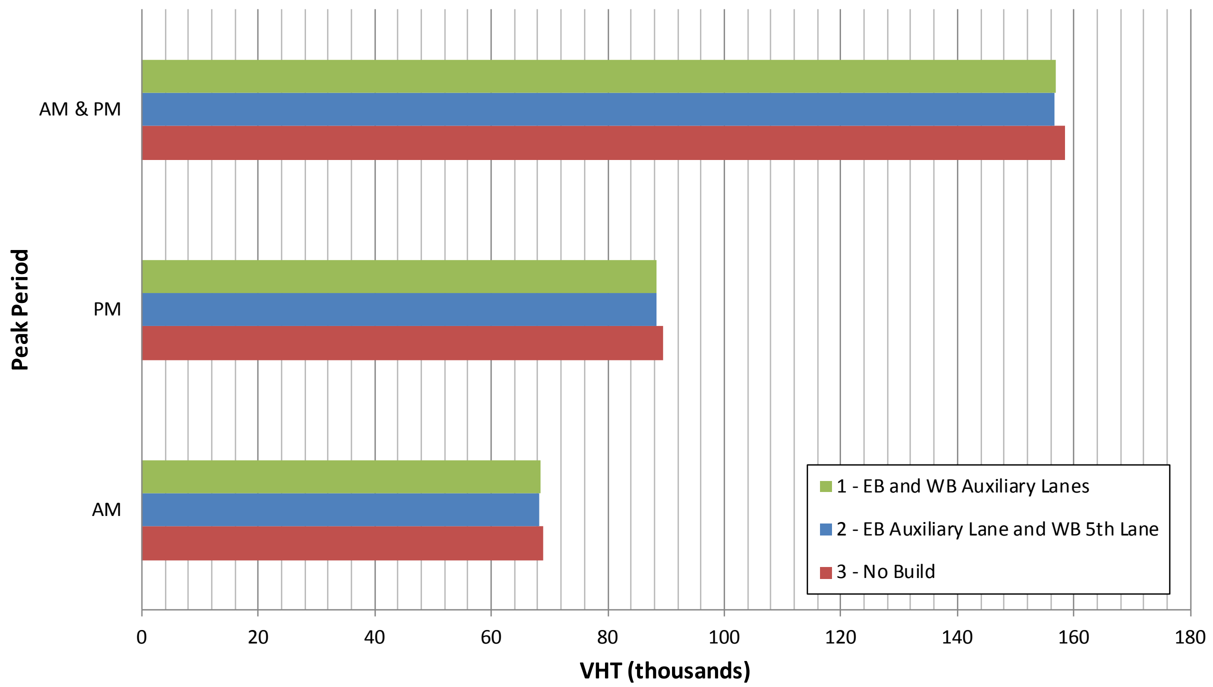


Figure 18 – Design Year Meso-Scale VMT Comparison

Alternative	Vehicle Hours of Travel (thousands) AM	PM	AM & PM	Percent Change from No Build AM	PM	AM & PM
1 - EB and WB Auxiliary Lanes	68.5	88.4	157.0	-0.70%	-1.05%	-0.90%
2 - EB Auxiliary Lane and WB 5th Lane	68.3	88.3	156.6	-1.00%	-1.24%	-1.14%
3 - No Build	69.0	89.4	158.4	-	-	-



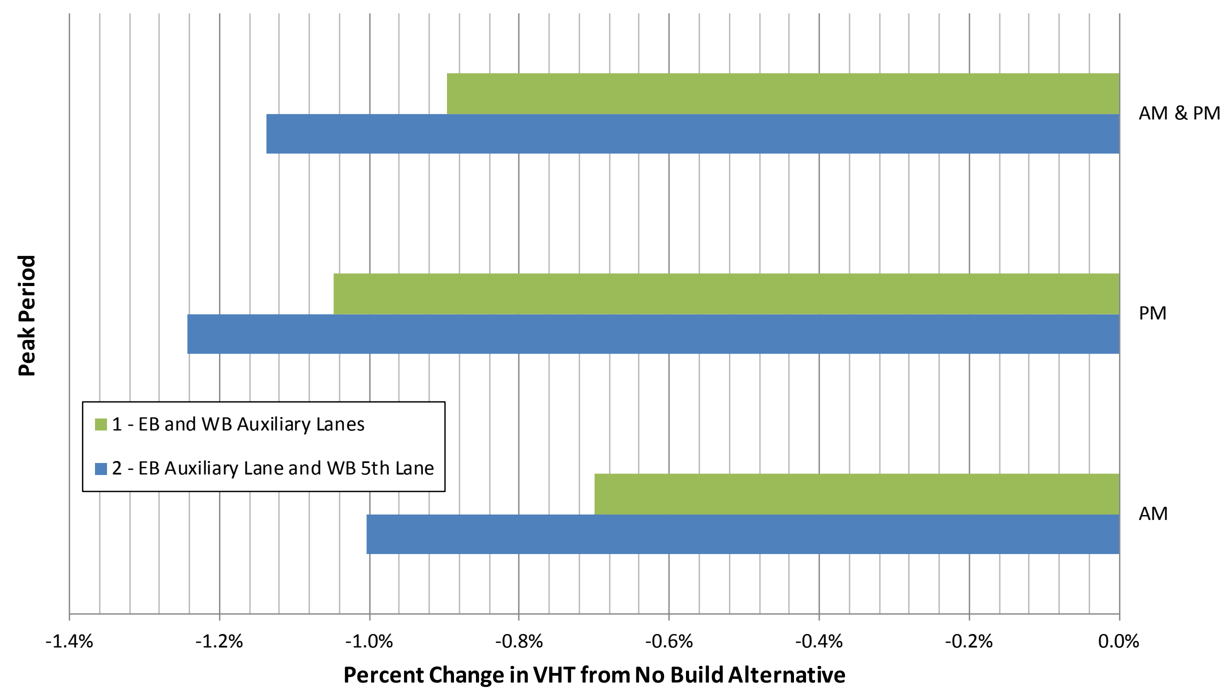
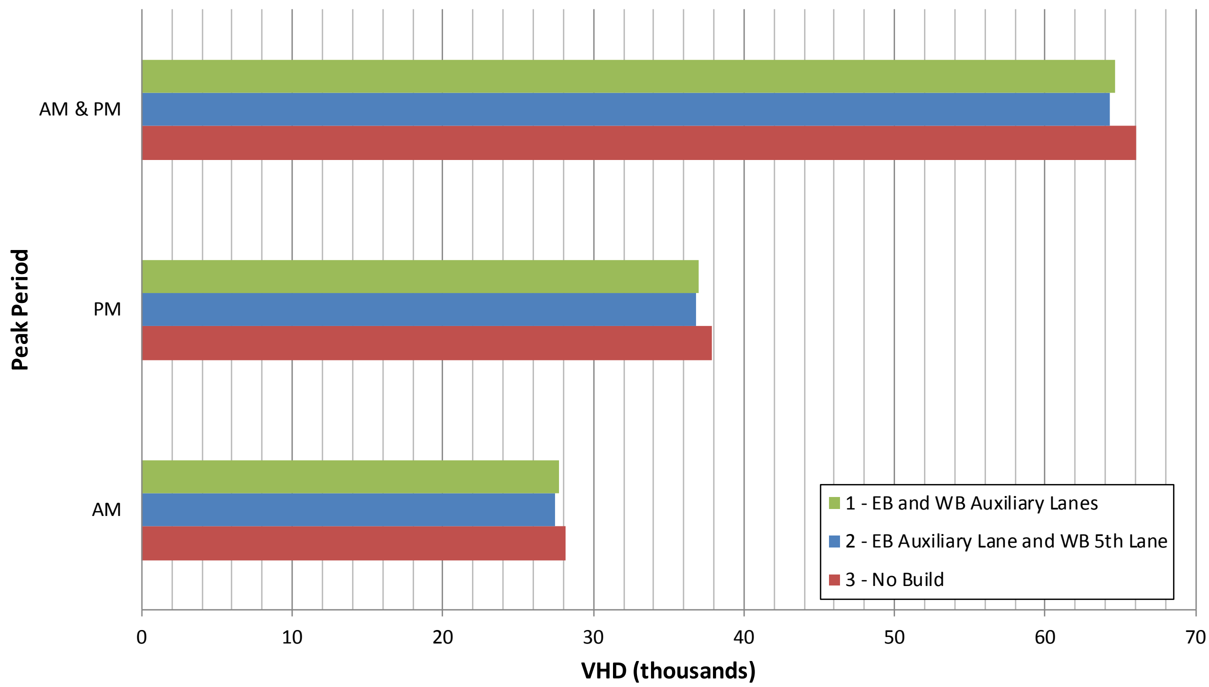


Figure 19 – Design Year Meso-Scale VHT Comparison

Alternative	Vehicle Hours of Delay (thousands) AM	PM	AM & PM	Percent Change from No Build AM	PM	AM & PM
1 - EB and WB Auxiliary Lanes	27.7	37.0	64.7	-1.67%	-2.33%	-2.05%
2 - EB Auxiliary Lane and WB 5th Lane	27.5	36.8	64.3	-2.40%	-2.78%	-2.62%
3 - No Build	28.1	37.9	66.0	-	-	-



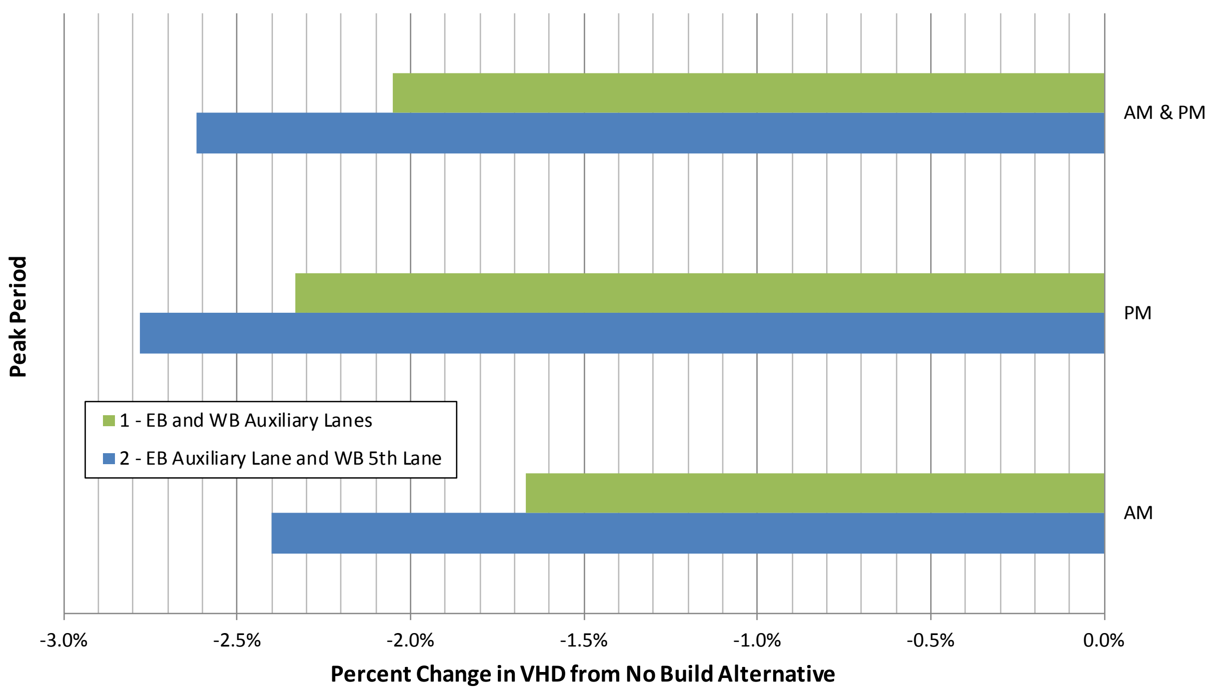
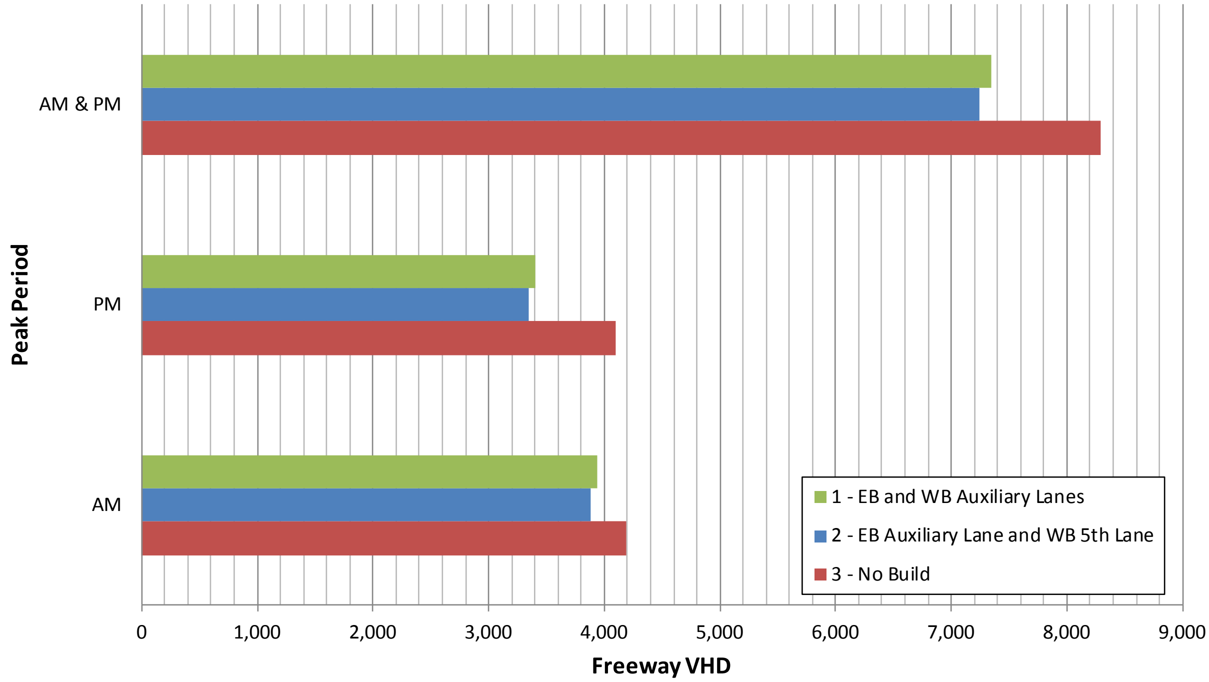
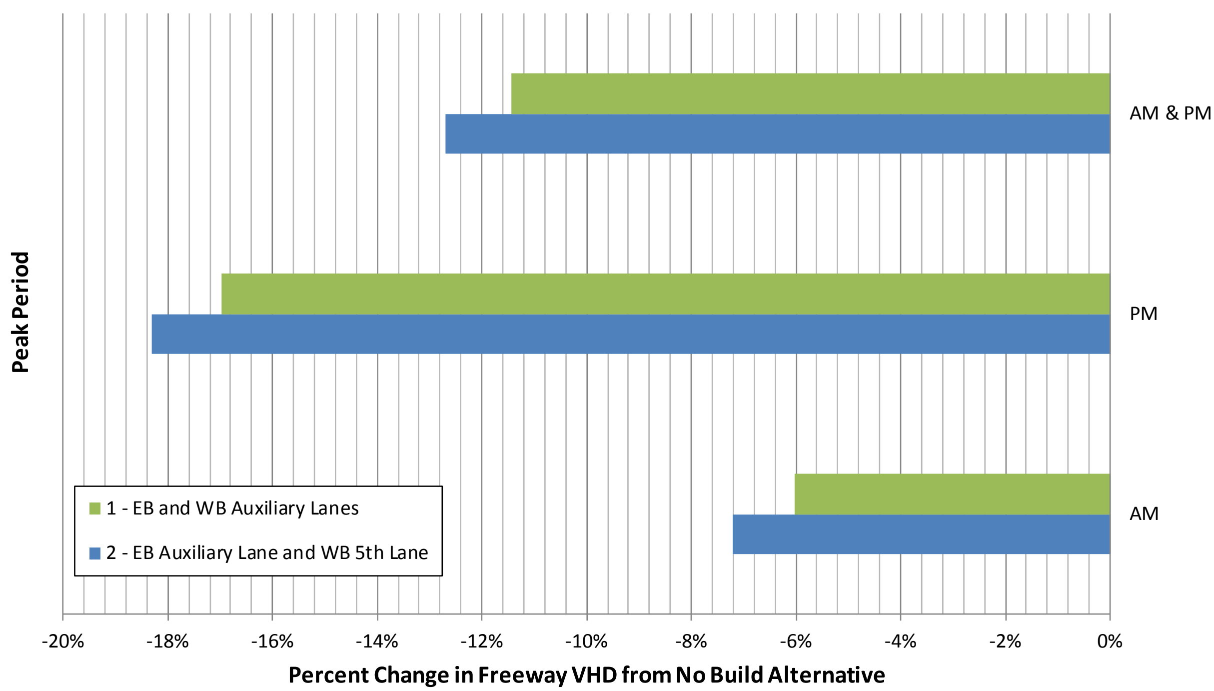


Figure 20 – Design Year Meso-Scale VHD Comparison

Alternative	Freeway Vehicle Hours of Delay* AM	PM	AM & PM	Percent Change from No Build AM	PM	AM & PM
1 - EB and WB Auxiliary Lanes	3,936	3,407	7,343	-6.03%	-16.97%	-11.44%
2 - EB Auxiliary Lane and WB 5th Lane	3,887	3,352	7,238	-7.21%	-18.31%	-12.70%
3 - No Build	4,189	4,103	8,292	-	-	-

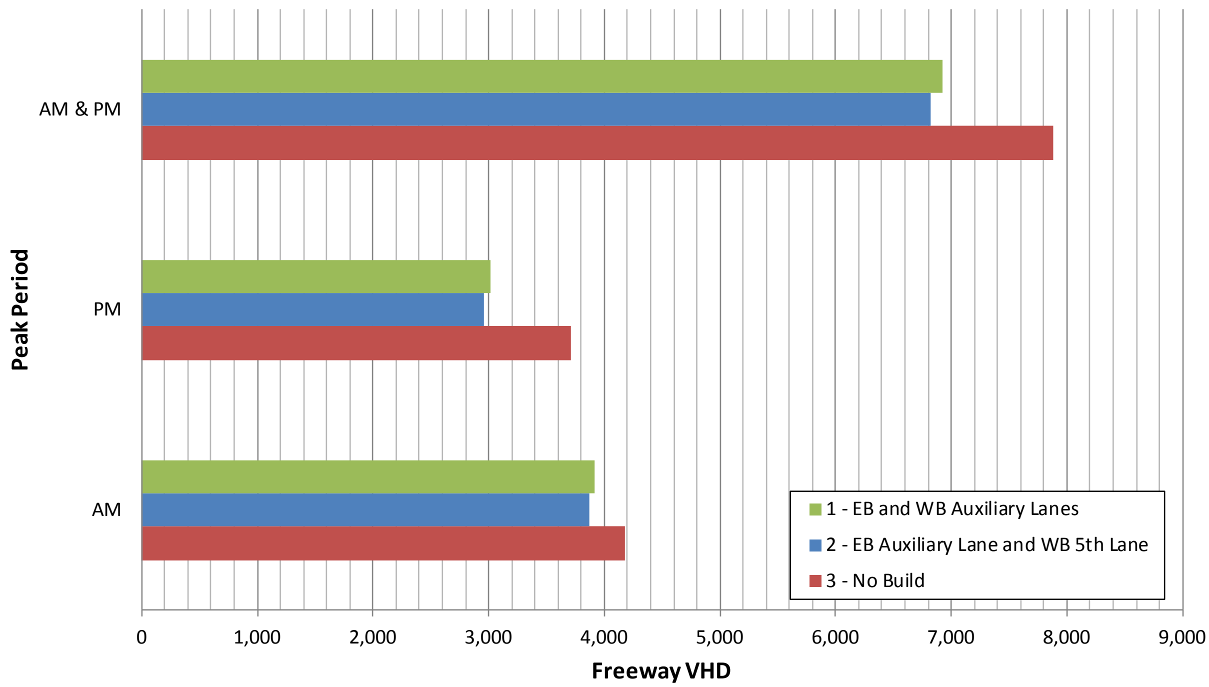


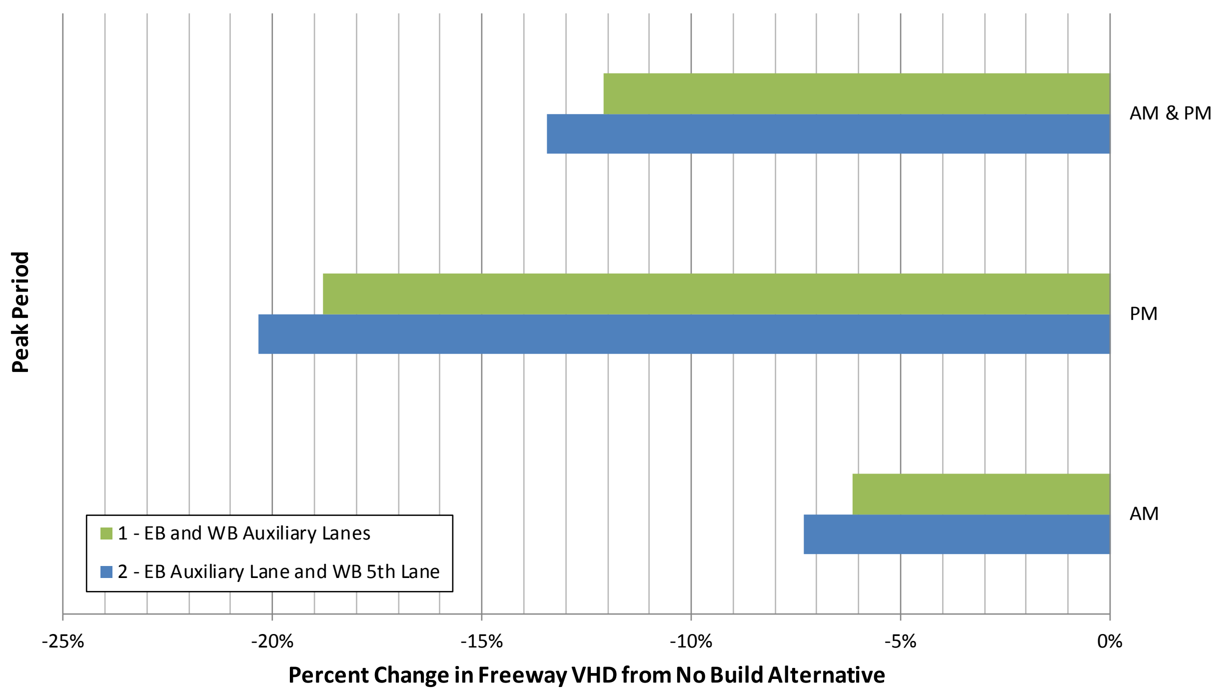


* Freeway VHD is measured only for freeway mainline links with an average speed less than 35 mph.

Figure 21 – Design Year Meso-Scale Freeway VHD Comparison

Alternative	Freeway Vehicle Hours of Delay* AM	PM	AM & PM	Percent Change from No Build AM	PM	AM & PM
1 - EB and WB Auxiliary Lanes	3,919	3,011	6,930	-6.15%	-18.79%	-12.10%
2 - EB Auxiliary Lane and WB 5th Lane	3,870	2,954	6,824	-7.33%	-20.34%	-13.45%
3 - No Build	4,176	3,708	7,884	-	-	-





Freeway VHD for I-80 corridor from Elkhorn Blvd/Greenback Ln to Sierra College Blvd.
* Freeway VHD is measured only for freeway mainline links with an average speed less than 35 mph.

Figure 22 – Design Year Meso-Scale Project-Area Freeway VHD Comparison

4.2.4. Construction Year Forecasts

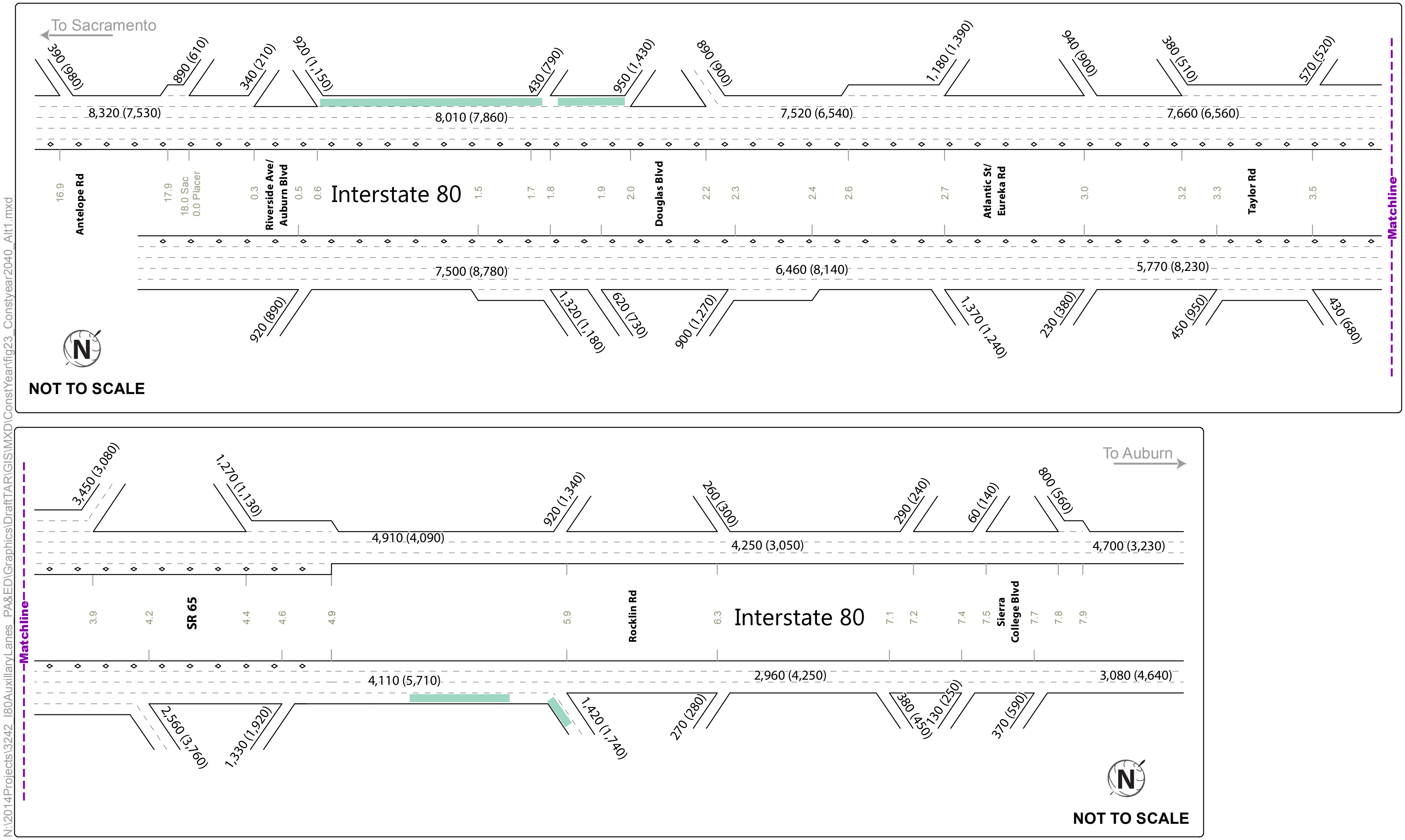
The construction year (2020) forecasts shown in Figures 23 through 25 were developed by interpolating between the hourly matrices for the baseline (2012) traffic volume estimates and the design year (2040) forecasts. Using Visum, the resulting matrices were assigned to the roadway network that corresponds to the planned projects expected to be completed by 2020 (as shown in Figure 2). Due to these changes, construction year demand volumes at any particular location may not be the exact linearly interpolated value between the existing and design year volumes.

This process presumes a linear growth relationship and captures some of the influence of project alternatives on trip assignment. One of the potential limitations of this approach is that recent growth has not kept pace with the projected linear growth rate. The sluggish economic recovery from the 2008/09 recession may result in actual construction year volumes that are lower than the projections, but this outcome is acceptable for the purpose of designing and evaluating project alternatives.

4.2.5. Meso-Scale Network Performance for Construction Year

In addition to generating traffic volume forecasts for input to the Vissim microsimulation traffic operations model, the Visum model was used to produce the same meso-scale network performance measures reported for existing conditions. Figures 26 through 31 compare network performance across the project alternatives for construction year conditions during the AM, the PM, and both the AM and PM peak periods. The reported performance measures are VMT, VHT, VHD, freeway VHD, and project-area freeway VHD, where the project area is the I-80 corridor (VMT by 5-mph speed bin is reported in the appendix).

The results show that the build alternatives increase VMT and reduce VHT and VHD compared to the no build alternative. Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) has lower network-wide VHT and VHD, but both build alternatives have about the same freeway VHD for both the study and project areas.



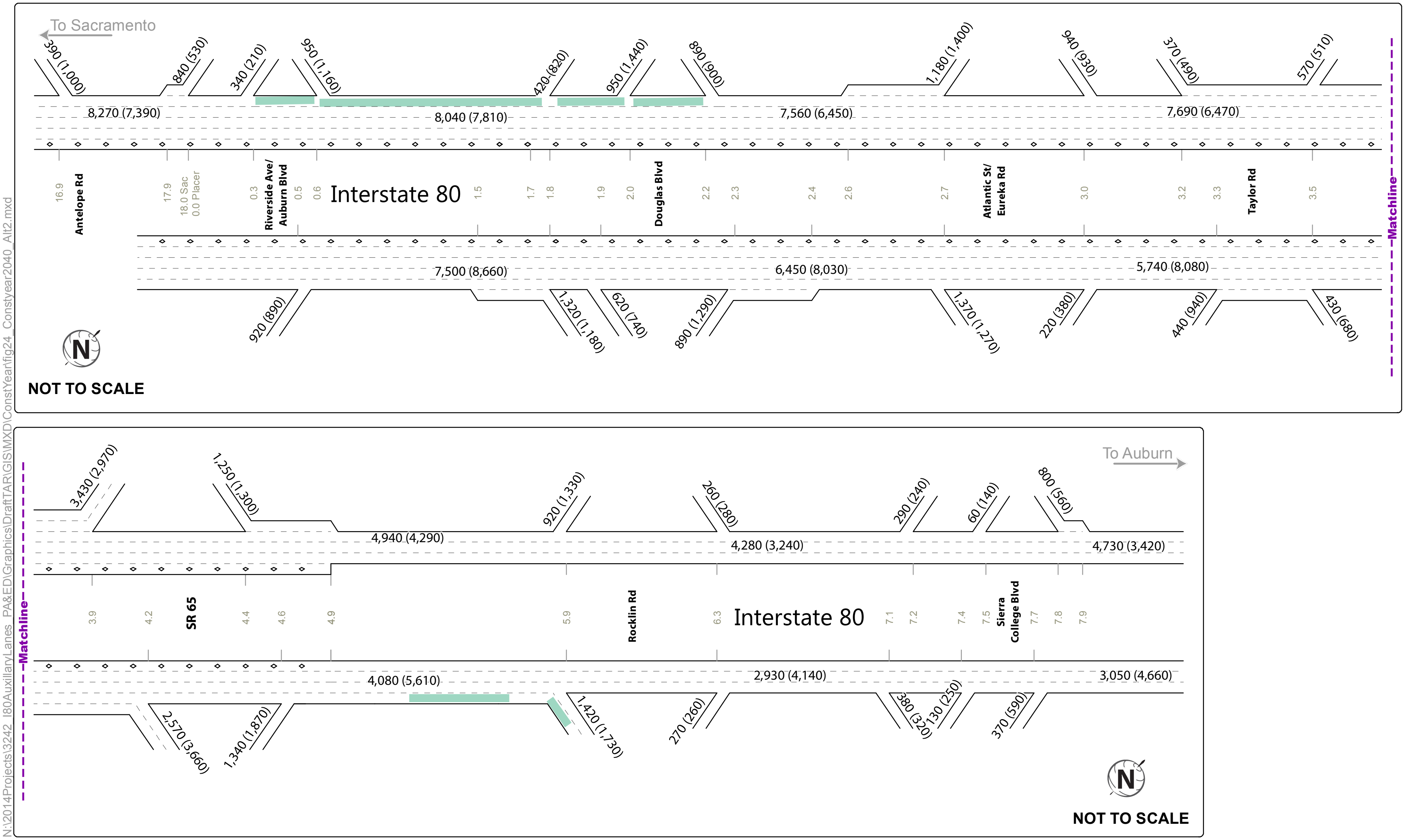
AM (PM) Peak Hour Traffic Volume for 2020 Conditions

Alternative 1

10.1 Postmile

Figure 23

Construction Year Peak Hour Traffic Volumes and Lane Configurations - Eastbound and Westbound Auxiliary Lanes (Alternative 1)



AM (PM) Peak Hour Traffic Volume for 2020 Conditions

Alternative 2

10.1 Postmile

Figure 24

Construction Year Peak Hour Traffic Volumes and Lane Configurations - Eastbound Auxiliary Lane and Westbound 5th Lane (Alternative 2)

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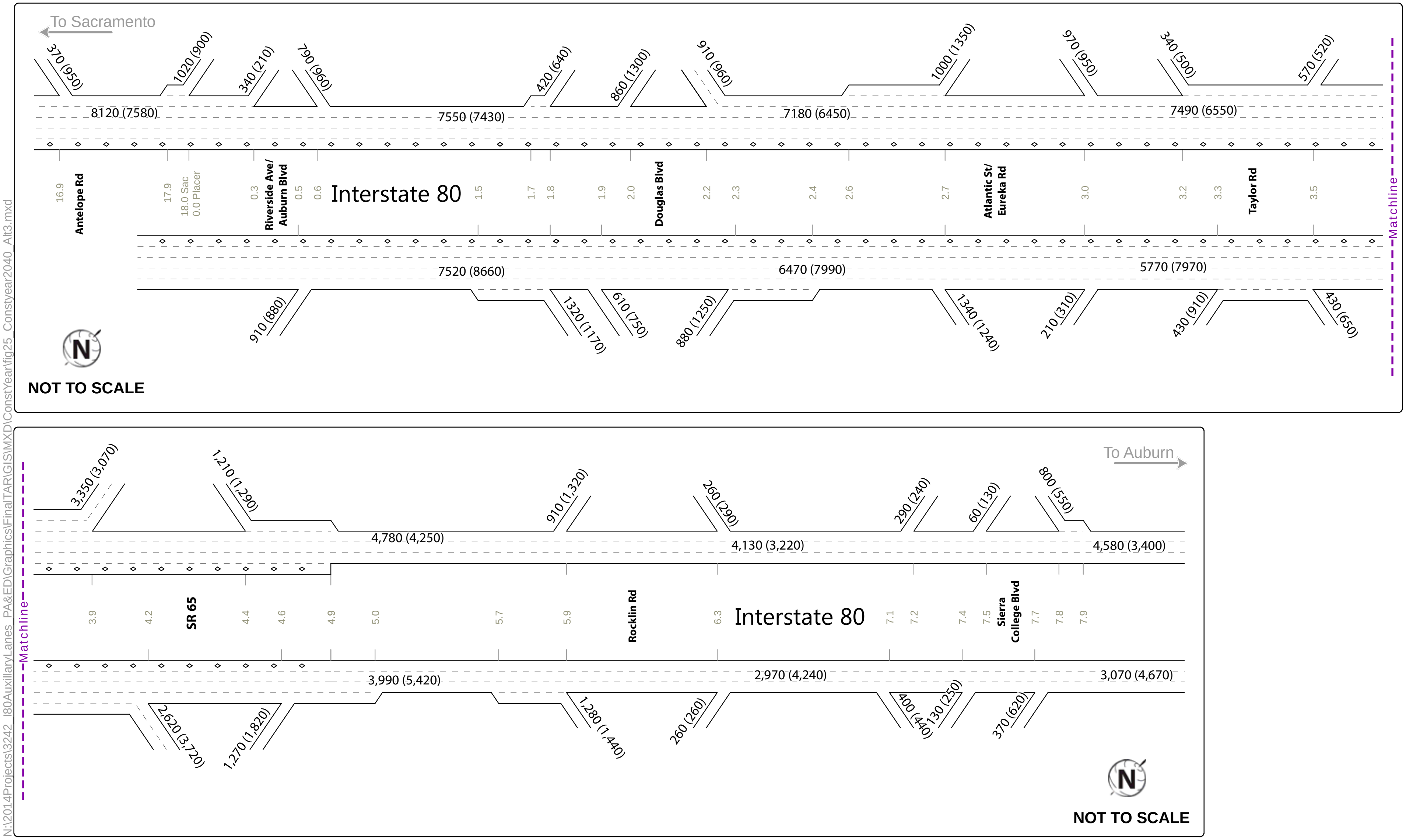

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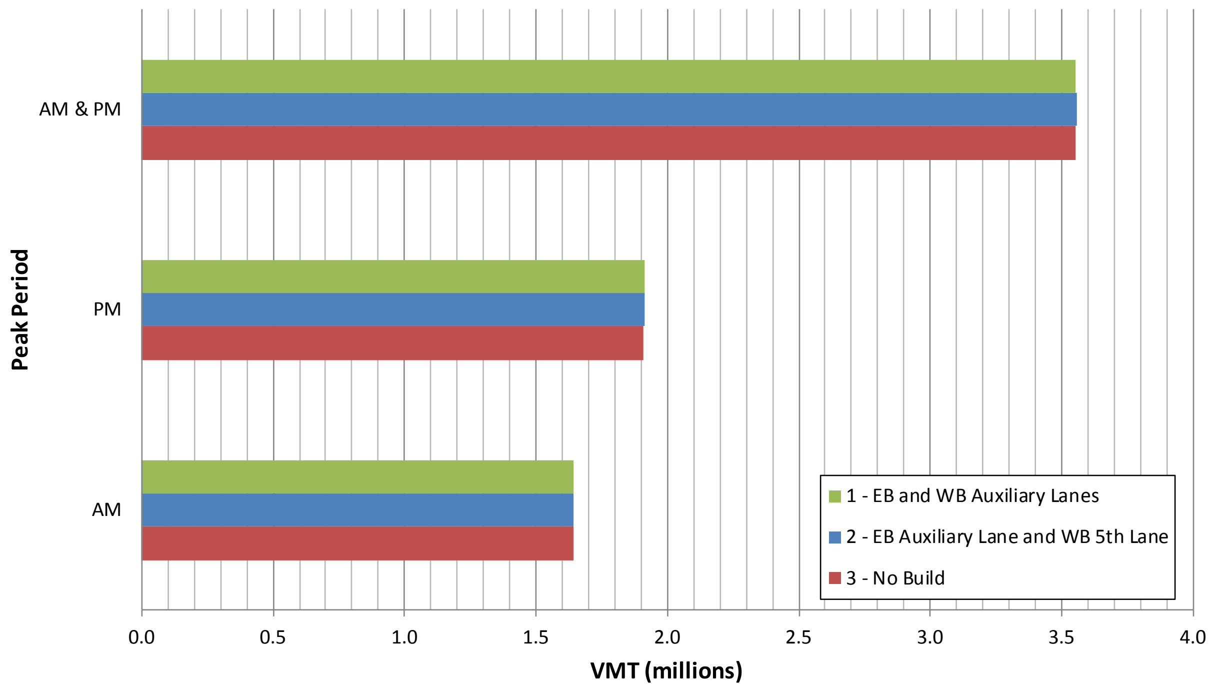
AM (PM) Peak Hour Traffic Volume for 2020 Conditions

10.1 Postmile

Figure 25

Construction Year Peak Hour Traffic Volumes and Lane Configurations - No Build (Alternative 3)

	Vehicle Miles of Travel (millions)			Percent Change from No Build		
Alternative	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
1 - EB and WB Auxiliary Lanes	1.64	1.91	3.55	0.05%	0.06%	0.06%
2 - EB Auxiliary Lane and WB 5th Lane	1.64	1.91	3.56	0.08%	0.09%	0.09%
3 - No Build	1.64	1.91	3.55	-	-	-



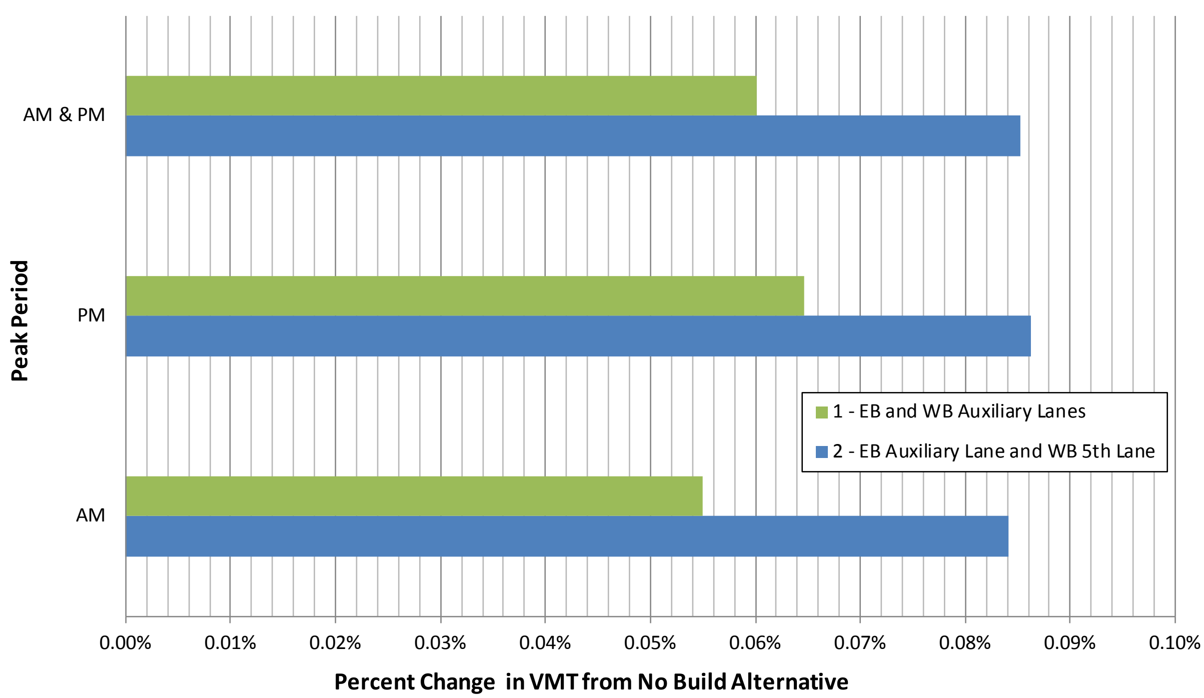
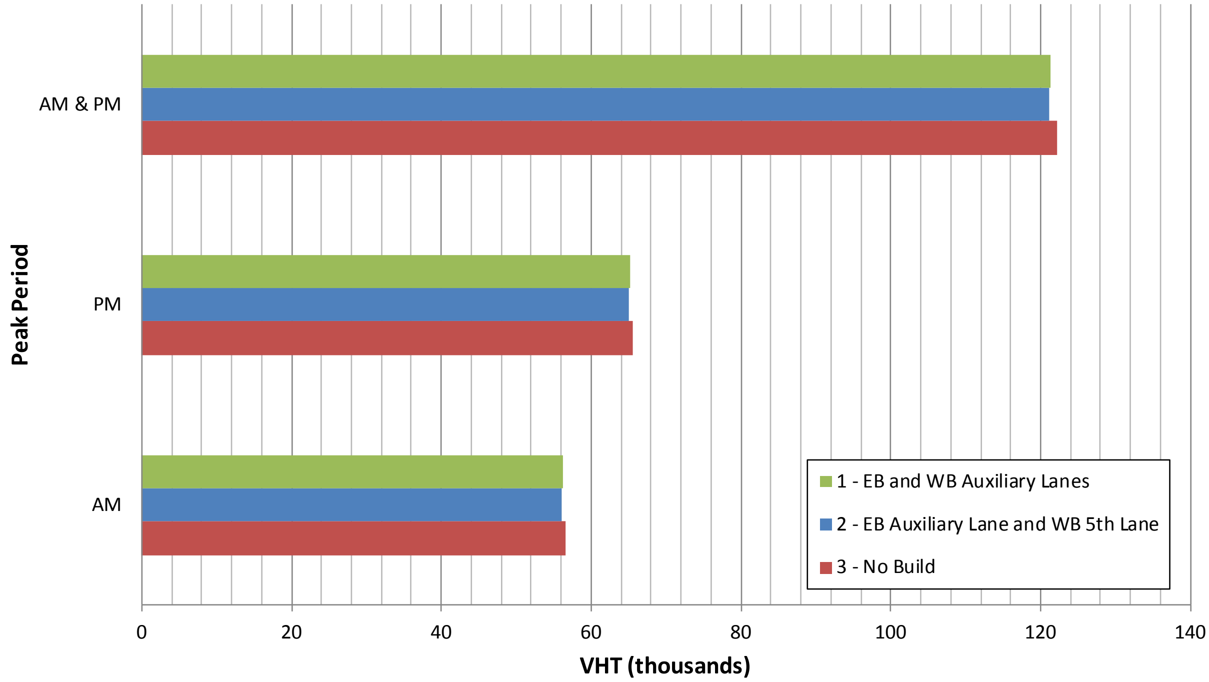


Figure 26 – Construction Year Meso-Scale VMT Comparison

Alternative	Vehicle Hours of Travel (thousands) AM	PM	AM & PM	Percent Change from No Build AM	PM	AM & PM
1 - EB and WB Auxiliary Lanes	56.2	65.2	121.3	-0.63%	-0.70%	-0.67%
2 - EB Auxiliary Lane and WB 5th Lane	56.0	65.1	121.1	-0.89%	-0.85%	-0.87%
3 - No Build	56.5	65.6	122.1	-	-	-



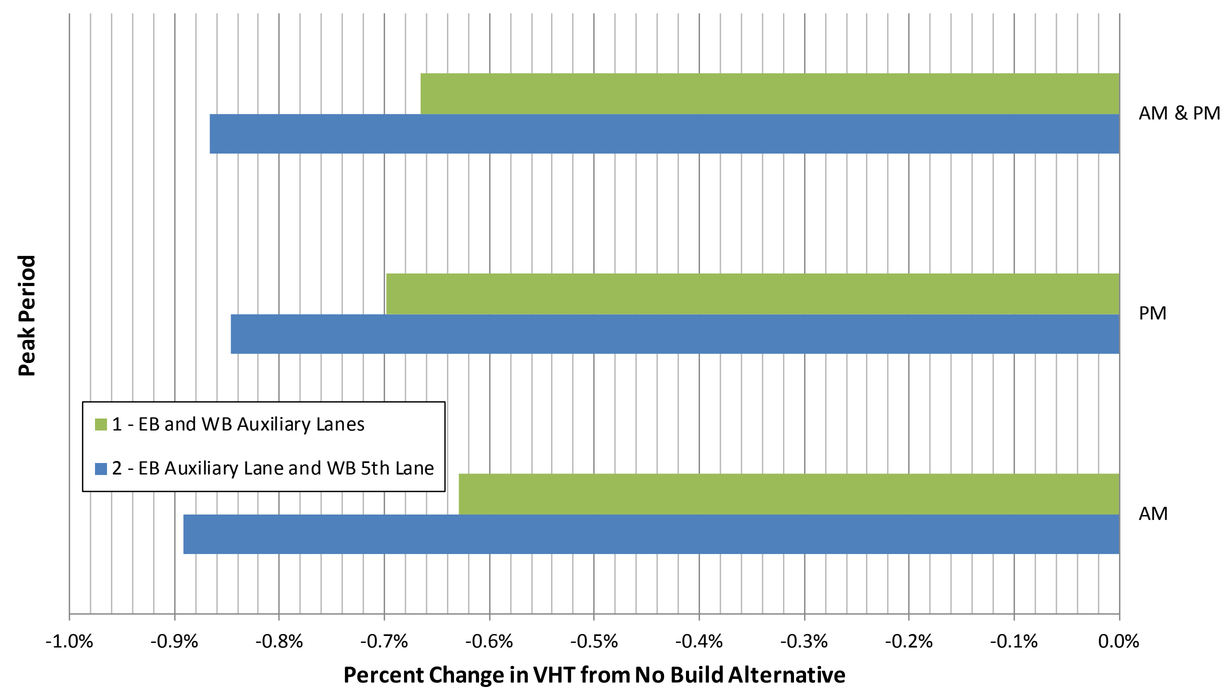
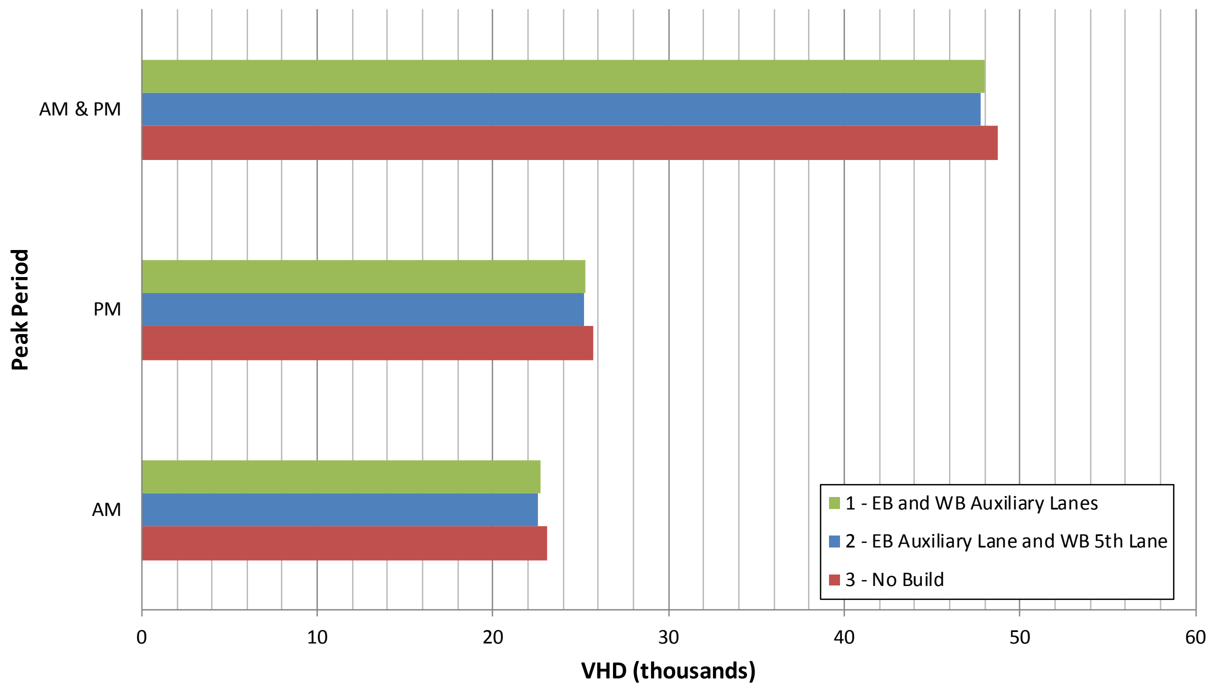


Figure 27 – Construction Year Meso-Scale VHT Comparison

Alternative	Vehicle Hours of Delay (thousands) AM	PM	AM & PM	Percent Change from No Build AM	PM	AM & PM
1 - EB and WB Auxiliary Lanes	22.7	25.3	48.0	-1.53%	-1.70%	-1.62%
2 - EB Auxiliary Lane and WB 5th Lane	22.5	25.2	47.7	-2.17%	-2.08%	-2.13%
3 - No Build	23.0	25.7	48.8	-	-	-



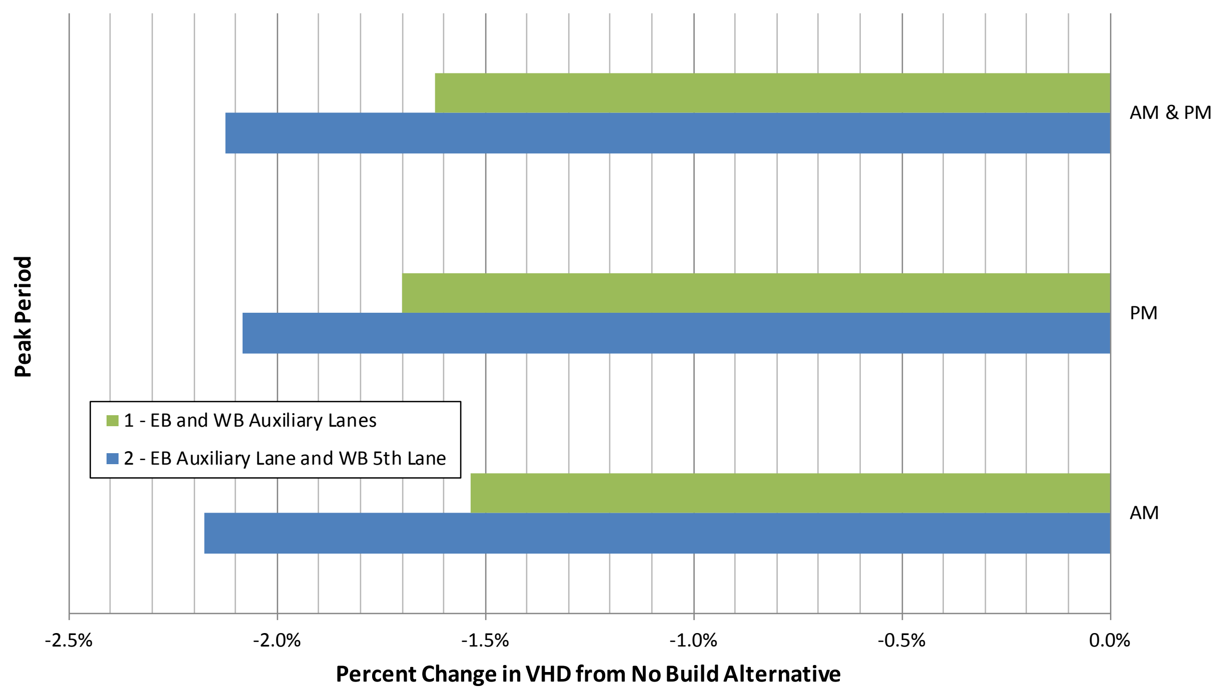
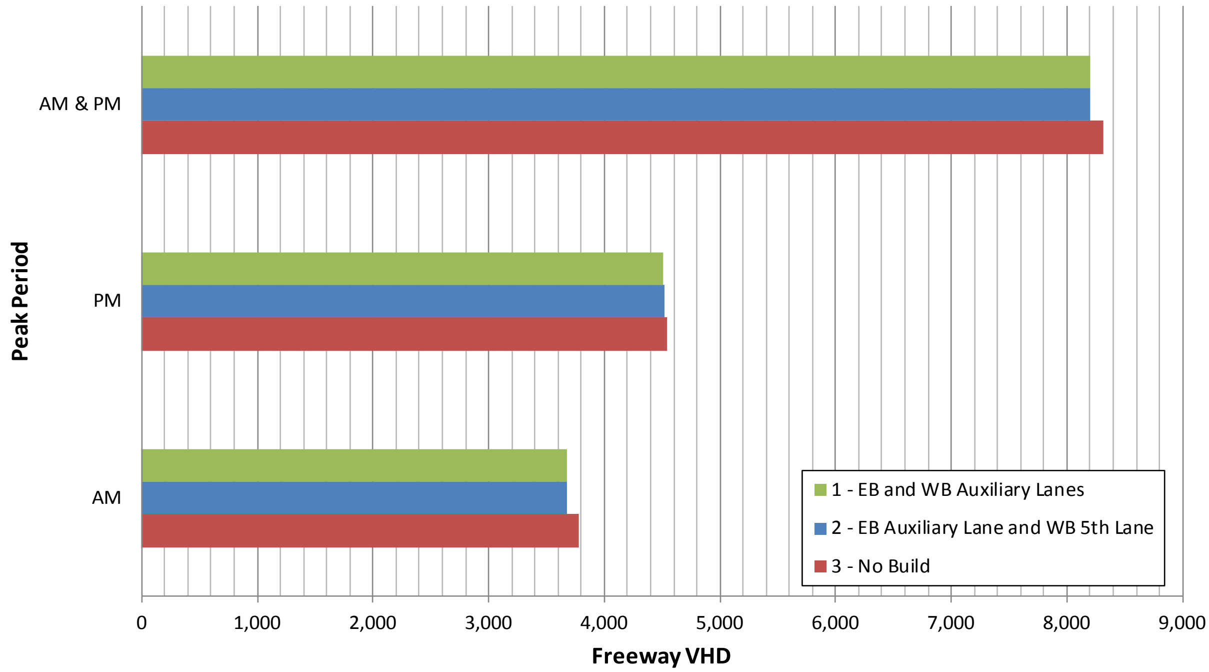
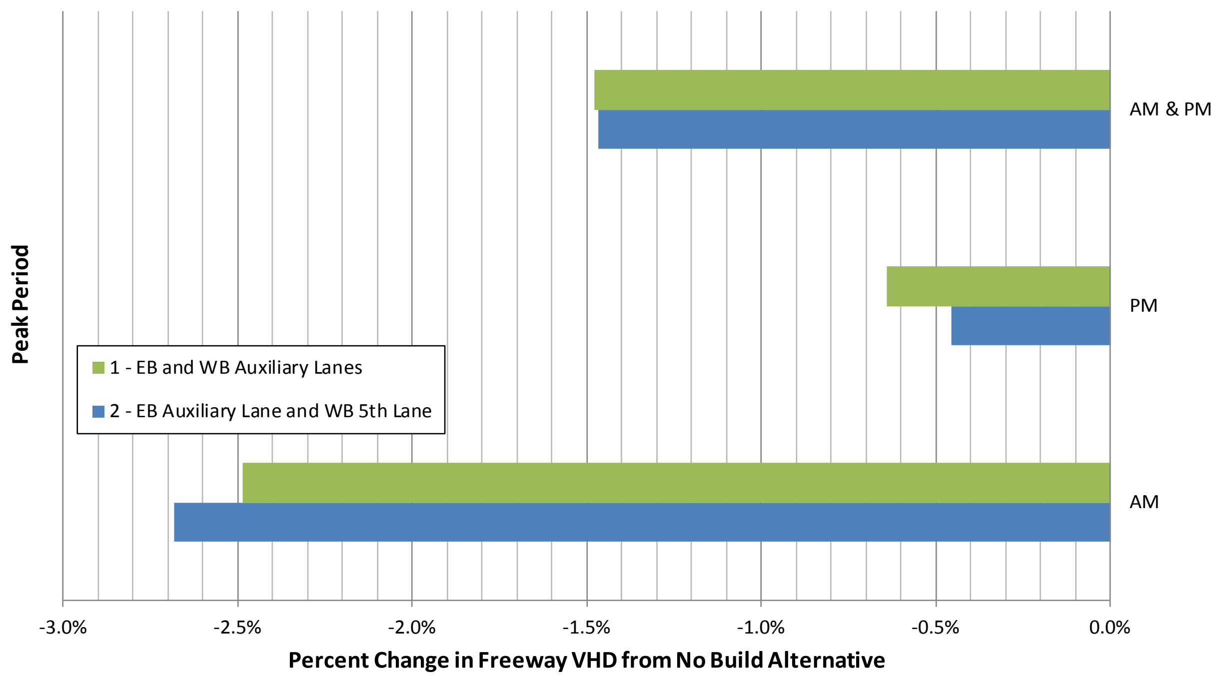


Figure 28 – Construction Year Meso-Scale VHD Comparison

Alternative	Freeway Vehicle Hours of Delay* AM	PM	AM & PM	Percent Change from No Build AM	PM	AM & PM
1 - EB and WB Auxiliary Lanes	3,682	4,514	8,196	-2.49%	-0.64%	-1.48%
2 - EB Auxiliary Lane and WB 5th Lane	3,674	4,523	8,197	-2.68%	-0.46%	-1.47%
3 - No Build	3,776	4,544	8,319	-	-	-

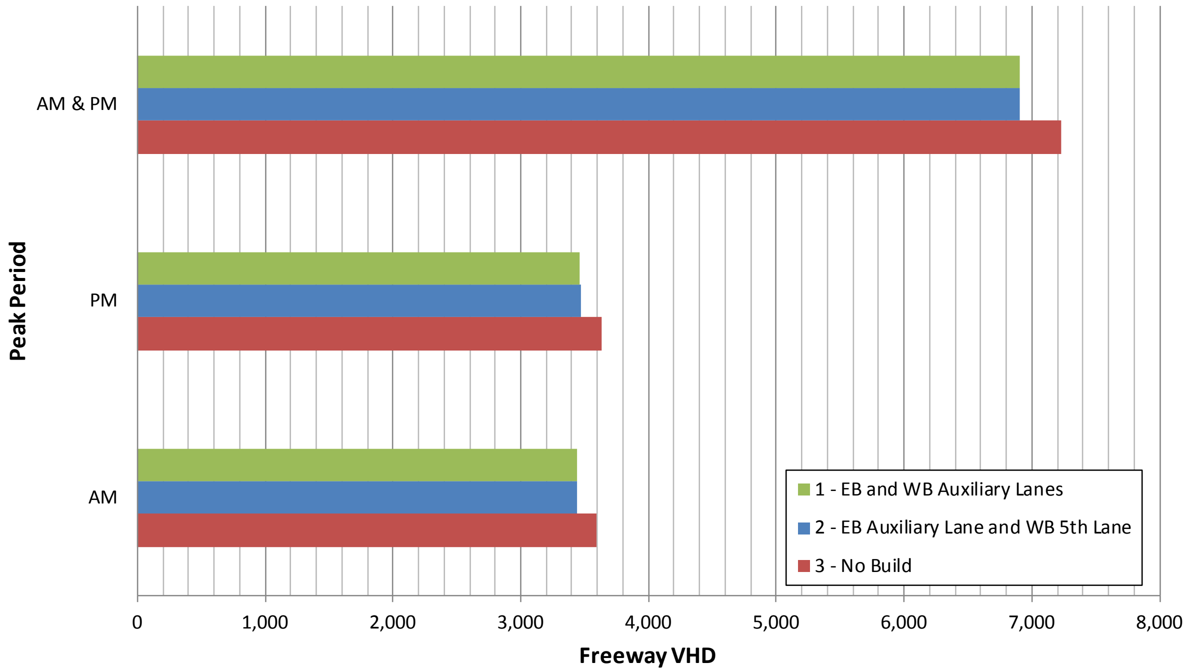


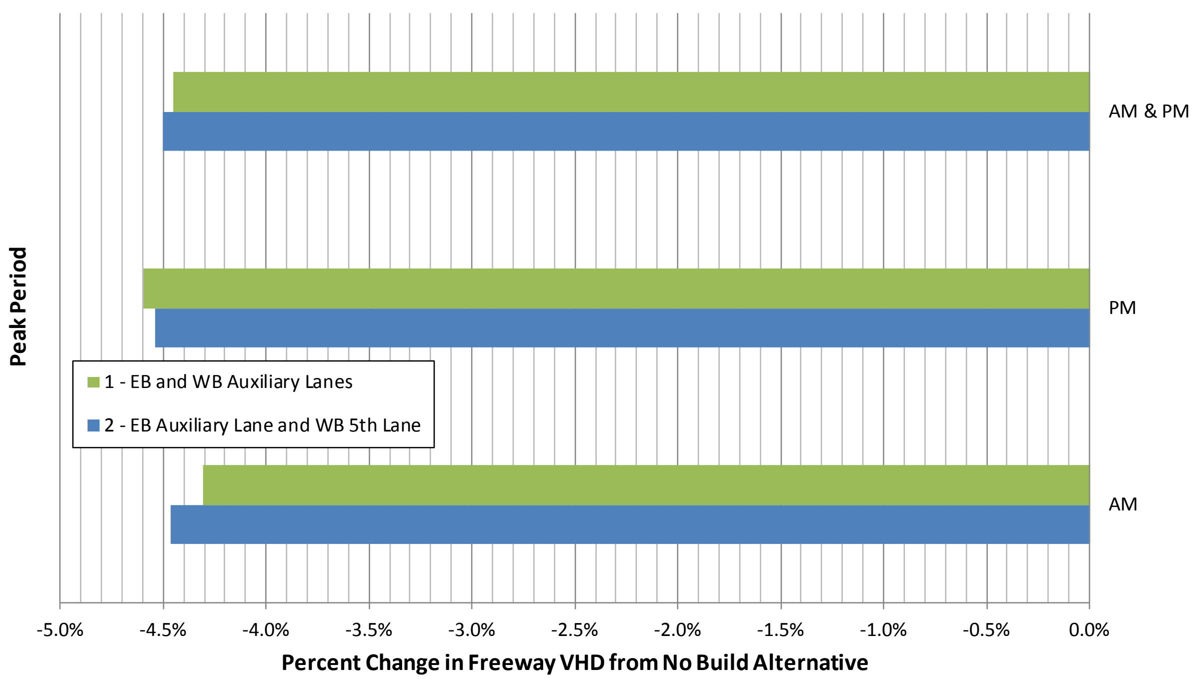


* Freeway VHD is measured only for freeway mainline links with an average speed less than 35 mph.

Figure 29 – Construction Year Meso-Scale Freeway VHD Comparison

Alternative	Freeway Vehicle Hours of Delay* AM	PM	AM & PM	Percent Change from No Build AM	PM	AM & PM
1 - EB and WB Auxiliary Lanes	3,442	3,465	6,907	-4.31%	-4.59%	-4.45%
2 - EB Auxiliary Lane and WB 5th Lane	3,436	3,467	6,903	-4.46%	-4.54%	-4.50%
3 - No Build	3,597	3,632	7,228	-	-	-





Freeway VHD for I-80 corridor from Elkhorn Blvd/Greenback Ln to Sierra College Blvd.
* Freeway VHD is measured only for freeway mainline links with an average speed less than 35 mph.

Figure 30 – Construction Year Meso-Scale Project-Area Freeway VHD Comparison

4.2.6. Induced Travel

The phenomenon where additional capacity leads to additional demand for travel is known as "induced travel." Induced travel occurs when the cost of travel is reduced (i.e., travel time reduction due to additional capacity) causing an increase in demand (more travelers using the improved facility). The reduction in travel time causes various responses by travelers, including diversion from other routes, changes in destinations, changes in mode, departure time shifts, and possibly the creation of new trips all together. As described previously, the SACMET and Visum models have limitations, but they do account for most of the factors that influence induced travel (e.g., changes in route, mode, and destination). The main factors they do not fully account for is the potential generation of new trips and long-term induced land use growth.

Since the SACMET trip generation model was calibrated to 2008 base year conditions when vehicle trip making in the region was not constrained by congestion, pricing, or some other means, the model represents a full level of travel demand being generated by households and employment. This means that new trips being created as a result of a network change are very unlikely because there is no constraint preventing these trips from occurring.

Long-term induced land use growth is the one factor that may not be fully represented because there is no direct feedback process to the land use growth forecasts. However, as part of this project, land use growth was assessed by the PDT. The PDT increased the growth of households and employment in the study area recognizing this area has been planned for additional growth and the transportation improvements associated with this project are intended to support future residential and employment growth.

4.2.7. Daily Forecasts

Using the SACMET model files that were the starting point for the peak period forecasts, daily forecasts were prepared for the no build and build alternatives under design year conditions. As described above, separate models for each build alternative were not prepared since the alternatives have similar capacity at the aggregate level. Table 13 provides the daily I-80 mainline volume for all vehicles and for trucks in the project area.

Under design year conditions, Alternative 3 (No Build) has the lowest volumes. The daily volumes for Alternative 1 (Eastbound and Westbound Auxiliary Lanes) and Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) are higher and about the same, with Alternative 2 about 1,000 vehicles per day higher.

TABLE 13: AVERAGE ANNUAL DAILY TRAFFIC VOLUME

Segment	Existing Conditions		Design Year Conditions					
			Alternative 1		Alternative 2		Alternative 3	
	Total	Trucks	Total	Trucks	Total	Trucks	Total	Trucks
Eastbound I-80: SR 65 to Rocklin Rd	54,300	3,020	71,100	5,400	71,300	5,440	68,900	5,370
Westbound I-80: Douglas Blvd to Riverside Ave	78,800	4,150	116,100	8,040	117,300	8,070	110,800	7,920

Note: The existing conditions total volume data is from 2009 as reported in the PeMS database. The existing truck volumes are estimated from the truck percentage reported in Caltrans' Annual Average Daily Truck Traffic publication.

Source: Fehr & Peers, 2015

Chapter 5. Traffic Operations Analysis

This section summarizes the traffic operations analysis results based on the microsimulation traffic operations models (refer to Figure 4 for the network limits). This analysis provides more detailed insights about peak period and peak hour traffic operations under each alternative. Technical calculations supporting the results can be found in the separately bound appendix. Design year analysis results are presented first followed by the construction year. All analysis was conducted with the methodology described in Chapter 2. Further, the evaluation criteria from Chapter 2 were used to identify locations with deficient operations. For these locations, improvements are proposed that may be considered as project refinements or mitigation.

5.1. Design Year Conditions

Overall network performance statistics for AM and PM peak period operations are summarized for each alternative in Tables 14 and 15 below, respectively.

TABLE 14: COMPARISON OF OVERALL NETWORK PERFORMANCE – DESIGN YEAR AM PEAK PERIOD

Performance Measure		Existing Conditions	Design Year Conditions		
			Alternative 1	Alternative 2	Alternative 3
Volume Served (% of total demand)		143,450 (100%)	207,310 (99%)	207,310 (99%)	207,180 (99%)
Vehicle Miles of Travel (VMT)		645,270	950,270	951,770	946,050
Person Miles of Travel		786,260	1,132,990	1,134,890	1,128,530
Vehicle Hours of Travel (VHT)		13,760	22,310	22,420	22,850
Vehicle Hours of Delay (VHD) (% of VHT)		2,670 (19%)	5,970 (27%)	6,060 (27%)	6,590 (29%)
Average Delay per Vehicle (min)		1.12	1.73	1.75	1.91
Person Hours of Delay		3,240	6,880	6,060	7,610
Average Speed		46.9	42.6	42.5	41.4
Average Speed for HOVs		47.0	45.3	45.0	44.1
Eastbound Travel Time: Auburn Blvd to Sierra College Blvd	SOV	6:41	6:40	6:41	6:40
	HOV	6:34	6:33	6:33	6:34
Westbound Travel Time: Sierra College Blvd to Antelope Rd	SOV	8:27	9:24	8:26	10:50
	HOV	8:18	8:41	8:18	9:03

Source: Fehr & Peers, 2015

The results presented in Tables 14 and 15 are summarized below.

- Overall, the build alternatives (Alternative 1 and 2) improve network performance compared to the no build alternative (Alternative 3).
- The volume served in the network is about the same across alternatives during the AM peak period, but the PM peak period volume served is lower for Alternative 3 (No Build) than for the build alternatives.
- Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) has higher VMT compared to Alternative 1 (Eastbound and Westbound Auxiliary Lanes). Alternative 2 also has lower network delay and lower travel times on westbound I-80.
- Travel time for westbound I-80 improves by more than 80 seconds during the AM peak hour and more than three and a half minutes during the PM peal hour with the build alternatives.
- Travel time for eastbound I-80 is about the same for all alternatives.

TABLE 15: COMPARISON OF OVERALL NETWORK PERFORMANCE – DESIGN YEAR PM PEAK PERIOD

Performance Measure		Existing Conditions	Design Year Conditions		
			Alternative 1	Alternative 2	Alternative 3
Volume Served (% of total demand)		198,170 (101%)	300,010 (99%)	299,980 (100%)	288,830 (95%)
Vehicle Miles of Travel (VMT)		730,100	1,162,670	1,164,810	1,104,780
Person Miles of Travel		880,180	1,397,690	1,398,750	1,331,560
Vehicle Hours of Travel (VHT)		16,850	33,700	31,680	41,750
Vehicle Hours of Delay (VHD) (% of VHT)		3,950 (23%)	13,270 (39%)	11,210 (35%)	22,320 (54%)
Average Delay per Vehicle (min)		1.20	2.65	2.24	4.64
Person Hours of Delay		4,670	15,350	13,050	25,850
Average Speed		43.3	34.5	36.8	26.5
Average Speed for HOVs		44.7	38.1	39.5	30.4
Eastbound Travel Time: Auburn Blvd to Sierra College Blvd	SOV	6:35	6:44	6:42	6:43
	HOV	6:23	6:37	6:37	6:37
Westbound Travel Time: Sierra College Blvd to Antelope Rd	SOV	8:11	13:27	8:24	17:11
	HOV	8:01	9:43	8:18	10:40

Source: Fehr & Peers, 2015

Specific details about design year freeway and arterial intersection operations are discussed in more detail in the following sections.

5.1.1. Freeway Operations

Detailed freeway operations analysis was completed for the peak hour (7:30 to 8:30 AM and 4:30 to 5:30 PM) of the four hour AM and PM peak periods. The AM and PM peak-hour served volume are listed in Figure 31. The AM and PM peak hour results for select locations are reported in Tables 16 and 17, respectively. The full set of results is available in the Appendix. Figures 32 through 39 display the average speed in the mixed-flow lanes throughout the network during the peak periods for each alternative.

Eastbound I-80

The freeway operations results indicate that all alternatives would operate with LOS E or better conditions during the AM and PM peak hours. The separate projects to reconstruct the I-80/SR 65 Interchange and widen SR 65 to the north would eliminate existing bottlenecks in the project area. Since all alternatives assume that these separate projects have been constructed, no congestion would occur under design year conditions.

Between SR 65 and Rocklin Road, Alternative 3 (No Build) would have has LOS D conditions during both peak hours. The build alternatives would provide an additional lane for this segment, which would improve the AM peak hour LOS to C, but the PM peak hour LOS would remain at D. Since all segments would operate at LOS E or better, no deficiencies would occur on eastbound I-80. Most segments would operate with LOS D or better conditions during both peak periods.

Westbound I-80

During the AM peak period, congestion would occur between Antelope Road and Elkhorn Boulevard under all three alternatives. However, Alternative 3 (No Build) would have the lowest level of congestion due to upstream bottlenecks at Douglas Boulevard that would constrain the demand from reaching this bottleneck. The proposed project (Alternatives 1 and 2) would provide additional upstream capacity resulting in impacts at the following locations on westbound I-80 in the AM peak hour.

- Antelope Road Westbound on-ramp (Alternative 2 only)
- Antelope Road to Truck Scales (Alternative 2 only)
- Truck Scales off to on-ramp
- Truck Scales on-ramp
- Truck Scales to Elkhorn Boulevard

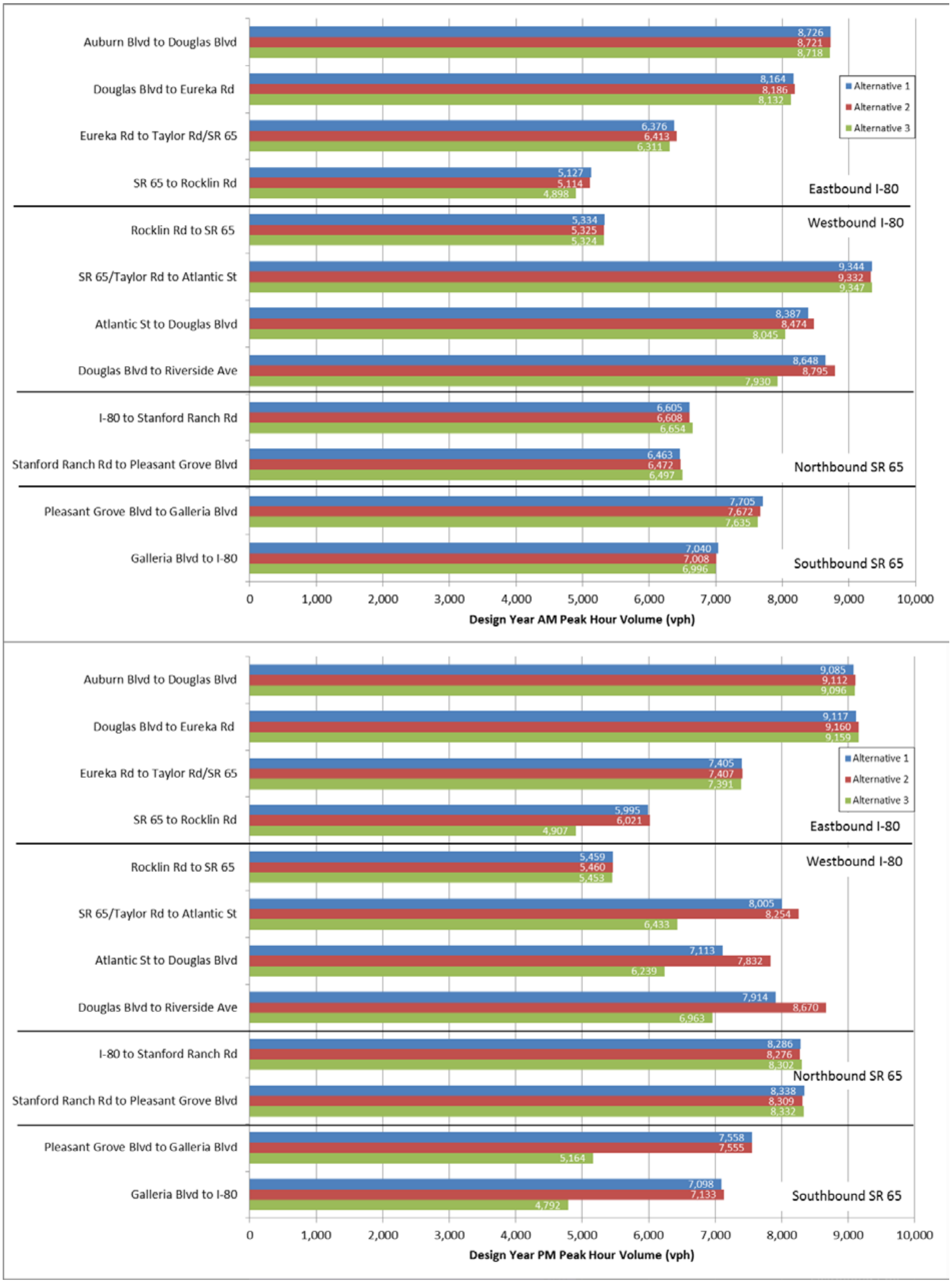


Figure 31 – Freeway Served Volume for Design Year Conditions

TABLE 16: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS

Freeway	Location	Type[1]	Alternative 1	Alternative 2	Alternative 3
EB I-80	Auburn Blvd to Douglas Blvd	Basic	E / 39	D / 32	E / 38
	Douglas Blvd to Eureka Rd	Weave	C / 26	C / 24	C / 26
	SR 65 Off-ramp	Diverge	C / 24	C / 22	C / 24
	SR 65 On-ramp	Merge	D / 30	C / 28	D / 28
	SR 65 to Rocklin Rd	Basic	C / 25	C / 24	D / 31
	Rocklin Rd Off-ramp	Diverge	C / 24	C / 22	C / 26
WB I-80	SR 65 to Atlantic St	Weave	E / 36	C / 24	**F / 54**
	Atlantic St On-ramp	Merge	**F / 69**	E / 36	**F / 72**
	Douglas Blvd Off-ramp	Diverge	E / 42	D / 33	**F / 62**
	Douglas Blvd WB On-ramp	Merge	D / 31	C / 28	**F / 91**
	Douglas Blvd EB On-ramp	Merge	E / 40	D / 32	**F / 75**
	Douglas Blvd to Riverside Ave	Basic	E / 36	D / 32	E / 39
	Riverside Ave Off-ramp	Diverge	D / 32	D / 33	E / 37
	Riverside Ave to Antelope Rd	Basic	D / 32	D / 32	D / 31
	Antelope Rd WB On-ramp	Merge	E / 36	**F / 54**	D / 30
	Antelope Rd to Truck Scales	Weave	E / 45	**F / 57**	D / 34
	Truck Scales Off to On-ramp	Basic	**F / 73**	**F / 79**	**F / 48**
	Truck Scales On-ramp	Merge	**F / 88**	**F / 88**	**F / 69**
	Truck Scales to Elkhorn Blvd	Basic	**F / 59**	**F / 59**	**F / 54**
	Elkhorn Blvd EB On-ramp	Merge	**F / 49**	**F / 61**	**F / 68**
NB SR 65	I-80 to Stanford Ranch Rd	Weave	C / 27	C / 27	C / 28
	Stanford Ranch Rd to Pleasant Grove Blvd	Weave	C / 25	C / 25	C / 25
SB SR 65	Sunset Blvd to Blue Oaks Blvd	Weave	D / 29	D / 29	D / 29
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	E / 42	E / 40	D / 34
	Pleasant Grove Blvd to Galleria Blvd	Weave	E / 36	E / 35	D / 34
	Galleria Blvd to I-80	Weave	D / 29	D / 30	D / 29

Notes: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.

The results for all locations are contained in the appendix.

Source: Fehr & Peers, 2015

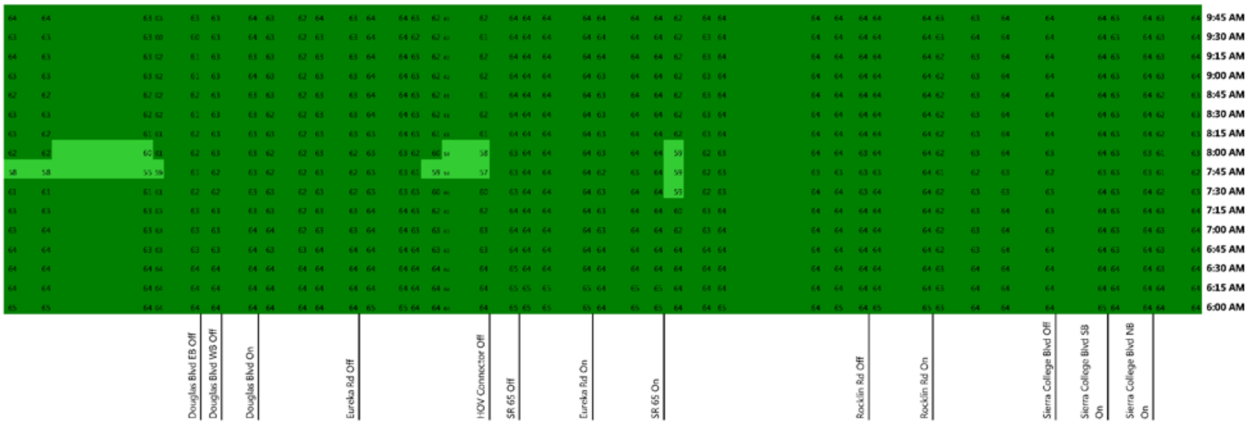
TABLE 17: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS

Freeway	Location	Type[1]	Alternative 1	Alternative 2	Alternative 3
EB I-80	Auburn Blvd to Douglas Blvd	Basic	D / 35	D / 34	D / 35
	Douglas Blvd to Eureka Rd	Weave	C / 26	C / 26	C / 26
	SR 65 Off-ramp	Diverge	C / 25	C / 25	C / 25
	SR 65 On-ramp	Merge	D / 31	D / 31	D / 30
	SR 65 to Rocklin Rd	Basic	D / 26	D / 27	D / 32
	Rocklin Rd Off-ramp	Diverge	C / 25	C / 26	C / 26
WB I-80	SR 65 to Atlantic St	Weave	**<u>F / 96</u>**	C / 26	**<u>F / 129</u>**
	Atlantic St On-ramp	Merge	**<u>F / 86</u>**	E / 37	**<u>F / 94</u>**
	Douglas Blvd Off-ramp	Diverge	**<u>F / 68</u>**	D / 32	**<u>F / 90</u>**
	Douglas Blvd WB On-ramp	Merge	**<u>F / 115</u>**	D / 30	**<u>F / 105</u>**
	Douglas Blvd EB On-ramp	Merge	**<u>F / 76</u>**	E / 40	**<u>F / 80</u>**
	Douglas Blvd to Riverside Ave	Basic	D / 32	D / 34	D / 34
	Riverside Ave Off-ramp	Diverge	C / 27	E / 35	D / 32
	Riverside Ave to Antelope Rd	Basic	D / 27	D / 31	C / 26
	Antelope Rd WB On-ramp	Merge	C / 22	C / 25	C / 20
	Antelope Rd to Truck Scales	Weave	C / 24	C / 26	C / 22
	Truck Scales Off to On-ramp	Basic	D / 27	D / 28	C / 25
	Truck Scales On-ramp	Merge	C / 27	D / 29	C / 25
	Truck Scales to Elkhorn Blvd	Basic	D / 28	D / 30	D / 27
	Elkhorn Blvd EB On-ramp	Merge	C / 26	D / 28	C / 27
NB SR 65	I-80 to Stanford Ranch Rd	Weave	D / 32	D / 32	D / 32
	Stanford Ranch Rd to Pleasant Grove Blvd	Weave	D / 29	D / 29	D / 30
SB SR 65	Sunset Blvd to Blue Oaks Blvd	Weave	C / 24	C / 25	**<u>F / 118</u>**
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	D / 29	D / 29	**<u>F / 170</u>**
	Pleasant Grove Blvd to Galleria Blvd	Weave	D / 30	D / 30	**<u>F / 163</u>**
	Galleria Blvd to I-80	Weave	D / 35	D / 28	**<u>F / 133</u>**

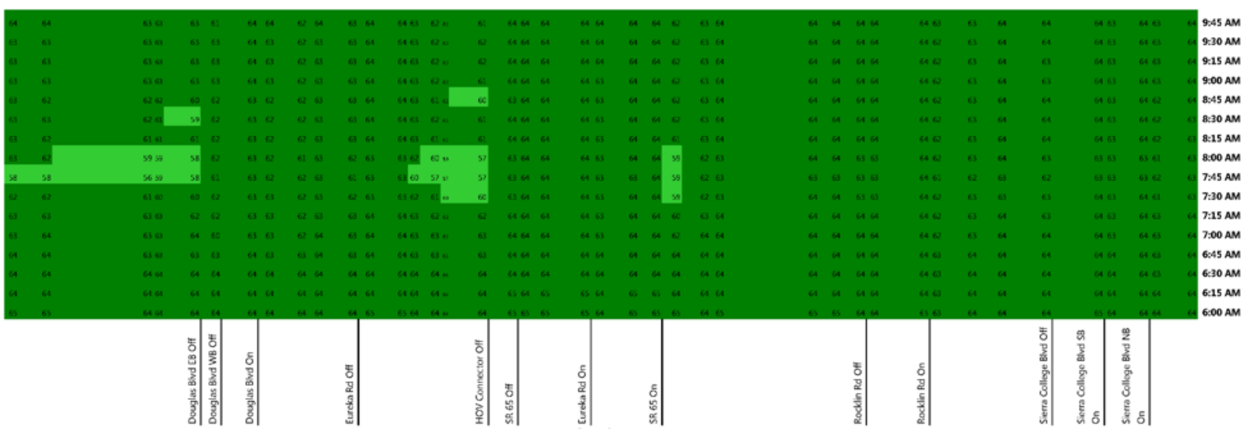
Notes: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.
The results for all locations are contained in the appendix.

Source: Fehr & Peers, 2015

EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



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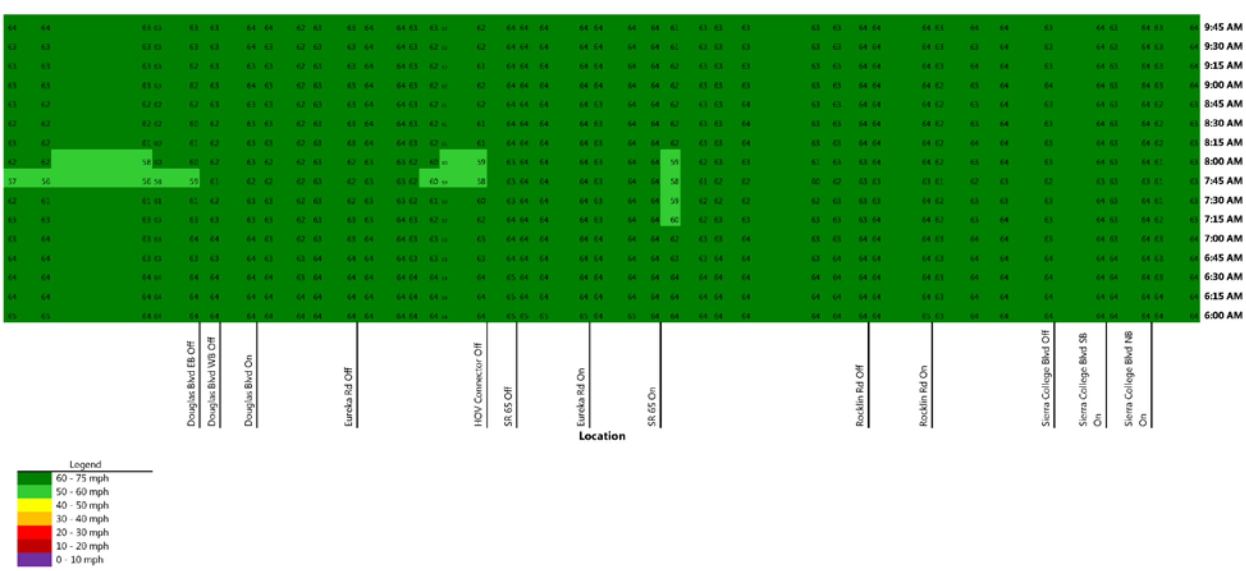
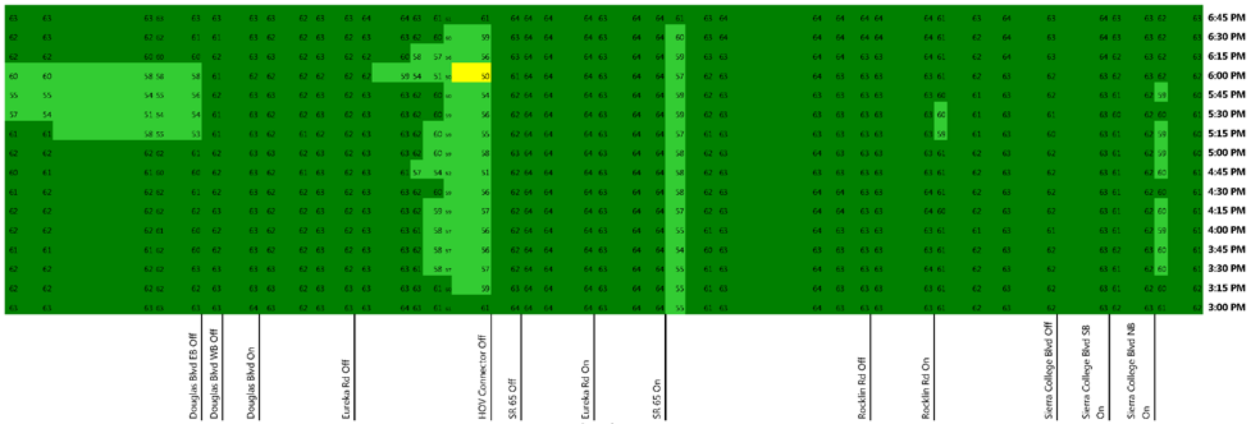
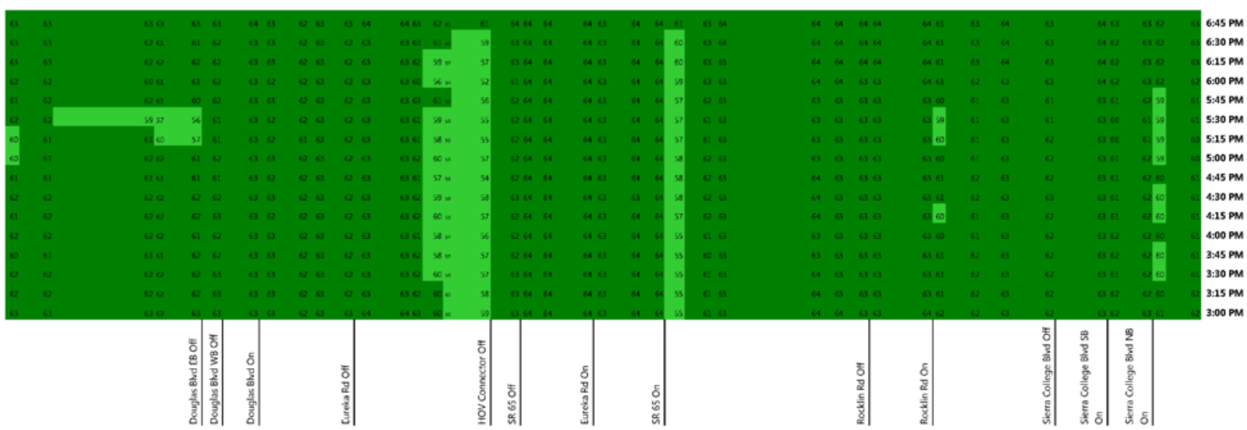


Figure 32 – Eastbound I-80 Design Year AM Peak Period Speed Contour Map

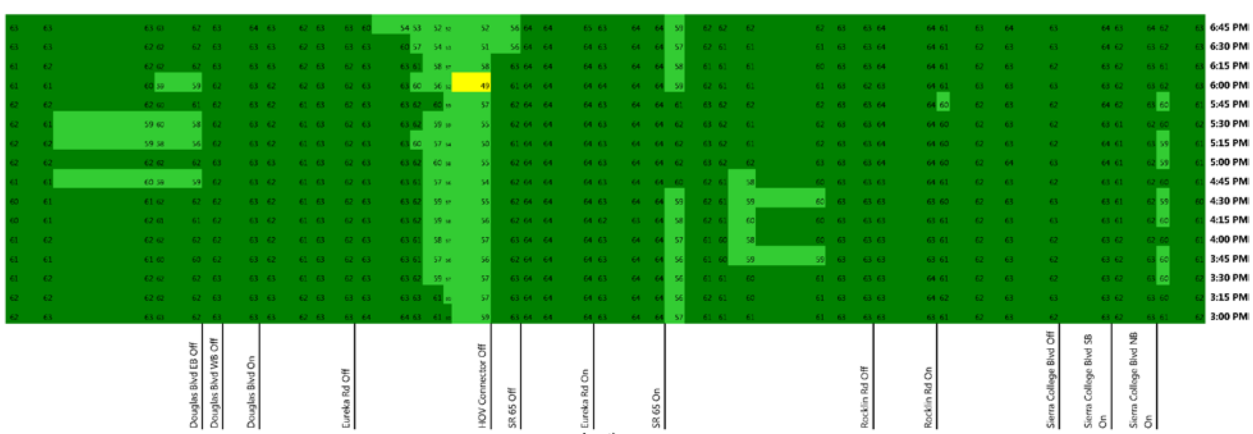
EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



NO BUILD (ALTERNATIVE 3)



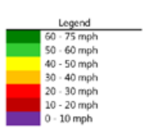
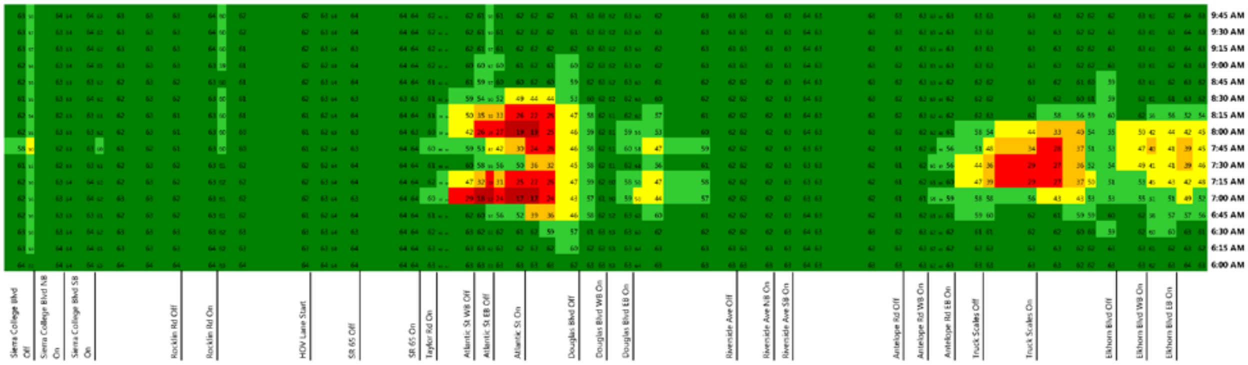
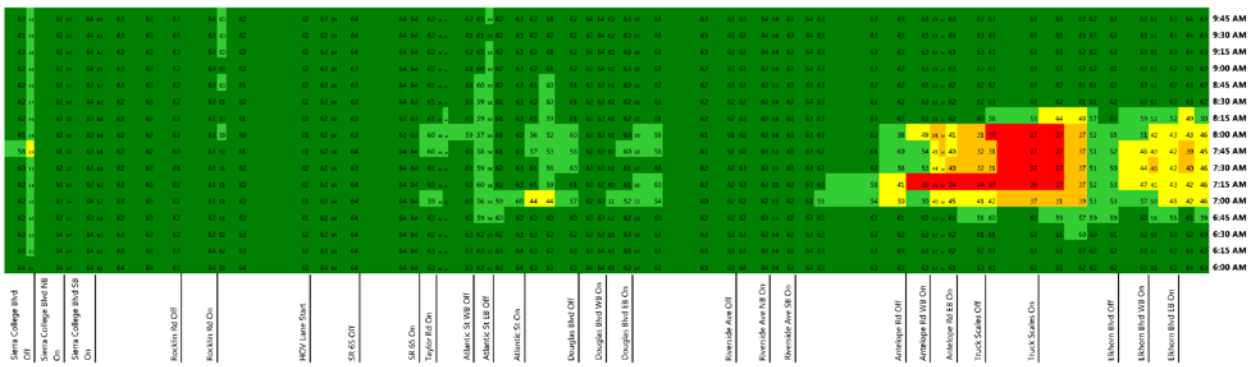


Figure 33 – Eastbound I-80 Design Year PM Peak Period Speed Contour Map

EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



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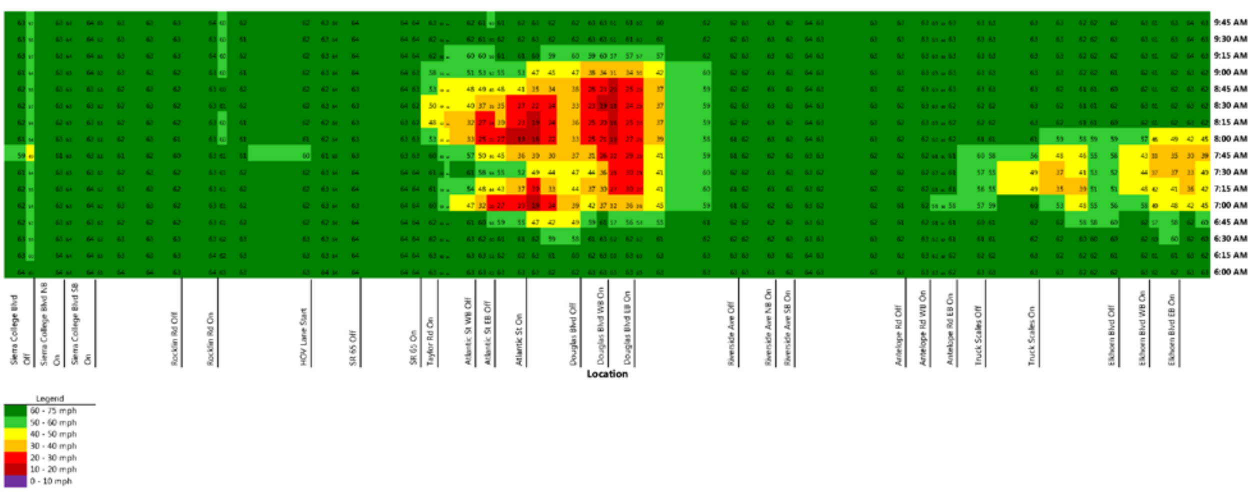
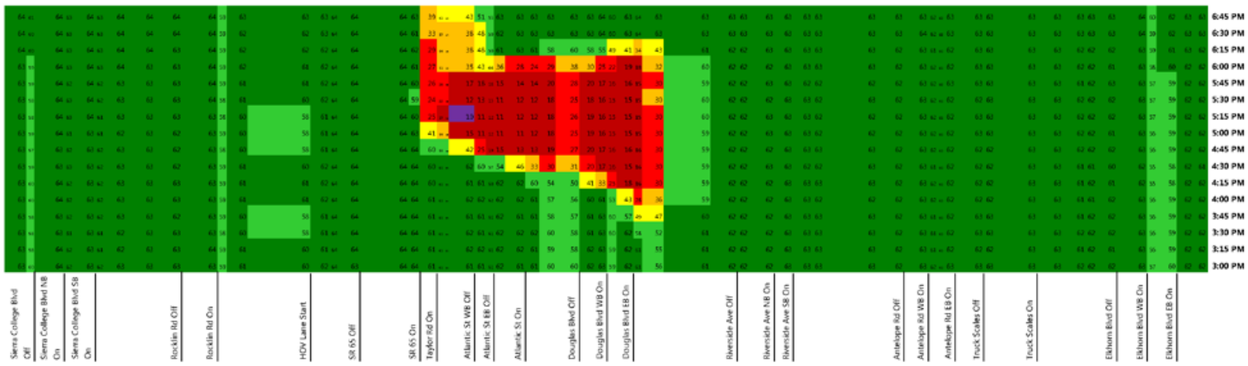
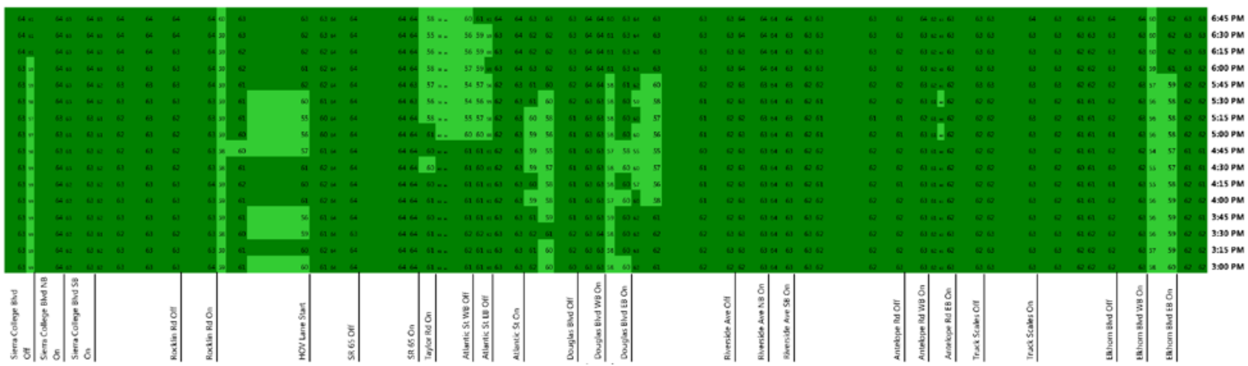


Figure 34 – Westbound I-80 Design Year AM Peak Period Speed Contour Map

EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



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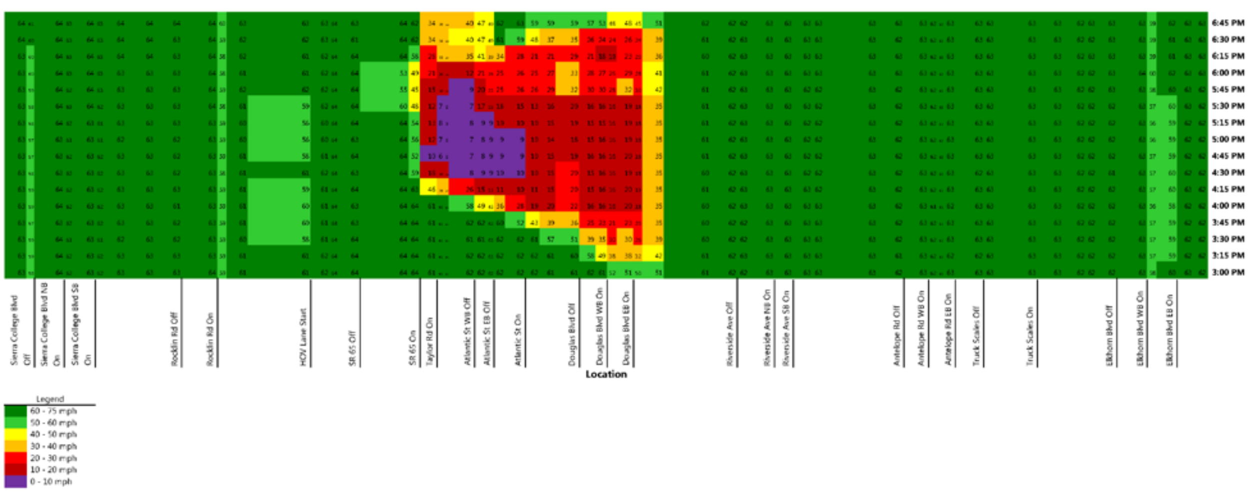
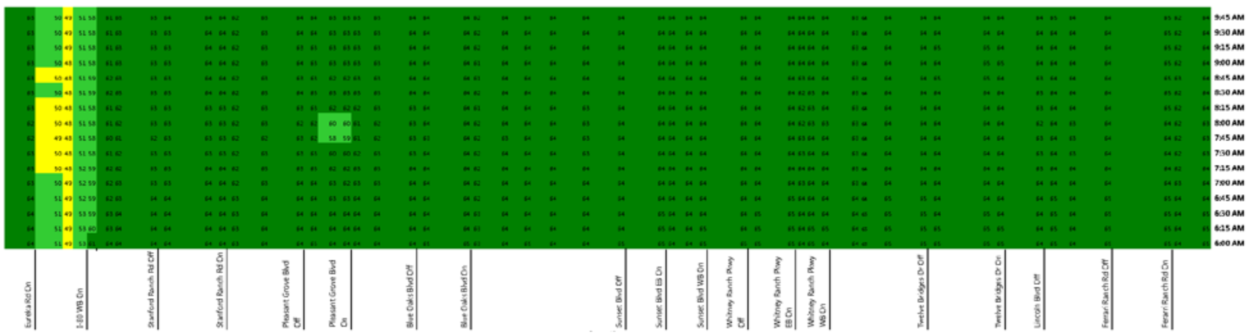
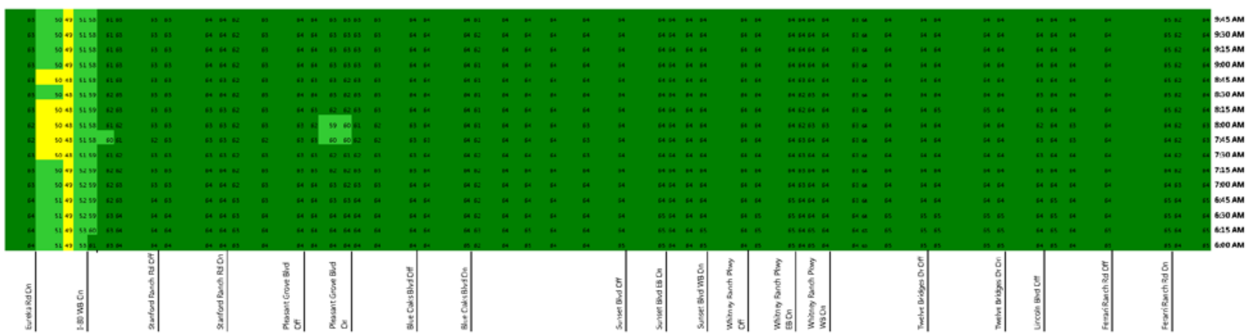


Figure 35 – Westbound I-80 Design Year PM Peak Period Speed Contour Map

EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



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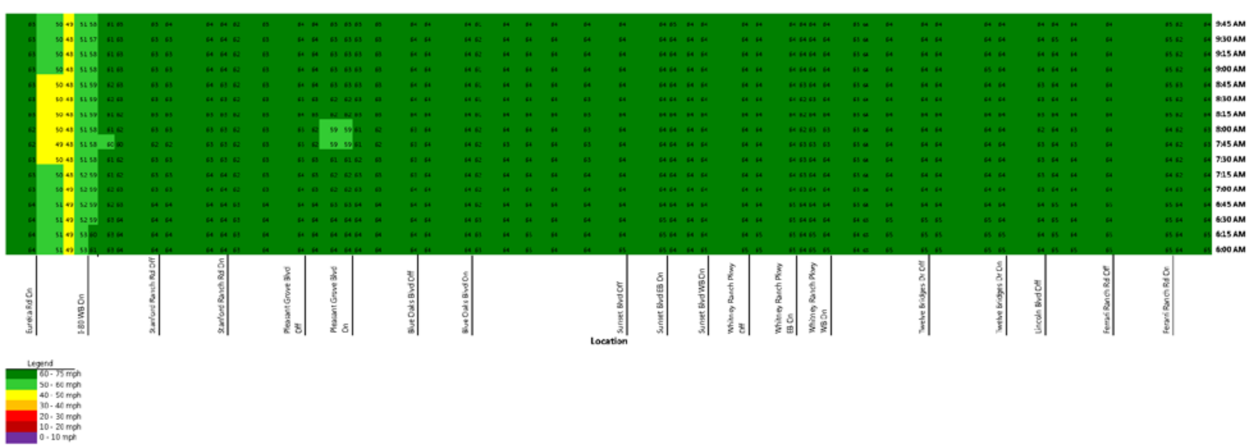
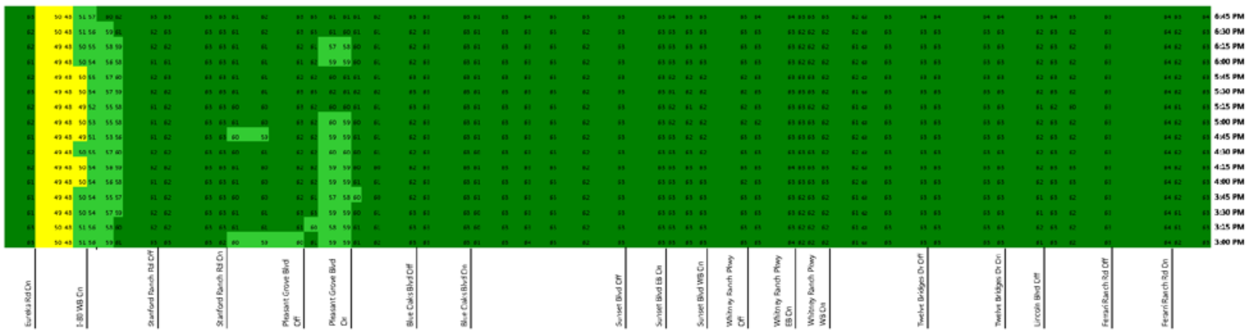
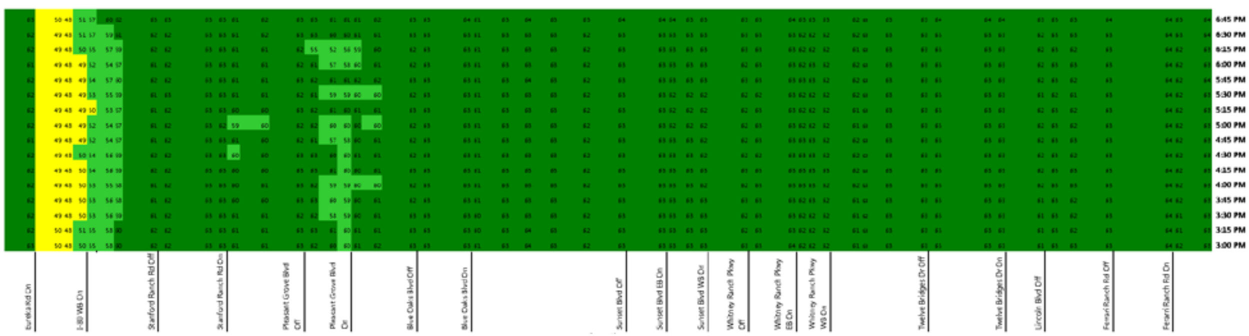


Figure 36 – Northbound SR 65 Design Year AM Peak Period Speed Contour Map

EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



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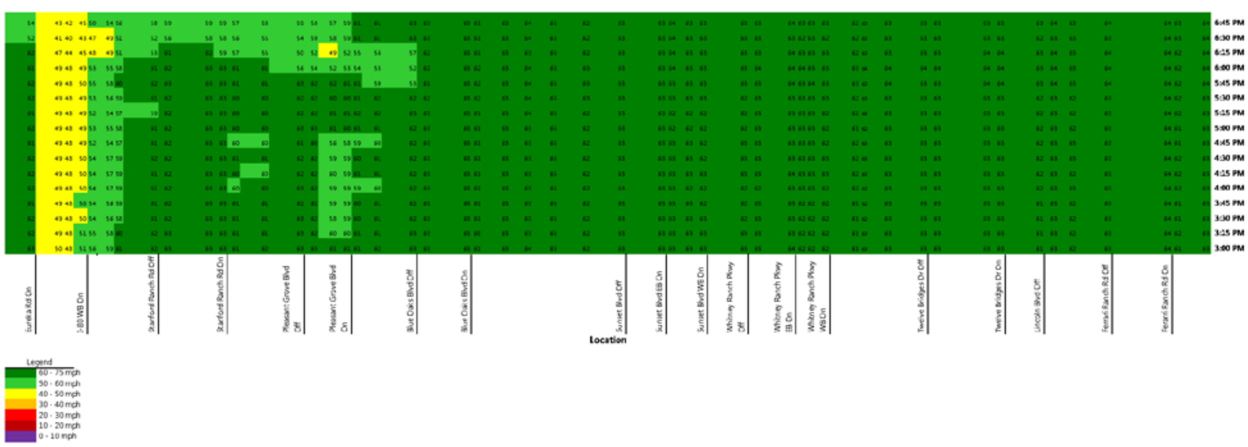
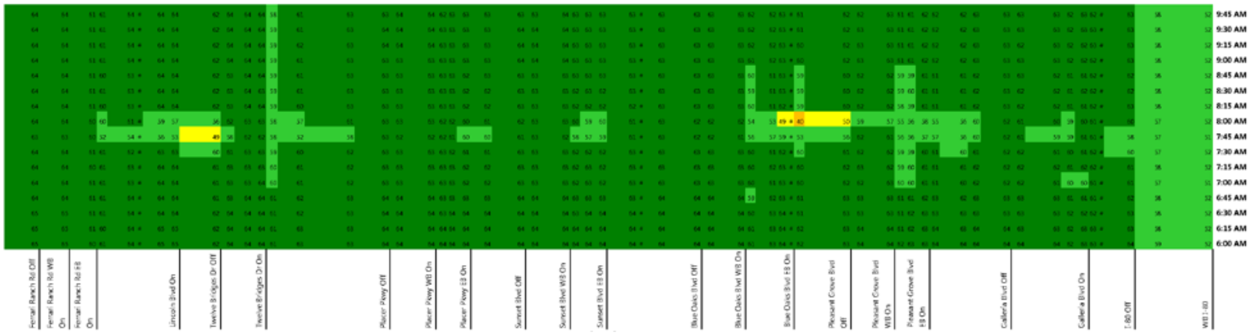
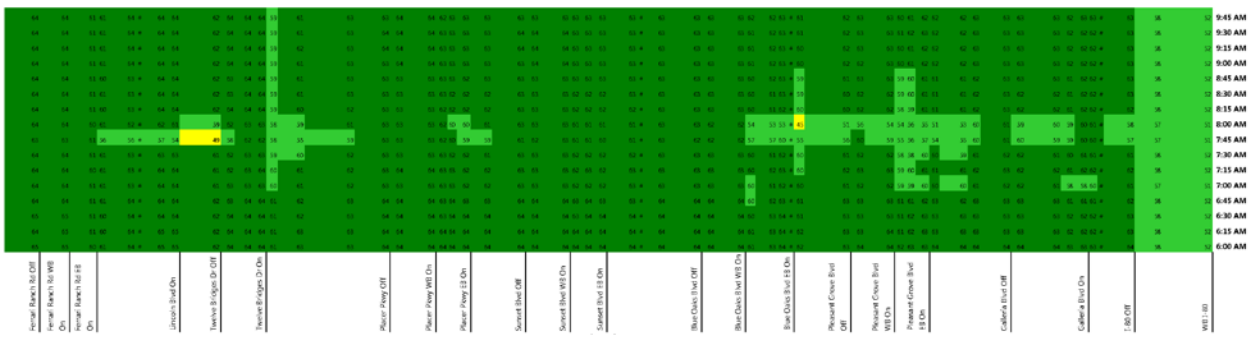


Figure 37 – Northbound SR 65 Design Year PM Peak Period Speed Contour Map

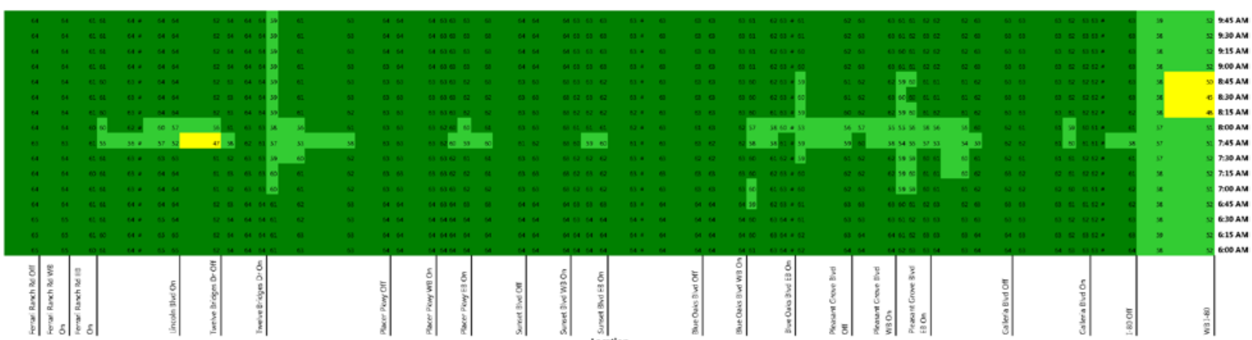
EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



NO BUILD (ALTERNATIVE 3)



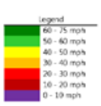
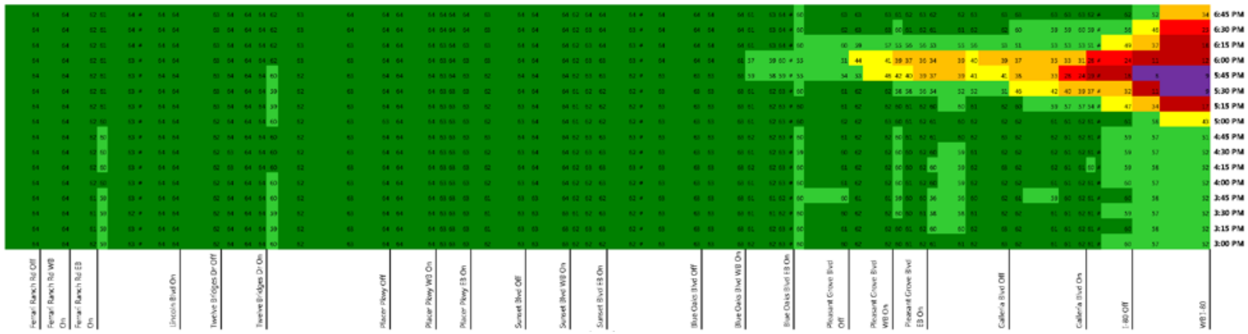
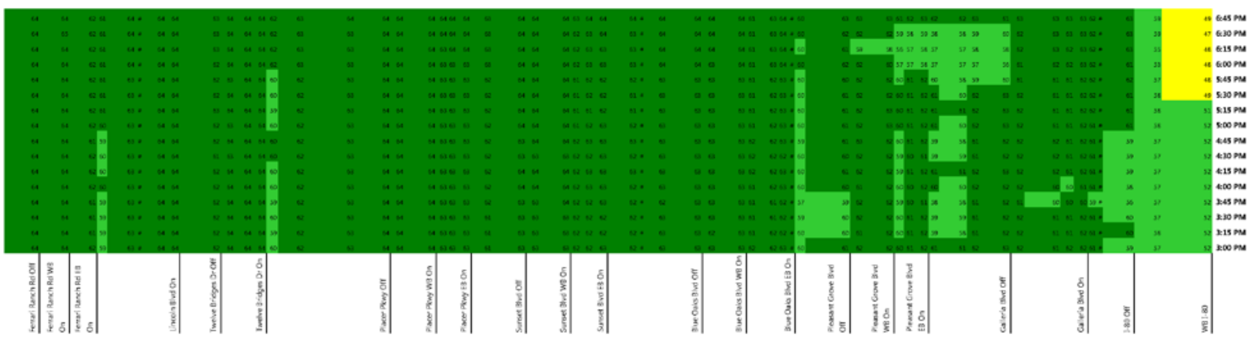


Figure 38 – Southbound SR 65 Design Year AM Peak Period Speed Contour Map

EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



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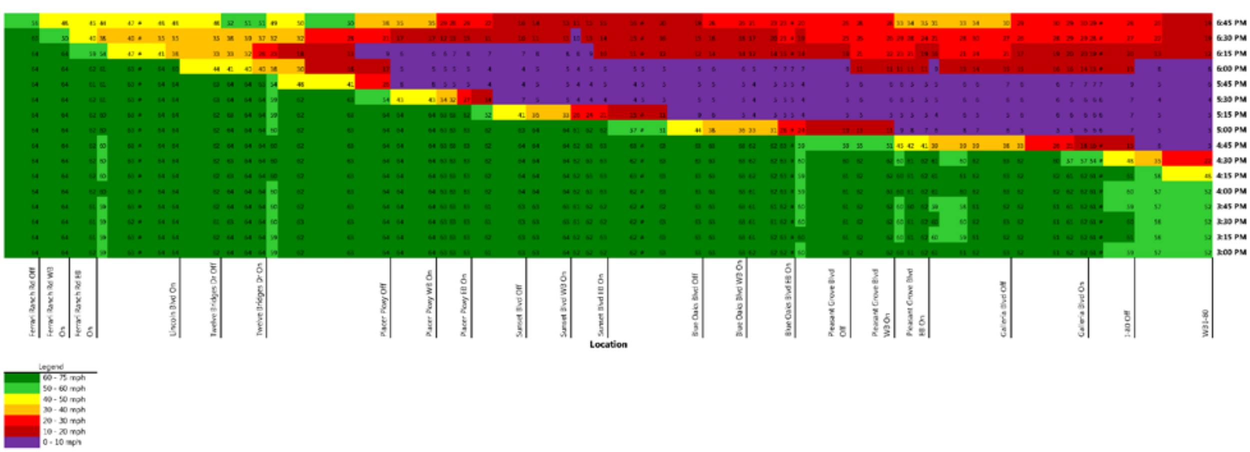


Figure 39 – Southbound SR 65 Design Year PM Peak Period Speed Contour Map

Upstream in the City of Roseville, Alternative 3 would have overlapping bottlenecks at the Douglas Boulevard off-ramp and at the on-ramps that would cause congested conditions back to the SR 65 interchange. Alternative 1 (Eastbound and Westbound Auxiliary Lanes) would provide an auxiliary lane between Douglas Boulevard and Riverside Avenue resulting in less congestion, primarily during the AM peak hour. Shifting travel patterns and operations associated with Alternative 1 would cause an impact at the westbound Douglas Boulevard on-ramp during the PM peak hour.

With the lane addition in Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane), capacity at the bottlenecks would be increased substantially, resulting in LOS E or better conditions during the peak hours. As shown in Figure 31, Alternative 2 would serve about 700 vph more than Alternative 1 between Douglas Boulevard and Riverside Avenue. The model suggests up to 2,100 vph may be served in the rightmost lane, but actual performance may be in the range of 1,800 vph based on performance at other locations with a similar configuration. While there could be a shift in vehicles to adjacent lanes, the volume served under Alternative 2 may be less than predicted although still higher than Alternative 1. If the volume served were less under Alternative 2, the impact to downstream locations would be correspondingly less.

The impact to the section from the truck scales to Elkhorn Boulevard could be mitigated by providing additional mainline capacity such as a continuous auxiliary lane between the truck scales on-ramp and Elkhorn Boulevard off-ramp or more restrictive ramp metering. More restrictive metering for ramps at Elkhorn Boulevard, Antelope Road, and Riverside Avenue could cause queuing that would extend onto the local street network. The Alternative 1 impact at the westbound Douglas Boulevard on-ramp could be mitigated through more restrictive metering or by constructing Alternative 2.

<u>Northbound SR 65</u>

Similar to eastbound I-80, the freeway operations results indicate that all alternatives would operate with LOS E or better conditions during the AM and PM peak hours. The separate project to widen SR 65 would eliminate existing bottlenecks in the project area. Since all alternatives assume that the separate project has been constructed, no congestion would occur under design year conditions. Since all segments would operate at LOS E or better, no deficiencies would occur on northbound SR 65. All segments but one would operate with LOS D or better conditions during both peak periods.

<u>Southbound SR 65</u>

During the AM peak hour, all alternatives would have LOS E or better conditions. Existing bottlenecks on SR 65 would be eliminated by the separate SR 65 widening project. During the PM peak hour, a bottleneck downstream on westbound I-80 would cause significant congestion under Alternative 3 (No Build), with LOS F conditions extending upstream to Sunset Boulevard. The additional westbound I-80 capacity under Alternative 1 reduces congestion on SR 65 such that only one segment – the connector ramp to westbound I-80 – would have LOS F conditions. The density in this segment is lower than under Alternative 3, so no impact would occur. With the further increase in westbound capacity under Alternative 2, the PM peak hour conditions would improve to LOS E or better. Although deficiencies would occur under Alternatives 1 and 3, no project impacts would occur for southbound SR 65.

5.1.2. Arterial Intersection Operations

Tables 18 and 19 show the LOS and average delay at key study intersections under design year conditions during the AM and PM peak hours, respectively. Tables 20 and 21 show the average maximum queue length at off-ramps near the project area under design year conditions during the AM and PM peak hours. Based on the evaluation criteria for this study, Alternative 1 (Eastbound and Westbound Auxiliary Lanes) has four impacts and Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) has five impacts. See the Appendix for all study intersection results.

The following intersections would operate with an unacceptable peak hour LOS based on the evaluation criteria under all project alternatives.

- Blue Oaks Boulevard/Washington Boulevard (AM and PM)
- Blue Oaks Boulevard/SR 65 Northbound Ramps (PM)
- Stanford Ranch Road/Five Star Boulevard (PM)
- Galleria Boulevard/Roseville Parkway (PM)
- Roseville Parkway/Taylor Road (AM)
- Eureka Road/Taylor Road/I-80 Eastbound Ramps (PM)
- Eureka Road/Sunrise Avenue (AM and PM)
- Douglas Boulevard/Harding Boulevard (PM)
- Douglas Boulevard/Sunrise Avenue (PM)
- Pacific Street/Sunset Boulevard (PM)
- Rocklin Road/Granite Drive (PM)
- Rocklin Road / I-80 Westbound Ramps (PM)

The analysis results indicate that these intersections would need capacity enhancements with and without the proposed project to operate within the established LOS thresholds for these locations or peak period travel demand management strategies would need to be employed in the study area. Before any improvements are proposed though, the interaction between these locations and the rest of the network should be considered. Improvements to the freeway system, such as an auxiliary lane, may reduce demand and/or queuing that would improve intersection operations.

TABLE 18: INTERSECTION OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS

Intersection	Threshold	Alternative 1	Alternative 2	Alternative 3
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	C	**E / 67**	**E / 71**	**F / 89**
7. Blue Oaks Blvd / SR 65 NB Ramps	C	B / 15	B / 15	**D / 44**
10. Stanford Ranch Rd / Five Star Blvd	C	**D / 35**	C / 26	**D / 36**
11. Stanford Ranch Rd / SR 65 NB Ramps	D	**E / 61**	D / 43	**E / 61**
12. Galleria Blvd / SR 65 SB Ramps	D	B / 20	C / 22	C / 26
13. Galleria Blvd / Antelope Creek Dr	C	B / 10	A / 9	B / 10
14. Galleria Blvd / Roseville Pkwy	E	D / 46	D / 46	D / 45
15. Roseville Pkwy / Creekside Ridge Dr	C	A / 8	A / 8	A / 8
16. Roseville Pkwy / Taylor Rd	D	**E / 56**	**E / 67**	**E / 70**
17. Roseville Pkwy / Sunrise Ave	E	C / 34	C / 34	C / 31
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	E	D / 40	D / 49	D / 54
21. Eureka Rd / Sunrise Ave	C	**D / 40**	**D / 39**	**D / 41**
23. Douglas Blvd / Harding Blvd	E	C / 28	C / 29	**F / 84**
24. Douglas Blvd / I-80 WB Ramps	C	C / 28	C / 20	B / 19
25. Douglas Blvd / I-80 EB Ramps	C	B / 17	B / 15	A / 9
26. Douglas Blvd / Sunrise Ave	D	D / 39	D / 37	D / 36
28. Pacific St / Sunset Blvd	C	C / 26	C / 25	C / 27
29. Rocklin Rd / Granite Dr	C	C / 27	C / 28	C / 26
30. Rocklin Rd / I-80 WB Ramps	C	C / 31	C / 30	C / 33
31. Rocklin Rd / I-80 EB Ramps	C	C / 27	C / 26	C / 28
32. Rocklin Rd / Aguilar Rd	C	A / 10	A / 10	B / 10
50. Riverside Ave / I-80 WB Ramps	C	B / 12	B / 12	A / 10

Note: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2015

TABLE 19: INTERSECTION OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS

Intersection	Threshold	Alternative 1	Alternative 2	Alternative 3
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	C	**F / 155**	**F / 150**	**F / 192**
7. Blue Oaks Blvd / SR 65 NB Ramps	C	**D / 49**	**E / 57**	**E / 60**
10. Stanford Ranch Rd / Five Star Blvd	C	**E / 56**	**E / 60**	**E / 60**
11. Stanford Ranch Rd / SR 65 NB Ramps	D	B / 20	C / 30	C / 28
12. Galleria Blvd / SR 65 SB Ramps	D	B / 20	C / 25	C / 24
13. Galleria Blvd / Antelope Creek Dr	C	C / 29	C / 29	C / 29
14. Galleria Blvd / Roseville Pkwy	E	**F / 80**	**F / 93**	**F / 83**
15. Roseville Pkwy / Creekside Ridge Dr	C	**D / 41**	**D / 50**	C / 33
16. Roseville Pkwy / Taylor Rd	D	D / 55	D / 53	D / 49
17. Roseville Pkwy / Sunrise Ave	E	**F / 85**	E / 73	E / 62
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	E	**F / 108**	**F / 97**	**F / 139**
21. Eureka Rd / Sunrise Ave	C	**F / 128**	**F / 104**	**F / 130**
23. Douglas Blvd / Harding Blvd	E	**F / 95**	**F / 81**	**F / 104**
24. Douglas Blvd / I-80 WB Ramps	C	C / 26	C / 24	**D / 46**
25. Douglas Blvd / I-80 EB Ramps	C	C / 33	C / 26	C / 22
26. Douglas Blvd / Sunrise Ave	D	**F / 244**	**F / 239**	**F / 188**
28. Pacific St / Sunset Blvd	C	**D / 37**	**D / 37**	**D / 40**
29. Rocklin Rd / Granite Dr	C	**F / 97**	**F / 107**	**F / 137**
30. Rocklin Rd / I-80 WB Ramps	C	**E / 72**	**F / 86**	**E / 59**
31. Rocklin Rd / I-80 EB Ramps	C	C / 21	C / 24	C / 21
32. Rocklin Rd / Aguilar Rd	C	**D / 37**	**D / 36**	C / 30
50. Riverside Ave / I-80 WB Ramps	C	B / 18	C / 22	B / 15

Note: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2015

TABLE 20: SELECTED MAXIMUM QUEUE LENGTH RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2
Eastbound I-80 at Eureka Rd	1,700	725	700
Eastbound I-80 at Rocklin Rd	1,080	300	300
Westbound I-80 at Douglas Blvd	1,530	500	450
Westbound I-80 at Riverside Ave	1,350	325	325

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2015

TABLE 21: SELECTED MAXIMUM QUEUE LENGTH RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2
Eastbound I-80 at Eureka Rd	1,700	450	300
Eastbound I-80 at Rocklin Rd	1,080	300	325
Westbound I-80 at Douglas Blvd	1,530	425	475
Westbound I-80 at Riverside Ave	1,350	475	525

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2015

During the AM peak hour, the proposed project (Alternatives 1 and 2) would have no impacts at the study intersections. Most of the intersections with deficiencies under Alternative 3 would continue to operate at an unacceptable LOS, but the average delay would be the same or lower. The Douglas Boulevard/Harding Boulevard intersection would improve from LOS F to C under both build alternatives. The additional westbound freeway capacity reduces queuing from the eastbound Douglas Boulevard on-ramp that would otherwise back up into the intersection.

During the PM peak hour, the proposed project (Alternatives 1 and 2) would have impacts at the following study intersections.

- Galleria Boulevard/Roseville Parkway (Alternative 2 only)
- Roseville Parkway/Creekside Ridge Drive
- Douglas Boulevard/Sunrise Avenue

- Rocklin Road/I-80 Westbound Ramps
- Rocklin Road/Aguilar Road

The impacts to the Roseville Parkway intersections are a result of improved westbound freeway operations. Under Alternative 3, freeway congestion on westbound I-80 extends to southbound SR 65, which restricts the flow to the southbound off-ramp to Galleria Boulevard. With this congestion reduced or eliminated, the volume on southbound Galleria Boulevard is higher resulting in a higher average delay at the Galleria Boulevard/Roseville Parkway intersection, which in turn affects operations at the adjacent Roseville Parkway/Creekside Ridge Drive intersection. While retiming of these signals could mitigate the impact, adjacent signals may be affected. Since the Roseville Parkway/Galleria Boulevard intersection is deficient under all alternatives, widening or intersection reconstruction is needed to address the congestion problem.

Similarly, intersection mitigations at the other impact locations could involve additional approach lanes. At the Douglas Boulevard intersection, a second southbound right turn lane at Sunrise Avenue would increase capacity. At Rocklin Road, providing additional storage on the westbound on-ramp would also help to reduce queuing from the ramp meter onto Rocklin Road. An additional lane in both the eastbound and westbound directions would likely be needed to improve the Aguilar Road intersection from C to D.

During both peak hours, the average maximum queue lengths for freeway off-ramps in the project area would be contained on the ramp under both build alternatives.

5.2. **Construction Year Conditions**

Overall network performance statistics for AM and PM peak period operations are summarized for each alternative in Tables 22 and 23 below, respectively.

The results presented in Tables 22 and 23 are summarized below.

- The three project alternatives would serve about the same volume through the network during the peak periods.
- During both peak periods, Alternative 1 (Eastbound and Westbound Auxiliary Lanes) has the highest VMT, Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) has the lowest overall delay, and Alternative 3 (No Build) has the lowest average speed.
- Overall, Alternative 1 serves more vehicles, but Alternative 2 has lower delay.
- Westbound travel time is improved under the build alternatives compared to the no build alternative.

TABLE 22: COMPARISON OF OVERALL NETWORK PERFORMANCE – CONSTRUCTION YEAR AM PEAK PERIOD

Performance Measure		Existing Conditions	Construction Year Conditions		
			Alternative 1	Alternative 2	Alternative 3
Volume Served (% of total demand)		143,450 (100%)	171,240 (99%)	170,820 (99%)	169,930 (99%)
Vehicle Miles of Travel (VMT)		645,270	788,590	780,990	774,080
Person Miles of Travel		786,260	963,610	957,010	948,490
Vehicle Hours of Travel (VHT)		13,760	18,190	17,590	18,270
Vehicle Hours of Delay (VHD) (% of VHT)		2,670 (19%)	4,630 (26%)	4,150 (24%)	4,950 (27%)
Average Delay per Vehicle (min)		1.12	1.62	1.46	1.75
Person Hours of Delay		3,240	5,510	4,950	5,920
Average Speed		46.9	43.4	44.4	42.4
Average Speed for HOVs		47.0	45.4	46.3	44.3
Eastbound Travel Time: Auburn Blvd to Sierra College Blvd	SOV	6:41	6:38	6:39	6:39
	HOV	6:34	6:33	6:33	6:34
Westbound Travel Time: Sierra College Blvd to Antelope Rd	SOV	8:27	9:00	8:26	11:56
	HOV	8:18	8:27	8:16	9:08

Source: Fehr & Peers, 2015

Specific details about construction year freeway and arterial intersection operations are discussed in more detail in the following sections.

5.2.1. Freeway Operations

Detailed freeway operations analysis was completed for the peak hour (7:30 to 8:30 AM and 4:30 to 5:30 PM) of the four hour AM and PM peak periods. The AM and PM peak-hour served volume are percentage of the demand volume are listed in Figure 41. The AM and PM peak hour results for selected locations are reported in Tables 24 and 25, respectively. The remaining results are available in the Technical Appendix. Figures 42 through 48 display the average speed in the mixed-flow lanes throughout the network during the peak periods for each alternative.

TABLE 23: COMPARISON OF OVERALL NETWORK PERFORMANCE – CONSTRUCTION YEAR PM PEAK PERIOD					
Performance Measure		**Existing Conditions**	**Construction Year Conditions**		
			Alternative 1	**Alternative 2**	**Alternative 3**
Volume Served (% of total demand)		198,170 (101%)	240,990 (100%)	239,920 (100%)	240,610 (100%)
Vehicle Miles of Travel (VMT)		730,100	920,520	909,680	913,210
Person Miles of Travel		880,180	1,131,610	1,121,460	1,124,110
Vehicle Hours of Travel (VHT)		16,850	24,190	23,570	24,680
Vehicle Hours of Delay (VHD) (% of VHT)		3,950 (23%)	7,930 (33%)	7,490 (32%)	8,550 (35%)
Average Delay per Vehicle (min)		1.20	1.97	1.87	2.13
Person Hours of Delay		4,670	9,550	9,030	10,250
Average Travel Speed		43.3	38.1	38.6	37.0
Average HOV Speed		44.7	39.9	40.4	39.1
Eastbound Travel Time: Auburn Blvd to Sierra College Blvd	SOV	6:35	6:49	6:57	10:20
	HOV	6:23	6:38	6:40	7:23
Westbound Travel Time: Sierra College Blvd to Antelope Rd	SOV	8:11	8:23	8:18	9:23
	HOV	8:01	8:13	8:10	8:31
Source: Fehr & Peers, 2015					

<u>Eastbound I-80</u>

For all alternatives, the freeway operations results indicate that eastbound I-80 would have LOS E or better conditions during the AM peak hour. During the PM peak period, the existing bottleneck at the SR 65 interchange would be eliminated under Alternatives 1 (Eastbound and Westbound Auxiliary Lanes) and 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) with the widening of SR 65 provided by the I-80/SR 65 Interchange Phase 1 project. Alternative 3 (No Build) would continue to have LOS F conditions from Douglas Boulevard to SR 65 due to higher demand volumes (of about 150 vph) during the 4 to 5 PM hour. As a result, congestion on eastbound I-80 would likely sooner recur under the build alternatives.

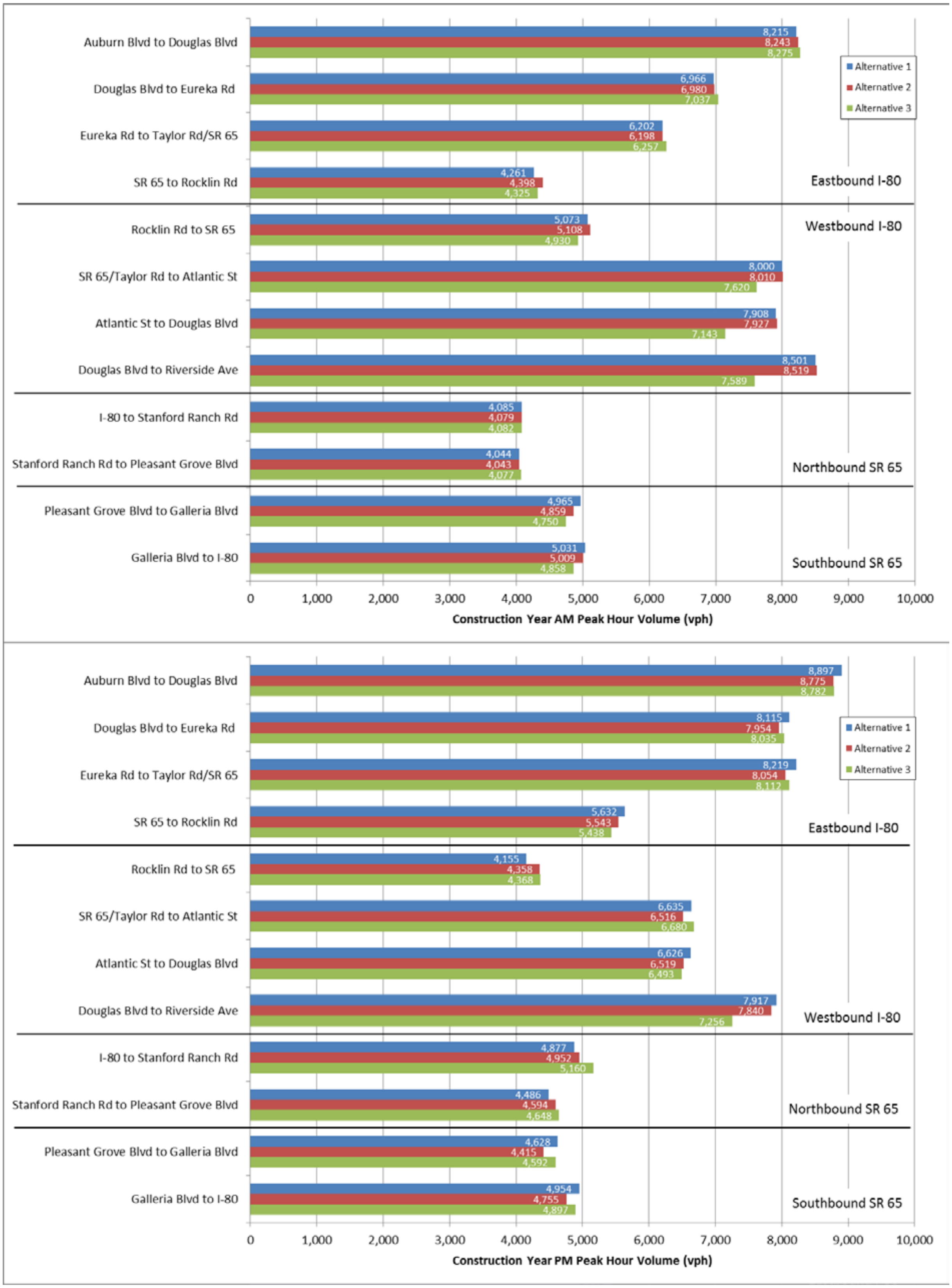


Figure 40 – Freeway Served Volume for Construction Year Conditions

TABLE 24: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS					
Freeway	**Location**	**Type**	**Alternative 1**	**Alternative 2**	**Alternative 3**
EB I-80	Auburn Blvd to Douglas Blvd	Basic	E / 37	E / 39	E / 37
	Douglas Blvd On-ramp	Merge	C / 28	C / 28	D / 28
	Eureka Rd Off-ramp	Diverge	D / 29	D / 29	D / 29
	SR 65 Off-ramp	Diverge	D / 30	D / 30	D / 30
	SR 65 On-ramp	Merge	C / 23	C / 23	C / 25
	SR 65 to Rocklin Rd	Basic	C / 21	C / 22	D / 27
	Rocklin Rd Off-ramp	Diverge	C / 21	C / 21	C / 22
WB I-80	Atlantic St On-ramp	Merge	**F / 62**	E / 36	**F / 78**
	Douglas Blvd Off-ramp	Diverge	E / 43	D / 34	**F / 71**
	Douglas Blvd WB On-ramp	Merge	E / 44	D / 32	**F / 96**
	Douglas Blvd EB On-ramp	Merge	**F / 60**	E / 36	**F / 74**
	Douglas Blvd to Riverside Ave	Basic	E / 35	D / 34	E / 36
	Riverside Ave Off-ramp	Diverge	D / 32	D / 34	D / 34
	Antelope Rd Off to On-ramp	Basic	**E / 42**	**F / 46**	D / 29
	Antelope Rd WB On-ramp	Merge	**F / 55**	**F / 59**	D / 30
	Antelope Rd to Truck Scales	Weave	**F / 60**	**F / 60**	D / 32
	Truck Scales Off to On-ramp	Basic	**F / 73**	**F / 72**	D / 33
	Truck Scales On-ramp	Merge	**F / 87**	**F / 83**	D / 35
	Truck Scales to Elkhorn Blvd	Basic	**F / 70**	**F / 64**	E / 37
	Elkhorn Blvd Off-ramp	Diverge	**F / 59**	**F / 54**	E / 37
	Elkhorn Blvd Off to On-ramp	Basic	**F / 94**	**F / 87**	**F / 52**
	Elkhorn Blvd WB On-ramp	Merge	**F / 96**	**F / 91**	**F / 70**
	Elkhorn Blvd EB On-ramp	Merge	**F / 76**	**F / 77**	**F / 72**
NB SR 65	I-80 to Stanford Ranch Rd	Basic	C / 24	C / 24	C / 23
	Stanford Ranch Rd to Pleasant Grove Blvd	Basic	D / 31	D / 31	D / 31
SB SR 65	Sunset Blvd to Blue Oaks Blvd	Basic	D / 33	D / 33	D / 33
	Blue Oaks Blvd WB On-ramp	Merge	**F / 45**	**F / 47**	E / 36
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	E / 38	E / 39	D / 32
	Pleasant Grove Blvd to Galleria Blvd	Basic	D / 28	D / 28	D / 27
	Galleria Blvd On-ramp	Merge	E / 43	E / 43	E / 40

Notes: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.
The results for all locations are contained in the appendix.

Source: Fehr & Peers, 2015

TABLE 25: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS

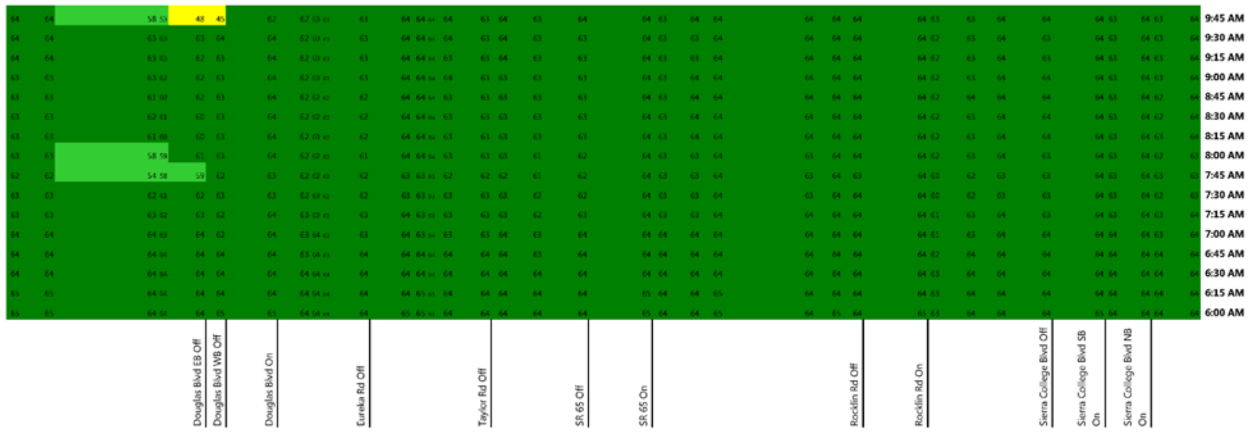
Freeway	Location	Type	Alternative 1	Alternative 2	Alternative 3
EB I-80	Auburn Blvd to Douglas Blvd	Basic	D / 35	D / 33	D / 33
	Douglas Blvd On-ramp	Merge	**F / 60**	**F / 93**	**F / 71**
	Eureka Rd Off-ramp	Diverge	**F / 61**	**F / 79**	**F / 69**
	SR 65 Off-ramp	Diverge	E / 41	E / 42	**F / 82**
	SR 65 On-ramp	Merge	C / 27	C / 27	D / 28
	SR 65 to Rocklin Rd	Basic	C / 25	C / 25	E / 36
	Rocklin Rd Off-ramp	Diverge	C / 22	C / 22	C / 27
WB I-80	Atlantic St On-ramp	Merge	C / 25	D / 30	D / 35
	Douglas Blvd Off-ramp	Diverge	D / 31	C / 28	**F / 51**
	Douglas Blvd WB On-ramp	Merge	D / 29	C / 28	**F / 93**
	Douglas Blvd EB On-ramp	Merge	D / 35	D / 34	**F / 73**
	Douglas Blvd to Riverside Ave	Basic	D / 31	D / 31	E / 36
	Riverside Ave Off-ramp	Diverge	D / 29	D / 32	D / 34
	Antelope Rd WB On-ramp	Merge	C / 23	C / 24	C / 22
	Antelope Rd to Truck Scales	Weave	C / 24	C / 24	C / 22
	Truck Scales On-ramp	Merge	C / 27	C / 27	C / 25
	Truck Scales to Elkhorn Blvd	Basic	D / 28	D / 28	C / 26
	Elkhorn Blvd Off-ramp	Diverge	C / 26	C / 26	C / 24
	Elkhorn Blvd Off to On-ramp	Basic	C / 24	C / 24	C / 22
	Elkhorn Blvd WB On-ramp	Merge	C / 26	C / 25	C / 24
	Elkhorn Blvd EB On-ramp	Merge	D / 29	D / 29	C / 27
NB SR 65	I-80 to Stanford Ranch Rd	Basic	D / 27	D / 27	D / 29
	Stanford Ranch Rd to Pleasant Grove Blvd	Basic	D / 29	D / 30	D / 31
SB SR 65	Sunset Blvd to Blue Oaks Blvd	Basic	D / 29	D / 28	D / 28
	Blue Oaks Blvd WB On-ramp	Merge	C / 26	C / 24	C / 25
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	C / 27	C / 25	C / 26
	Pleasant Grove Blvd to Galleria Blvd	Basic	C / 25	C / 24	C / 25
	Galleria Blvd On-ramp	Merge	D / 34	D / 31	D / 32

Notes: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.

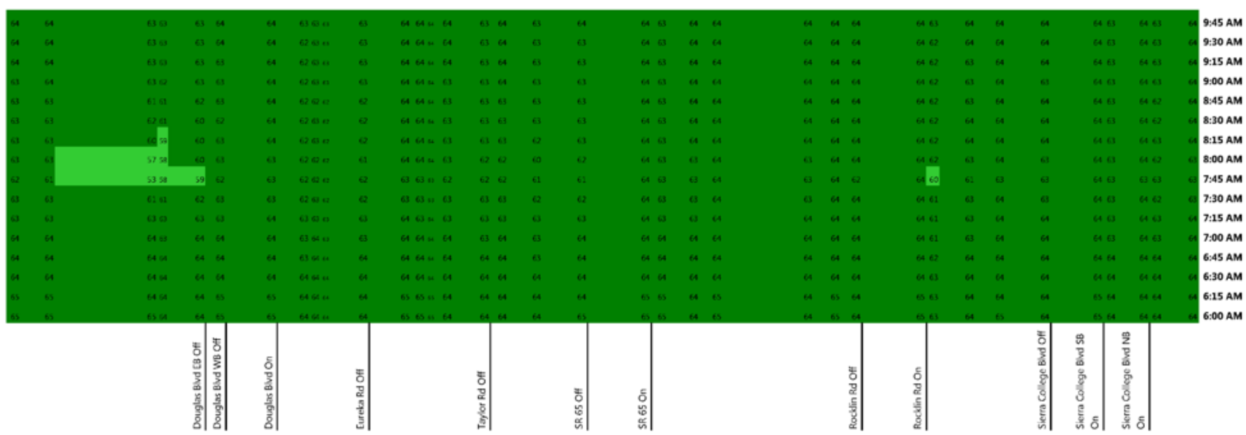
The results for all locations are contained in the appendix.

Source: Fehr & Peers, 2015

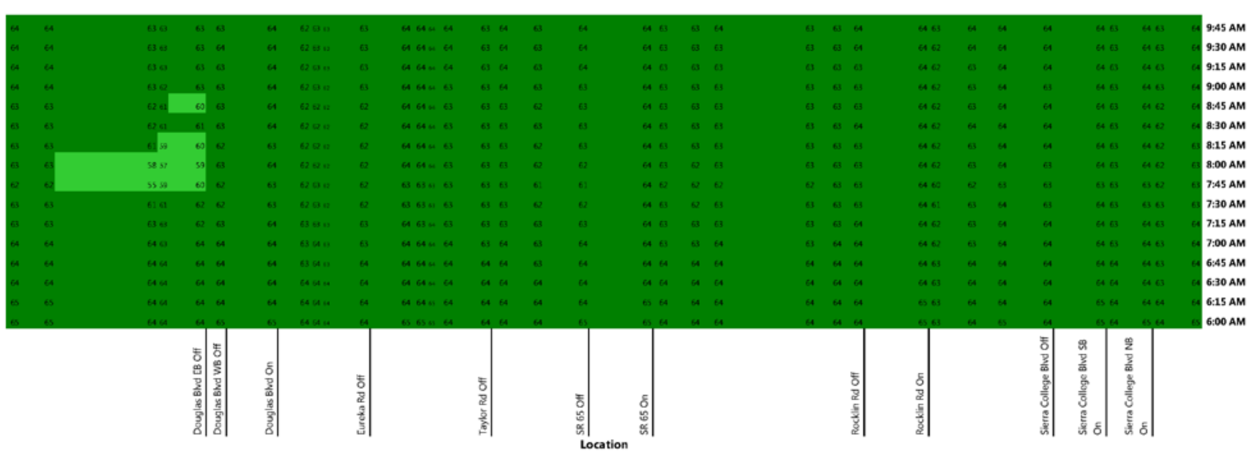
EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



NO BUILD (ALTERNATIVE 3)



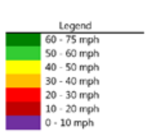
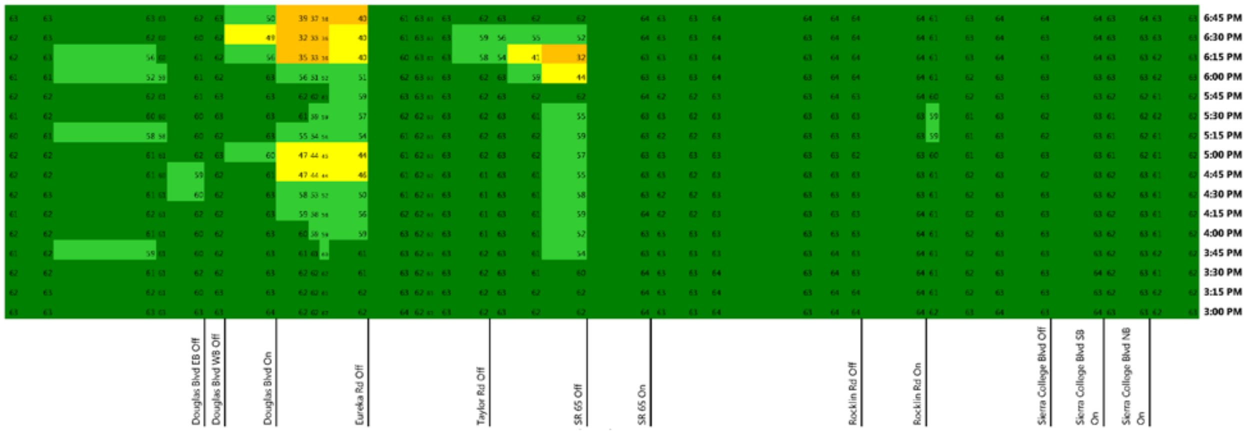
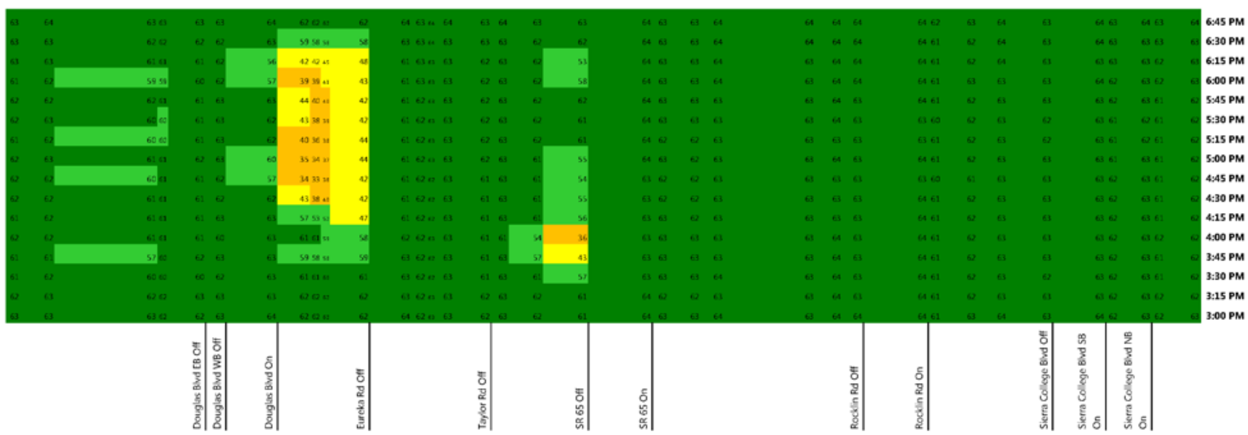


Figure 41 – Eastbound I-80 Construction Year AM Peak Period Speed Contour Map

EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



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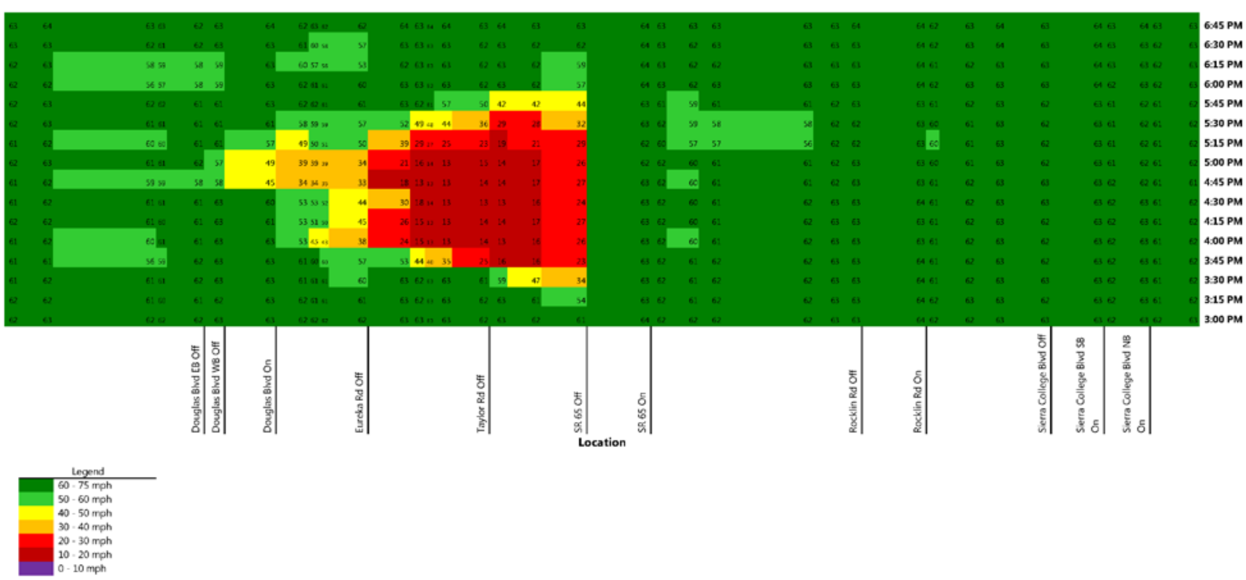
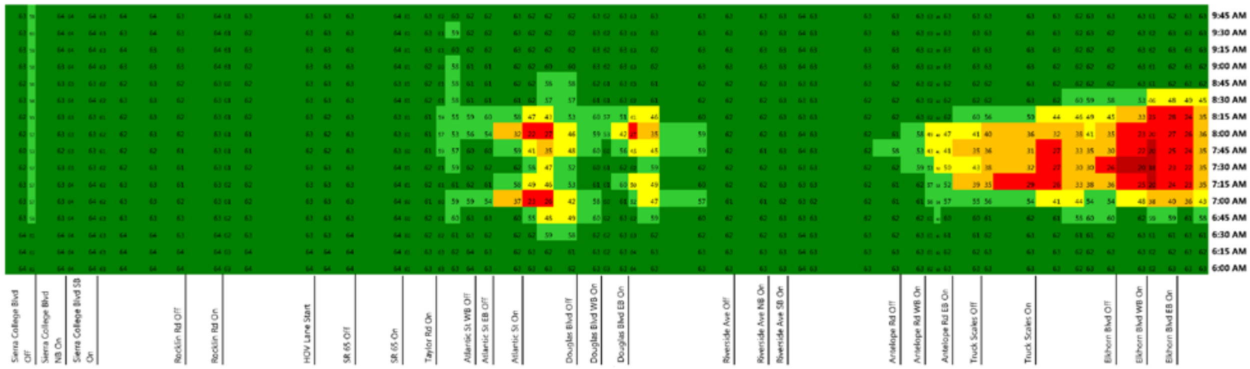
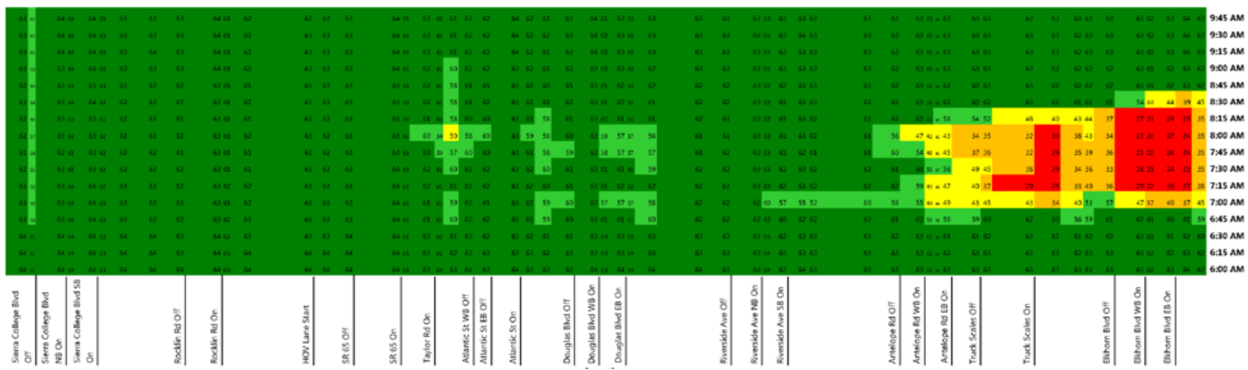


Figure 42 – Eastbound I-80 Construction Year PM Peak Period Speed Contour Map

EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



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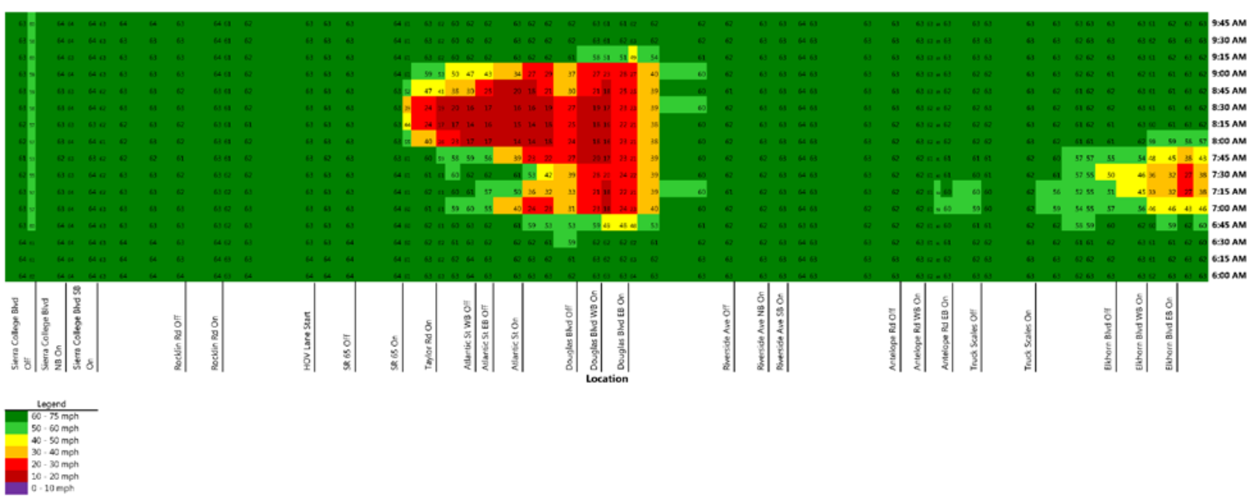
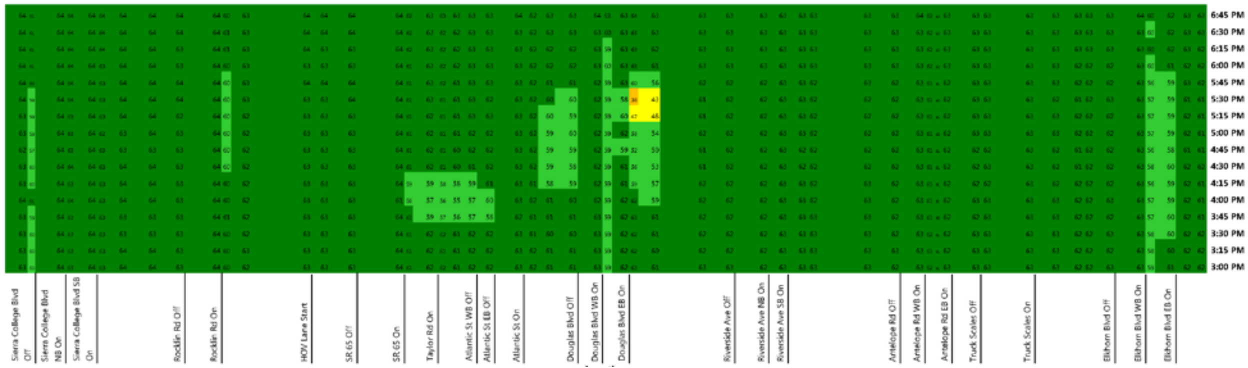
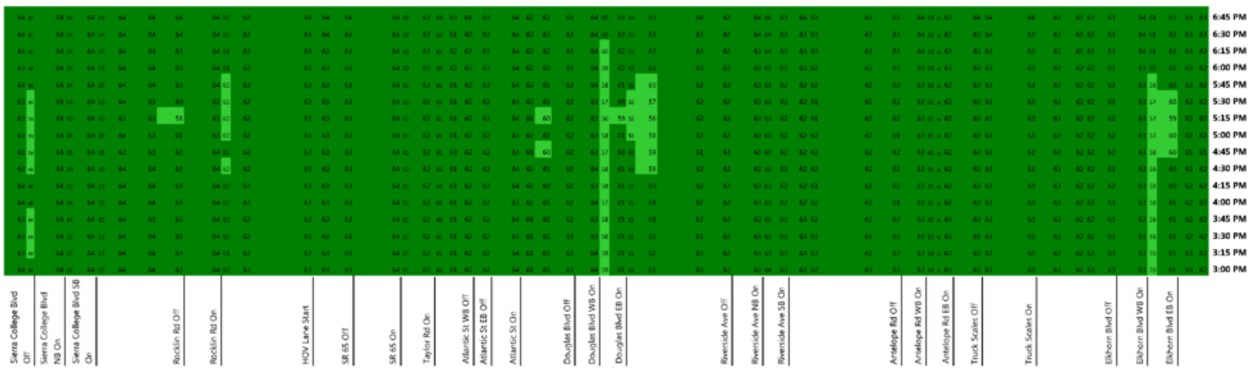


Figure 43 – Westbound I-80 Construction Year AM Peak Period Speed Contour Map

EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



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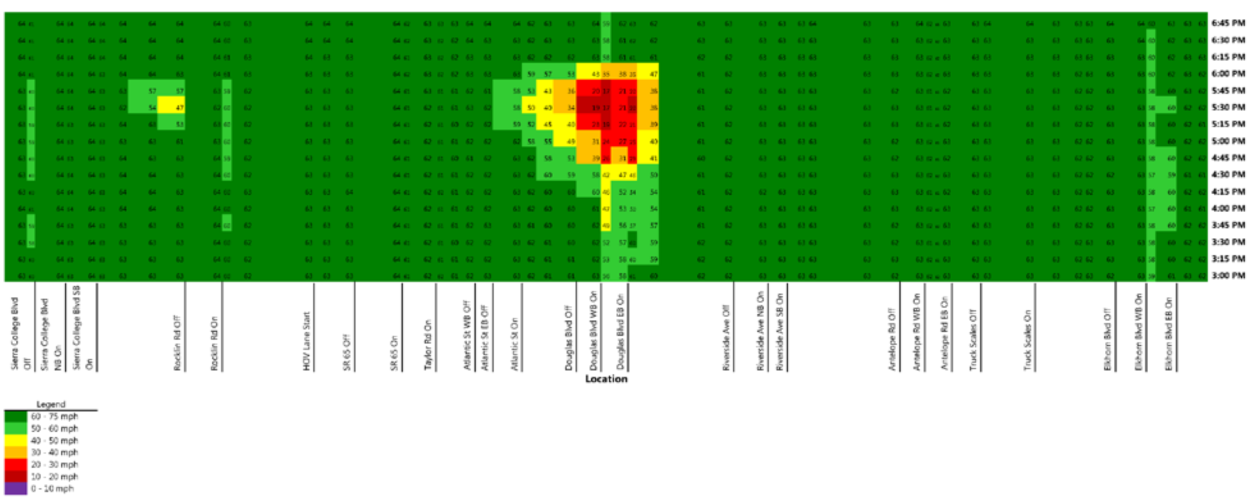
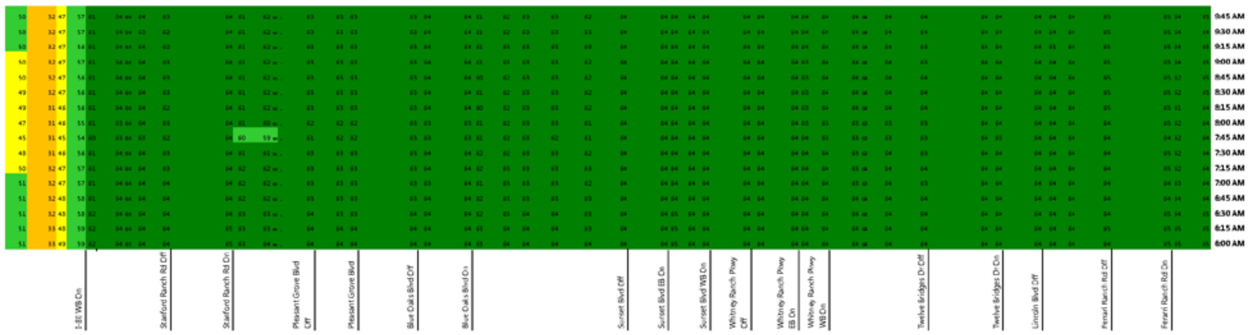
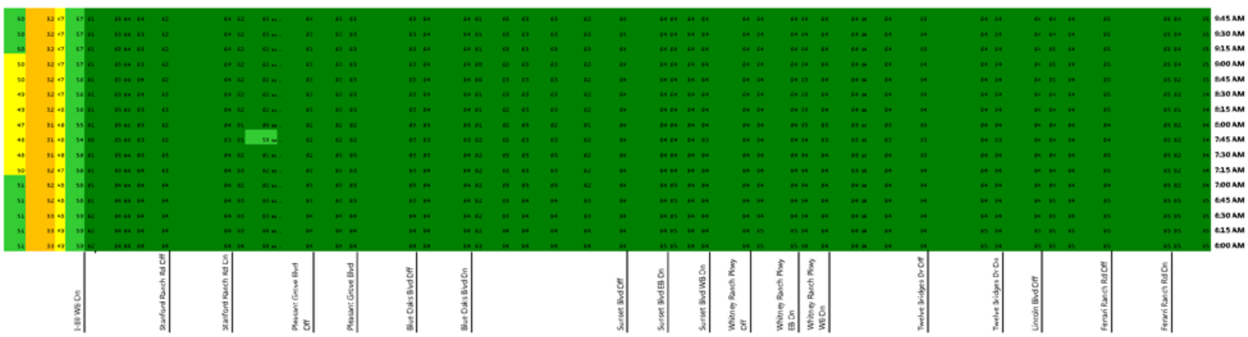


Figure 44 – Westbound I-80 Construction Year PM Peak Period Speed Contour Map

EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



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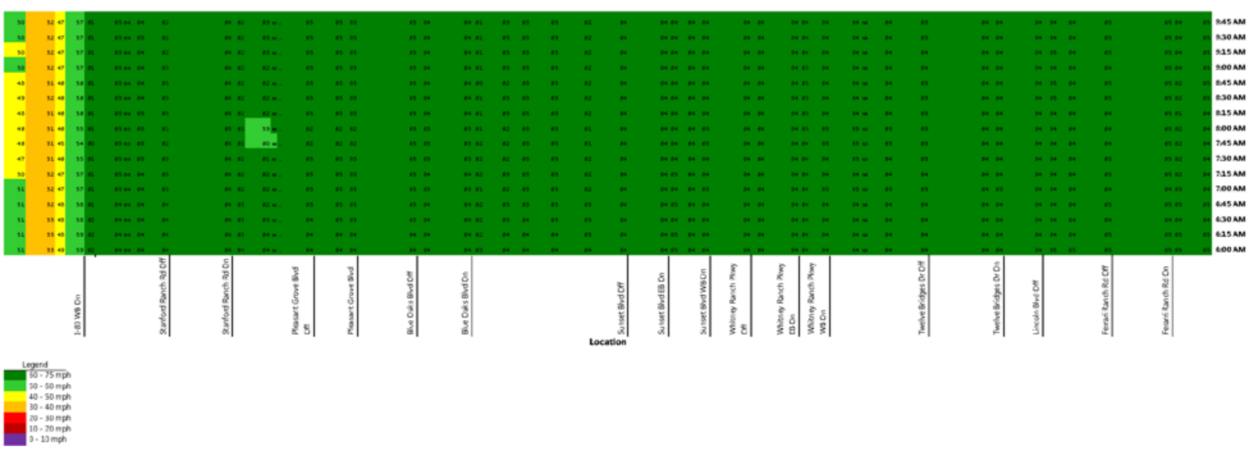
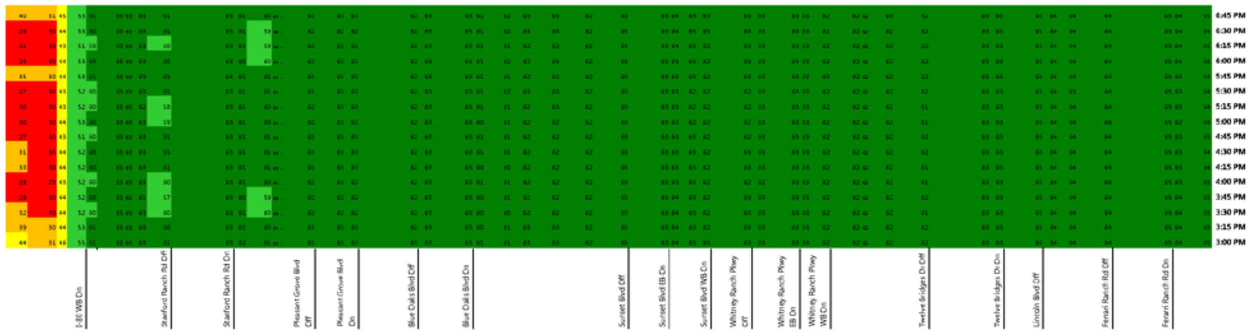
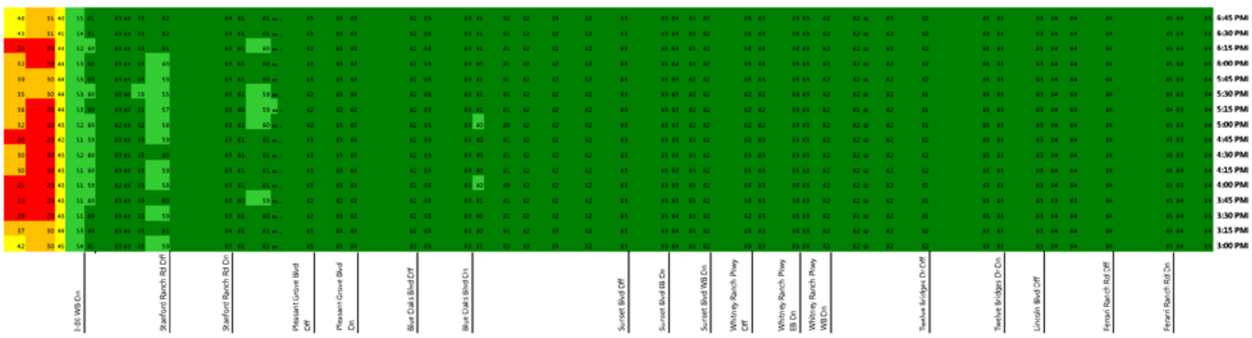


Figure 45 – Northbound SR 65 Construction Year AM Peak Period Speed Contour Map

EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



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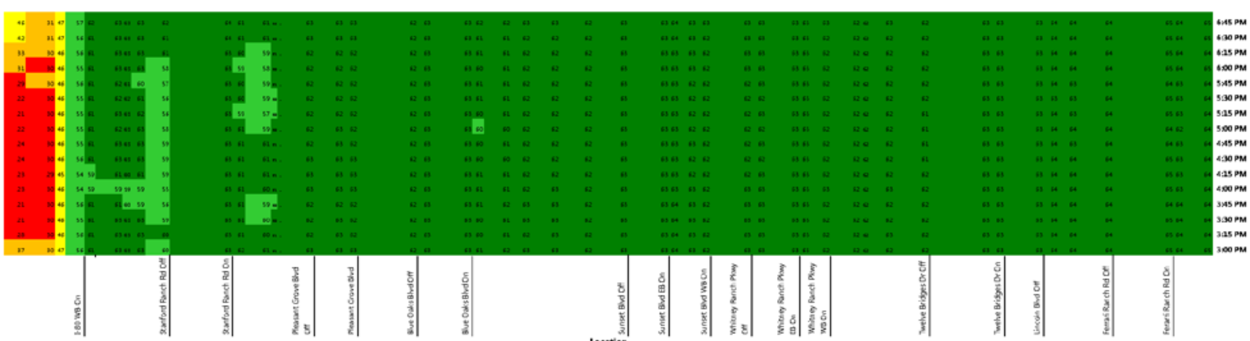


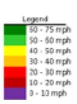
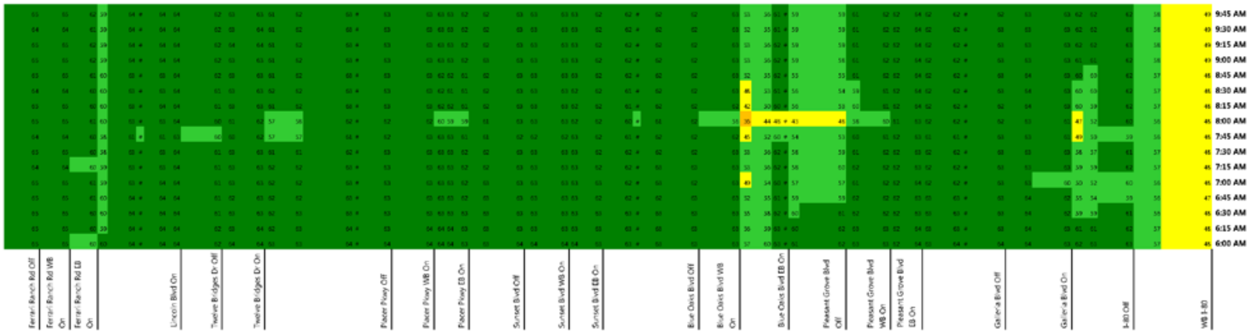
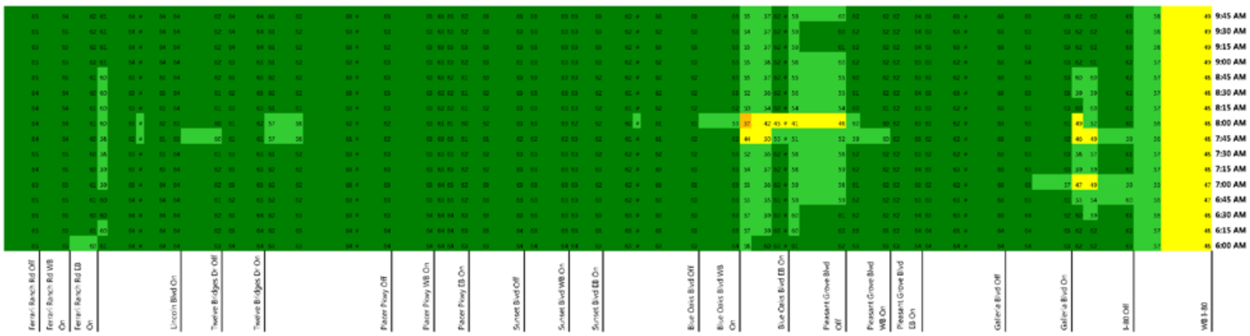


Figure 46 – Northbound SR 65 Construction Year PM Peak Period Speed Contour Map

EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



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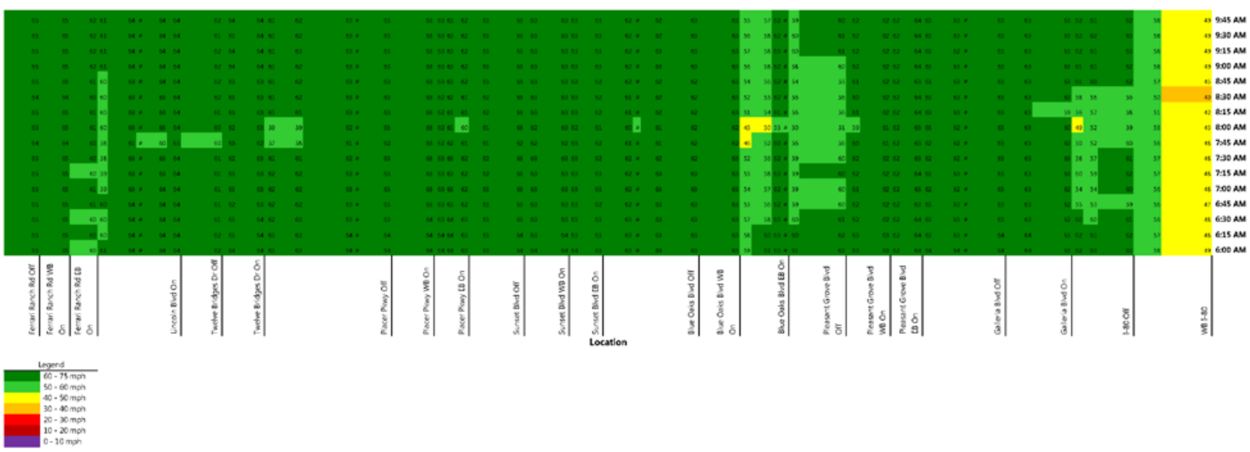
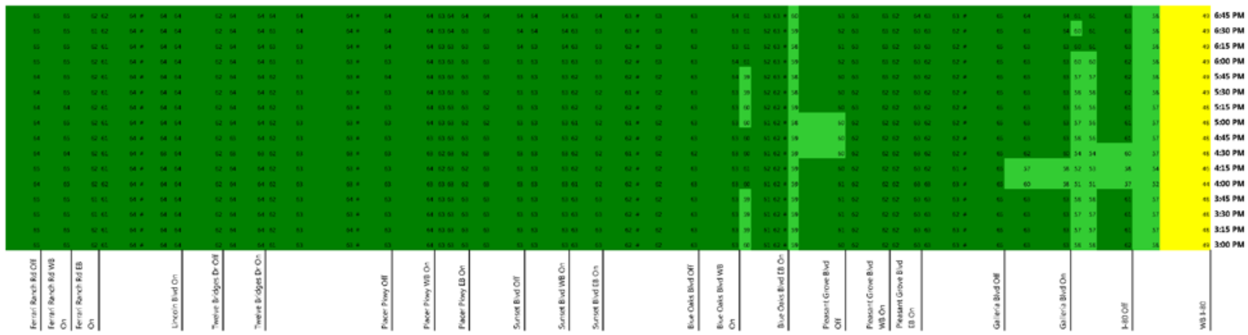
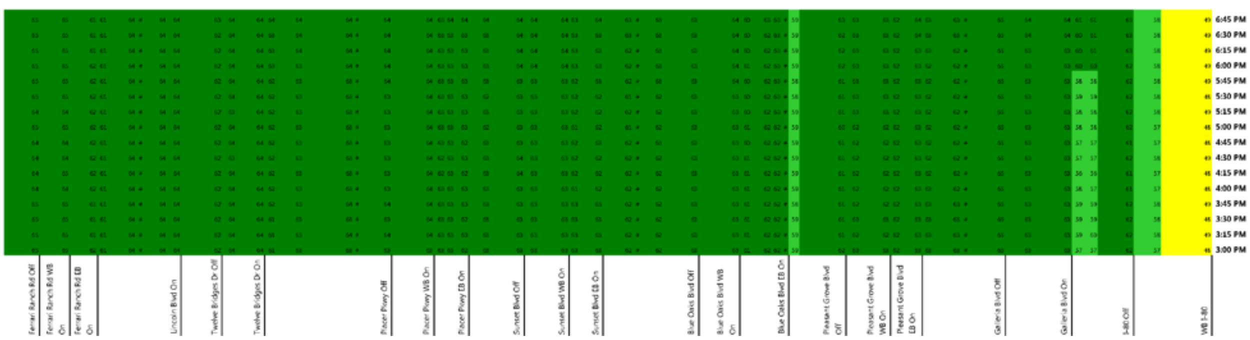


Figure 47 – Southbound SR 65 Construction Year AM Peak Period Speed Contour Map

EASTBOUND AND WESTBOUND AUXILIARY LANES (ALTERNATIVE 1)



EASTBOUND AUXILIARY LANE AND WESTBOUND 5TH LANE (ALTERNATIVE 2)



NO BUILD (ALTERNATIVE 3)

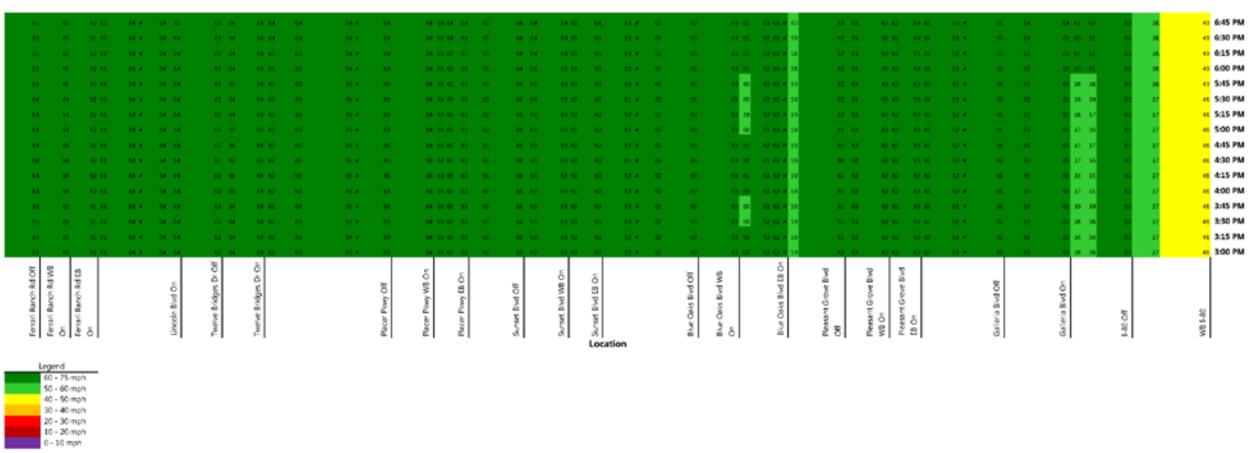


Figure 48 – Southbound SR 65 Construction Year PM Peak Period Speed Contour Map

Without the SR 65 bottleneck, the build alternatives show an upstream bottleneck at Eureka Road, which causes LOS F conditions in both build alternatives between Douglas Boulevard and Eureka Road. In Alternative 2, the density would be higher than the no build alternative, which results in an impact. The impact could be mitigated by providing an auxiliary lane (which is included in the ultimate phase of the I-80/SR 65 Interchange Improvements project) or more restrictive ramp metering. More restrictive metering for ramps at Douglas Boulevard and Auburn Boulevard could cause queuing that would extend onto the local street network.

Westbound I-80

During the AM peak period, bottlenecks would exist under all alternatives at Elkhorn Boulevard as shown in Figure 43. Alternative 3 (No Build) would also have a bottleneck at Douglas Boulevard. This upstream bottleneck constrains the demand from reaching the downstream bottleneck at Elkhorn Boulevard. The improvements under Alternatives 1 and 2 reduce or remove the Douglas Boulevard bottleneck, which causes more demand to reach the Elkhorn Boulevard bottleneck. As a result, conditions would be improved between SR 65 and Riverside Avenue but would be degraded between Antelope Road and Elkhorn Boulevard.

As in design year conditions, Alternative 3 would have overlapping bottlenecks at the Douglas Boulevard off-ramp and at the on-ramps that would cause congested conditions back to the SR 65 interchange. The auxiliary lane in Alternative 1 would reduce congestion, resulting in LOS F for three segments at Atlantic Street and Douglas Boulevard. The lane addition in Alternative 2 would provide LOS E or better conditions during the AM peak hour. During the PM peak hour, Alternative 3 would have LOS F conditions at the Douglas Boulevard interchange, but the build alternatives would have LOS D or better conditions for the entire corridor.

The proposed project would result in impacts from Antelope Road to Elkhorn Boulevard during the AM peak hour. The impact could be mitigated by providing additional mainline capacity such as a continuous auxiliary lane between the truck scales on-ramp and Elkhorn Boulevard off-ramp or more restrictive ramp metering. More restrictive metering for ramps at Elkhorn Boulevard, Antelope Road, and Riverside Avenue could cause queuing that would extend onto the local street network.

Northbound SR 65

With the construction of the I-80/SR 65 Interchange Improvements Phase 1 project, the westbound I-80 connector ramp would continue to be a bottleneck during peak hours. This ramp would operate with LOS E conditions during the AM peak hour and LOS F conditions during the PM peak hour under all alternatives. The PM peak hour density under Alternative 3 (No Build) would be higher than the build alternatives, so no impact would occur.

Southbound SR 65

The I-80/SR 65 Interchange Improvements Phase 1 project would also improve peak hour operations for southbound SR 65 under all alternatives. Alternative 3 would mostly have LOS D conditions, with a few locations at LOS E. The build alternatives would have higher demand volumes due to the additional downstream capacity on westbound I-80. As a result, Alternatives 1 (Eastbound and Westbound Auxiliary Lanes) and 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) would have LOS F conditions at the westbound Blue Oaks Boulevard on-ramp, which is one of the locations that has LOS E under Alternative 3.

This impact could be mitigated by widening SR 65 as proposed in the planned SR 65 Capacity and Operational Improvements project, or by more restrictive ramp metering. More restrictive metering for ramps at Blue Oaks Boulevard, Sunset Boulevard, and Whitney Ranch Parkway could cause queuing that would extend onto the local street network.

5.2.2. Arterial Intersection Operations

Tables 26 and 27 show the LOS and average delay at key study intersections under construction year conditions during the AM and PM peak hours, respectively. Tables 28 and 29 show the average maximum queue length at off-ramps under construction year conditions during the AM and PM peak hours. Based on the evaluation criteria for this study, Alternatives 1 (Eastbound and Westbound Auxiliary Lanes) and Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) have six impacts each. See the Appendix for all study intersection results.

The following intersections would operate at an unacceptable LOS based on the evaluation criteria under all project alternatives.

- Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps (PM only)
- Stanford Ranch Road/Five Star Boulevard (PM only)
- Roseville Parkway/Creekside Ridge Drive (PM only)
- Roseville Parkway/Taylor Road (AM only)
- Eureka Road/Sunrise Avenue (PM only)
- Pacific Street/Sunset Boulevard (PM only)
- Rocklin Road/Granite Drive (PM only)
- Rocklin Road/I-80 Westbound Ramps (PM only)
- Rocklin Road/I-80 Eastbound Ramps (AM only)
- Rocklin Road/Aguilar Road

TABLE 26: INTERSECTION OPERATIONS RESULTS –
CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS

Intersection	Threshold	Alternative 1	Alternative 2	Alternative 3
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	C	**D / 37**	**D / 36**	C / 29
7. Blue Oaks Blvd / SR 65 NB Ramps	C	B / 11	A / 10	A / 6
10. Stanford Ranch Rd / Five Star Blvd	C	C / 28	C / 28	C / 29
11. Stanford Ranch Rd / SR 65 NB Ramps	D	B / 17	B / 16	B / 17
12. Galleria Blvd / SR 65 SB Ramps	D	C / 24	C / 23	C / 23
13. Galleria Blvd / Antelope Creek Dr	C	B / 12	B / 13	B / 13
14. Galleria Blvd / Roseville Pkwy	E	D / 38	D / 38	D / 38
15. Roseville Pkwy / Creekside Ridge Dr	C	A / 9	A / 9	A / 8
16. Roseville Pkwy / Taylor Rd	D	**F / 134**	**F / 121**	**F / 146**
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	E	C / 23	C / 22	C / 22
21. Eureka Rd / Sunrise Ave	C	C / 26	C / 26	C / 25
23. Douglas Blvd / Harding Blvd	E	B / 20	C / 21	C / 34
24. Douglas Blvd / I-80 WB Ramps	C	C / 24	C / 26	C / 32
25. Douglas Blvd / I-80 EB Ramps	C	A / 8	A / 9	A / 8
26. Douglas Blvd / Sunrise Ave	D	C / 30	C / 29	C / 30
28. Pacific St / Sunset Blvd	C	C / 31	C / 31	C / 32
29. Rocklin Rd / Granite Dr	C	C / 24	C / 21	C / 22
30. Rocklin Rd / I-80 WB Ramps	C	C / 27	B / 20	C / 31
31. Rocklin Rd / I-80 EB Ramps	C	**D / 54**	**D / 54**	**E / 70**
32. Rocklin Rd / Aguilar Rd	C	**E / 61**	**E / 61**	**F / 82**
50. Riverside Ave / I-80 WB Ramps	C	B / 10	B / 10	A / 9

Note: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.
Source: Fehr & Peers, 2015

The analysis results indicate that these intersections would need capacity enhancements with and without the proposed project to operate within the established LOS thresholds for these locations or peak period travel demand management strategies would need to be employed in the study area. Before any improvements are proposed though, the interaction between these locations and the rest of the network should be considered. In some cases, the operation of these intersections meters traffic accessing the freeway. In other locations, improvements to the freeway system, such as an auxiliary lane, may reduce demand and/or queuing that would improve intersection operations.

TABLE 27: INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS				
Intersection	**Threshold**	**Alternative 1**	**Alternative 2**	**Alternative 3**
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	C	**F / 91**	**F / 94**	**F / 89**
7. Blue Oaks Blvd / SR 65 NB Ramps	C	A / 9	B / 11	B / 12
10. Stanford Ranch Rd / Five Star Blvd	C	**E / 68**	**E / 63**	**E / 56**
11. Stanford Ranch Rd / SR 65 NB Ramps	D	C / 32	C / 28	C / 27
12. Galleria Blvd / SR 65 SB Ramps	D	D / 54	D / 37	C / 26
13. Galleria Blvd / Antelope Creek Dr	C	C / 33	C / 27	C / 25
14. Galleria Blvd / Roseville Pkwy	E	E / 70	E / 73	E / 75
15. Roseville Pkwy / Creekside Ridge Dr	C	**D / 41**	**D / 35**	**D / 44**
16. Roseville Pkwy / Taylor Rd	D	**E / 73**	D / 52	**E / 73**
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	E	E / 59	E / 68	D / 45
21. Eureka Rd / Sunrise Ave	C	**F / 95**	**E / 67**	**F / 96**
23. Douglas Blvd / Harding Blvd	E	E / 57	E / 63	E / 63
24. Douglas Blvd / I-80 WB Ramps	C	C / 34	C / 35	C / 29
25. Douglas Blvd / I-80 EB Ramps	C	B / 19	C / 21	B / 11
26. Douglas Blvd / Sunrise Ave	D	**E / 56**	**E / 61**	D / 39
28. Pacific St / Sunset Blvd	C	**D / 36**	**D / 39**	**D / 39**
29. Rocklin Rd / Granite Dr	C	**F / 104**	**F / 112**	**F / 140**
30. Rocklin Rd / I-80 WB Ramps	C	**D / 44**	**D / 47**	**E / 68**
31. Rocklin Rd / I-80 EB Ramps	C	**D / 50**	**D / 46**	C / 31
32. Rocklin Rd / Aguilar Rd	C	**F / 234**	**F / 232**	**D / 39**
50. Riverside Ave / I-80 WB Ramps	C	B / 16	B / 17	B / 15

Note: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2015

During the AM peak hour, the proposed project would have an impact at the Blue Oaks Boulevard/ Washington Boulevard/SR 65 Southbound Ramps intersection. The build alternatives have higher demand volumes, which results in higher average delay and LOS D conditions.

TABLE 28: SELECTED MAXIMUM QUEUE LENGTH RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2
Eastbound I-80 at Eureka Rd	1,700	250	275
Eastbound I-80 at Rocklin Rd	1,080	250	250
Westbound I-80 at Douglas Blvd	1,530	300	250
Westbound I-80 at Riverside Ave	1,350	300	300

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.
Source: Fehr & Peers, 2015

TABLE 29: SELECTED MAXIMUM QUEUE LENGTH RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2
Eastbound I-80 at Eureka Rd	1,700	1,575	1,675
Eastbound I-80 at Rocklin Rd	1,080	550	375
Westbound I-80 at Douglas Blvd	1,530	275	300
Westbound I-80 at Riverside Ave	1,350	425	450

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.
Source: Fehr & Peers, 2015

During the PM peak hour, the proposed project would have impacts at the following study intersections.

- Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps
- Stanford Ranch Road/Five Star Boulevard
- Douglas Boulevard/Sunrise Avenue
- Rocklin Road/I-80 Eastbound Ramps
- Rocklin Road/Aguilar Road

The Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps intersection is deficient under both peak hours and all alternatives, so widening to improve operations would also mitigate the impacts. The impact at the Stanford Ranch Road/Five Star Boulevard may be mitigated by adjusting signal timing. If further improvements are needed, allowing right turns from the middle lane on eastbound Five Star Boulevard would likely reduce intersection delay without affecting pedestrian safety since no conflicting crosswalk exists for this movement. At the Douglas Boulevard intersection, a second southbound right turn lane at Sunrise Avenue would increase capacity. The impacts to the Rocklin Road intersections can be mitigated by constructing the planned I-80/Rocklin Road Interchange improvements.

During both peak hours, the average maximum queue lengths for freeway off-ramps at all study intersections are contained on the ramp. However, the eastbound Eureka Road off-ramp during the PM peak hour shows an average maximum queue that is more the three-quarters of the ramp length. The I-80/SR 65 Interchange Improvements project includes widening of this off-ramp, which provides reduced queue lengths under design year conditions.

Chapter 6. Summary and Conclusions

6.1. Deficiencies

The study locations that do not meet the LOS threshold are summarized below by alternative. The LOS thresholds are provided in Section 2.5.

Existing Conditions

- AM Peak Hour
  - Westbound I-80: from the westbound Antelope Road on-ramp to the Elkhorn Boulevard off-ramp
  - Northbound SR 65: westbound I-80 on-ramp
  - Southbound SR 65: from the westbound Blue Oaks Boulevard on-ramp to the eastbound Pleasant Grove Boulevard on-ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps
- PM Peak Hour
  - Eastbound I-80: Eureka Road off-ramp and SR 65 off-ramp
  - Westbound I-80: SR 65 off-ramp
  - Northbound SR 65: from the westbound I-80 on-ramp to the Stanford Ranch Road off-ramp
  - Intersections: Eureka Road/Taylor Road/I-80 Westbound Ramps

Alternative 1 (Eastbound and Westbound Auxiliary Lanes)

- Design Year AM Peak Hour
  - Westbound I-80: eastbound Atlantic Street off-ramp, Atlantic Street off to on-ramp, Atlantic Street on-ramp, Truck Scales off to on-ramp, Truck Scales on-ramp, Truck Scales to Elkhorn Boulevard, and eastbound Elkhorn Boulevard on-ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Stanford Ranch Road/SR 65 Northbound Ramps, Roseville Parkway/Taylor Road, Eureka Road/Sunrise Avenue, and Lincoln Boulevard/SR 65 Southbound On-ramp
- Design Year PM Peak Hour
  - Westbound I-80: SR 65 to eastbound Douglas Boulevard on-ramp

- Southbound SR 65: I-80 Westbound Connector Ramp
- Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps, Pleasant Grove Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Creekside Ridge Drive, Roseville Parkway/Sunrise Avenue, Eureka Road/Taylor Road/I-80 Eastbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, Douglas Boulevard/Sunrise Avenue, Pacific Street/Sunset Boulevard, Rocklin Road/Granite Drive, Rocklin Road/I-80 Westbound Ramps, and Rocklin Road/Aguilar Road

- Construction Year AM Peak Hour
  - Westbound I-80: Atlantic Street off to on-ramp, Atlantic Street on-ramp, eastbound Douglas Boulevard on-ramp, and from westbound Antelope Road on-ramp to eastbound Elkhorn Boulevard on-ramp
  - Southbound SR 65: westbound Blue Oaks Boulevard on-ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Roseville Parkway/Taylor Road, Rocklin Road/I-80 Eastbound Ramps, and Rocklin Road/Aguilar Road
- Construction Year PM Peak Hour
  - Eastbound I-80: Douglas Boulevard on-ramp and Eureka Road off-ramp
  - Northbound SR 65: I-80 Eastbound Connector Ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Roseville Parkway/Creekside Ridge Drive, Roseville Parkway/Taylor Road, Eureka Road/Sunrise Avenue, Douglas Boulevard/Sunrise Avenue, Pacific Street/Sunset Boulevard, Rocklin Road/Granite Drive, Rocklin Road/I-80 Westbound Ramps, Rocklin Road/I-80 Eastbound Ramps, and Rocklin Road/Aguilar Road

Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane)

- Design Year AM Peak Hour
  - Westbound I-80: from eastbound Antelope Road on-ramp to eastbound Elkhorn Boulevard on-ramp except for Elkhorn Boulevard off-ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Roseville Parkway/Taylor Road, and Eureka Road/Sunrise Avenue

- Design Year PM Peak Hour
    - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps, Pleasant Grove Boulevard/Southbound SR 65 Ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Creekside Ridge Drive, Eureka Road/Taylor Road/I-80 Eastbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, Douglas Boulevard/Sunrise Avenue, Pacific Street/Sunset Boulevard, Rocklin Road/Granite Drive, Rocklin Road/I-80 Westbound Ramps, and Rocklin Road/Aguilar Road
- Construction Year AM Peak Hour
    - Westbound I-80: from Antelope Road off to on-ramp to eastbound Elkhorn Boulevard on-ramp
    - Southbound SR 65: westbound Blue Oaks Boulevard on-ramp
    - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Roseville Parkway/Taylor Road, Rocklin Road/I-80 Eastbound Ramps, and Rocklin Road/Aguilar Road
- Construction Year PM Peak Hour
    - Eastbound I-80: Douglas Boulevard on-ramp and Eureka Road off-ramp
    - Northbound SR 65: I-80 Eastbound Connector Ramp
    - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Roseville Parkway/Creekside Ridge Drive, Eureka Road/Sunrise Avenue, Douglas Boulevard/Sunrise Avenue, Pacific Street/Sunset Boulevard, Rocklin Road/Granite Drive, Rocklin Road/I-80 Westbound Ramps, Rocklin Road/I-80 Eastbound Ramps, and Rocklin Road/Aguilar Road

<u>Alternative 3 (No Build)</u>

- Design Year AM Peak Hour
    - Westbound I-80: SR 65 to eastbound Douglas Boulevard on-ramp and from Truck Scales off to on-ramp to eastbound Elkhorn Boulevard on-ramp except for the Elkhorn Boulevard off-ramp
    - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps, Stanford Ranch Road/Five Star Boulevard, Stanford Ranch Road/SR 65 Northbound Ramps, Roseville Parkway/Taylor Road, Atlantic Street/I-80 Westbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, and Lincoln Boulevard/SR 65 Southbound On-Ramp

- Design Year PM Peak Hour
  - Westbound I-80: SR 65 to eastbound Douglas Boulevard on-ramp
  - Southbound SR 65: from Sunset Boulevard off to on-ramp to I-80 and I-80 Westbound Connector Ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps, Pleasant Grove Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Atlantic Street/I-80 Westbound Ramps, Eureka Road/Taylor Road/I-80 Eastbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, Douglas Boulevard/I-80 Westbound Ramps, Douglas Boulevard/Sunrise Avenue, Pacific Street/Sunset Boulevard, Rocklin Road/Granite Drive, and Rocklin Road/I-80 Westbound Ramps
- Construction Year AM Peak Hour
  - Westbound I-80: from SR 65 on-ramp to eastbound Douglas Boulevard on-ramp, Elkhorn Boulevard off to on-ramp, westbound Elkhorn Boulevard on-ramp, and eastbound Elkhorn Boulevard on-ramp
  - Intersections: Roseville Parkway/Taylor Road, Rocklin Road/I-80 Eastbound Ramps, and Rocklin Road/Aguilar Road
- Construction Year PM Peak Hour
  - Eastbound I-80: Douglas Boulevard on-ramp to SR 65 off-ramp
  - Westbound I-80: Douglas Boulevard off-ramp to eastbound Douglas Boulevard on-ramp
  - Northbound SR 65: I-80 Eastbound Connector Ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Roseville Parkway/Creekside Ridge Drive, Roseville Parkway/Taylor Road, Eureka Road/Sunrise Avenue, Pacific Street/Sunset Boulevard, Rocklin Road/Granite Drive, Rocklin Road/I-80 Westbound Ramps, and Rocklin Road/Aguilar Road

6.2. **Project Impacts**

The project impacts are summarized below by alternative. A project impact occurs where (1) the LOS threshold is exceeded and (2) the conditions are worse than the no build alternative (Alternative 3).

Alternative 1 (Eastbound and Westbound Auxiliary Lanes)

- Design Year AM Peak Hour
    - Westbound I-80: Truck Scales off to on-ramp, Truck Scales on-ramp, and Truck Scales to Elkhorn Boulevard
- Design Year PM Peak Hour
    - Westbound I-80: westbound Douglas Boulevard on-ramp
    - Intersections: Roseville Parkway/Creekside Ridge Drive, Douglas Boulevard/Sunrise Avenue, Rocklin Road/I-80 Westbound Ramps, and Rocklin Road/Aguilar Road
- Construction Year AM Peak Hour
    - Westbound I-80: from westbound Antelope Road on-ramp to eastbound Elkhorn Boulevard on-ramp
    - Southbound SR 65: westbound Blue Oaks Boulevard on-ramp
    - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps
- Construction Year PM Peak Hour
    - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Douglas Boulevard/Sunrise Avenue, Rocklin Road/I-80 Eastbound Ramps, and Rocklin Road/Aguilar Road

Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane)

- Design Year AM Peak Hour
    - Westbound I-80: from eastbound Antelope Road on-ramp to Truck Scales to Elkhorn Boulevard
- Design Year PM Peak Hour
    - Intersections: Galleria Boulevard/Roseville Parkway, Roseville Parkway/Creekside Ridge Drive, Douglas Boulevard/Sunrise Avenue, Rocklin Road/I-80 Westbound Ramps, and Rocklin Road/Aguilar Road
- Construction Year AM Peak Hour
    - Westbound I-80: from Antelope Road off to on-ramp to eastbound Elkhorn Boulevard on-ramp
    - Southbound SR 65: westbound Blue Oaks Boulevard on-ramp
    - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps

- Construction Year PM Peak Hour
  - Eastbound I-80: Douglas Boulevard on-ramp and Eureka Road off-ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Douglas Boulevard/Sunrise Avenue, Rocklin Road/I-80 Eastbound Ramps, and Rocklin Road/Aguilar Road

6.3. Potential Mitigation Measures

The potential mitigation measures for the project impacts identified in the previous section are provided below.

<u>Eastbound I-80</u>

- Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) impacts from Douglas Boulevard to Eureka Road under construction year conditions can be mitigated by constructing an auxiliary lane, which is part of the planned I-80/SR 65 Interchange Improvements project.
- An alternate mitigation to the above widening options would be to operate the ramp meters on eastbound I-80 at a more restrictive rate under construction year conditions. With the more restrictive rates, longer ramp queues may cause secondary impacts to local streets.

<u>Westbound I-80</u>

- Impacts at the westbound Douglas Boulevard on-ramp for design year conditions under Alternative 1 (Eastbound and Westbound Auxiliary Lanes) can be mitigated by constructing Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane).
- Impacts from Antelope Road to Elkhorn Boulevard can be mitigated by providing a full auxiliary lane from the truck scales to Elkhorn Boulevard or adding a through lane at Elkhorn Boulevard.
- An alternate mitigation to the above widening options would be to operate the ramp meters on westbound I-80 and southbound SR 65 at a more restrictive rate. With the more restrictive rates, longer ramp queues may cause secondary impacts to local streets.

<u>Southbound SR 65</u>

- Impacts at the westbound Blue Oaks Boulevard on-ramp can be mitigated by widening SR 65 as proposed in the SR 65 Capacity and Operational Improvements project.
- An alternate mitigation to the above widening option would be to operate the ramp meters on southbound SR 65 at a more restrictive rate. With the more restrictive rates, longer ramp queues may cause secondary impacts to local streets.

Intersections

- Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps – This impact can be mitigated by widening the approaches to this deficient intersection.
- Stanford Ranch Road/Five Star Boulevard – The impact may be mitigated by converting the eastbound middle lane from a shared left-turn/through lane to a shared left-turn/through/right-turn lane.
- Galleria Boulevard/Roseville Parkway – The impact can likely be mitigated by modifying signal timing although this may have secondary impacts at adjacent intersections. Additional intersection widening or reconstruction would be needed to address the operational deficiency.
- Roseville Parkway/Creekside Ridge Drive – The impact is caused by queues from the Roseville Parkway intersection, so increasing capacity or modifying signal timing at that intersection would mitigate this impact.
- Douglas Boulevard/Sunrise Avenue – This impact may be mitigated by providing a second southbound right turn lane to increase capacity.
- Rocklin Road/I-80 Westbound Ramps – This construction year impact can be mitigated by constructing the planned I-80/Rocklin Road Interchange project.
- Rocklin Road/I-80 Eastbound Ramps – The construction year impact can be mitigated by constructing the planned I-80/Rocklin Road Interchange project. The design year impact may be mitigated by providing additional storage for the ramp meter on the westbound on-ramp to reduce queuing onto the local street.
- Rocklin Road/Aguilar Road – The construction year impact can be mitigated by constructing the planned I-80/Rocklin Road Interchange project. To address the design year impact, further widening or intersection reconstruction would be needed.

6.4. **Safety Assessment**

The build alternatives will likely provide similar improvements to transportation safety. A key improvement will be provided by congestion reduction on the freeway. Rear-end collisions on the freeway are associated with congested conditions. As noted in the existing conditions section, rear-end collisions in the study area are highest on westbound I-80 during the congested AM and PM peak periods. Since the build alternatives will reduce congestion compared to Alternative 3 (No Build), the expected number of rear-end end collision would be reduced with the build alternatives.

Roadway design standards are used to provide consistent expectations for drivers, which helps improve transportation safety by reducing collision risks. When these standards are not met, collision risks may increase. The currently proposed design exceptions are located on the westbound on-ramps at Douglas

Boulevard, the northbound to westbound on-ramp at Riverside Avenue, and the eastbound off-ramp to Rocklin Road. In each case, the proposed design will either maintain or improve an existing condition that does not meet suggested design guidelines.

6.5. Project Alternative Comparison

Table 30 compares the project alternatives under design year conditions across a range of performance measures based on the project objectives. The performance measures are network-wide throughput and delay, study location deficiencies, and westbound I-80 travel time.

TABLE 30: PROJECT ALTERNATIVE COMPARISON SUMMARY – DESIGN YEAR PEAK PERIOD CONDITIONS

Category	Alternative 1	Alternative 2	Alternative 3
Network Throughput (vehicles)	507,320	507,290	496,010
Network Delay (vehicle-hours)	19,240	17,270	28,910
Freeway Deficiencies	16	8	34
Intersection Deficiencies	21	18	23
Westbound I-80 AM Peak Hour Travel Time	9:24	8:26	10:50
Westbound I-80 PM Peak Hour Travel Time	13:27	8:24	17:11

Note: 1. The alternative with the better performance is listed in parentheses.
Source: Fehr & Peers, 2015

In Table 30, two performance measures for the overall network performance are provided: the sum of the AM and PM peak period throughput (volume served) and vehicle hours of delay. The two build alternatives (Alternatives 1 and 2) would have similar volume served and would serve more than 2 percent more traffic during the peak periods than the no build alternative (Alternative 3).

The build alternatives would also reduce the analysis locations operating at an unacceptable LOS. For freeway locations, Alternative 1 (Eastbound and Westbound Auxiliary Lanes) would have less than half the deficient locations as Alternative 3 (No Build). Alternative 2 would have even fewer deficient locations – less than one-fourth the locations as Alternative 3. Although the project improvements are located on the freeway network, intersection operations would improve due to the changes in travel patterns. As a result, Alternative 1 would have two fewer and Alternative 2 would have five fewer deficient intersections than Alternative 3.

The widening for westbound I-80 in the build alternatives will improve peak hour travel time compared to the no build alternative. Alternative 1 would have a westbound travel time savings of almost one and a half minutes during the AM peak hour and nearly four minutes during the PM peak hour. For Alternative

2, the travel time savings would be even larger: two and a half minutes for the AM peak hour and almost nine minutes during the PM peak hour.

In summary, the build alternatives would provide a significant improvement in freeway and intersection operations under design year conditions.

Table 31 compares the performance measures for the project alternatives under construction year conditions. For most performance measures, the build alternatives (Alternatives 1 and 2) have better performance than the no build alternative (Alternative 3). The one exception is for intersection deficiencies. The changing travel patterns result in two more deficient intersections under Alternative 1 and one more under Alternative 2.

TABLE 31: PROJECT ALTERNATIVE COMPARISON SUMMARY – CONSTRUCTION YEAR PEAK PERIOD CONDITIONS

Category	Alternative 1	Alternative 2	Alternative 3
Network Throughput (vehicles)	412,230	410,740	410,540
Network Delay (vehicle-hours)	12,560	11,640	13,500
Freeway Deficiencies	16	14	25
Intersection Deficiencies	14	13	12
Westbound I-80 AM Peak Hour Travel Time	9:00	8:26	11:56
Westbound I-80 PM Peak Hour Travel Time	8:13	8:10	8:31

Note: 1. The alternative with the better performance is listed in parentheses.
Source: Fehr & Peers, 2015

6.6. Build Alternative Comparison

Table 32 compares the build alternatives under design year conditions across a range of performance measures based on the project objectives. As listed in Section 1.3, the project objectives can be summarized as reducing congestion and improving safety.

In Table 32, two performance measures for the overall network performance are provided: the sum of the AM and PM peak period volume served (throughput) and vehicle hours of delay. The two build alternatives have similar volume served, with less than 0.1 percent difference, but the difference in delay is relatively large. Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) has the best network performance primarily due to the improved operation for westbound I-80 in Placer County.

TABLE 32: BUILD ALTERNATIVE COMPARISON SUMMARY – DESIGN YEAR PEAK PERIOD CONDITIONS			
Category	**Alternative 1**	**Alternative 2**	**Difference[1]**
Network Throughput (vehicles)	507,320	507,290	30 (1)
Network Delay (vehicle-hours)	19,240	17,270	-1,970 (2)
Freeway Impacts	4	5	1 (1)
Intersection Impacts	4	5	1 (1)
Westbound I-80 AM Peak Hour Travel Time	9:24	8:26	-0:58 (2)
Westbound I-80 PM Peak Hour Travel Time	13:27	8:24	-5:03 (2)

Note: 1. The alternative with the better performance is listed in parentheses.
Source: Fehr & Peers, 2015

The comparison table also lists the total number of design year AM and PM peak hour impacts for study freeway sections and intersections. Although the number of impacts is about the same, Alternative 1 (Eastbound and Westbound Auxiliary Lanes) has the fewest freeway and intersection impacts. Alternative 2 has more impacts primarily for westbound I-80 in Sacramento County. Westbound travel time from Sierra College Boulevard to Antelope Road is better for Alternative 2, with a one minute savings during the AM peak hour and about five minutes during the PM peak hour.

Table 33 compares the build alternatives under construction year conditions across a range of performance measures based on the project objectives. For the network wide delay and westbound travel time, Alternative 2 would have better performance than the Alternative 1. While both alternatives would have the same number of intersection impacts, Alternative 2 would have three more freeway impacts.

TABLE 33: BUILD ALTERNATIVE COMPARISON SUMMARY – CONSTRUCTION YEAR PEAK PERIOD CONDITIONS			
Category	**Alternative 1**	**Alternative 2**	**Difference[1]**
Network Throughput (vehicles)	412,230	410,740	1,490 (1)
Network Delay (vehicle-hours)	12,560	11,640	-920 (2)
Freeway Impacts	10	13	3 (1)
Intersection Impacts	6	6	0 (-)
Westbound I-80 AM Peak Hour Travel Time	9:00	8:26	-0:34 (2)
Westbound I-80 PM Peak Hour Travel Time	8:13	8:10	-0:03 (2)

Note: 1. The alternative with the better performance is listed in parentheses.
Source: Fehr & Peers, 2015

In summary, while both build alternatives would meet the project need and purpose, Alternative 2 would provide better westbound freeway operations in Placer County, lower westbound corridor travel time, and lower network-wide delay under both construction and design year conditions.

Chapter 7. References

This chapter contains the references cited in the Transportation Analysis Report.

California Department of Transportation, District 3. May 2009. *Interstate 80 and Capital City Freeway Corridor System Management Plan.*

California Department of Transportation, District 3. May 2009. *State Route 65 Corridor Systems Management Plan.*

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California Department of Transportation. *Highway Design Manual, 6th Edition*. March 2014.

California Transportation Commission. 2010. *2010 California Regional Transportation Guidelines*.

Cervero, R. August 2002. *Induced Travel Demand: Research Design, Empirical Evidence, and Normative Policies.*

City of Lincoln. March 2008. *City of Lincoln General Plan.*

City of Rocklin. October 2012. *City of Rocklin General Plan.*

City of Roseville. May 2010. *City of Roseville General Plan.*

Federal Highway Administration, 2004. *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software.*

Fehr & Peers. November 2014. *Draft Transportation Impact Study Report for North Central Roseville Specific Plan – Parcel 49*.

Fehr & Peers. August 2014. *I-80/SR 65 Interchange Improvements Transportation Analysis Report*.

Fehr & Peers. June 2015. *State Route 65 Capacity and Operational Improvements Transportation Analysis Report*.

Sacramento Area Council of Governments. 2011. *2035 Metropolitan Transportation Plan/Sustainable Communities Strategy.*

Transportation Research Board. 2010. *Highway Capacity Manual.*

Attachment E

State of California

Business, Transportation and Housing Agency

Memorandum

To: RODNEY MURPHY-03
Project Management

Date: December 18, 2015

Limits: 03-Pla-80
EA: 03-0F2301
PIN: 0312000106
Bridge: Linda Cr. Br. (Widen)
Br No: 19-0027
Ret Wall: Retaining Wall No. 177
Retaining Wall No. 188
Retaining Wall No. 197
Retaining Wall No. 45

From: BRENT I. MASSEY Brent I. Massey
Liaison Engineer
Office of Special Funded Projects
Program Project and Resource Management
Division of Engineering Services

Subject: APS Approval

We have completed the review of the Advance Planning Studies for the above referenced project, which includes the following structures:

Bridge Name	Bridge No.
Linda Creek Bridge (Widen)	19-0027
Retaining Wall No. 177	TBD
Retaining Wall No. 188	TBD
Retaining Wall No. 197	TBD
Retaining Wall No. 45	TBD

Design oversight signatures were placed on the Advance Planning Studies plan sheets on December 17, 2015.

Please contact me at (916) 227-8868 or Kumi Jayananth at (916) 227-8903 if you want to discuss or have questions.

c: Rosa Griggs-Dokken Engineering
file (w/attach)

Advance Planning Study (APS)
Design Memorandum

Date: April 21, 2015	Consultant Firm (for structures): Dokken Engineering		Phone No: (916) 858-0642
Project Manager: Liz Diamond, PE		Project Engineer: Tim Osterkamp, PE	Phone No: (916) 858-0642
Designed by: Rosa Griggs, PE / Tim Osterkamp, PE	County: Placer	Rte: Interstate 80	
Project Description: Widening of Interstate 80 by adding a lane to eastbound between SR-65 and Rocklin Road and westbound between Douglas Blvd and Riverside Ave.			

Introduction

The purpose of this memorandum is to describe and discuss the proposed structure work for the Widening of Interstate 80 by adding a lane to eastbound between SR-65 and Rocklin Road and westbound between Douglas Blvd and Riverside Ave. Two alternatives are proposed.

Alternative 1 proposes to add a 12' auxiliary lane from SR-65 to Rocklin Road in the eastbound direction and a new 752-foot long 14' tall sound wall is proposed. It will tie into the existing sound wall at Sta 184+52 which is approximately 14' tall at Sta 184+52 but is up to 15"-4" tall. In the westbound direction, it is proposed to add a 12' auxiliary lane from Douglas Blvd to Riverside Avenue. A 1,928-foot long 12' to 10' tall sound wall is proposed beginning at Sta 40+00. This sound wall will start as a 12' tall sound wall continue east over the existing Linda Creek Bridge (Br. No. 19-0027) to Sta 48+00 where it will become a 10' sound wall. The 10' sound wall extends to Sta 59+28. There is an existing 10' sound wall from sta 47+00 to Sta 59+28 that will need to be removed because it conflicts with the proposed auxiliary lane and shoulder.

Alternative 2 proposes the same improvements as Alternative 1 in the eastbound direction. In the westbound direction instead of an auxiliary lane from Douglas Boulevard to Riverside Avenue a lomger fifth lane is proposed from the Douglas Boulevard exit to the Riverside Avenue on-ramp. This would provide for a continuous fifth lane.

The proposed structural work is the same for both Alternatives. The addition of the fifth lane at the Douglas Boulevard interchange and at the Riverside avenue interchange does not require any additional retaining walls or bridge modifications.

Overview of Structure work:

In order to add the auxiliary lane in the eastbound direction, various retaining walls will need to be built to retain both I-80 and China Garden Road which parallels I-80. The proposed sound wall will be supported on both a retaining wall and Type 736SV barriers.

In the westbound direction, the addition of the auxiliary lane requires several retaining walls to retain Interstate 80, the widening of Linda Creek Bridge (Br. No. 19-0027) and removal of portions of the existing sound wall. The proposed sound wall will be supported on Type 736SV barriers, the Linda Creek Bridge and a retaining wall.

Aesthetics:

The new facilities are proposed to match the aesthetics of the existing bridge and sound walls.

Stage Construction:
Because all the construction is on the right side of the road, it is proposed to place K-rail on the right edge of travel way during construction. This allows ample space for the construction of the walls and bridge to be completed in one phase.

Seismic Considerations:
Based on the Preliminary Foundation Report the site soils closely reflect a Caltrans Soil Type D Site Class. A shear velocity of 320 meters/sec is recommended for the soil profile.

The potential for liquefaction or lateral spreading is low.

Structure Type:

Eastbound: The addition of the auxiliary lane requires the construction of five retaining walls. Two of these walls are standard plan retaining walls and do not require APS's. The following walls are nonstandard and are included in this APS package:

> **Wall 177:** Wall 177 is 400' long, supports a 14' sound wall and is proposed to be founded on a spread footing. Due to the proximity to the right-of-way a Type 5SWB wall is proposed. The maximum design height of the wall is 8 ft.
>
> **Wall 188:** This wall is located approximately 7 feet in front of the existing 16' sound wall. The maximum wall height is 5.5'. To minimize impacts to the existing sound wall foundation, a soldier pile wall is proposed. Concrete lagging and troweled shotcrete is proposed to obtain an appropriate surface finish.
>
> **Wall 197:** Wall 197 is 650' long and is proposed to be founded on a spread footing. Due to the proximity to the right-of-way a Type 7B wall is proposed. The maximum design height of the wall is 10 ft.

Westbound: The addition of the auxiliary lane requires the addition of five retaining walls and widening the existing Linda Creek Bridge. Four of these walls are standard plan retaining walls and do not require APS's. The following APS's are included in this package:

> **Linda Creek Bridge (Widen):** To accommodate the auxiliary lane and wider shoulder, the bridge will be widened 14'-6" to a total width of 164'-0". The widening will be a cast-in-place reinforced concrete T-Beam to match the existing structure type. The bridge piers and Abutment 4 will be founded on driven piles, and Abutment 1 will be founded on a spread footing.
>
> **Wall 45:** Wall 45 is 1135' long and supports a sound wall. The first 210' of wall, starting at the bridge and going east is a Type 5SWBP retaining wall with a 12' sound wall and is supported on piles. The remaining 925' is Type 5SWB retaining wall and is proposed to be supported on spread footings. The Type 5SWBP/5SWB walls are proposed due to the proximity to the right-of-way. The maximum design height of the wall is 14' near the Linda Creek Bridge, but varies from 8' to 12' for most of the wall.

Construction Costs:
Detailed cost estimates for the structures are attached. Anticipated bid items are broken down by item, quantity, and cost.

Consultant Prepared Advance Planning Study (APS) Checklist

Date: 5/19/2015	Consultant Firm (for structures): Dokken Engineering		Phone No: (916) 858-0642
Designed by: Rosa Griggs, P.E			Phone No: (916) 858-0642
EA:	County: Placer	Rte: Interstate 80	KP(PM)
Project Description: Widening of Interstate 80 by adding auxiliary lanes to eastbound direction between SR-65 and Rocklin Road and westbound direction between Douglas Blvd and Riverside Ave.			
Bridge No(s): 19-0027	Bridge Name(s): Linda Creek Bridge		
Total number of bridges in project: 1		APS Alternative Letter or Number (if more than one): 1 and 2 (*Alternative 1 and 2 require the same structures)*	
Purpose of this APS:	Initial APS Cost & Feasibility ☒	Revised scope ☐	Update cost ☐

Part A Items to collect and considerations prior to beginning the APS

All items listed in Part A are to be made available and submitted if requested by the Liaison Engineer.
(Mark **N/A** if not applicable)

☒ Preliminary profile grade of proposed structure.

☒ Typical section of the proposed structure. (Including barrier type, sidewalks, cross slope %, etc.)

N/A Grades or spot elevations of roadway below the structure.

N/A Typical section of roadway below the structure. (Including shoulders, gutters, embankment slope.)

☒ Site map: including horizontal alignment of new structure and the roadway below, topo, contours, etc.

☒ Stage construction or detour plan for traffic on the structure.

N/A Stage construction or detour plan for the roadway below the structure.
(Detour required during existing bridge removal and falsework erection.)

☒ "As Built" plans for existing structures.

N/A Future widening plans of upper and lower roadway (verify with Route Concept Report).

☒ Site aerial photograph (at the proposed structure).

☒ Environmental and/or permit requirements (areas of potential impact, construction windows, etc.)

☒ Overhead and underground utility plans

☒ Any other information that you feel is necessary to complete the study. (Other concerns that may affect the APS: local agency requirements such as aesthetics, improvements in vicinity of structure, airspace usage, other obstructions, etc.)

Consultant Prepared Advance Planning Study (APS) Checklist

Part B Considerations during the APS design and cost estimate preparation

1. Has this project been discussed with:
   - the OSFP Liaison Engineer? Yes ☒ No ☐
   - the Caltrans District Project Manager? Yes ☒ No ☐
   - the roadway consultant? Yes ☒ No ☐

2. Have the Caltrans Structures Maintenance records been reviewed? Yes ☐ ☒
   If the records recommend any work for the structure, is it included in the APS? Yes ☐ ☒

3. Are there special aesthetic considerations? Yes ☐ No ☒

4. (Widenings and Modifications) –
   Has this project been reviewed for seismic retrofit requirements? Yes ☐ No ☒
   Are seismic retrofit requirements included in the APS? Yes ☐ No ☒

5. Any special Railroad requirements? Yes ☐ No ☒
   Shoofly required? Yes ☐ No ☒
   Cost of shoofly included as a separate item in the project cost estimate? Yes ☐ No ☒

6. Any special foundation requirements, including scour critical work, special excavation such as Type A, Type D, and/or hazardous or contaminated material? Yes ☒ No ☐

7. Any special construction requirements, including limited site accessibility or seasonal work?
   Yes ☒ No ☐

8. Other items to be included in the cost such as slope paving, approach slabs, and/or adjacent retaining walls? Yes ☒ No ☐

9. Remove existing bridge? Yes ☒ No ☐
   Total Area: **Portion 502 sqft**

10. Any other unusual or special requirements? Yes ☒ No ☐
    Concrete Channel must be extended

11. Provide and attach a consultant prepared Design Memo to summarize and document any important assumptions, discussions, decisions, unusual items, local agency requirements such as aesthetics, improvements in vicinity of the structure, airspace usage, other obstructions, or any items noted above. Summary attached? Yes ☒ No ☐

Designer: (Printed Name)	Designer's Signature:	Date:
Rosa Griggs, P.E.		4/21/15

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

BRIDGE GENERAL PLAN ESTIMATE ___ OR PLANNING ESTIMATE X

DPD-DSD-DIS (Rev 8/92)

STRUCTURE	BR. NO.	RCVD BY			ESTIMATING GROUP
Wall 177 - Sta 177+00 to Sta 181+00	TBD				IN
TYPE	DISTRICT	CO	RTE	KP	
Type 5SWB Retaining Wall	3	SAC	80		OUT

LENGTH 400.00' x AVE HT 5.70' = AREA 2280 SF

DESIGN SECTION	DOKKEN	QUANTITIES BY	R. Griggs	DATE 4/8/15	ESTIMATE NO
	STRUCTURES	QUANTITIES CHK BY	T. Osterkamp	DATE 4/10/15	PRICED BY: RG
AND	ROADWORK	CHG UNIT AND EA		2012 & 2013	COST INDEX

	CONTRACT ITEMS	UNIT	QUANTITY	PRICE	AMOUNT
192037	STRUCTURE EXCAVATION (RETAINING WALL)		701	$45.00	$31,533
					$0
193013	STRUCTURE BACKFILL (RETAINING WALL)	CY	470	$45.00	$21,167
510060	STRUCTURAL CONCRETE, RETAINING WALL	CY	286	$425.00	$121,676
520103	BAR REINFORCING STEEL (RETAINING WALL)	LB	15,050	$1.15	$17,308
839725	CONCRETE BARRIER TYPE 736S (MOD)	LF	400	$100.00	$40,000

Notes:

SUB TOTAL	$231,683
MOBILIZATION (10%)	$25,743
SUB TOTAL BRIDGE ITEMS	$257,426
CONTINGENCIES (25%)	$64,357
BRIDGE TOTAL	$321,783
FOR BUDGET PURPOSES ONLY - SAY	$330,000

COMMENTS $ 144.74 / SF

FM 91 1416

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

BRIDGE GENERAL PLAN ESTIMATE __ _____ OR PLANNING ESTIMATE ______X____

DPD-DSD-DIS (Rev 8/92)

STRUCTURE	BR. NO.	RCVD BY	ESTIMATING GROUP
Sound Wall 177 Only - Sta 177+00 to Sta 181+00	TBD		IN
TYPE: 16' Sound wall	DISTRICT: 3	CO: SAC	RTE: 80 KP	OUT

LENGTH 400.00' x AVE HT 11.00' = AREA 4400 SF

DESIGN SECTION	DOKKEN	QUANTITIES BY	R. Griggs	DATE 4/8/15	ESTIMATE NO
	STRUCTURES	QUANTITIES CHK BY	T. Osterkamp	DATE 4/10/15	PRICED BY: RG
AND	ROADWORK	CHG UNIT AND EA		2012 & 2013	COST INDEX

	CONTRACT ITEMS	UNIT	QUANTITY	PRICE	AMOUNT
582001	SOUND WALL (MASONRY BLOCK)	SQFT	4,400	$20.00	$88,000

Notes: Only cost of masonry block is included, barrier included with retaining wall.

SUB TOTAL	$88,000
MOBILIZATION (10%)	$9,778
SUB TOTAL BRIDGE ITEMS	$97,778
CONTINGENCIES (25%)	$24,444
BRIDGE TOTAL	$122,222
FOR BUDGET PURPOSES ONLY - SAY	$130,000

COMMENTS $ 29.55 / SF

FM 91 1416

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

BRIDGE GENERAL PLAN ESTIMATE ___ **OR** **PLANNING ESTIMATE** X

DPD-DSD-DIS (Rev 8/92)

STRUCTURE	BR. NO.	RCVD BY	ESTIMATING GROUP
Ret wall 188	TBD		IN
TYPE: Soldier Pile Retaining Wall	DISTRICT: 3	CO: SAC · RTE: 80 · KP:	OUT

LENGTH 376.00' x WIDTH 6.00' = AREA 2256 SF

DESIGN SECTION	DOKKEN	QUANTITIES BY	R. Griggs	DATE 4/8/15	ESTIMATE NO
	STRUCTURES	QUANTITIES CHK BY	T. Osterkamp	DATE 4/10/15	PRICED BY: RG
AND	ROADWORK	CHG UNIT AND EA		2012 & 2013	COST INDEX

	CONTRACT ITEMS	UNIT	QUANTITY	PRICE	AMOUNT
192049	STRUCTURE EXCAVATION (SOLDIER PILE WALL)	CY	180	$130.00	$23,335
					$0
193013	STRUCTURE BACKFILL (RETAINING WALL)	CY	90	$120.00	$10,770
490313	STEEL SOLDIER PILE (HP 12X84)	LF	1,440	$125.00	$180,000
510060	STRUCTURAL CONCRETE, RETAINING WALL	CY		$425.00	$0
839521	CABLE RAILING	LF	376	$25.00	$9,400
839704	CONCRETE BARRIER (TYPE 60D)	LF	376	$85.00	$31,960

Notes: Cost of Steel Soldier Pile (HP 12 x 84) includes the cost of drilling the hole.

SUB TOTAL	$255,465
MOBILIZATION (10%)	$28,385
SUB TOTAL BRIDGE ITEMS	$283,850
CONTINGENCIES (25%)	$70,962
BRIDGE TOTAL	$354,812
FOR BUDGET PURPOSES ONLY - SAY	$360,000

COMMENTS $ 159.57 / SF

FM 91 1416

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

BRIDGE GENERAL PLAN ESTIMATE ________ OR PLANNING ESTIMATE ______X____

DPD-DSD-DIS (Rev 8/92)

STRUCTURE	BR. NO.	RCVD BY	ESTIMATING GROUP
Wall 197 - Sta 197+50 to Sta 204+00	TBD		IN
TYPE: Type 7B Retaining Wall	DISTRICT: 3	CO: SAC	RTE: 80	KP:	OUT

LENGTH 650.00' x AVE HT 7.67' = AREA 4986 SF

DESIGN SECTION	DOKKEN	QUANTITIES BY	R. Griggs	DATE 4/8/15	ESTIMATE NO
	STRUCTURES	QUANTITIES CHK BY	T. Osterkamp	DATE 4/10/15	PRICED BY: RG
AND	ROADWORK	CHG UNIT AND EA		2012 & 2013	COST INDEX

	CONTRACT ITEMS	UNIT	QUANTITY	PRICE	AMOUNT
192037	STRUCTURE EXCAVATION (RETAINING WALL)	CY	1,086	$45.00	$48,858
193013	STRUCTURE BACKFILL (RETAINING WALL)	CY	264	$45.00	$11,882
510060	STRUCTURAL CONCRETE, RETAINING WALL	CY	570	$425.00	$242,224
520103	BAR REINFORCING STEEL (RETAINING WALL)	LB	37,772	$1.15	$43,438
839725	CONCRETE BARRIER (TYPE 736)	LF	650	$100.00	$65,000

Notes:

SUB TOTAL	$411,402
MOBILIZATION (10%)	$45,711
SUB TOTAL BRIDGE ITEMS	$457,114
CONTINGENCIES (25%)	$114,278
BRIDGE TOTAL	$571,392
FOR BUDGET PURPOSES ONLY - SAY	$580,000

COMMENTS $ 116.34 / SF

FM 91 1416

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

BRIDGE GENERAL PLAN ESTIMATE ___ OR PLANNING ESTIMATE X

DPD-DSD-DIS (Rev 8/92)

STRUCTURE	BR. NO.	RCVD BY		ESTIMATING GROUP
Linda Creek Bridge (Widen)	19-0027			IN
TYPE	DISTRICT	CO	RTE	KP
CIP Reinf Concrete T-Beam	3	SAC	80	OUT

LENGTH 168.00' x WIDTH 14.50' = AREA 2436 SF

DESIGN SECTION	DOKKEN	QUANTITIES BY	T. Osterkamp	DATE 4/8/15	ESTIMATE NO
	STRUCTURES	QUANTITIES CHK BY	R. Griggs	DATE 4/10/15	PRICED BY: RG
AND	ROADWORK	CHG UNIT AND EA		2012 & 2013	COST INDEX

	CONTRACT ITEMS	UNIT	QUANTITY	PRICE	AMOUNT
150857	REMOVE ASPHALT CONCRETE SURFACING	SQFT	1,689	$4.00	$6,757
157560	BRIDGE REMOVAL (PORTION)	LS	1	$10,000.00	$10,000
192003	STRUCTURE EXCAVATION (BRIDGE)	CY	271	$60.00	$16,260
193003	STRUCTURE BACKFILL (BRIDGE)	CY	178	$45.00	$8,010
490528	FURNISH STEEL PILING (HP 14 X 89)	LF	1,610	$40.00	$64,400
490529	DRIVE STEEL PILING (HP 14 X 89)	EA	30	$1,200.00	$36,000
510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	CY	25	$370.00	$9,250
510053	STRUCTURAL CONCRETE, BRIDGE	CY	255	$600.00	$153,000
511106	DRILL AND BOND DOWEL	LF	40	$60.00	$2,400
520102	BAR REINFORCING STEEL (BRIDGE)	LB	85,000	$1.15	$97,750
582001	SOUND WALL (MASONRY BLOCK)	SQFT	1,512	$24.00	$36,288
839727	CONCRETE BARRIER (TYPE 736 MOD)	LF	210	$100.00	$21,000
721431A	FISH CHANNEL	LS	1	$30,000.00	$30,000
					$0
					$0
					$0
					$0
					$0

Notes:

SUB TOTAL	$491,115
MOBILIZATION (10%)	$54,568
SUB TOTAL BRIDGE ITEMS	$545,684
CONTINGENCIES (25%)	$136,421
BRIDGE TOTAL	$682,105
FOR BUDGET PURPOSES ONLY - SAY	$690,000

COMMENTS $ 283.25 / SF

FM 91 1416

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

BRIDGE GENERAL PLAN ESTIMATE __ OR PLANNING ESTIMATE X

DPD-DSD-DIS (Rev 8/92)

STRUCTURE: Wall 45 - Sta 45+90 to Sta 57+25 Westbound	BR. NO.: TBD	RCVD BY	ESTIMATING GROUP	
TYPE: 10' & 12' SW on Type 5SWB and Type 5SWBP	DISTRICT: 3	CO: SAC	RTE: 80	KP
LENGTH 1135.00'	x AVE HT 8.53'	= AREA 9682 SF	IN	OUT

DESIGN SECTION	DOKKEN	QUANTITIES BY	R. Griggs	DATE 4/8/15	ESTIMATE NO
	STRUCTURES	QUANTITIES CHK BY	T. Osterkamp	DATE 4/10/15	PRICED BY: RG
AND	ROADWORK	CHG UNIT AND EA		2012 & 2013	COST INDEX

	CONTRACT ITEMS	UNIT	QUANTITY	PRICE	AMOUNT
192037	STRUCTURE EXCAVATION (RETAINING WALL)	CY	2,103	$45.00	$94,652
					$0
193013	STRUCTURE BACKFILL (RETAINING WALL)	CY	2,543	$45.00	$114,425
490513	FURNISH STEEL PILING (HP 12 X 53)	LF	2,100	$35.00	
490514	DRIVE STEEL PILE (HP 12 X 53)	EA	42	$1,500.00	
510060	STRUCTURAL CONCRETE, RETAINING WALL	CY	924	$425.00	$392,661
520103	BAR REINFORCING STEEL (RETAINING WALL)	LB	70,436	$1.15	$81,001
839725	CONCRETE BARRIER TYPE 736S (MOD)	LF	1,135	$100.00	$113,500

Notes:

SUB TOTAL	$796,239
MOBILIZATION (10%)	$88,471
SUB TOTAL BRIDGE ITEMS	$884,710
CONTINGENCIES (25%)	$221,178
BRIDGE TOTAL	$1,105,888
FOR BUDGET PURPOSES ONLY - SAY	$1,110,000

COMMENTS $ 114.65 / SF

FM 91 1416

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

BRIDGE GENERAL PLAN ESTIMATE ___ **OR** **PLANNING ESTIMATE** X

DPD-DSD-DIS (Rev 8/92)

STRUCTURE	BR. NO.	RCVD BY	ESTIMATING GROUP
Sound Wall 45 Only - Sta 45+90 to Sta 57+25 Westbound	TBD		IN
TYPE: 10' & 12' SW on Type 5SWB and Type 5SWBP	DISTRICT: 3	CO: SAC / RTE: 80 / KP:	OUT

LENGTH 1135.00' x AVE HT 7 = AREA 8365 SF

DESIGN SECTION DOKKEN STRUCTURES AND ROADWORK

QUANTITIES BY R. Griggs DATE 4/8/15 ESTIMATE NO

QUANTITIES CHK BY T. Osterkamp DATE 4/10/15 PRICED BY: RG

CHG UNIT AND EA 2012 & 2013 COST INDEX

	CONTRACT ITEMS	UNIT	QUANTITY	PRICE	AMOUNT
582001	SOUND WALL (MASONRY BLOCK)	SQFT	8,365	$20.00	$167,300

Notes: Only cost of masonry block is included, barrier included with retaining wall.

SUB TOTAL	$167,300
MOBILIZATION (10%)	$18,589
SUB TOTAL BRIDGE ITEMS	$185,889
CONTINGENCIES (25%)	$46,472
BRIDGE TOTAL	$232,361
FOR BUDGET PURPOSES ONLY - SAY	$240,000

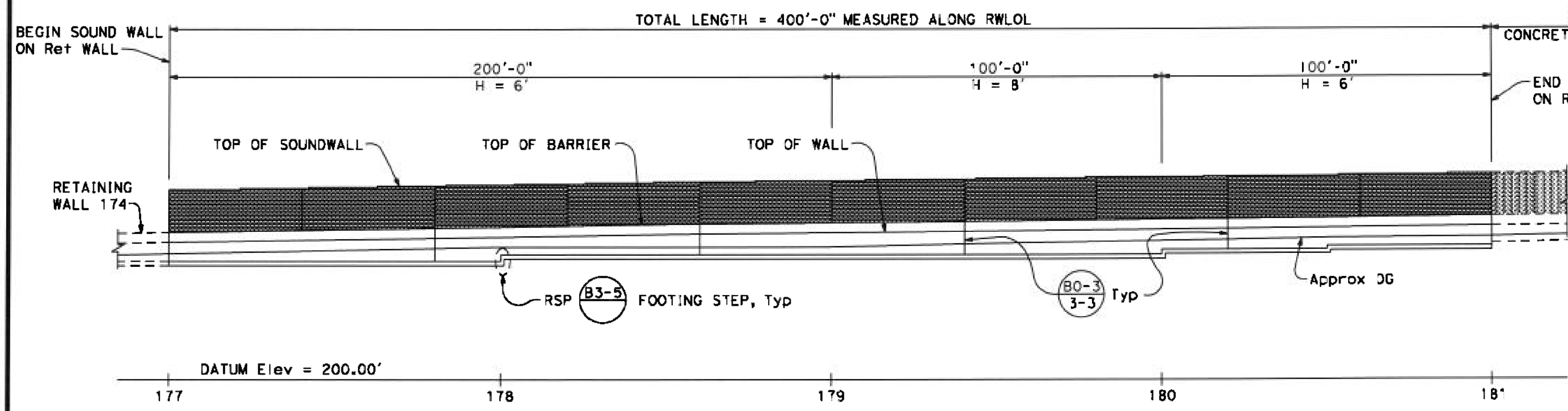
COMMENTS $ 28.69 / SF

FM 91 1416

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

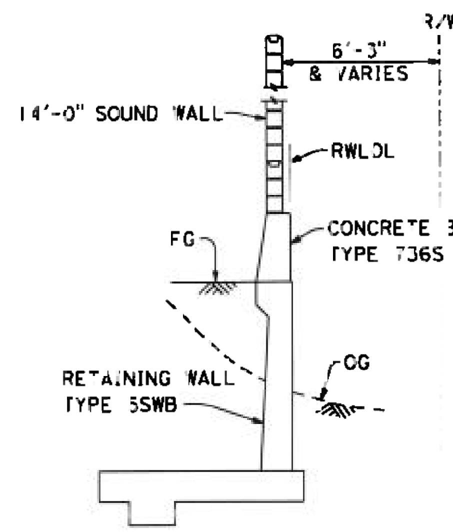
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Sac	80	

DOKKEN ENGINEERING
110 BLUE RAVINE ROAD, SUITE 200
FOLSOM, CA 95630



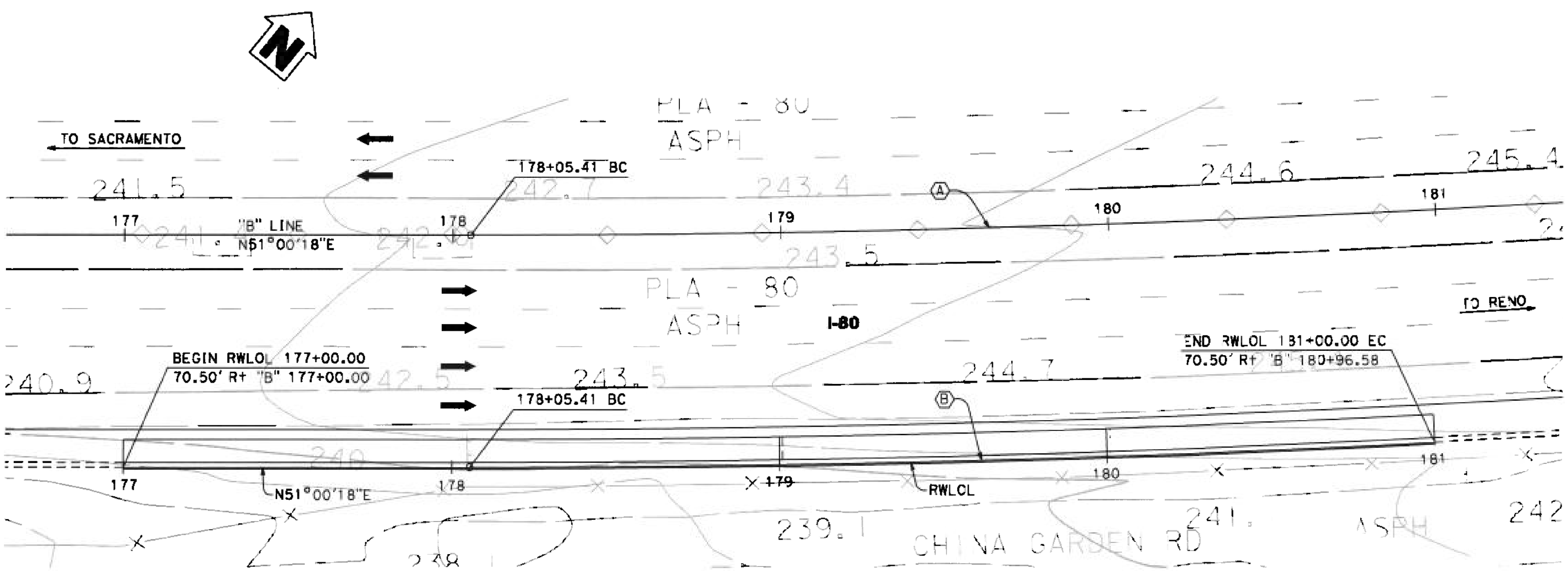
DEVELOPED ELEVATION

1" = 20'



TYPICAL SECTION

1/4" = 1'-0"



PLAN

1" = 20'

SOUND WALL

DATE OF ESTIMATE	=	4-10-15
TOTAL LENGTH	=	400'
AVERAGE HEIGHT	=	11'
AREA	=	4,400 SQ FT
COST/ SQ FT INCLUDING 10% mobilization & 25% CONTINGENCY	=	$29.55
RW TOTAL COST	=	$130,000

RETAINING WALL

DATE OF ESTIMATE	=	4-10-15
TOTAL LENGTH	=	400'
AVERAGE HEIGHT	=	5.70'
AREA	=	2,280 SQ FT
COST/ SQ FT INCLUDING 10% mobilization & 25% CONTINGENCY	=	$144.74
RW TOTAL COST	=	$330,000

CURVE DATA

(A)	(B)
R = 6000.00'	R = 6070.50'
Δ = 8°33'30"	Δ = 2°46'50"
T = 448.95'	T = 147.33'
L = 896.23'	L = 294.59'

DESIGN OVERSIGHT
12-17-15
SIGN OFF DATE

DESIGNED BY	R. GRIGGS	DATE	4-8-15
DRAWN BY	K. DANG	DATE	4-8-15
CHECKED BY		DATE	
APPROVED		DATE	

T. OSTERKAMP
PROJECT ENGINEER

PLANNING STUDY
RETAINING WALL NO. 177

BRIDGE NO.
UNIT:
SCALE: AS NOTED
PROJECT NUMBER & PHASE:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => J:\2076_I-80_Aux_Lanes_PA&ED\517\RET WALL\2076EBRW177GP.dgn CONTRACT NO.:

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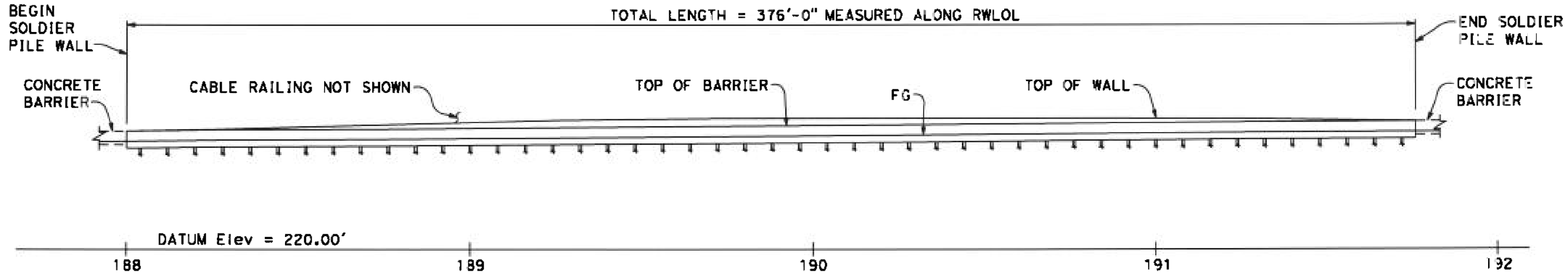
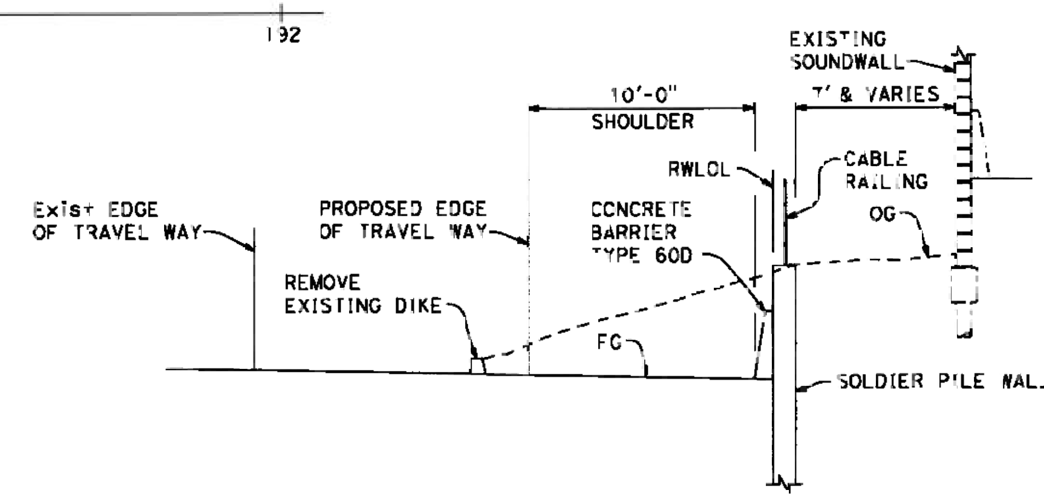
PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Sac	80	

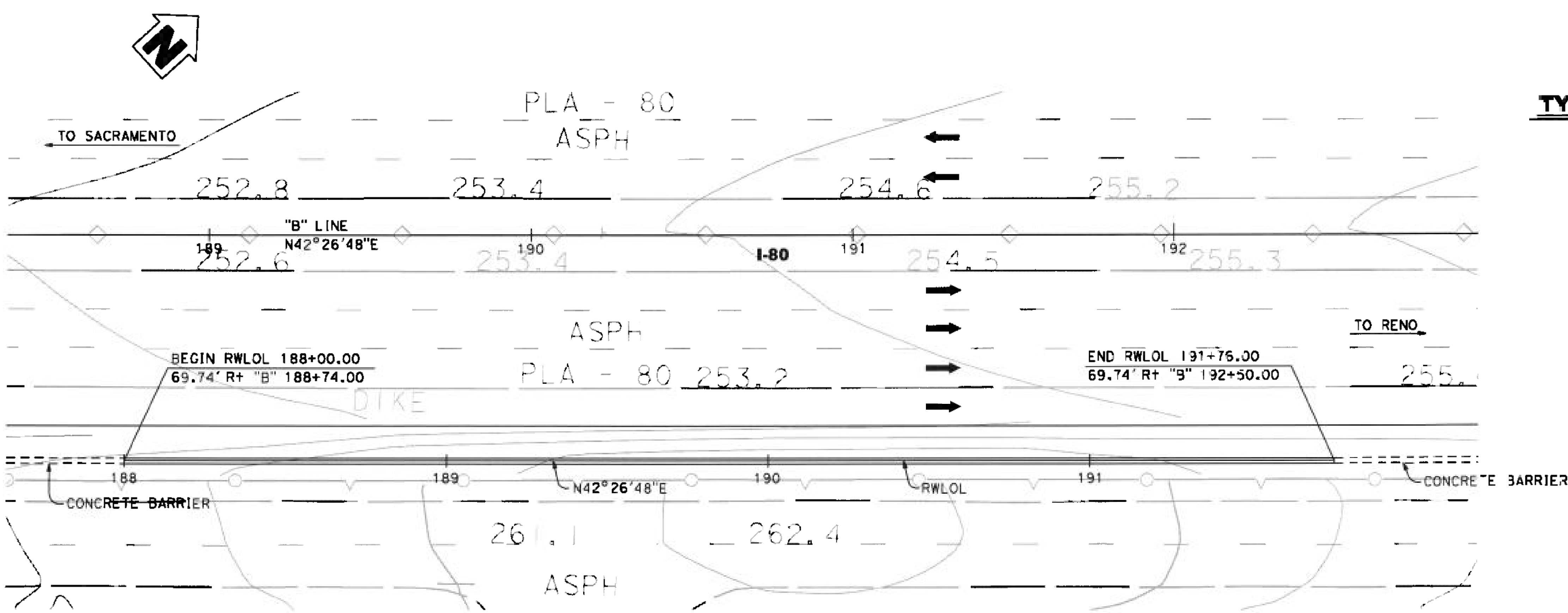
DOKKEN ENGINEERING
110 BLUE RAVINE ROAD, SUITE 200
FOLSOM, CA 95630



MIRROR ELEVATION
1" = 20'



TYPICAL SECTION
¼" = 1'-0"



PLAN
1" = 20'

DATE OF ESTIMATE	=	4-10-15
TOTAL LENGTH	=	376'
AVERAGE HEIGHT	=	6'
AREA	=	2,256 SQ FT
COST/ SQ FT INCLUDING 10% mobilization & 25% CONTINGENCY	=	$159.57
RW TOTAL COST	=	$360,000

DESIGN OVERSIGHT
12-17-15
SIGN OFF DATE

DESIGNED BY	R. GRIGGS	DATE	4-8-15
DRAWN BY	K. DANG	DATE	4-8-15
CHECKED BY		DATE	
APPROVED		DATE	

T. OSTERKAMP
PROJECT ENGINEER

PLANNING STUDY
RETAINING WALL NO. 188

BRIDGE NO. | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

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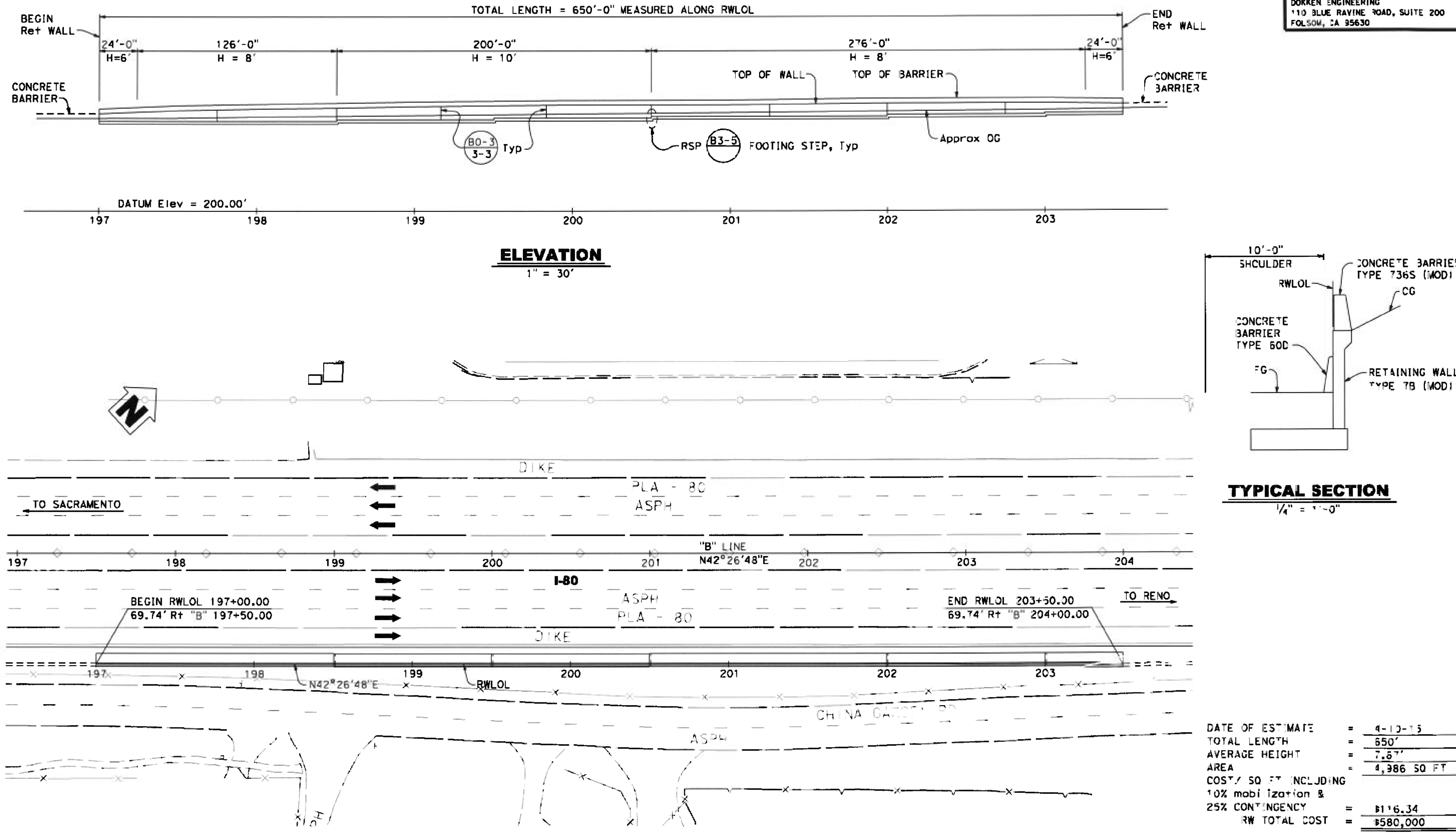
PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Sac	80	

DOKKEN ENGINEERING
110 BLUE RAVINE ROAD, SUITE 200
FOLSOM, CA 95630



DATE OF ESTIMATE	=	4-10-15
TOTAL LENGTH	=	650'
AVERAGE HEIGHT	=	7.67'
AREA	=	4,986 SQ FT
COST / SQ FT INCLUDING 10% mobilization & 25% CONTINGENCY	=	$116.34
RW TOTAL COST	=	$580,000

DESIGNED BY	R. GRIGGS	DATE	4-8-15
DRAWN BY	K. DANG	DATE	4-8-15
CHECKED BY		DATE	
APPROVED		DATE	

T. OSTERKAMP
PROJECT ENGINEER

PLANNING STUDY

RETAINING WALL NO. 197

BRIDGE NO. | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

DESIGN OVERSIGHT
12-17-15
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

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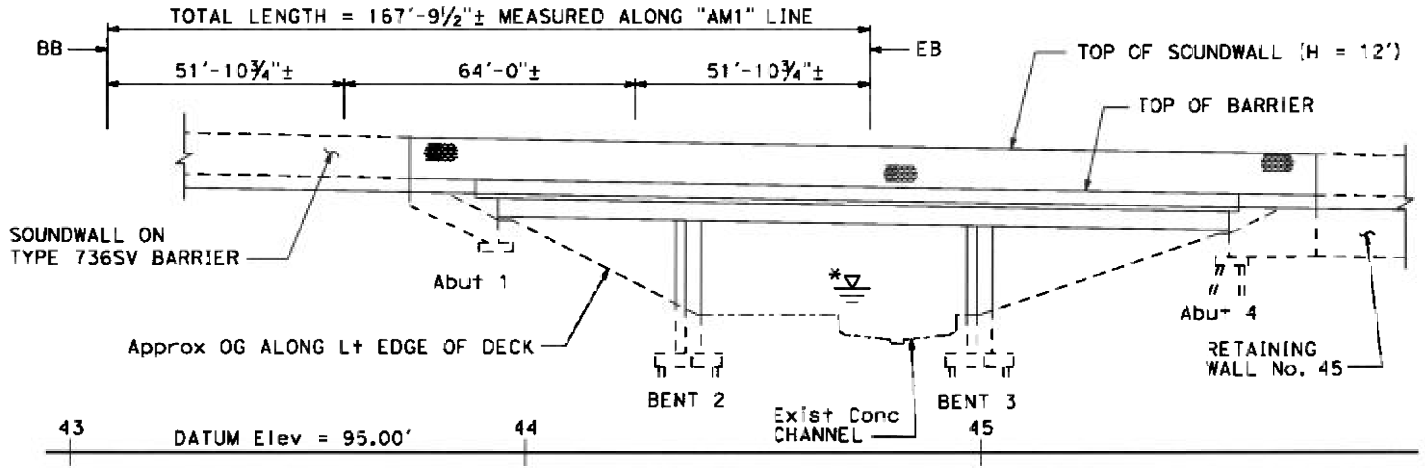
PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Sac	80	

DOKKEN ENGINEERING
110 BLUE RAVINE ROAD, SUITE 200
FOLSOM, CA 95630



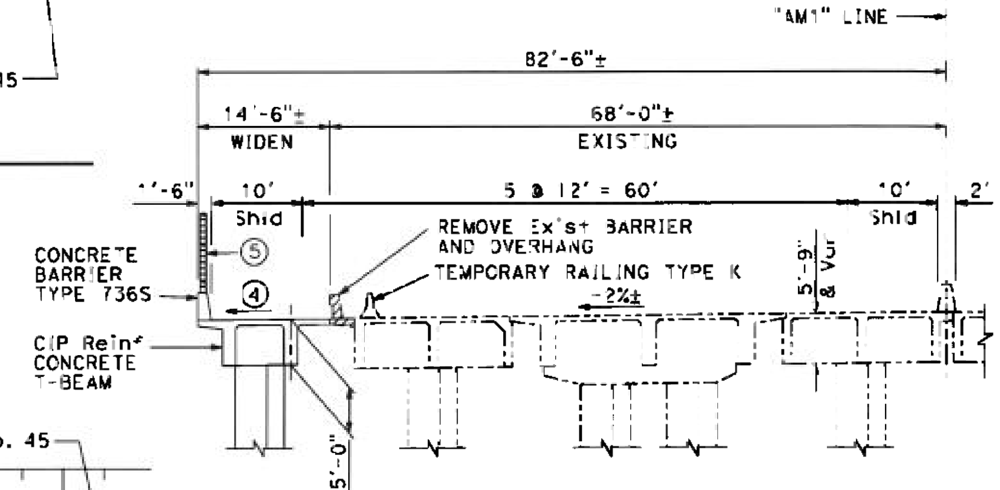
MIRROR ELEVATION

1" = 20'

*HW Elev = 131.00'±

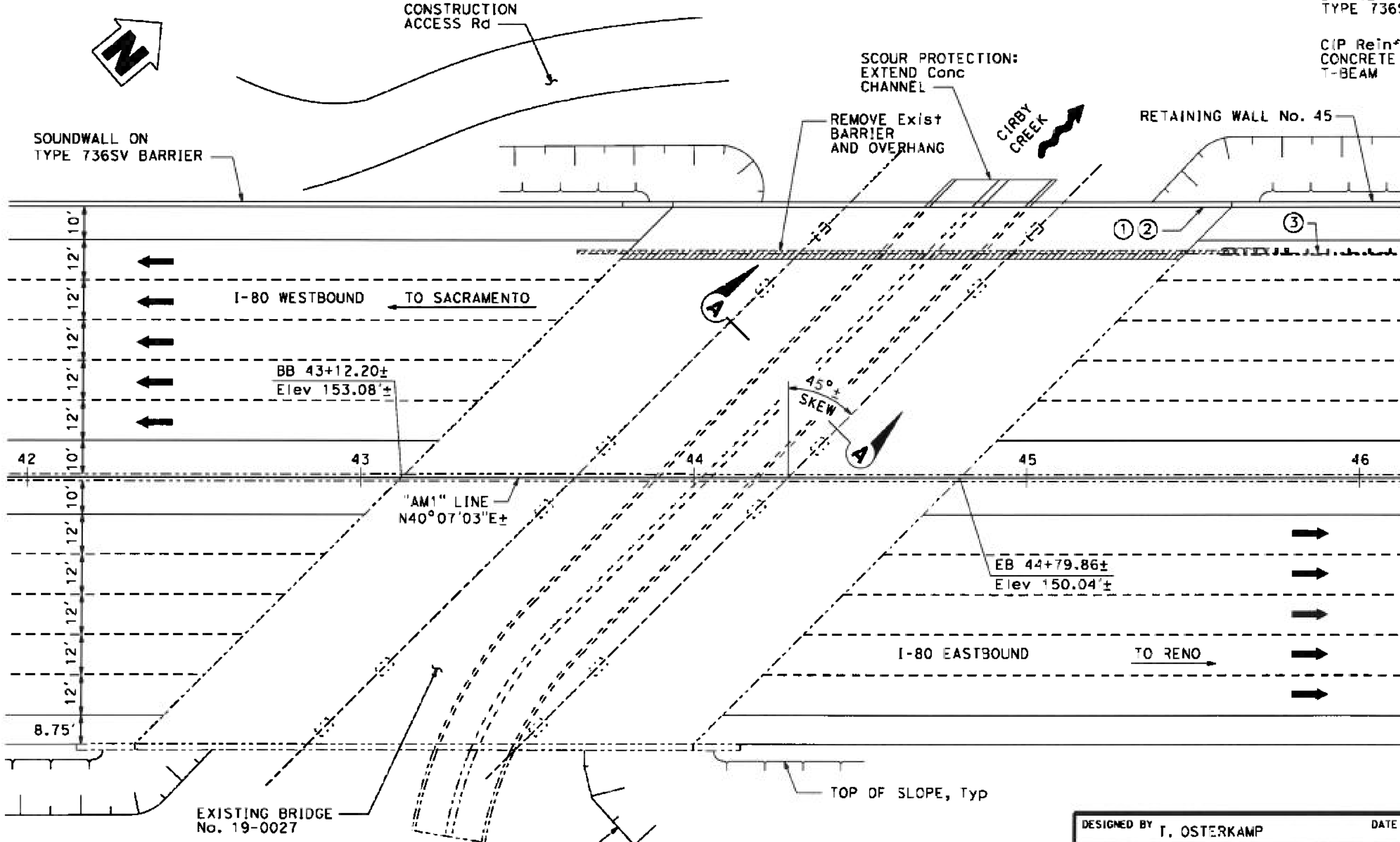
LEGEND:

- Denotes existing structure
- Denotes concrete removal
- ① Paint "LINDA CREEK BRIDGE"
- ② Paint "BRIDGE No. 19-0027"
- ③ Remove Exist MBGR
- ④ Match Exist cross slope & PG
- ⑤ Soundwall



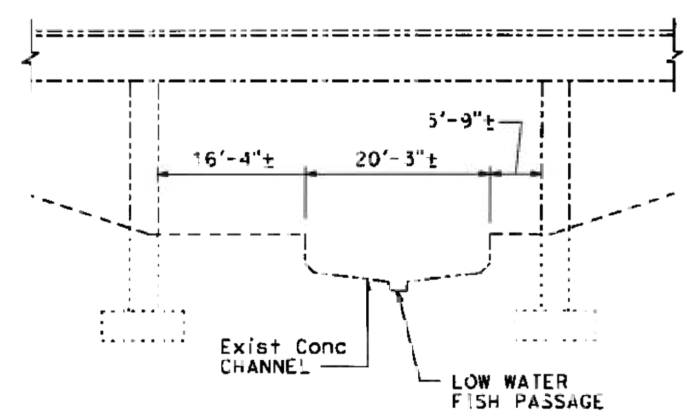
TYPICAL SECTION

1" = 10'



PLAN

1" = 20'



SECTION A-A

1" = 10'

DATE OF ESTIMATE	=	4-10-15
STRUCTURE DEPTH	=	5'-0"
LENGTH	=	167'-9½"±
WIDTH	=	14'-6"±
AREA	=	2433 SF
COST/SQ FT INCLUDING 10% mobilization & 25% CONTINGENCY	=	$283.60
TOTAL COST	=	$690,000

DESIGNED BY	T. OSTERKAMP	DATE	4-17-15
DRAWN BY	C. HOUGHTON	DATE	4-17-15
CHECKED BY	X	DATE	X
APPROVED	X	DATE	X

T. OSTERKAMP
PROJECT ENGINEER

PLANNING STUDY

LINDA CREEK BRIDGE (WIDEN)

BRIDGE No. 19-0027 | UNIT: X
SCALE: AS NOTED | PROJECT NUMBER & PHASE: X
CONTRACT NO.: X

X [signature]
DESIGN OVERSIGHT
X 12-17-15
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

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PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Sac	80	

DOKKEN ENGINEERING
110 BLUE RAVINE ROAD, SUITE 200
FOLSOM, CA 95630

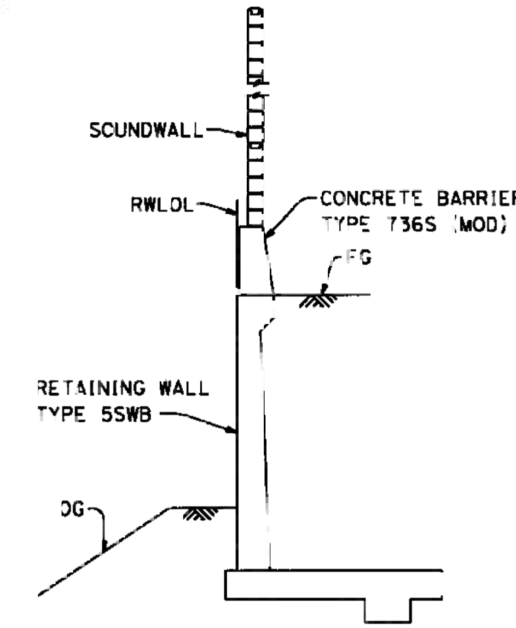
MIRROR ELEVATION
1" = 50'

SOUND WALL

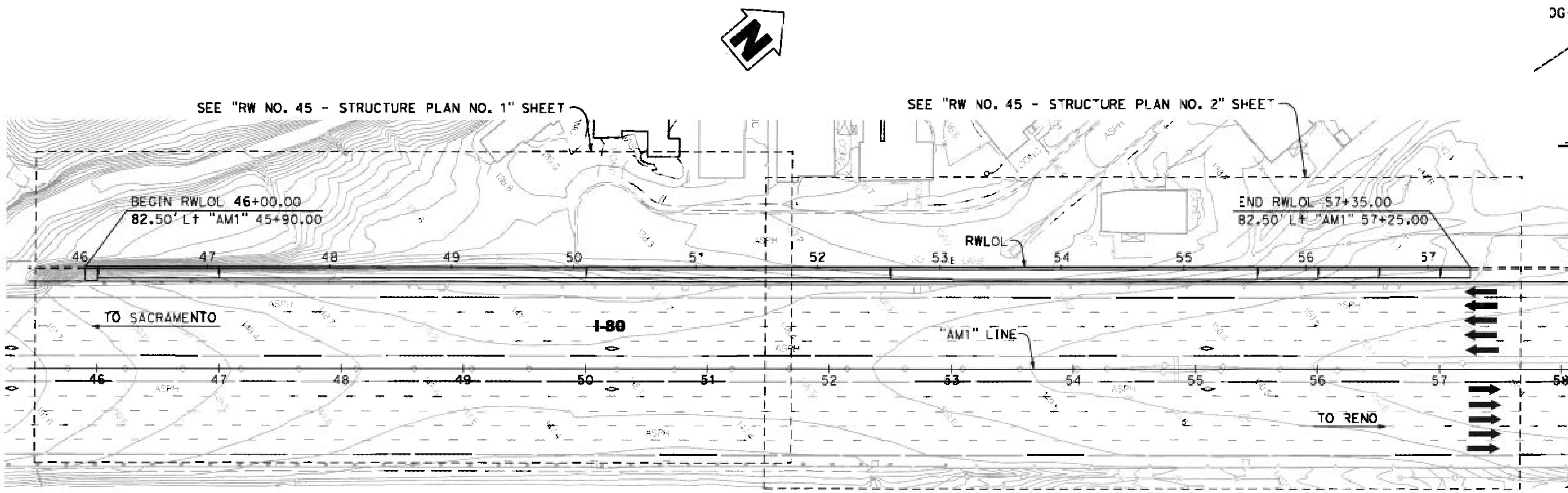
DATE OF ESTIMATE	=	4-10-15
TOTAL LENGTH	=	1135'
AVERAGE HEIGHT	=	7'
AREA	=	8,365 SQ FT
COST/ SQ FT INCLUDING 10% mobilization & 25% CONTINGENCY	=	$28.69
RW TOTAL COST	=	$240,000

RETAINING WALL

DATE OF ESTIMATE	=	4-10-15
TOTAL LENGTH	=	1135'
AVERAGE HEIGHT	=	8.53'
AREA	=	9,682 SQ FT
COST/ SQ FT INCLUDING 10% mobilization & 25% CONTINGENCY	=	$114.65
RW TOTAL COST	=	$1,110,000



TYPICAL SECTION
¼" = 1'-0"



PLAN
1" = 50'

DESIGNED BY	R. GRIGGS	DATE	4-8-15	
DRAWN BY	K. DANG	DATE	4-8-15	T. OSTERKAMP PROJECT ENGINEER
CHECKED BY		DATE		
APPROVED		DATE		

PLANNING STUDY

RW NO. 45 - GENERAL PLAN

BRIDGE NO. | UNIT:

SCALE: AS NOTED | PROJECT NUMBER & PHASE:

CONTRACT NO.:

DESIGN OVERSIGHT
12-17-15
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

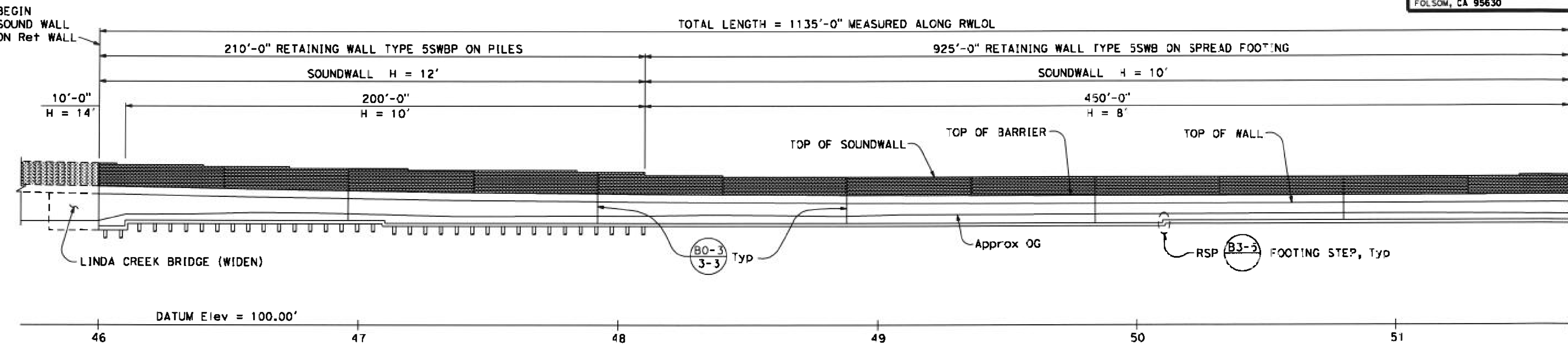
FILE => J:\2076_I-80_Aux_Lanes_PA&ED\517\RET WALL\2076WBRW45GP.dgn

USERNAME => PLOTTING DATE PLOTTED => 5/19/2015 TIME PLOTTED =>

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

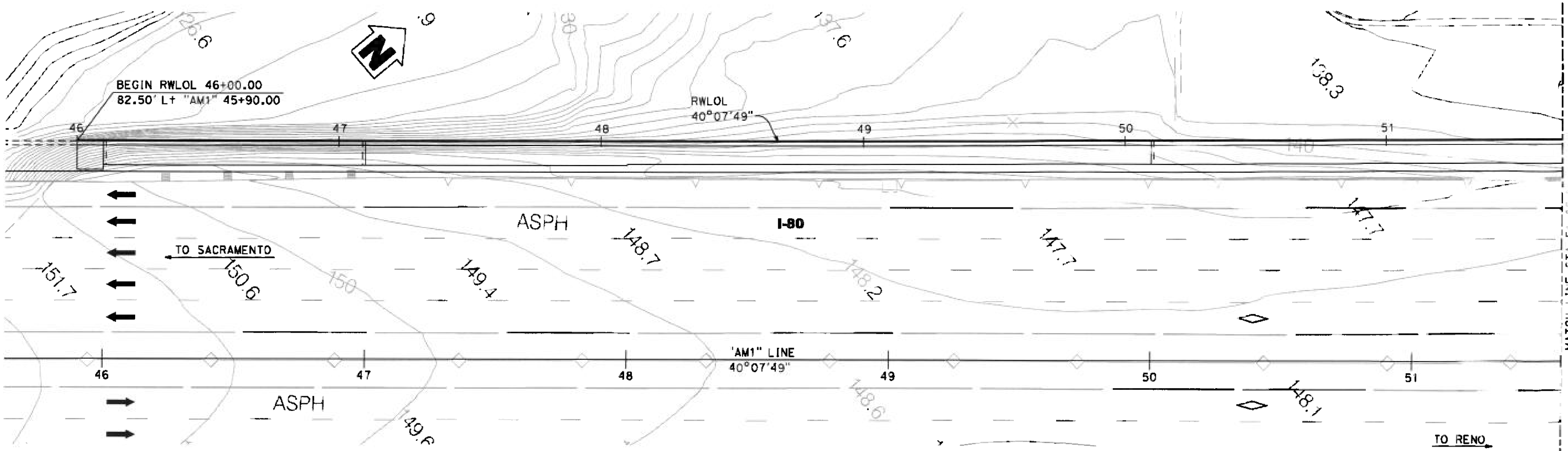
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Sac	80	

DOKKEN ENGINEERING
110 BLUE RAVINE ROAD, SUITE 200
FOLSOM, CA 95630



MIRROR ELEVATION

1" = 20'



PLAN

1" = 20'

DESIGN OVERSIGHT
12-17-15
SIGN OFF DATE

DESIGNED BY	R. GRIGGS	DATE	4-8-15
DRAWN BY	K. DANG	DATE	4-8-15
CHECKED BY		DATE	
APPROVED		DATE	

T. OSTERKAMP
PROJECT ENGINEER

PLANNING STUDY

RW NO.45 - STRUCTURE PLAN NO.1

BRIDGE NO.
UNIT:
SCALE: AS NOTED
PROJECT NUMBER & PHASE:
CONTRACT NO.:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

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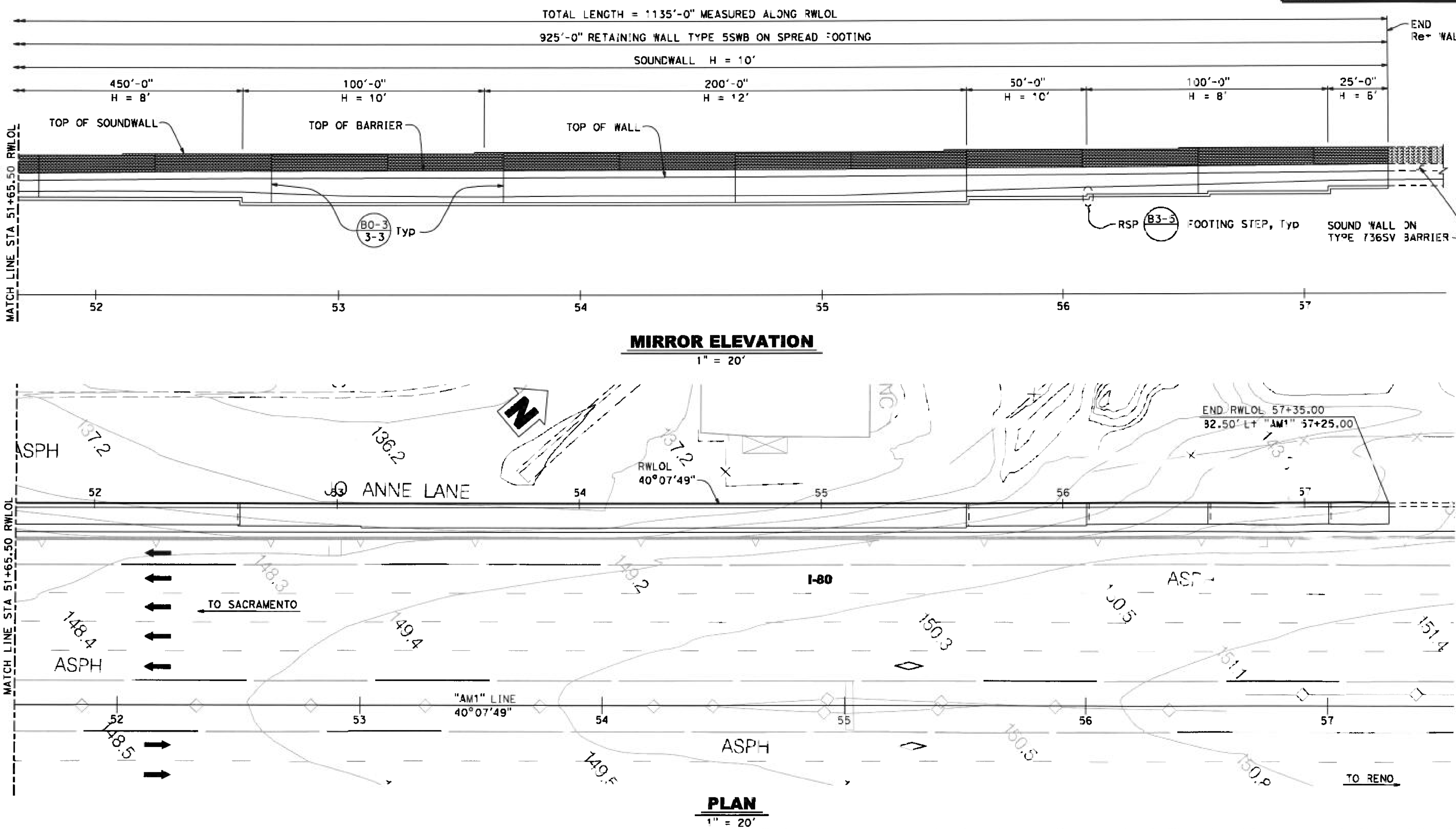
USERNAME => Untitled DATE PLOTTED => 5/19/2015 TIME PLOTTED => 4:11:05 PM

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Sac	80	

DOKKEN ENGINEERING
110 BLUE RAVINE ROAD, SUITE 200
FOLSOM, CA 95630



MIRROR ELEVATION
1" = 20'

PLAN
1" = 20'

DESIGNED BY	R. GRIGGS	DATE	4-8-15
DRAWN BY	K. DANG	DATE	4-8-15
CHECKED BY		DATE	
APPROVED		DATE	

T. OSTERKAMP
PROJECT ENGINEER

PLANNING STUDY

RW NO.45 - STRUCTURE PLAN NO.2

BRIDGE NO.
UNIT:
SCALE: AS NOTED
PROJECT NUMBER & PHASE:
CONTRACT NO.:

DESIGN OVERSIGHT
12-17-15
SIGN OFF DATE

USERNAME => DATE PLOTTED => TIME PLOTTED =>

Attachment F

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY DATA SHEET

(Form #)

Date 08/30/2016
Dist 03 Co PLA Rte 80 P/M 0.1/2.2 and 4.1/6.0
EA 03-3F230

Project Description:
Propose to widen the existing Interstate 80 (I-80) adding an eastbound auxiliary lane between State Route 65 (SR 65) and Rocklin Road, and a westbound fifth lane between Douglas Boulevard and Riverside Avenue.

Subject: Right of Way Data Alternate No. 2

This Alternate meets the criteria for a Design/Build project: Yes ☐ No X

1. Right of Way Cost Estimate: To be entered into PMCS COST RW1-5 Screens.

		Current Value Future Use	Escalation Rate		Escalated Value
A.	**Total Acquisition Cost**				$ 87,370
	Acquisition, including Excess Lands, Damages, and Goodwill.	$ 79,000	3*	%	$ 81,370
	Project Permit Fees.	$ 6,000	0		$ 6,000
B.	**Utility Relocation** (State Share)	$ 12,600	3	%	$ 12,978
C.	**Relocation Assistance**	$ 0	0	%	$ 0
D.	**Clearance/Demolition**	$ 0	0	%	$ 0
E.	**Title and Escrow**	$ 5,000	0	%	$ 5,000
F.	**Total Estimated Cost**	$ 102,600			$ 105,348
G.	**Construction Contract Work**	$ 0	*(These are construction costs that are to be included in the projects PS&E.)*		

2. Current Date of Right of Way Certification March 2018

3. Parcel Data: To be entered into PMCS EVNT RW Screen.

Type		Dual/Appr	Utilities		RR Involvements	
X			U4-1	4	None	X
A	5**		-2	0	C&M Agrmt	
B	1**		-3	0	Svc Contract	
C			-4	0	Design	
D			U5-7	3	Const.	
E	XXXX		-8	0	Lic/RE/Clauses	
F	XXXX		-9	4		

Total 6

Misc. R/W Work	
RAP Displ	No
Clear/Demo	No
Const Permits	Yes
Condemnation	No

Areas: R/W 1.0 Ac.
Excess No No. Excess Parcels 0
Entered PMCS Screens ____/____/____ by ________
Entered AGRE Screen (Railroad data only) ___/___/___ by ________

*Escalation rate is 3% for 1 year for Right of Way and Utilities
**There are 6 total parcels requiring right of way acquisition.
Type A: 3 parcels will be obtain acquisition of zero value, 2 parcels are noncomplex < $10,000
Type B: 1 parcel will be partial acquisition by fee > $10,000

4. Are there any major items of construction contract work? Yes ☒ No ☐ (If "Yes," explain.)

The project will include roadway widening, bridge widening, retaining walls, and sound walls. No utility conflicts requiring utility relocation have been identified. Four utility facilities will have access restriction due to construction of sound or retaining walls. Access provisions to be determined during PS&E. Cost and liability to be verified during PS&E; however the liability has been assumed to be on the utility owners.

5. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.). No right of way required. ☐

Acquisitions are both Permanent Fee and Temporary Construction Easements. The surrounding areas are devoted to a mix of commercial and residential zoning. One major improvement includes sound wall relocation within residential property.

6. Is there an effect on assessed valuation? Yes ☐ Not Significant ☐ No ☒ (If "Yes," explain.)

7. Are utility facilities or rights of way affected?
Yes ☒ No ☐ (If "Yes," attach Utility Information Sheet, Exhibit 4-EX-5.)
The following checked items may seriously impact lead time for utility relocation:
☐ Longitudinal policy conflict(s)
☐ Environmental concerns impacting acquisition of potential easements
☐ Power lines operating in excess of 50 KV and substations

No policy exceptions exist. (See attached Exhibit 4-EX-5 for explanation.)

8. Are Railroad facilities or rights of way affected?
Yes ☐ No ☒ (If "Yes," attach Railroad Information Sheet, Exhibit 4-EX-6.)

RIGHT OF WAY DATA SHEET (Cont.)
(Form #)

9. Were any previously unidentified sites with hazardous waste and/or material found?
Yes [X] None Evident [ ] (If "Yes," attach memorandum per R/W Manual, Chapter 4, Section 4.01.10.00.)

See Initial Site Assessment (ISA) Executive Summary attached.

10. Are RAP displacements required? Yes [ ] No [X] (If "Yes," provide the following information.)

No. of single family _______________ No. of business/nonprofit _______________

No. of multi-family _______________ No. of farms _______________

Based on Draft/Final Relocation Impact Statement/Study dated______________________, it is anticipated that sufficient replacement housing (will/will not) be available without Last Resort Housing.

11. Are there Material Borrow and/or Disposal Sites required? Yes [ ] No [X] (If "Yes," explain.)

12. Are there potential relinquishments and/or abandonments? Yes [ ] No [X] (If "Yes," explain.)

13. Are there any existing and/or potential airspace sites? Yes [ ] No [X] (If "Yes," explain.)

14. Indicate the anticipated Right of Way schedule and lead time requirements. (Discuss if district proposes less than PMCS lead time and/or if significant pressures for project advancement are anticipated.)

    Based on the R/W requirements on Page 1 of this Data Sheet, R/W will require a lead time of 18 months from the date regular appraisals can begin to project certification.

    In any event, RW Maps will require 8 months from Final Maps to project certification.

15. Is it anticipated that Caltrans staff will perform all Right of Way work? Yes ☐ No ☒ (If "No," discuss.)

Evaluation Prepared By:

Right of Way: Name ______ Date 9/29/2016
Jamie Formico, Right of Way, Dokken Engineering

Railroad: Name ______ Date ______

Utilities: Name ______ Date 9/29/2016
Nathan Donnelly, Project Engineer, Dokken Engineering

Recommended for Approval:

______

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify that the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set forth, and I find this Data Sheet complete and current.

______
District Division Chief/Regional Manager
Right of Way

______
Date

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

UTILITY INFORMATION SHEET

(Form #)

EXHIBIT
4-EX-5 (REV 3/2004)

1. Name of utility companies involved in project:
   1. *AT&T*
   2. *Consolidated Communications*
   3. *City of Rocklin*
   4. *City of Roseville*
   5. *Pacific Gas & Electric*
   6. *South Placer MUD*
   7. *Wave Broadband*

2. Types of facilities and agreements required:
   1. *Consolidated Communications- Modify Sound Wall/ Retaining Wall to incorporate existing CCI duct system steel casing and fiber optic line*
   2. *City of Rocklin- Modify Retaining Wall and Retaining Barrier to incorporate or avoid 72" corrugated metal pipe and 24" reinforced concrete pipe*
   3. *City of Roseville- Modify Sound Wall/ Retaining Wall to incorporate existing sewer and water lines*
   4. *Pacific Gas & Electric- Gas line through retaining barrier location, will need to pothole for depth and exact location. If this utility is in conflict, than the cost will be split 50/50 between the State and PG&E.*

3. Is any facility a longitudinal encroachment in existing or proposed access controlled right of way? Explain.

   No facility is a longitudinal encroachment in existing or proposed access controlled right of way.

   Disposition of longitudinal encroachment(s):
   ☐ Relocation required.
   ☐ Exception to policy needed.
   ☐ Other. Explain.

4. Additional information concerning utility involvements on this project, i.e., long lead time materials, growing or species seasons, customer service seasons (no transmission tower relocations in summer).

   After reviewing right of way maps provided by the Department, there are no utility easements for the effected facilities in the project area. The project has assumed all utility owners were required and will be required to obtain an encroachment permit from the Department in order to acquire access to their facilities. Access provisions to be determined during PS&E. Cost and liability to be verified during PS&E; however it is anticipated that any potential conflicts can be designed around, therefore eliminating the conflict. The estimate below is a worst case scenario.

   Conflict plans should be forwarded to each utility company no less than 18 months prior to the Right of Way Certification date.

5. PMCS Input Information
   Total estimated cost of State's obligation for utility relocation on this project:
   $ 12,600

   Note: **Total estimated cost to include any Department obligation to relocate longitudinal encroachments in access controlled right of way and acquire any necessary utility easements.**

Utility Involvements

U4-1	4	U5-7	3
-2	0	-8	0
-3	0	-9	4
-4	0		

Prepared By:

Nathan Donnelly, PE
Right of Way Utility Estimator

9/29/2016
Date

EXECUTIVE SUMMARY

PCTPA, together with Caltrans, Placer County, City of Rocklin, and City of Roseville, have identified the need for additional transportation improvements in the area. Two key improvements to the regional plan are the addition of auxiliary lanes on I-80 in the easterly direction between SR 65 and Rocklin Road (Location 1) and in the westerly direction between Douglas Boulevard and Riverside Avenue (Location 2). Consideration is also being given to constructing a fifth through lane in the westbound direction instead of the auxiliary lane. Both the eastbound and westbound auxiliary lanes by definition are a portion of roadway, supplementary to the through movements, which enter at an on-ramp and exit at the following off-ramp. They provide an area for weaving and speed changes and enhance capacity. A through lane carries vehicles through an interchange and traffic can continue past an off-ramp.

This report presents the results of an Initial Site Assessment (ISA) for property associated with the Placer I-80 Auxiliary Lanes project. The properties assessed for this ISA (Subject Properties) include existing Caltrans right-of-way, as well as two privately owned residential and four undeveloped properties immediately adjacent to the proposed improvements. Multiple other adjacent properties were assessed within a 1-mile radius of both Location 1 and 2.

During project design, it will be determined if the 1116 Melrose Ave property (APN 014-231-009) will be acquired and if the existing structure will be demolished. Accordingly, if necessary, an interior/exterior property inspection should be performed, to identify potential hazardous wastes/materials, prior to acquisition of the property. It is not anticipated that any other structures will be taken for this project.

Based on the results of the ISA evaluation, the Summary Table below describes evidence of the potential for Recognized Environmental Conditions (RECs) or Activity and Use Limitations (AULs) on the Subject Properties.

SUMMARY TABLE

Location	Description of REC Evidence Found	Description of Associated AUL
Existing roadways within project boundaries including I-80, Rocklin Road, Douglas Boulevard, and Riverside Avenue	Potential lead and heavy metals associated with pavement striping. Implementation of improvements may require the removal and disposal of yellow traffic stripe and pavement marking materials (paint, thermoplastic, permanent tape, and temporary tape). Yellow paints made prior to 1995 may exceed hazardous waste criteria under Title 22, California Code of Regulations, and require disposal in a Class I disposal site.	None Found
Linda Creek Bridge	Previous study of the Linda Creek Bridge indicated evidence of asbestos containing material in the Metal Beam Guard Rail bearing pad shim. If removal of the bearing pad shims is necessary to widen the bridge, they will require removal and proper disposal by a licensed and certified asbestos abatement contractor in conjunction with the planned bridge widening. In order to complete the necessary asbestos abatement/removal, a Placer County Air Pollution Control District (PCAPD) permit for the Linda Creek Bridge will be attained.	None Found
Soils adjacent to I-80	Potential contaminated soils associated with aerially deposited lead. Implementation of improvements may require the disturbance and removal of contaminated soils. Disturbance of these soils will require a preparation of a Lead Compliance Plan and Lead Awareness Training. Further sampling and analysis of soil will be initiated during PS&E to determine the extent of lead-contaminated soils. Soils containing hazardous levels of aerially deposited lead will be excavated and disposed of at a Class 1 Disposal Facility or a Class 2 Disposal Facility permitted by the Central Valley Regional Water Quality Control Board (CVRWQCB) before completion of the proposed project.	None Found

SUMMARY TABLE

Location	Description of REC Evidence Found	Description of Associated AUL
Existing buildings that could be demolished/altered due to planned construction activities.	Potential for Asbestos Containing Materials (ACM). New uses of ACM were banned by the EPA in 1989. Revisions to regulations issued by the Occupational Safety & Health Administration (OSHA) on June 30, 1995, require that all thermal systems insulation, surfacing materials, and resilient flooring materials installed prior to 1981 be considered Presumed Asbestos Containing Materials (PAC) and treated accordingly. In order to rebut the designation as PAC, OSHA requires that these materials be surveyed, sampled, and assessed in accordance with 40 CFR 763 (Asbestos Hazard Emergency Response Act [AHERA]). ACM have also been documented in the rail shim sheet packing, bearing pads, support piers, and expansion joint material of bridges.	None Found
Existing buildings that could be demolished/altered due to planned construction activities.	Potential lead-based paint on painted portions of existing buildings. Structures constructed prior to 1978 are presumed to contain lead-based paint unless proven otherwise, although buildings constructed after 1978 may also contain lead-based paints.	None Found

The scope of an ISA is limited to anecdotal and visual evidence of potential RECs and does not include verification of RECs based upon environmental testing. Based on the governmental records search, aerial photograph and topographic map review and visual site survey, the following actions are recommended to verify the presence/extent of RECs and evaluate the potential for remediation during the Plans, Specifications & Estimate (PS&E) phase of the Placer I-80 Auxiliary Lanes project:

- To avoid impacts from pavement striping during construction it is recommended that testing and removal requirements for yellow striping and pavement marking materials be performed in accordance with Caltrans Standard Special Provisions for REMOVE TRAFFIC STRIPE AND PAVEMENT MARKINGS.

- The Linda Creek Bridge bearing pad shims will require removal and proper disposal by a licensed and certified asbestos abatement contractor in conjunction with the planned bridge widening. In order to complete the necessary asbestos abatement/removal, a Placer County Air Pollution Control District (PCAPD) permit for the Linda Creek Bridge will be attained.

- The proposed project will require a Non-Standard Special Provision (NSSP) for excavation and handling of soils contaminated with aerially deposited lead. The NSSP should address CCR Title 8, Section 1532.1, Lead, which includes a Lead Compliance Plan and Lead Awareness training.

- Further sampling and analysis of soil will be initiated during PS&E to determine the extent of lead-contaminated soils. Soils containing hazardous levels of aerially deposited lead will be excavated and disposed of at a Class 1 Disposal Facility or a Class 2 Disposal Facility permitted by the Central Valley Regional Water Quality Control Board (CVRWQCB) before completion of the proposed project.

- Buildings constructed prior to 1989 may have been constructed using asbestos containing materials. Conduct asbestos surveys utilizing a certified consultant prior to any modification to, or demolition of the buildings or structures within the study area (e.g. APN 014-231-009; 1116 Melrose Ave) that may be altered or demolished to accommodate the planned construction. The survey should include a Health and Safety Plan for worker safety and Work Plan for removal/disposal of asbestos containing material, if encountered.

- Buildings constructed prior to 1978 are presumed to contain lead based paints. Conduct lead-based paint surveys utilizing a certified consultant prior to modifications/demolition of any existing buildings or structures within the study area (e.g. APN 014-231-009; 1116 Melrose Ave) that may be altered or demolished to accommodate the planned construction. The survey should include a Health and Safety Plan for worker safety and Work Plan for removal/disposal of lead-based paint, if encountered.

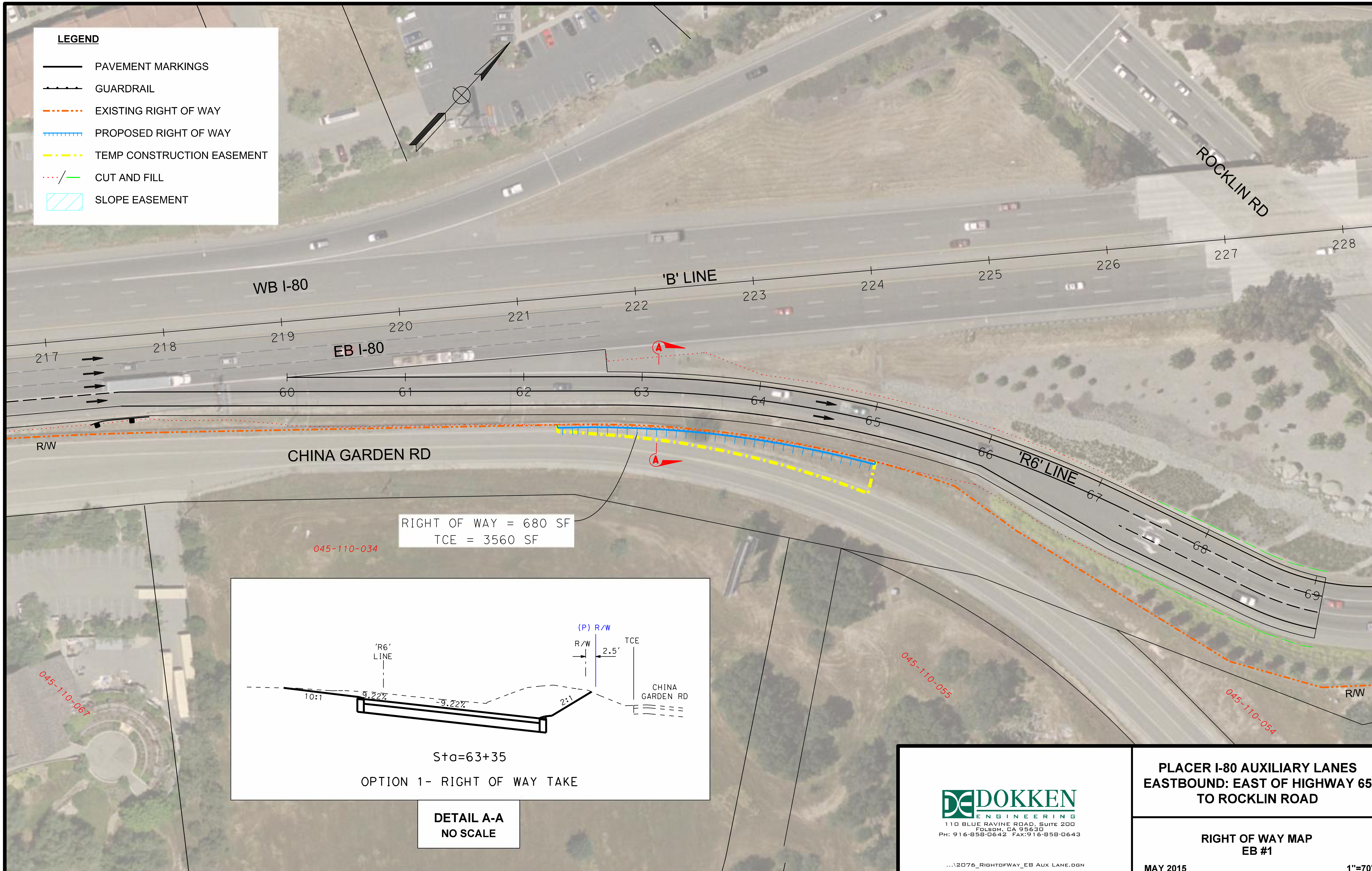
- Conduct an interior/exterior hazardous materials/hazardous wastes inspection of any existing structures that will be altered or demolished to accommodate the planned construction (e.g. APN 014-231-009; 1116 Melrose Ave). Should the inspections indicate the presence of hazardous materials/hazardous wastes, a Health and Safety Plan for worker safety and Work Plan for removal/disposal of hazardous materials should be prepared, if encountered.

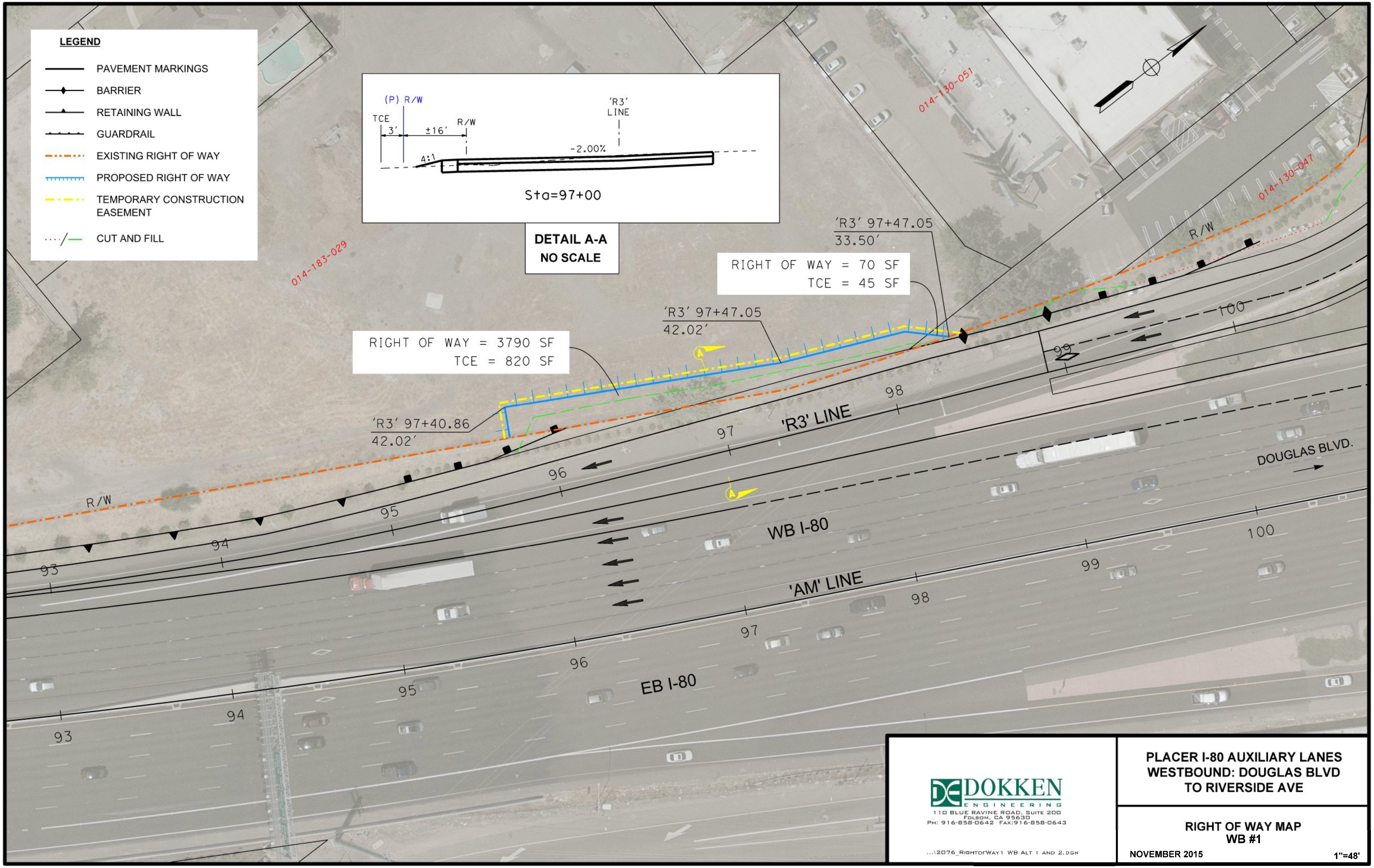
If the project area is anticipated to change (due to a change in the proposed project or staging area), further investigation for potential hazardous waste generators would be required to determine their impact to the revised project limits. The project study area is not anticipated to change; therefore, with the exception of the environmental screening described above, no additional Phase I or Phase II investigations are recommended at this time for the proposed project.

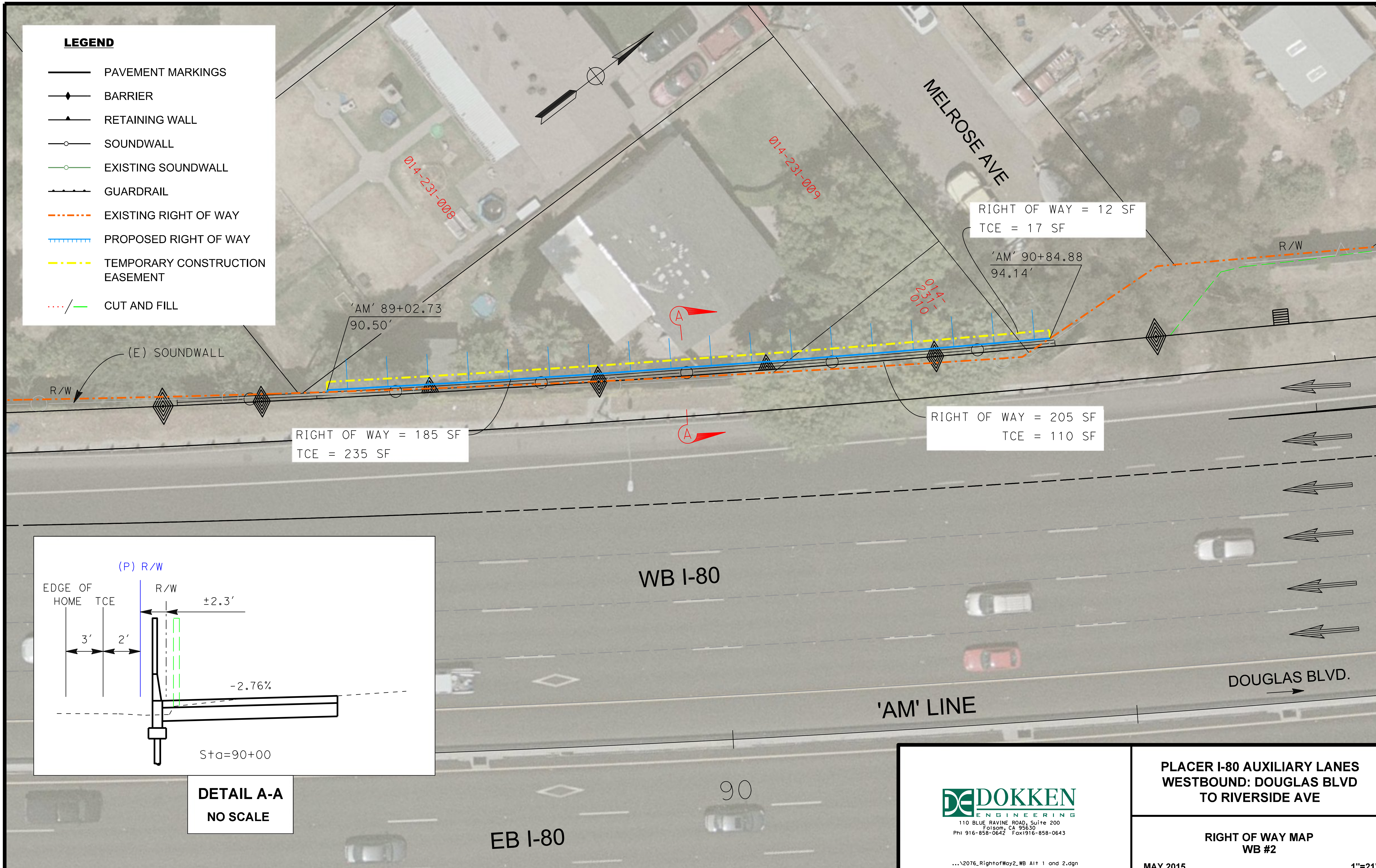
I declare that to the best of my professional knowledge and belief, I meet the definition of an Environmental Professional as defined in 40 Code of Federal Regulations, Part 312.

REGISTERED PROFESSIONAL ENGINEER
RYAN J. NEVES
No. 67731
Exp. 6/30/15
CIVIL
STATE OF CALIFORNIA

Ryan Neves, PE	Professional Registration	12/22/14 Date


LEGEND
PAVEMENT MARKINGS
GUARDRAIL
EXISTING RIGHT OF WAY
PROPOSED RIGHT OF WAY
TEMP CONSTRUCTION EASEMENT
CUT AND FILL
SLOPE EASEMENT
ROCKLIN RD
WB I-80
'B' LINE
EB I-80
217
218
219
220
221
222
223
224
225
226
227
228
60
61
62
63
64
65
66
67
68
69
'R6' LINE
R/W
CHINA GARDEN RD
RIGHT OF WAY = 680 SF
TCE = 3560 SF
045-110-034
045-110-067
045-110-055
045-110-054
R/W
(P) R/W
'R6' LINE
R/W
2.5'
TCE
CHINA GARDEN RD
10:1
9.22%
-9.22%
2:1
Sta=63+35
OPTION 1- RIGHT OF WAY TAKE
DETAIL A-A
NO SCALE
DOKKEN
ENGINEERING
110 BLUE RAVINE ROAD, SUITE 200
FOLSOM, CA 95630
PH: 916-858-0642 FAX:916-858-0643
...\2076_RightofWay_EB Aux Lane.dgn
PLACER I-80 AUXILIARY LANES
EASTBOUND: EAST OF HIGHWAY 65
TO ROCKLIN ROAD
RIGHT OF WAY MAP
EB #1
MAY 2015
1"=70'


LEGEND
PAVEMENT MARKINGS
BARRIER
RETAINING WALL
GUARDRAIL
EXISTING RIGHT OF WAY
PROPOSED RIGHT OF WAY
TEMPORARY CONSTRUCTION EASEMENT
CUT AND FILL
(P) R/W
TCE
3'
±16'
R/W
'R3' LINE
4:1
-2.00%
Sta=97+00
DETAIL A-A
NO SCALE
014-130-051
014-130-047
014-183-029
'R3' 97+47.05
33.50'
RIGHT OF WAY = 70 SF
TCE = 45 SF
'R3' 97+47.05
42.02'
RIGHT OF WAY = 3790 SF
TCE = 820 SF
'R3' 97+40.86
42.02'
R/W
R/W
'R3' LINE
WB I-80
'AM' LINE
EB I-80
DOUGLAS BLVD.
93
94
95
96
97
98
99
100
PLACER I-80 AUXILIARY LANES
WESTBOUND: DOUGLAS BLVD
TO RIVERSIDE AVE
RIGHT OF WAY MAP
WB #1
NOVEMBER 2015
1"=48'
DOKKEN ENGINEERING
110 BLUE RAVINE ROAD, SUITE 200
FOLSOM, CA 95630
PH: 916-858-0642 FAX:916-858-0643
...\2076_RightofWay1 WB ALT 1 AND 2.dgn


LEGEND
PAVEMENT MARKINGS
BARRIER
RETAINING WALL
SOUNDWALL
EXISTING SOUNDWALL
GUARDRAIL
EXISTING RIGHT OF WAY
PROPOSED RIGHT OF WAY
TEMPORARY CONSTRUCTION EASEMENT
CUT AND FILL
MELROSE AVE
014-231-008
014-231-009
014-231-010
RIGHT OF WAY = 12 SF
TCE = 17 SF
'AM' 90+84.88
94.14'
R/W
'AM' 89+02.73
90.50'
(E) SOUNDWALL
R/W
RIGHT OF WAY = 185 SF
TCE = 235 SF
RIGHT OF WAY = 205 SF
TCE = 110 SF
A
A
WB I-80
DOUGLAS BLVD.
'AM' LINE
90
EB I-80
(P) R/W
EDGE OF HOME
TCE
R/W
±2.3'
3'
2'
-2.76%
Sta=90+00
DETAIL A-A
NO SCALE
DOKKEN ENGINEERING
110 BLUE RAVINE ROAD, Suite 200
Folsom, CA 95630
Ph: 916-858-0642 Fax:916-858-0643
...\2076_RightofWay2_WB Alt 1 and 2.dgn
PLACER I-80 AUXILIARY LANES
WESTBOUND: DOUGLAS BLVD
TO RIVERSIDE AVE
RIGHT OF WAY MAP
WB #2
MAY 2015
1"=21'

Attachment G

Dist-County-Route: 03-PLA-80

Post Mile Limits: Location 1: PM 4.1-6.0, Location 2: PM 2.2-0.1

Project Type: Highway Widening

Project ID (or EA): EA-03F320

Program Identification: ____

Phase:
- ☐ PID
- ☒ PA/ED
- ☐ PS&E

Regional Water Quality Control Board(s): Region 5 – Central Valley RWQCB

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: 19 acres Risk Level: 2

Estimated: Construction Start Date: January 2018 Construction Completion Date: December 2018

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

Erosivity Waiver	Yes ☐	Date: ____	No ☒
Notification of ADL reuse (if Yes, provide date)	Yes ☐	Date: ____	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.

Pamela Dalcin-Walling, Registered Project Engineer Date

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

Rod Murphy, Project Manager *Date*

Brian Toepfer, Designated Maintenance Representative *Date*

T. Chris Johnson Designated Landscape Architect Representative *Date*

[Stamp Required for PS&E only) *Wes Faubel, District/Regional Design SW Coordinator or Designee* *Date*

STORM WATER DATA INFORMATION

1. Project Description

- Major Engineering Features

The Placer County Transportation Planning Agency (PCTPA), in cooperation with the California Department of Transportation (Caltrans), City of Rocklin, and City of Roseville, proposes to widen the existing Interstate 80 (I-80) in the eastbound direction between State Route 65 (SR-65) and Rocklin Road and in the westbound direction between Douglas Boulevard and Riverside Avenue (see Figure 1: Project Vicinity and Figure 2: Project Location).

The project proposes to construct the following eastbound auxiliary lane and westbound 5th lane extension:

I-80 Eastbound Auxiliary Lane – SR-65/I-80 Connector to Rocklin Road (Location 1)

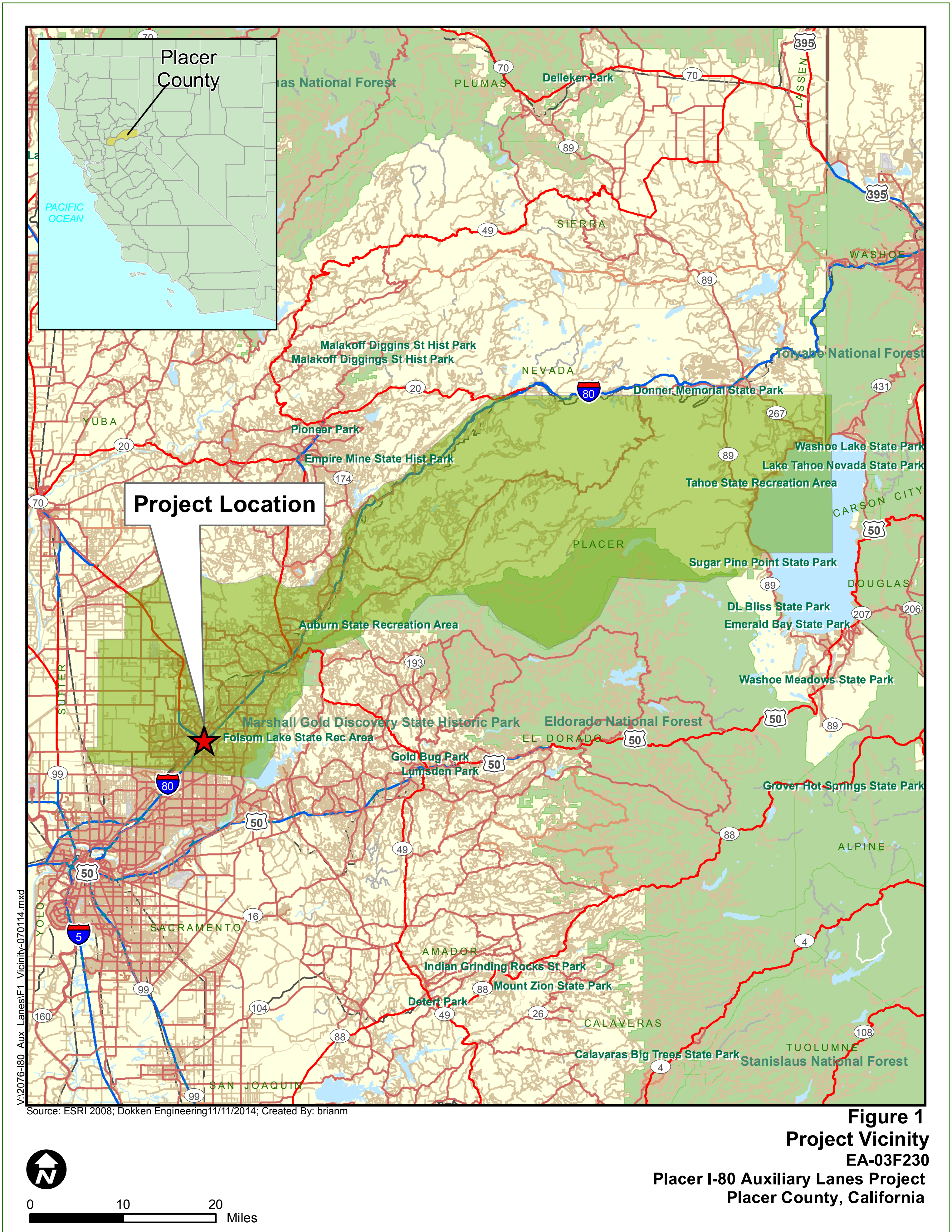
The eastbound auxiliary lane is proposed to be constructed between SR-65 and Rocklin Road with standard 12-foot lane and 10-foot shoulder widths. Non-standard shoulder widths are proposed at the overhead signs near the Rocklin Road exit. The auxiliary lane would begin 0.8 miles east of SR-65 and continue to the Rocklin Road off-ramp. In order to accommodate the new auxiliary lane, the eastbound Rocklin Road off-ramp would be widened to two exit lanes. The gore at the Rocklin Road off-ramp would have to be realigned to accommodate the new auxiliary lane. The project would require sliver right-of-way acquisitions from parcels adjacent to I-80.

Approximately 4,000 feet of retaining walls or barriers would be constructed along the eastbound auxiliary lane west of the eastbound Rocklin Road off-ramp.

Westbound 5th Lane Extension – Douglas Boulevard to Riverside Avenue (Location 2)

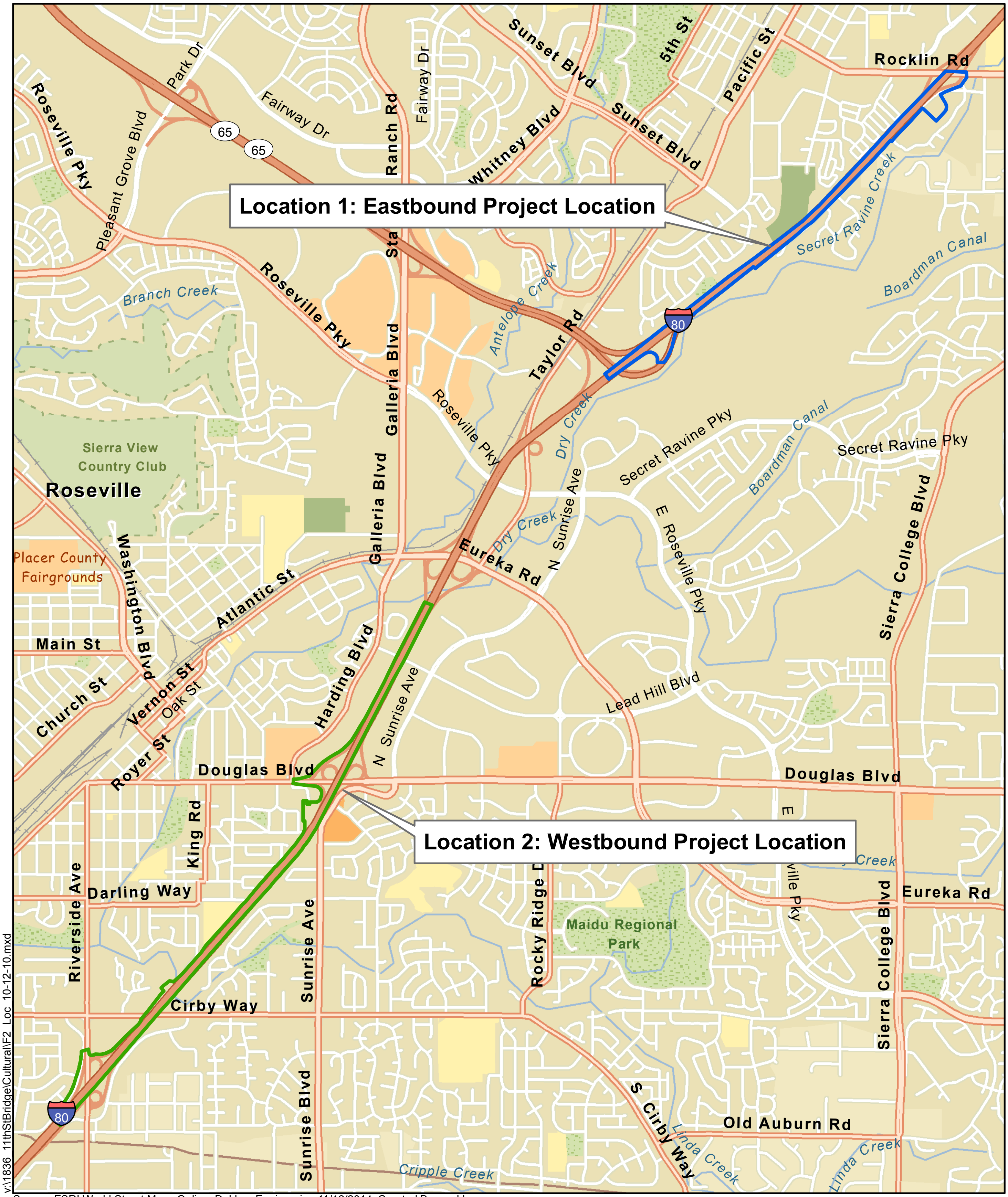
The westbound 5th lane extension is proposed to be constructed between Douglas Boulevard and Riverside Avenue with standard 12-foot lane and 10-foot shoulder widths, except a non-standard shoulder width would be required under the Douglas Boulevard overcrossing. The 5th lane extension would begin approximately 1000 feet east of the Douglas Boulevard off-ramp on westbound I-80, and extend to 600 feet west of the Riverside Avenue overcrossing, where the freeway currently has five lanes. The Douglas Boulevard off-ramp would be reduced from a 2-lane off-ramp with a trapped lane to a 1-lane off-ramp without a trapped lane. Both Douglas Boulevard on-ramps would have to be realigned to accommodate the 5th lane extension. Additionally, the Riverside Avenue loop on-ramp would require realignment in order to connect to the 5th lane extension. The project would require sliver right-of-way acquisitions from parcels adjacent to I-80.

The project also requires the widening of Linda Creek Bridge, a continuous 3-span, cast-in-place, reinforced concrete T-Beam bridge. The total bridge width is currently 149.5 feet. In order to accommodate the 5th lane, an additional approximate 12.5-foot widening



Source: ESRI 2008; Dokken Engineering11/11/2014; Created By: brianm

Figure 1
Project Vicinity
EA-03F230
Placer I-80 Auxiliary Lanes Project
Placer County, California



Source: ESRI World Street Maps Online; Dokken Engineering 11/12/2014; Created By: zachl

v:\1836_11thStBridge\Cultural\F2_Loc_10-12-10.mxd

Figure 2
Project Location
EA-03F230
Placer I-80 Auxiliary Lanes Project
Placer County, California

is required to the northwest (downstream) side with a column added at each bent. Footings would be constructed immediately adjacent to the concrete lined channel, requiring partial removal and reconstruction of the channel.

A combination of retaining walls and/or sound walls would be constructed along the proposed 5th lane extension. A sound wall currently exists along some portions of I-80, which in some areas would need to be removed and replaced adjacent to the proposed shoulder with a combination retaining/sound wall. Retaining walls would be constructed adjacent to Jo Anne Lane and under the Cirby Way Overcrossing. The realignment of the slip on-ramp at Douglas Blvd would require the removal and replacement of existing retaining walls.

- Total Disturbed Soil Area

The project is located within Caltrans rights-of-way. The disturbed soil area (DSA) created by the proposed project is approximately 19 acres (ac). The DSA includes the area disturbed to accommodate the proposed additional lane, bridge widening, retaining walls, drainage conveyance systems and the area needed for staging and construction. A breakdown of disturbed soil area is provided in Table 1.

Table 1: Disturbed Soil Area

Segment	Disturbed Soil Area (ac)
Eastbound (Location 1)	8
Westbound (Location 2)	11
Total	**19**

- Impervious Surface Area

The proposed project will create new pavement surfaces, thereby increasing the impervious area within the project site. The amount of increase in impervious area is approximately 4 ac. Table 2 summarizes the existing and proposed impervious areas by roadway segment.

Table 2: Net New Impervious Area (NNIA)

Segment	Impervious Area (ac)		
	Existing	Proposed	NNIA
Eastbound (Location 1)	7	8	1
Westbound (Location 2)	19	22	3
Total	**26**	**30**	**4**

- MS4 Areas

The project is adjacent to the following agencies, which operate under an MS4 permit: City of Rocklin and City of Roseville.

2. Site Data and Storm Water Quality Design Issues (refer to Checklists SW-1, SW-2, and SW-3)

The project is located in the City of Rocklin and the City of Roseville along the existing Interstate 80. The topographical features in the project vicinity are characterized by the lack of natural contours due to development. Along the interstate within the project limits, runoff flows in a general northeast to southwest direction that descends from approximately 250 feet elevation near the Rocklin Road interchange to 150 feet elevation near the Riverside Avenue interchange. Based on coordination with the Caltrans Stormwater unit, there are no known existing treatment BMP's in the project area.

Location 1 (eastbound improvements) and Location 2 (westbound improvements) are approximately 3 miles apart and lie within different Hydrologic Units.

Location 1 is located along Eastbound I-80 starting approximately 4,200 feet north of SR-65 and ending at the Rocklin Road interchange. The site falls within the Secret Ravine Hydrologic Sub-Area (HSA 514.24) in the Foothill Drain Hydrologic Area and the American River Hydrologic Unit (see Attachment 1).

Location 1 indirectly discharges into Secret Ravine, which runs adjacent and nearly parallel to Eastbound I-80 in a southwesterly direction. Secret Ravine is a 7.8-mile long perennial stream that has a contributing watershed area of approximately 22.3 square miles. Runoff from the project site is conveyed via vegetated ditches and culverts to ponds and ditches outside of Caltrans right-of-way and adjacent to China Garden Road. These ponds and/or ditches ultimately discharge into Secret Ravine.

Location 2 is located along Westbound I-80 between the Riverside Avenue and Douglas Boulevard interchanges. The site falls within the Lower American Hydrologic Sub-Area (HSA 519.21) in the Coon-American Hydrologic Area and the Valley-American Hydrologic Unit (see Attachment 1).

Location 2 directly and indirectly discharges into Cirby Creek via vegetated ditches and culverts. Cirby Creek crosses under I-80 via an existing bridge approximately 2,900 feet east of the Riverside interchange. Cirby Creek is a perennial stream approximately 2.7 miles long with a watershed area of approximately 3.4 square miles.

The project area is located under the jurisdiction of the Region 5 – Central Valley Regional Water Quality Board (RWQCB). The RWQCB developed a Basin Plan for the Sacramento River and San Joaquin River Basins. The plan identifies the beneficial uses of water bodies within the region in order to determine the water quality objectives necessary to protect those uses. While Cirby Creek and Secret Ravine are not listed specifically in the Basin Plan, they are tributary to the Sacramento River, which has beneficial uses as follows:

- Municipal and Domestic Supply
- Agriculture – Irrigation
- Recreation – Contact, Canoeing and Rafting, Other Non-Contact
- Freshwater Habitat – Warm and Cold
- Migration – Warm and Cold
- Spawning – Warm and Cold
- Wildlife Habitat
- Navigation

Although Cirby Creek and Secret Ravine are not 303(d) listed as an impaired water body by the Central Valley RWQCB, they are tributaries to the Sacramento River, which is 303(d) listed. The Sacramento River is on the 303(d) list for Chlordane, DDT, Dieldrin, Mercury, PCBs, and Unknown Toxicity.

A 401 certification from the Central Valley Regional Water Quality Control Board is required.

There are currently no local agency requirements or concerns with the project. During PS&E, further discussion with the Cities of Roseville and Rocklin will take place and a PS&E level SWDR will be updated.

The average annual precipitation for the project site is 23.9 inches. The majority of this precipitation (approximately 90 percent) falls between October and April. The warmest month is July with an average high of 94.5°F and average low of 60.3°F. The coolest month is January with an average high of 53.7°F and an average low of 37.9°.

There are no drinking water reservoirs/recharge facilities within the project limits as defined in the 2014 D-3 District Work Plan.

According to Department of Water Resources' (DWR's) Groundwater Bulletin 118 (DWR 2003), Placer County overlies the North American subbasin in the eastern central portion of the Sacramento Groundwater Basin. The subbasin is bordered by the Bear River in the north, the Feather River in the west, and the Sacramento River is the southern boundary. The eastern boundary, which lies approximately at SR-65, represents the approximate edge of the alluvial basin, where little or no groundwater flows into or out of the groundwater basin from the rock of the Sierra Nevada. The general direction of the groundwater gradient is west-southwest at an average grade of about 5%.

Based on the data reported in the Preliminary Geotechnical Design Report, depth to groundwater was measured at approximately 94 feet in a well located approximately 2 ½ miles southwest of Location 1 and 1 mile southwest of Location 2. Site-specific geotechnical borings will be conducted during the PS&E phase of the project to support the bridge foundation design. Groundwater information collected from these borings will be used to confirm groundwater elevations in the project area.

Based on the United States Department of Agriculture (USDA) Web Soil Survey, Locations 1 and 2 of the project area are generally underlain by the soil types listed in Table 3 and 4, respectively. Soils in the project area include sandy loams with slopes ranging from 0 to 15%.

Table 3: Project Area Soil Types – Location 1 (Eastbound Improvements)

Map Unit Symbol	Soil Name	Hydrologic Soil Group	Soil %
142	Cometa-Ramona, sandy loam	D	1%
144	Exchequer, very sandy loam	D	8%
196	Xerorthents, cut and fill areas	N/A	91%

Table 4: Project Area Soil Types - Location 2 (Westbound Improvements)

Map Unit Symbol	Soil Name	Hydrologic Soil Group	Soil %
130	Caperton-Andregg, coarse sandy loam	D	8%
141	Cometa-Fiddyment complex	D	6%
142	Cometa-Ramona, sandy loam	D	2%
144	Exchequer, very sandy loam	D	<1%
175	Ramona, sandy loam	C	<1%
194	Xerorthents,frequently flooded	B	<1%
196	Xerorthents, cut and fill areas	N/A	83%
229sa	Urban Land-Xerarents-Fiddyment complex	N/A	<1%

The majority of soil in the project area is characterized as Xerorthents, cut and fill areas. Although there is no soil group designation for this soil type, the Soil Survey of Placer County, Western Part states that these areas are typically well drained, have very rapid surface runoff, and a moderate hazard of erosion. The remainder of the project site is underlain by Group D soils, which are characterized by very slow infiltration rates and high runoff potential.

Based on the evaluation discussed in the Preliminary Geotechnical Design Reports (PGDR) for Locations 1 and 2 of the project area, existing natural and constructed slopes along the project alignment are performing well without overt indicators of slope instability. Proposed slopes will be constructed at 4:1 where feasible. In areas where this condition cannot be met due to right-of-way constraints, 2:1 slopes may be used if soil reinforcement, engineered buttresses, or surface treatments are used as recommended in the PGDR. Retaining walls will be used in locations where slopes steeper than 2:1 are required to remain within the constrained right-of-way.

As stated in the Initial Site Assessment (ISA), there is potential for Aerially Deposited Lead (ADL) to be present in the project area. Testing will occur during the PS&E phase and based on the results, conditional reuse of soil will be specified or soil will be removed and disposed of in accordance with regulatory standards.

With the addition of the proposed lanes, right of way is significantly constrained. The acquisition of additional right of way is infeasible because the adjacent area is residential, commercial, or frontage roads. As a result, no right-of way costs for BMPs are anticipated.

The following permits are anticipated to be required:

401 – Water Quality Certification

404 – Nationwide Permit 14 (for linear transportation projects)

1602 – Streambed Alteration Agreement

3. Regional Water Quality Control Board Agreements

There are no negotiated agreements with the Central Valley Regional Water Quality Control Board at this time.

4. Proposed Design Pollution Prevention BMPs to be used on the Project.

Downstream Effects Related to Potentially Increased Flow, Checklist DPP-1, Parts 1 and 2

The project has the potential to increase the velocity or volume downstream due to the increase in runoff resulting from the additional impervious area introduced by the project. Increases in flow are anticipated to be minor in comparison to the overall receiving watersheds of Secret Ravine (eastbound segment) and Cirby Creek (westbound segment). Post construction flow velocities and the potential sediment loads caused by erosion are expected to remain similar to existing conditions. Roadway runoff shall be treated and controlled to the maximum extent practical.

The project will continue to discharge to unlined channels as in the existing condition. Ditches or channels that have been modified as a result of the project will be revegetated.

The culvert outlets will have flared end sections and/or velocity dissipation devices to prevent scour as appropriate.

Slope/Surface Protection Systems, Checklist DPP-1, Parts 1 and 3

The existing slopes in the project area are comprised of engineered slopes in the interchange locations and natural slopes adjacent to the highway. The natural slopes range between 0 to 15%.

The project will modify existing cut and fill slopes within the project area. These modified slopes will generally be 4:1 or flatter, and slope rounding will be used to reduce concentrated flow. Steeper slopes up to 2:1 will be used in localized areas where adjacent constraints prevent flatter slopes. Design exceptions and landscape approval will be obtained for these areas. Cut and fill slope surfaces will be vegetated to prevent erosion. Revegetated areas will include a component of compost amended soil, as appropriate, to improve site infiltration and promote vegetation growth. All finished disturbed surfaces will be hydroseeded with a native plant mix and maintained/germinated as required for project acceptance.

Concentrated Flow Conveyance Systems, Checklist DPP-1, Parts 1 and 4

Stormwater runoff will be managed similarly to the existing condition and existing drainage patterns will be maintained to the maximum extent possible.

In the existing condition, dikes and ditches are used to collect and convey runoff to AC overside drains or inlets. Existing dike will be replaced with retaining walls or barriers along the majority of the project to direct surface runoff. Inlets will be used to intercept runoff along the walls/barriers. In locations where retaining walls or barriers are not proposed, existing cut and fill slopes will be modified to accommodate the road widening. Under these conditions, existing ditches will be modified to intercept and convey surface runoff to the existing discharge locations. Except for the segment of Cirby Creek under I-80, channel lining does not currently exist in the project area and is not anticipated to be needed in the proposed condition. Additional geotechnical and hydraulic studies will be conducted during the PS&E phase to confirm whether channel lining is needed.

Existing cross drains will be extended to daylight beyond the new edge of pavement. Outlet protection will be provided in locations where proposed culverts discharge to unlined ditches.

No run-on from off-site sources occurs in the project area.

Preservation of Existing Vegetation, Checklist DPP-1, Parts 1 and 5

Environmentally sensitive areas (ESA) will require fencing or identification that will be incorporated into the project during PS&E once environmentally sensitive areas are identified.

Existing vegetation will be preserved to the maximum extent practical. All disturbed soil areas will be restored to pre-construction contours and revegetated, through either hydroseeding or other means, with native or approved non-invasive exotic species.

5. Proposed Permanent Treatment BMPs to be used on the Project

Treatment BMP Strategy, Checklist T-1

The project is required to consider approved treatment BMP's in accordance with the Evaluation Documentation Form (see Attachment 3). Because the Project Initiation Document (PID) approval date for this project is prior to the new permit requirements established on July 1, 2013, the project shall incorporate treatment BMP's to the maximum extent practicable to treat the net new impervious area.

Revegetated areas will utilize compost amended soils as appropriate to maximize infiltration and runoff retention.

The following sections summarize the feasibility of including permanent treatment BMP's on this project.

Biofiltration Swales/Strips, Checklist T-1, Parts 1 and 2

Based on an evaluation of available right of way and the specific hydraulic requirements associated with bioswales (Hydraulic Residence Time (HRT), depth, slope, velocity), it was determined that two bioswales could potentially be feasibly incorporated on this project.

Both bioswales are located along Location 2 (westbound improvements) of the project. Bioswale #1 is adjacent to the Riverside Avenue westbound off-ramp. Bioswale #2 is located approximately 4,300 feet west of the Douglas Boulevard interchange. A summary of the bioswale characteristics are provided in Table 5.

Table 5: Project Bioswale Design Characteristics

Bioswale No.	Station Limits	HRT	Depth	Slope	Velocity	Impervious Area Treated
		(min)	(ft)	(%)	(ft/s)	(acre)
1	25+25 to 30+00	39	0.3	0.7	0.2	1.0
2	61+75 to 66+50	32	0.4	0.9	0.3	2.2
Bioswale Design Criteria		≥ 5 min	≤ 0.5 ft	From 0.25% to 6%	≤ 4ft/s	N/A

Based on an evaluation of the 25-year storm event, the bioswale locations also meet the right of way and hydraulic requirements to convey design flows effectively. Detailed calculations for the bioswales are included in Attachment 9.

Dry Weather Diversion, Checklist T-1, Parts 1 and 3

Since no dry weather flows exist within the project area, dry weather diversions are not considered necessary or feasible for this project.

Infiltration Devices – Checklist T-1, Parts 1 and 4

Adequate area does not exist within the right-of-way to place an infiltration device. In addition, the soils in the vegetated areas adjacent to the roadway are Hydrologic Soil Group D soils, which have an estimated infiltration rate of 0.01 in/hr to 0.2 in/hr. Tests have shown that a minimum infiltration rate of 0.5 in/hr is needed to adequately drain an infiltration basin to avoid public health and vector problems. Because of right-of-way constraints and the infiltration rate of the project soils is estimated to be lower than the minimum requirements, infiltration basins are not feasible for this project.

Detention Devices, Checklist T-1, Parts 1 and 5

Adequate area does not exist within right-of-way to place detention devices. In addition, the acquisition of additional right of way within the project site is infeasible because the adjacent area is residential, commercial, or frontage roads.

Gross Solids Removal Devices (GSRDs), Checklist T-1, Parts 1 and 6

Cirby Creek and Secret Ravine have no Total Maximum Daily Load (TMDL) for trash or litter. Therefore, GSRDs are not considered feasible for the project improvements.

Traction Sand Traps, Checklist T-1, Parts 1 and 7

Since traction sand will not be applied within the project limits, traction sand traps are not considered feasible for the project improvements.

Media Filters, Checklist T-1, Parts 1 and 8

Due to the right of way and topographic constraints of the project site, media filters are not feasible for the project improvements.

Multi-Chambered Treatment Trains (MCTTs), Checklist T-1, Parts 1 and 9

MCTTs are not feasible for the project site since they will not serve a 'critical source area' and, as such, will not be incorporated into this project.

Wet Basins, Checklist T-1, Parts 1 and 10

Wet Basins are not feasible to be incorporated into this project. A permanent source of water is not available in sufficient quantities to maintain the permanent pool for the Wet Basin.

6. Proposed Temporary Construction Site BMPs to be used on Project

The proposed project has a medium sediment risk and a high receiving water risk, resulting in a risk level 2 designation for this project (Attachment 2).

Dewatering is not anticipated to be required during the construction of this project because groundwater levels are low within the project area. As a result, a separate dewatering permit is not anticipated to be needed.

Active treatment systems are not anticipated to be used for the site.

Grading will be the main construction activity that would lead to an increase of sediment loading; however, sediment will be minimized through the selection of appropriate construction site BMPs and implementation of the Storm Water Pollution Prevention Plan.

Standard erosion control practices will be implemented to minimize soil erosion following construction activities. Typical measures utilized during construction include applications of: fiber rolls for slope stability and sediment control, temporary construction entrances to prevent sediment tracking on paved surfaces, temporary drainage inlet protection, temporary concrete washouts for concrete spoils, street sweeping, contour grading, temporary silt fence, temporary check dams and temporary hydroseeding.

The contract administrator for project construction has not yet been determined. As such, cost estimates for proposed temporary construction site BMPs will be prepared in accordance with Caltrans guidelines, as given in Appendix F of the Project Planning and Design Guideline.

7. Maintenance BMPs (Drain Inlet Stenciling)

As stated in the Caltrans Storm Water Quality Practice Guidelines (May 2003), drain inlet stenciling is not required in areas where pedestrians are prohibited. As the project is widening an access controlled interstate freeway, no stenciling is required.

Attachments

1. Watershed Information
2. Risk Level Determination
3. Evaluation Documentation Form (EDF)
4. Checklist SW-1, Site Data Sources
5. Checklist SW-2, Storm Water Quality Issues Summary
6. Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water BMPs
7. Checklists DPP-1, Parts 1–5 (Design Pollution Prevention BMPs) [only those parts that are applicable]
8. Checklists T-1, Part 1: Treatment BMPs, Parts 2: Biofiltration Swales/Biofiltration Strips and Part 5: Detention Devices
9. Bioswale Calculations

ATTACHMENT 1

WATERSHED INFORMATION

[Caltrans](#) > [DEA](#) > [Stormwater](#) > **Water Quality Planning Tool**

Layers

- 303(d) List and TMDLs (Legend)
- Areas of Special Biological Significance
- Caltrans Districts
- Caltrans Facilities (Legend)
- Caltrans Tier 1 Monitoring Sites
- ☑ Calwater Watersheds
- Coastal Zone
- Counties
- Geologic Map (Legend)
- High Risk Receiving Watersheds
- Monthly Precipitation
- MS4 Areas
- Post Miles
- RWQCB Boundaries
- USGS Topo Maps
- Watershed Boundary Dataset
- Zip Codes

Soil Loss Factors

- Erosivity Index
- Soils (K Factors)
- R Factor (calculations)
- LS Factor

Compliance Storm Events

- 5-yr 24-hr North
- 10-yr 24-hr North
- 5-yr 24-hr South
- 10-yr 24-hr South

Distance and Area

Measure Clear

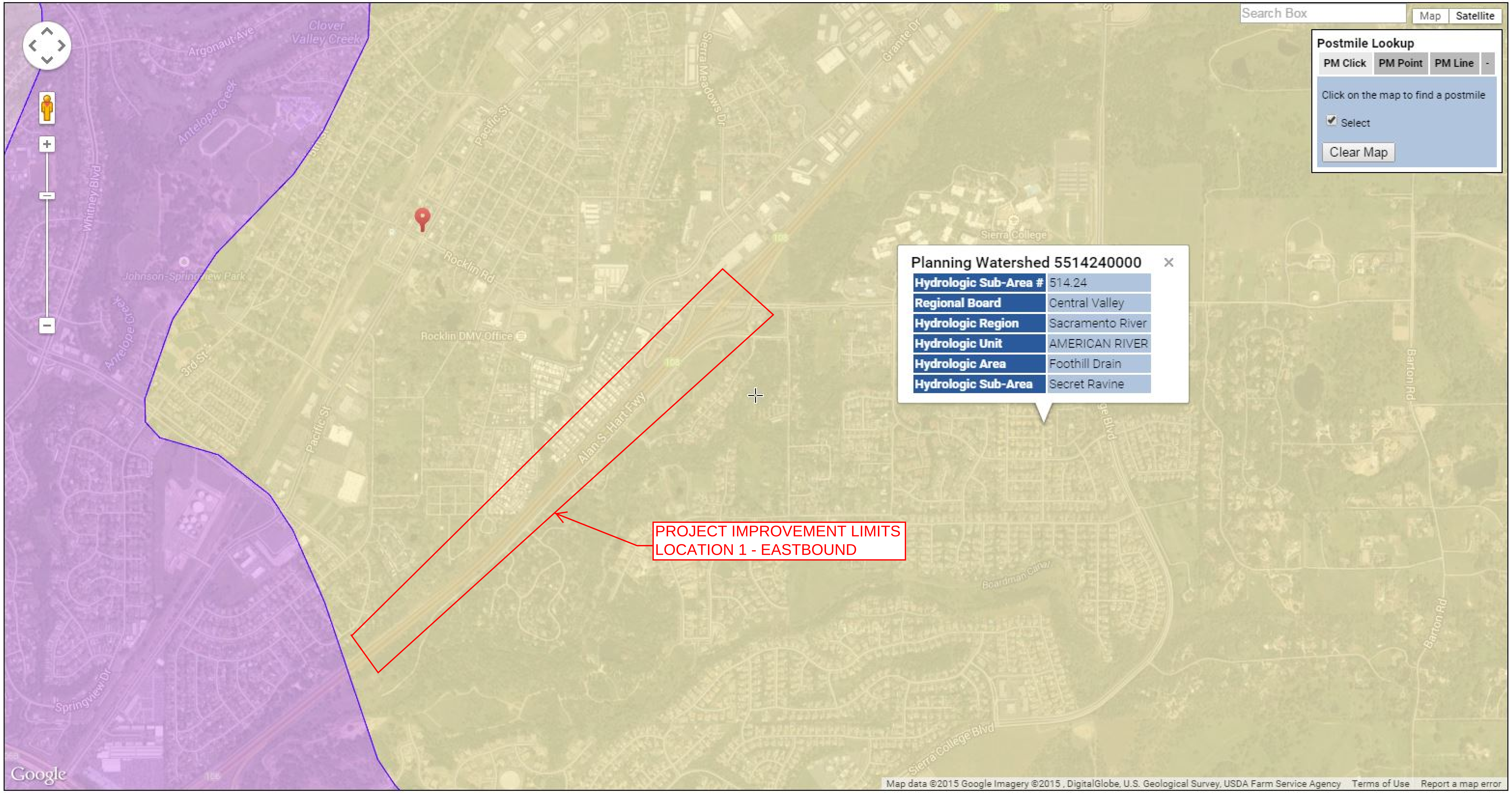
Feet: 0

Acres: 0

Information

Hover over a layer name for a description. Additional information, tables, coordinates, and links are below the map.

Help



Watershed Information

CALWATER WATERSHED

Hydrologic Unit	AMERICAN RIVER	**Hydrologic Area**	Foothill Drain	**Hydrologic Sub-Area #**	514.24
Hydrologic Sub-Area Name	Secret Ravine	**Planning Watershed**	5514240000	**HSA Area (acres)**	38524
Latitude, Longitude	38.7853, -121.2211				

WATERSHED BOUNDARY DATASET

Watershed	Dry Creek	**Subwatershed**	Secret Ravine	**Hydrologic Unit Code**	180201110101
Average Annual Precipitation (inches)	24.6				

Caltrans > DEA > Stormwater > **Water Quality Planning Tool**

Layers
- [ ] 303(d) List and TMDLs (Legend)
- [ ] Areas of Special Biological Significance
- [ ] Caltrans Districts
- [ ] Caltrans Facilities (Legend)
- [ ] Caltrans Tier 1 Monitoring Sites
- [x] Calwater Watersheds
- [ ] Coastal Zone
- [ ] Counties
- Geologic Map (Legend)
- [ ] High Risk Receiving Watersheds
- [ ] Monthly Precipitation
- [ ] MS4 Areas
- [ ] Post Miles
- [ ] RWQCB Boundaries
- USGS Topo Maps
- [ ] Watershed Boundary Dataset
- [ ] Zip Codes

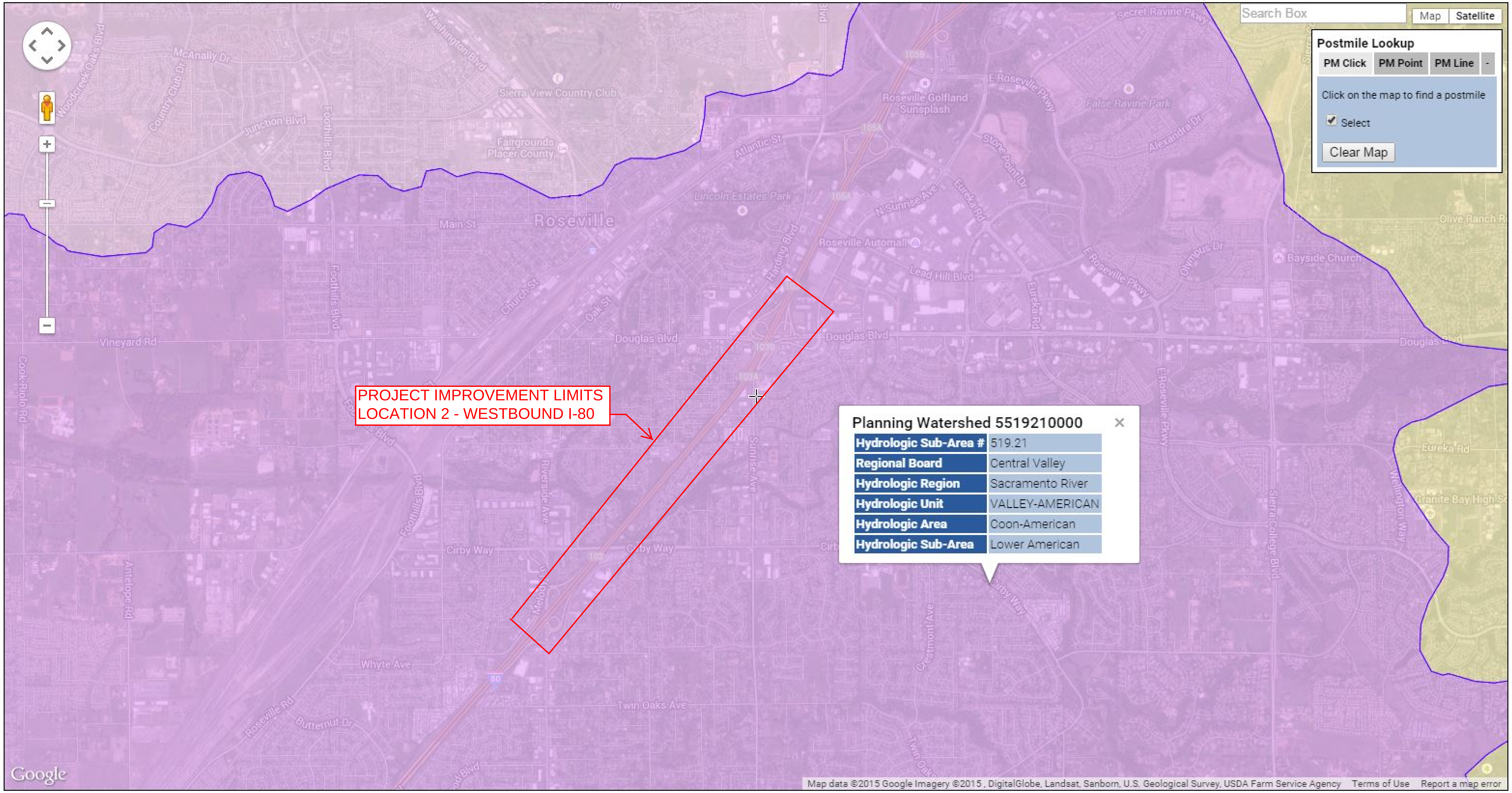
Soil Loss Factors
- [ ] Erosivity Index
- [ ] Soils (K Factors)
- [ ] R Factor (calculations)
- LS Factor

Compliance Storm Events
- 5-yr 24-hr North
- 10-yr 24-hr North
- 5-yr 24-hr South
- 10-yr 24-hr South

Distance and Area
- [ ] Measure Clear

Feet: 0
Acres: 0

Information
Hover over a layer name for a description. Additional information, tables, coordinates, and links are below the map.
Help



Watershed Information

CALWATER WATERSHED

Hydrologic Unit	VALLEY-AMERICAN	**Hydrologic Area**	Coon-American	**Hydrologic Sub-Area #**	519.21
Hydrologic Sub-Area Name	Lower American	**Planning Watershed**	5519210000	**HSA Area (acres)**	136958
Latitude, Longitude	38.7399, -121.2717				

WATERSHED BOUNDARY DATASET

Watershed	Dry Creek	**Subwatershed**	Linda Creek-Cirby Creek	**Hydrologic Unit Code**	180201110104
Average Annual Precipitation (inches)	22.5				

ATTACHMENT 2

RISK LEVEL DETERMINATION

Version 8/17/2011

Risk Determination Worksheet

Step 1	Determine Sediment Risk via one of the options listed:
	1. GIS Map Method - EPA Rainfall Erosivity Calculator & GIS map
	2. Individual Method - EPA Rainfall Erosivity Calculator & Individual Data
Step 2	Determine Receiving Water Risk via one of the options listed:
	1. GIS map of Sediment Sensitive Watersheds provided
	2. Site Specific Analysis (support documentation required)
Step 3	Determine Combined Risk Level

EA:

	I-80 AUXILIARY LANES PROJECT
Lat	**38.7847 N**
Long	**121.2275 W**

Const Start	**1/1/2018**
Const End	**12/31/2018**

Project
Combined Risk **Level 2**

I-80 AUXILIARY LANES PROJECT

Sediment Risk Factor Worksheet	**Entry**
A) R Factor	
Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site. http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm	
R Factor Value	55.23
B) K Factor (weighted average, by area, for all site soils)	
The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted. Site-specific K factor guidance	
K Factor Value	0.2
C) LS Factor (weighted average, by area, for all slopes)	
The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction. LS Table	
LS Factor Value	1.35
Watershed Erosion Estimate (=RxKxLS) in tons/acre	14.9121
Site Sediment Risk Factor Low Sediment Risk: < 15 tons/acre Medium Sediment Risk: >=15 and <75 tons/acre High Sediment Risk: >= 75 tons/acre	**Low**

See Screenshots in BACKUP worksheet for value documentation

1. The R, K, LS factors and Receiving Water Risk were obtained by accessing the Google maps located on the State Water Board FTP website at:
ftp://swrcb2a.waterboards.ca.gov/pub/swrcb/dwq/cgp/Risk/

I-80 AUXILIARY LANES PROJECT

Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	yes/no	
A.1. Does the disturbed area discharge (either directly or indirectly) to a **303(d)-listed waterbody impaired by sediment** (For help with impaired waterbodies please visit the link below) or has a **USEPA approved TMDL implementation plan for sediment**?: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml **OR** A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? (For help please review the appropriate Regional Board Basin Plan) http://www.waterboards.ca.gov/waterboards_map.shtml	**yes**	**High**

I-80 AUXILIARY LANES PROJECT

Combined Risk Level Matrix

Receiving Water Risk		Sediment Risk: Low	Sediment Risk: Medium	Sediment Risk: High
	Low	Level 1	Level 2	Level 2
	High	Level 2	Level 2	Level 3

Project Sediment Risk: Medium
Project RW Risk: High
Project Combined Risk: Level 2

R Factor

R Factor was calculated using the Rainfall Erosivity Factor Calculator for Small Construction Sites located at http://water.epa.gov/polwaste/npdes/stormwater/Rainfall-Erosivity-Factor-Calculator.cfm

R =	55.23

Facility Information

- Start Date: 01/01/2018
- End Date: 12/31/2018
- Latitude: 38.7847
- Longitude: -121.2275

Erosivity Index Calculator Results

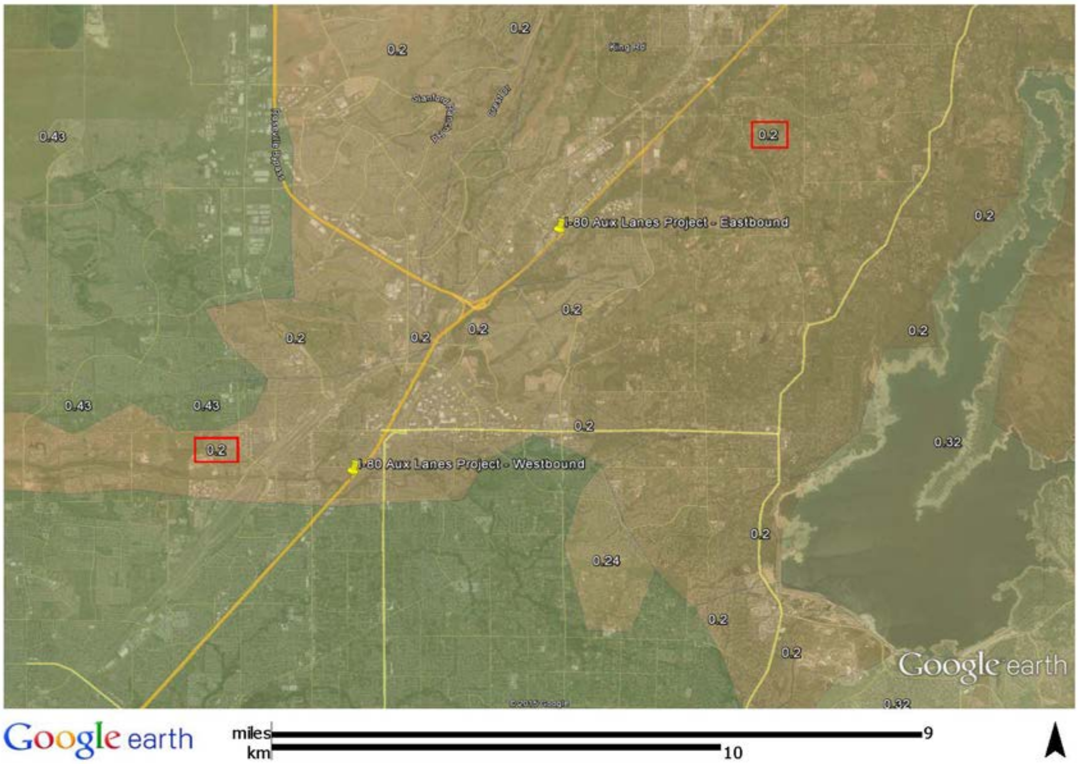
AN EROSIVITY INDEX VALUE OF **55.23** HAS BEEN DETERMINED FOR THE CONSTRUCTION PERIOD OF **01/01/2018 - 12/31/2018**.

A rainfall erosivity factor of 5.0 or greater has been calculated for your site and period of construction. **You do NOT qualify for a waiver from NPDES permitting requirements**.

Start Over

K Factor
Figure used to determine K Factor (retrieved from State Water Resource Control Board ftp site, ftp://swrcb2a.waterboards.ca.gov/pub/swrcb/dwq/cgp/Risk/RUSLE/RUSLE_K_Factor).

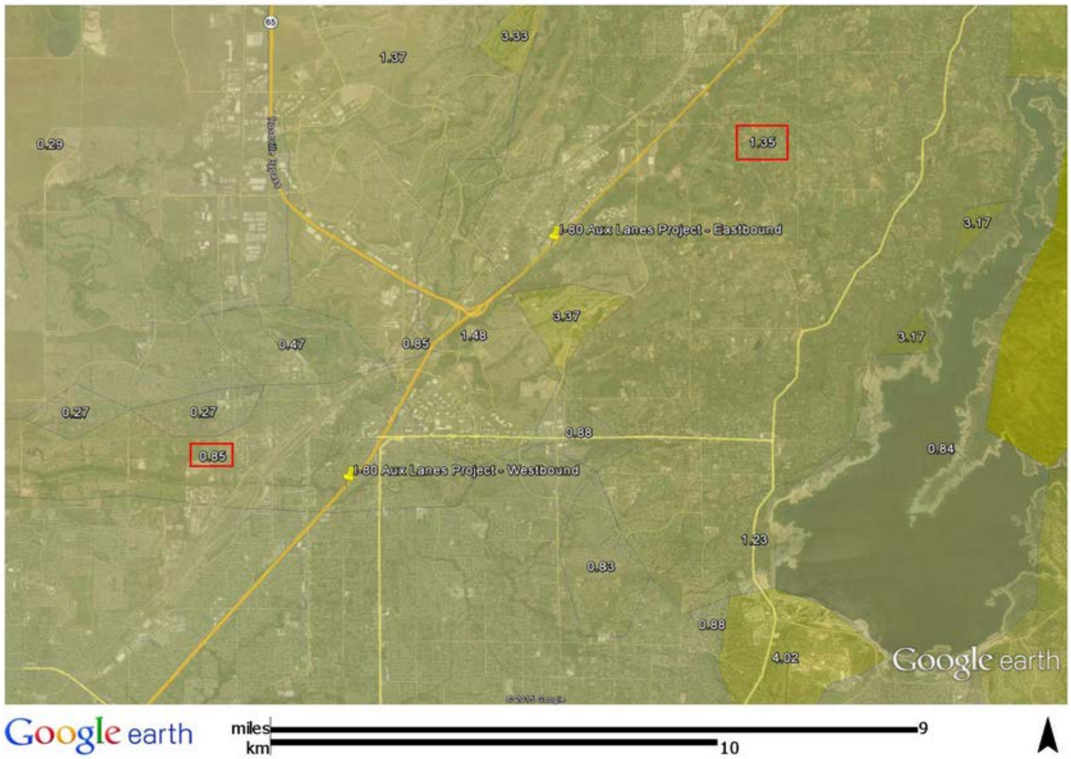
K =	0.2



LS Factor

Figure used to determine LS Factor (retrieved from State Water Resource Control Board ftp site, ftp://swrcb2a.waterboards.ca.gov/pub/swrcb/dwq/cgp/Risk/RUSLE/RUSLE_LS_Factor).

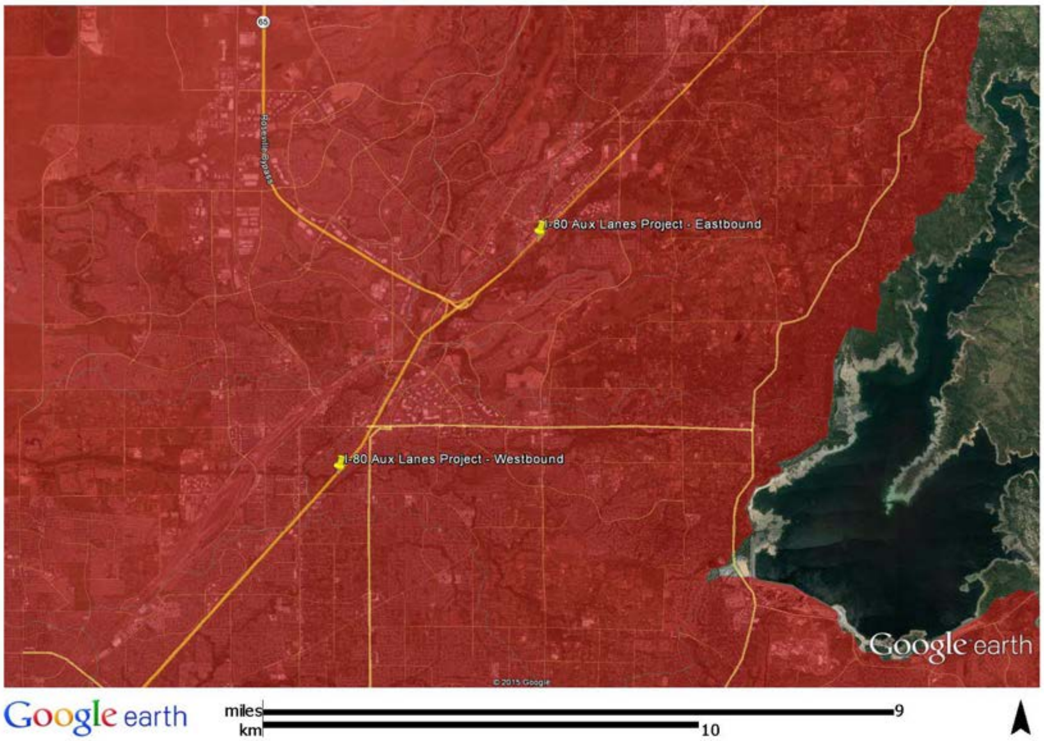
LS	1.35



Receiving Water Risk

Figure used to determine Receiving Water Risk (retrieved from State Water Resource Control Board ftp siteftp://swrcb2a.waterboards.ca.gov/pub/swrcb/dwq/cgp/Risk/Receiving_Water_Risk/).

No Red = Low Risk



<u>ATTACHMENT 3</u>

EVALUATION DOCUMENTATION FORM (EDF)

DATE: ____June 2016_______

Project ID (or EA): _____EA-03F230 ________

NO.	CRITERIA	YES ✓	NO ✓	SUPPLEMENTAL INFORMATION FOR EVALUATION
1.	Begin Project Evaluation regarding requirement for consideration of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPs. Go to 2
2.	Is this an emergency project?		✓	If **Yes**, go to 10. If **No**, continue to 3.
3.	Have TMDLs or other Pollution Control Requirements been established for surface waters within the project limits? Information provided in the water quality assessment or equivalent document.		✓	If **Yes**, contact the District/Regional NPDES Coordinator to discuss the Department's obligations under the TMDL (if Applicable) or Pollution Control Requirements, go to 9 or 4. _______ *(Dist./Reg. SW Coordinator initials)* If **No**, continue to 4.
4.	Is the project located within an area of a local MS4 Permittee?	✓		If **Yes**, CALTRANS go to 5. If **No**, document in SWDR go to 5.
5.	Is the project directly or indirectly discharging to surface waters?	✓		If **Yes**, continue to 6. If **No**, go to 10.
6.	Is it a new facility or major reconstruction?	✓		If **Yes**, continue to 8. If **No**, go to 7.
7.	Will there be a change in line/grade or hydraulic capacity?			If **Yes**, continue to 8. If **No**, go to 10.
8.	Does the project result in a net increase of one acre or more of new impervious surface?	✓		If **Yes**, continue to 9. If **No**, go to 10. *4 ac (Net Increase New Impervious Surface)*
9.	Project is required to consider approved Treatment BMPs.	✓	See Sections 2.4 and either Section 5.5or 6.5 for BMP Evaluation and Selection Process. Complete Checklist T-1 in this Appendix E.	
10.	Project is not required to consider Treatment BMPs. _______*(Dist./Reg. Design SW Coord. Initials)* _______*(Project Engineer Initials)* _____________ *(Date)*		Document for Project Files by completing this form, and attaching it to the SWDR.	

1 ***See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPs***

ATTACHMENT 4

CHECKLIST SW-1: SITE DATA SOURCES

Checklist SW-1, Site Data Sources

Prepared by: Pamela Dalcin-Walling Date: June 2016 District-Co-Route: 03-PLA-80

PM : PM 4.1-6.0, PM 2.2-0.1 Project ID (or EA): EA-03F320 RWQCB: Central Valley

Information for the following data categories should be obtained, reviewed and referenced as necessary throughout the project planning phase. Collect any available documents pertaining to the category and list them and reference your data source. For specific examples of documents within these categories, refer to Section 5.5 of this document. Example categories have been listed below; add additional categories, as needed. Summarize pertinent information in Section 2 of the SWDR.

DATA CATEGORY/SOURCES	Date
Topographic	
• USGS (United States Geologic Survey) Quad maps for Rocklin and Citrus Heights	2012
Hydraulic	
• Caltrans Highway Design Manual	2014
Soils	
• NRCS, Custom Soil Resource Report for Placer County, California, Western Part, Location 2 - Westbound	Accessed January 2015
• NRCS, Custom Soil Resource Report for Placer County, California, Western Part, Location 1 - Eastbound	Accessed January 2015
• Preliminary Geotechnical Design Report, Geocon	October 2014
• Soil Survey of Placer County, California, Western Part	July 1980
• Placer I-80 Auxiliary Lanes Project Initial Site Assessment, Dokken Engineering	December 2014
Climatic	
• Preliminary Geotechnical Design Report, Geocon	October 2014
Water Quality	
• Caltrans Water Quality Planning Tool	Accessed January 2015
• SWQCB, Impaired Water Bodies Map, 2010 Integrated Report (Clean Water Act Section 303(d) List/ 305(b) Report)	Accessed January 2015
Other Data Categories	
• Groundwater: Department of Water Resources, Groundwater Bulletin 118	2003
• Dry Creek Watershed Flood Control Plan, Placer County	November 2011
• Drinking Water Reservoirs: Caltrans Stormwater Management Program, Fiscal Year 2014-2015	October 1, 2013

ATTACHMENT 5

CHECKLIST SW-2: STORM WATER QUALITY ISSUES SUMMARY

Checklist SW-2, Storm Water Quality Issues Summary

Prepared by: Pamela Dalcin-Walling Date: June 2016 District-Co-Route: 03-PLA-80

PM : PM 4.1-6.0, PM 2.2-0.1 Project ID (or EA): EA-03F320 RWQCB: Central Valley

The following questions provide a guide to collecting critical information relevant to project stormwater quality issues. Complete responses to applicable questions, consulting other Caltrans functional units (Environmental, Landscape Architecture, Maintenance, etc.) and the District/Regional Storm Water Coordinator as necessary. Summarize pertinent responses in Section 2 of the SWDR.

1.	Determine the receiving waters that may be affected by the project throughout the project life cycle (i.e., construction, maintenance and operation).	☒Complete	☐NA
2.	For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.	☒Complete	☐NA
3.	Determine if there are any municipal or domestic water supply reservoirs or groundwater percolation facilities within the project limits. Consider appropriate spill contamination and spill prevention control measures for these new areas.	☒Complete	☐NA
4.	Determine the RWQCB special requirements, including TMDLs, effluent limits, etc.	☒Complete	☐NA
5.	Determine regulatory agencies seasonal construction and construction exclusion dates or restrictions required by federal, state, or local agencies.	☒Complete	☐NA
6.	Determine if a 401 certification will be required.	☒Complete	☐NA
7.	List rainy season dates.	☒Complete	☐NA
8.	Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.	☒Complete	☐NA
9.	If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater.	☒Complete	☐NA
10.	Determine contaminated soils within the project area.	☒Complete	☐NA
11.	Determine the total disturbed soil area of the project.	☒Complete	☐NA
12.	Describe the topography of the project site.	☒Complete	☐NA
13.	List any areas outside of the Caltrans right-of-way that will be included in the project (e.g. contractor’s staging yard, work from barges, easements for staging, etc.).	☒Complete	☐NA
14.	Determine if additional right-of-way acquisition or easements and right-of-entry will be required for design, construction and maintenance of BMPs. If so, how much?	☒Complete	☐NA
15.	Determine if a right-of-way certification is required.	☒Complete	☐NA
16.	Determine the estimated unit costs for right-of-way should it be needed for Treatment BMPs, stabilized conveyance systems, lay-back slopes, or interception ditches.	☒Complete	☐NA
17.	Determine if project area has any slope stabilization concerns.	☒Complete	☐NA
18.	Describe the local land use within the project area and adjacent areas.	☒Complete	☐NA
19.	Evaluate the presence of dry weather flow.	☒Complete	☐NA

ATTACHMENT 6

CHECKLIST SW-3: MEASURES FOR AVOIDING OR REDUCING POTENTIAL STORM WATER BMPS

Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water Impacts

Prepared by: Pamela Dalcin-Walling Date: June 2016 District-Co-Route: 03-PLA-80

PM : PM 4.1-6.0, PM 2.2-0.1 Project ID (or EA): EA-03F320 RWQCB: Central Valley

The PE must confer with other functional units, such as Landscape Architecture, Hydraulics, Environmental, Materials, Construction and Maintenance, as needed to assess these issues. Summarize pertinent responses in Section 2 of the SWDR.

Options for avoiding or reducing potential impacts during project planning include the following:

1. Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions? ☐Yes ☒No ☐NA
2. Can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts? ☒Yes ☐No ☐NA
3. Can any of the following methods be utilized to minimize erosion from slopes:
   a. Disturbing existing slopes only when necessary? ☒Yes ☐No ☐NA
   b. Minimizing cut and fill areas to reduce slope lengths? ☒Yes ☐No ☐NA
   c. Incorporating retaining walls to reduce steepness of slopes or to shorten slopes? ☒Yes ☐No ☐NA
   d. Acquiring right-of-way easements (such as grading easements) to reduce steepness of slopes? ☐Yes ☒No ☐NA
   e. Avoiding soils or formations that will be particularly difficult to re-stabilize? ☒Yes ☐No ☐NA
   f. Providing cut and fill slopes flat enough to allow re-vegetation and limit erosion to pre-construction rates? ☒Yes ☐No ☐NA
   g. Providing benches or terraces on high cut and fill slopes to reduce concentration of flows? ☐Yes ☐No ☒NA
   h. Rounding and shaping slopes to reduce concentrated flow? ☒Yes ☐No ☐NA
   i. Collecting concentrated flows in stabilized drains and channels? ☒Yes ☐No ☐NA
4. Does the project design allow for the ease of maintaining all BMPs? ☒Yes ☐No
5. Can the project be scheduled or phased to minimize soil-disturbing work during the rainy season? ☒Yes ☐No
6. Can permanent storm water pollution controls such as paved slopes, vegetated slopes, basins, and conveyance systems be installed early in the construction process to provide additional protection and to possibly utilize them in addressing construction storm water impacts? ☒Yes ☐No ☐NA

ATTACHMENT 7

CHECKLISTS DPP-1, PARTS 1-5
(DESIGN POLLUTION PREVENTION BMPS)

Design Pollution Prevention BMPs
Checklist DPP-1, Part 1

Prepared by: Pamela Dalcin-Walling Date: June 2016 District-Co-Route: 03-PLA-80

PM : PM 4.1-6.0, PM 2.2-0.1 Project ID (or EA): EA-03F320 RWQCB: Central Valley

Consideration of Design Pollution Prevention BMPs

Consideration of Downstream Effects Related to Potentially Increased Flow [to streams or channels]

Will project increase velocity or volume of downstream flow?	☒Yes	☐No	☐NA
Will the project discharge to unlined channels?	☒Yes	☐No	☐NA
Will project increase potential sediment load of downstream flow?	☐Yes	☒No	☐NA
Will project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability?	☐Yes	☒No	☐NA

If Yes was answered to any of the above questions, consider ***Downstream Effects Related to Potentially Increased Flow***, complete the DPP-1, Part 2 checklist.

Slope/Surface Protection Systems

Will project create new slopes or modify existing slopes?	☒Yes	☐No	☐NA

If Yes was answered to the above question, consider ***Slope/Surface Protection Systems***, complete the DPP-1, Part 3 checklist.

Concentrated Flow Conveyance Systems

Will the project create or modify ditches, dikes, berms, or swales?	☒Yes	☐No	☐NA
Will project create new slopes or modify existing slopes?	☒Yes	☐No	☐NA
Will it be necessary to direct or intercept surface runoff?	☒Yes	☐No	☐NA
Will cross drains be modified?	☒Yes	☐No	☐NA

If Yes was answered to any of the above questions, consider ***Concentrated Flow Conveyance Systems***; complete the DPP-1, Part 4 checklist.

Preservation of Existing Vegetation

It is the goal of the Storm Water Program to maximize the protection of desirable existing vegetation to provide erosion and sediment control benefits on all projects. ☒Complete

Consider ***Preservation of Existing Vegetation***, complete the DPP-1, Part 5 checklist.

Design Pollution Prevention BMPs
Checklist DPP-1, Part 2

Prepared by: Pamela Dalcin-Walling Date: June 2016 District-Co-Route: 03-PLA-80

PM : PM 4.1-6.0, PM 2.2-0.1 Project ID (or EA): EA-03F320 RWQCB: Central Valley

Downstream Effects Related to Potentially Increased Flow

1. Review total paved area and reduce to the maximum extent practicable. ☒Complete
2. Review channel lining materials and design for stream bank erosion control. ☒Complete
   (a) See Chapters 860 and 870 of the HDM. ☒Complete
   (b) Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity. ☒Complete
3. Include, where appropriate, energy dissipation devices at culvert outlets. ☒Complete
4. Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour. ☒Complete
5. Include, if appropriate, peak flow attenuation basins or devices to reduce peak discharges.
6. Calculate the water quality volume infiltrated by DPP BMPs within the project limits. Include the percentage of the water quality volume for each BMP and subwatershed, as appropriate, for site conditions. These calculations will be used later in the T-1 checklist. ☐Complete

Design Pollution Prevention BMPs
Checklist DPP-1, Part 3

Prepared by: Pamela Dalcin-Walling Date: June 2016 District-Co-Route: 03-PLA-80

PM : PM 4.1-6.0, PM 2.2-0.1 Project ID (or EA): EA-03F320 RWQCB: Central Valley

Slope / Surface Protection Systems

1. What are the proposed areas of cut and fill? (attach plan or map) ☒Complete
2. Were benches or terraces provided on high cut and fill slopes to reduce concentration of flows? ☐Yes ☒No
3. Were slopes rounded and/or shaped to reduce concentrated flow? ☒Yes ☐No
4. Were concentrated flows collected in stabilized drains or channels? ☒Yes ☐No
5. Are new or disturbed slopes > 4:1 horizontal:vertical (h:v)? ☒Yes ☐No

   If Yes, District Landscape Architect must prepare or approve an erosion control plan, at the District's discretion.
6. Are new or disturbed slopes > 2:1 (h:v)? ☐Yes ☒No

   If Yes, Geotechnical Services must prepare a Geotechnical Design Report, and the District Landscape Architect should prepare or approve an erosion control plan. Concurrence must be obtained from the District Maintenance Storm Water Coordinator for slopes steeper than 2:1 (h:v).
7. Estimate the net new impervious area that will result from this project. 4 ac ☒Complete

VEGETATED SURFACES

1. Identify existing vegetation. ☒Complete
2. Evaluate site to determine soil types, appropriate vegetation and planting strategies. ☒Complete
3. How long will it take for permanent vegetation to establish? ☒Complete
4. Minimize overland and concentrated flow depths and velocities. ☒Complete

HARD SURFACES

1. Are hard surfaces required? ☐Yes ☒No

   If Yes, document purpose (safety, maintenance, soil stabilization, etc.), types, and general locations of the installations. ☐Complete

Review appropriate SSPs for Vegetated Surface and Hard Surface Protection Systems. ☒Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 4

Prepared by: Pamela Dalcin-Walling Date: June 2016 District-Co-Route: 03-PLA-80

PM : PM 4.1-6.0, PM 2.2-0.1 Project ID (or EA): EA-03F320 RWQCB: Central Valley

Concentrated Flow Conveyance Systems

Ditches, Berms, Dikes and Swales

1. Consider Ditches, Berms, Dikes, and Swales as per Topics 813, 834.3, and 835, and Chapter 860 of the HDM. ☒Complete
2. Evaluate risks due to erosion, overtopping, flow backups or washout. ☒Complete
3. Consider outlet protection where localized scour is anticipated. ☒Complete
4. Examine the site for run-on from off-site sources. ☒Complete
5. Consider channel lining when velocities exceed scour velocity for soil. ☒Complete

Overside Drains

1. Consider downdrains, as per Index 834.4 of the HDM. ☒Complete
2. Consider paved spillways for side slopes flatter than 4:1 h:v. ☒Complete

Flared Culvert End Sections

1. Consider flared end sections on culvert inlets and outlets as per Chapter 827 of the HDM. ☒Complete

Outlet Protection/Velocity Dissipation Devices

1. Consider outlet protection/velocity dissipation devices at outlets, including cross drains, as per Chapters 827 and 870 of the HDM. ☒Complete

Review appropriate SSPs for Concentrated Flow Conveyance Systems. ☒Complete

Design Pollution Prevention BMPs
Checklist DPP-1, Part 5

Prepared by: Pamela Dalcin-Walling Date: June 2016 District-Co-Route: 03-PLA-80

PM : PM 4.1-6.0, PM 2.2-0.1 Project ID (or EA): EA-03F320 RWQCB: Central Valley

Preservation of Existing Vegetation

1. Review Preservation of Property, (Clearing and Grubbing) to reduce clearing and grubbing and maximize preservation of existing vegetation. ☒Complete
2. Has all vegetation to be retained been coordinated with Environmental, and identified and defined in the contract plans? ☐Yes ☐No
3. Have steps been taken to minimize disturbed areas, such as locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cutting and filling? ☒Complete
4. Have impacts to preserved vegetation been considered while work is occurring in disturbed areas? ☒Yes ☐No
5. Are all areas to be preserved delineated on the plans? ☐Yes ☐No

ATTACHMENT 8

CHECKLISTS T-1

PART 1: TREATMENT BMPS
PART 2: BIOFILTRATION SWALES/STRIPS
PART 5: DETENTION DEVICES

Treatment BMPs

Checklist T-1, Part 1

Prepared by: Pamela Dalcin-Walling Date: June 2016 District-Co-Route: 03-PLA-80

PM : PM 4.1-6.0, PM 2.2-0.1 Project ID (or EA): EA-03F320 RWQCB: Central Valley

Consideration of Treatment BMPs

This checklist is used for projects that require the consideration of Approved Treatment BMPs, as determined from the process described in Section 4 (Project Treatment Consideration) and the Evaluation Documentation Form (EDF). This checklist will be used to determine which Treatment BMPs should be considered for each watershed and sub-watershed within the project. Supplemental data will be needed to verify siting and design applicability for final incorporation into a project.

Complete this checklist for each phase of the project, when considering Treatment BMPs. Use the responses to the questions as the basis when developing the narrative in Section 5 of the Storm Water Data Report to document that Treatment BMPs have been appropriately considered.

Answer all questions, unless otherwise directed. Questions 14 through 16 should be answered after all subwatershed (drainages) are considered using this checklist.

1. Is the project in a watershed with prescriptive TMDL treatment BMP requirements in an adopted TMDL implementation plan or does the project have a dual purpose facility requirement (e.g. flood control and water quality treatment or Design Pollution Prevention BMPs that provide infiltration and treatment)? ☐Yes ☒No

   If Yes, consult the District/Regional Storm Water Coordinator to determine whether the T-1 checklist should be used to propose alternative BMPs because the prescribed BMPs may not be feasible or other BMPs may be more cost-effective. Special documentation and regulatory response may be necessary.

2. Dry Weather Flow Diversion

   (a) Are dry weather flows generated by Caltrans anticipated to be persistent? ☐Yes ☒No

   (b) Is a sanitary sewer located on or near the site? ☐Yes ☒No

   If Yes to both 2 (a) and (b), continue to (c). If No to either, skip to question 3.

   (c) Is connection to the sanitary sewer possible without extraordinary plumbing, features or construction practices? ☐Yes ☐No

   (d) Is the domestic wastewater treatment authority willing to accept flow? ☐Yes ☐No

   If Yes was answered to all of these questions consider ***Dry Weather Flow Diversion***, complete and attach **Part 3** of this checklist.

3. Is the receiving water on the 303(d) list for litter/trash or has a TMDL been issued for litter/trash? ☐Yes ☒No

If Yes, consider ***Gross Solids Removal Devices (GSRDs)***. Complete and attach **Part 6** of this checklist. Note: Infiltration Devices, Detention Devices, Media Filters, MCTTs, and Wet Basins also can capture litter. Before considering GSRDs for stand-alone installation or in sequence with other BMPs, consult with District/Regional NPDES Storm Water Coordinator to determine whether Infiltration Devices, Detention Devices, Media Filters, MCTTs, and Wet Basins should be considered instead of GSRDs to meet litter/trash TMDL.

4. Is the project located in an area (e.g., mountain regions) where traction sand is applied more than twice a year? ☐Yes ☒No

   If Yes, consider ***Traction Sand Traps*** Complete and attach **Part 7** of this checklist.

5. Maximizing Biofiltration Strips and Swales

   Objectives:

   1) Quantify infiltration from biofiltration alone

   2) Identify highly infiltrating biofiltration (i.e. > 90%) and skip further BMP consideration.

   3) Identify whether amendments can substantially improve infiltration.

   (a) Have biofiltration strips and swales been designed for runoff from all project areas, including sheet flow and concentrated flow conveyance? If no, document justification in Section 5 of the SWDR. ☐Yes ☒No

   (b) Based on existing site conditions, estimate what percentage of the WQV[1] can be infiltrated. When calculating the WQV, use a drawdown time appropriate for the site conditions.

   X < 20%
   ___ 20 % - 50%
   ___ 50% - 90%
   ___ > 90%

   ☒Complete

   (c) Is infiltration greater than 90 percent? If Yes, skip to question 13. ☐Yes ☒No

   If No, Continue to 5 (d).

[1] A complete methodology for determining WQV infiltration is available at: http://www.dot.ca.gov/hq/oppd/stormwtr/index.htm

(d) Can the infiltration ranking in question 5(b) above be increased by using soil amendments?. ☒Yes ☐No

If Yes, consider including soil amendments (increasing the infiltration ranking of strips and swales shows performance comparable to other BMPs). Record the new infiltration estimate below. If No, continue to 5 (e).

_X_ < 20% (skip to 6)
___ 20 % - 50% (skip to 6)
___ 50% - 90% (skip to 6)
___ >90%

☒Complete

(e) Is infiltration greater than 90 percent? If Yes, skip to question 13. If No, continue to 5 (f). ☐Yes ☒No

(f) Is infiltration greater than 50 percent and is biofiltration preferred? If yes to both, skip to question 13. ☐Yes ☒No

6. Biofiltration in Rural Areas

Is the project in a rural area (outside of urban areas that is covered under an NPDES Municipal Stormwater Permit[2])? If Yes, proceed to question 13. ☐Yes ☒No

7. Estimating Infiltration for BMP Combinations

Objectives:

1) Identify high-infiltration biofiltration or biofiltration and infiltration BMP combinations and skip further BMP consideration.

2) If high infiltration is infeasible, then identify the infiltration level of all feasible BMP combinations for use in the subsequent BMP selection matrices.

(a) Has concentrated infiltration (i.e., via earthen basins) been prohibited? Consult your District/Regional Storm Water Coordinator and/or environmental documents. ☐Yes ☒No

If No, continue to 7 (b); if Yes, skip to question 8 and do not consider earthen basin-type BMPs

[2] See pages 39 and 40 of the Fact Sheets for the CGP.
http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_factsheet.pdf

(b) Can the infiltration ranking be increased by infiltrating the un-infiltrated remaining WQV from question 5, with an infiltration BMP[1]? If yes, record the new infiltration estimate below. If no, proceed to 7(c). ☐Yes ☒No

___ < 20% (do not consider this BMP combination)

___ 20% - 50%

___ 50% - 90%

___ >90%

Is at least 90 percent infiltration estimated? If Yes, proceed to 13. If No, proceed to 7(c). ☐Yes ☒No

(c) Assess infiltration of biofiltration combined with an approved earthen BMP. This assessment will be used in subsequent BMP selection matrices.

Earthen Detention Basin

___ < 20% ☐Complete

___ 20% - 50%

___ > 50**%**

Continue to Question 8

8. Identifying BMPs based on the Target Design Constituents

(a) Does the project discharge to a 303(d) impaired water body or a water body that has a TMDL adopted? If "No," use Matrix A to select BMPs, consider designing to treat 100% of the WQV, then skip to question 12. ☐Yes ☒No

If Yes, is the identified pollutant(s) considered a Targeted Design Constituent (TDC) (check all that apply below)?

☐ sediments ☐ copper (dissolved or total)

☐ phosphorus ☐ lead (dissolved or total)

☐ nitrogen ☐ zinc (dissolved or total)

☐ general metals (dissolved or total)[2]

(b) Treating Sediment. Is sediment a TDC? If Yes, use Matrix A to select BMPs, then skip to question 12. Otherwise, proceed to question 9. ☐Yes ☐No

---

[1] Assess the combined infiltration of the WQV by both biofiltration and infiltration BMPs. As site constraints allow, size the infiltration BMP up to the un-infiltrated WQV remaining after the biofiltration BMP.

[2] General metals is a designation used by Regional Water Boards when specific metals have not yet been identified as causing the impairment.

BMP Selection Matrix A: General Purpose Pollutant Removal			
Consider approaches to treat the remaining WQV with combinations of the BMPs in this table. The PE should select at least one BMP for the project; preference is for Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility (Section 2.4.2.1). BMPs are chosen based on the infiltration category determined in question 7. BMPs in other categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Strip: HRT > 5 Austin filter (concrete) Austin filter (earthen) Delaware filter MCTT Wet basin	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* Biofiltration Strip	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* Biofiltration Strip Biofiltration Swale
Tier 2	Strip: HRT < 5 Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Swale MCTT Wet basin	Austin filter (concrete) Delaware filter MCTT Wet basin
HRT = hydraulic residence time (min) *Infiltration BMPs that infiltrate the water quality volume were considered previously, so only undersized infiltration BMPs or hybrid designs are considered where infiltration is less than 90% of the water quality volume.			

9. Treating both Metals and Nutrients.
   Is copper, lead, zinc, or general metals *AND* nitrogen or phosphorous a TDC? If Yes, use Matrix D to select BMPs, then skip to question 12. Otherwise, proceed to question 10. ☐Yes ☐No

10. Treating Only Metals.
    Are copper, lead, zinc, or general metals listed TDCs? If Yes, use Matrix B below to select BMPs, and skip to question 12. Otherwise, proceed to question 11. ☐Yes ☐No

BMP Selection Matrix B: Any metal is the TDC, but not nitrogen or phosphorous			
Consider approaches to treat the remaining WQV with combinations of the BMPs in this table. The PE should select at least one BMP for the project; preference is for Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility (Section 2.4.2.1). BMPs are chosen based on the infiltration category determined in question 7. BMPs in other categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	MCTT Wet basin Austin filter (earthen) Austin filter (concrete) Delaware filter	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* MCTT Wet basin	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* MCTT Biofiltration Strip Biofiltration Swale Wet basin
Tier 2	Strip: HRT > 5 Strip: HRT < 5 Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter
HRT = hydraulic residence time (min) *Infiltration BMPs that infiltrate the water quality volume were considered previously, so only undersized infiltration BMPs or hybrid designs are considered where infiltration is less than 90% of the water quality volume.			

11. Treating Only Nutrients.
Are nitrogen and/or phosphorus listed TDCs? If “Yes,” use Matrix C to select BMPs. If “No”, please check your answer to 8(a). At this point one of the matrices should have been used for BMP selection for the TDC in question, unless no BMPs are feasible. ☐Yes ☐No

BMP Selection Matrix C: Phosphorous and / or nitrogen is the TDC, but no metals are the TDC

Consider approaches to treat the remaining WQV with combinations of the BMPs in this table. The PE should select at least one BMP for the project; preference is for Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility (Section 2.4.2.1). BMPs are chosen based on the infiltration category determined in question 7. BMPs in other categories should be ignored.

	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Austin filter (earthen) Austin filter (concrete) Delaware filter**	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches*	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* Biofiltration Strip Biofiltration Swale
Tier 2	Wet basin Biofiltration Strip Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale Wet basin	Austin filter (concrete) Delaware filter Wet basin

* Infiltration BMPs that infiltrate the water quality volume were considered previously, so only undersized infiltration BMPs or hybrid designs are considered where infiltration is less than 90% of the water quality volume.

** Delaware filters would be ranked in Tier 2 if the TDC is nitrogen only, as opposed to phosphorous only or both nitrogen and phosphorous.

BMP Selection Matrix D: Any metal, plus phosphorous and / or nitrogen are the TDCs			
Consider approaches to treat the remaining WQV with combinations of the BMPs in this table. The PE should select at least one BMP for the project; preference is for Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility (Section 2.4.2.1). BMPs are chosen based on the infiltration category determined in question 7. BMPs in other categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Wet basin* Austin filter (earthen) Austin filter (concrete) Delaware filter**	Wet basin* Austin filter (earthen) Detention (unlined) Infiltration basins*** Infiltration trenches***	Wet basin* Austin filter (earthen) Detention (unlined) Infiltration basins*** Infiltration trenches*** Biofiltration Strip Biofiltration Swale
Tier 2	Biofiltration Strip Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter
* The wet basin should only be considered for phosphorus			
** In cases where earthen BMPs can infiltrate, Delaware filters are ranked in Tier 2 if the TDC is nitrogen only, but they are Tier 1 for phosphorous only or both nitrogen and phosphorous.			
*** Infiltration BMPs that infiltrate the water quality volume were considered previously, so only undersized infiltration BMPs or hybrid designs are considered where infiltration is less than 90% of the water quality volume.			

12. Does the project discharge to a 303(d) waterbody that is listed for mercury or low dissolved oxygen? ☐Yes ☒No

    If Yes, contact the District/Regional NPDES Storm Water Coordinator to determine if standing water in a Delaware filter, wet basin, or MCTT would be a risk to downstream water quality.

13. After completing the above, identify and attach the checklists shown below for every Treatment BMP under consideration. (use one checklist every time the BMP is considered for a different drainage within the project) ☐Complete

    _X_ Biofiltration Strips and Biofiltration Swales: Checklist T-1, Part 2
    ____ Dry Weather Diversion: Checklist T-1, Part 3
    ____ Infiltration Devices: Checklist T-1, Part 4
    _X__ Detention Devices: Checklist T-1, Part 5
    ____ GSRDs: Checklist T-1, Part 6
    ____ Traction Sand Traps: Checklist T-1, Part 7
    ____ Media Filter [Austin Sand Filter and Delaware Filter]: Checklist T-1, Part 8
    ____ Multi-Chambered Treatment Train: Checklist T-1, Part 9
    ____ Wet Basins: Checklist T-1, Part 10

14. Estimate what percentage of the net WQV (for all new impervious surfaces within the project) or WQF (depending upon the Treatment BMP selected) will be treated by the preferred Treatment BMP(s): ____________%* ☐Complete

15. Estimate what percentage of the net WQV (for all new impervious surfaces within the project) that will be infiltrated by the preferred treatment BMP(s): _____0________%** ☐Complete

16. Prepare cost estimate, including right-of-way, and site specific determination of feasibility (Section 2.4.2.1) for selected Treatment BMPs and include as supplemental information for SWDR approval. ☐Complete

*Note: The amount of treatment should be calculated for each BMP and each subwatershed, unless all BMPs within a project are the same. Document in SWDR.

**Note: The Water Quality Volume infiltrated should be documented for the entire project and also for each subwatershed. Document in SWDR.

Treatment BMPs
Checklist T-1, Part 2

Prepared by: Pamela Dalcin-Walling Date: June 2016 District-Co-Route: 03-PLA-80

PM : PM 4.1-6.0, PM 2.2-0.1 Project ID (or EA): EA-03F320 RWQCB: Central Valley

Biofiltration Swales / Biofiltration Strips

Feasibility

1. Do the climate and site conditions allow vegetation to be established? ☒Yes ☐No

2. Are flow velocities from a peak drainage facility design event < 4 fps (i.e. low enough to prevent scour of the vegetated biofiltration swale as per HDM Table 873.3E)? ☒Yes ☐No

   If "No" to either question above, Biofiltration Swales and Biofiltration Strips are not feasible.

3. Are Biofiltration Swales proposed at sites where known contaminated soils or groundwater plumes exist? ☐Yes ☒No
   If "Yes", consult with District/Regional NPDES Coordinator about how to proceed.

4. Does adequate area exist within the right-of-way to place Biofiltration device(s)? ☒Yes ☐No
   If "Yes", continue to Design Elements section. If "No", continue to Question 5.

5. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site Biofiltration devices and how much right-of-way would be needed to treat WQF? __________ acres ☐Yes ☒No
   If "Yes", continue to Design Elements section. If "No", continue to Question 6.

6. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of these Treatment BMPs into the project. ☒Complete

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Has the District Landscape Architect provided vegetation mixes appropriate for climate and location? * ☐Yes ☐No

2. Can the biofiltration swale be designed as a conveyance system under any expected flows > the WQF event, as per HDM Chapter 800? * (e.g. freeboard, minimum slope, etc.) ☒Yes ☐No

3. Can the biofiltration swale be designed as a water quality treatment device under the WQF while meeting the required HRT, depth, and velocity criteria? (Reference Appendix B, Section B.2.3.1)* ☒Yes ☐No

4. Is the maximum length of a biofiltration strip ≤ 100 ft? Strips > 100 ft. may still be considered as long as potential erosion issues have been addressed.** ☐Yes ☐No

5. Has the minimum width (perpendicular to flow) of the invert of the biofiltration swale received the concurrence of Maintenance? * ☐Yes ☐No

6. Can biofiltration swales be located in natural or low cut sections to reduce maintenance problems caused by animals burrowing through the berm of the swale? ** ☒Yes ☐No

7. Has the infiltration rate of the bio-filtration device been calculated and maximized through amendments where appropriate. ** ☒Yes ☐No

8. Have Biofiltration Systems been considered for locations upstream of other Treatment BMPs, as part of a treatment train? ** ☐Yes ☒No

Treatment BMPs

Checklist T-1, Part 5

Prepared by: Pamela Dalcin-Walling Date: June 2016 District-Co-Route: 03-PLA-80

PM : PM 4.1-6.0, PM 2.2-0.1 Project ID (or EA): EA-03F320 RWQCB: Central Valley

Detention Devices

Feasibility

1. Is there sufficient head to prevent objectionable backwater conditions in the upstream drainage systems? ☐Yes ☒No

2. 2a) Is the volume of the Detention Device equal to at least the WQV? (Note: the WQV must be ≥ 4,356 ft^3 [0.1 acre-feet]). If the BMP is used in series with a biofiltration device, then does the total upstream infiltration plus the Detention Device volume at least equal the WQV?. ☐Yes ☒No

   Only answer (b) if the Detention Device is being used also to capture traction sand.

   2b) Is the total volume of the Detention Device at least equal to the WQV plus the anticipated volume of traction sand, while maintaining a minimum 12 inch freeboard (1 ft)? ☐Yes ☐No

3. Is basin invert ≥ 10 ft above seasonally high groundwater or can it be designed with an impermeable liner? (Note: If an impermeable liner is used, the seasonally high groundwater elevation must not encroach within 12 inches of the invert.) ☒Yes ☐No

If No to any question above, then Detention Devices are not feasible.

4. Does adequate area exist within the right-of-way to place Detention Device(s)? ☐Yes ☒No

   If Yes, continue to the Design Elements section. If No, continue to Question 5.

5. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site Detention Device(s) and how much right-of way would be needed to treat WQV? __________ acres ☐Yes ☒No

   If Yes, continue to the Design Elements section. If No, continue to Question 6.

6. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☒Complete

Design Elements

* **Required** Design Element – A “Yes” response to these questions is required to further the consideration of this BMP into the project design. Document a “No” response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A “Yes” response is preferred for these questions, but not required for incorporation into a project design.

1. Has the geotechnical integrity of the site been evaluated to determine potential impacts to surrounding slopes due to incidental infiltration? If incidental infiltration through the invert of an unlined Detention Device is a concern, consider using an impermeable liner. * ☐Yes ☐No
2. Has the location of the Detention Device been evaluated for any effects to the adjacent roadway and subgrade? * ☐Yes ☐No
3. Can a minimum freeboard of 12 inches be provided above the overflow event elevation? * ☐Yes ☐No
4. Is an overflow outlet provided? * ☐Yes ☐No
5. Is the drawdown time of the Detention Device within 24 to 72 hours? * ☐Yes ☐No
6. Is the basin outlet designed to minimize clogging (minimum outlet orifice diameter of 0.5 inches)? * ☐Yes ☐No
7. Are the inlet and outlet structures designed to prevent scour and re-suspension of settled materials, and to enhance quiescent conditions? * ☐Yes ☐No
8. Can vegetation be established in an earthen basin at the invert and on the side slopes for erosion control and to minimize re-suspension? Note: Detention Basins may be lined, in which case no vegetation would be required for lined areas.* ☐Yes ☐No
9. Has sufficient access for Maintenance been provided? * ☐Yes ☐No
10. Is the side slope 4:1 (h:v) or flatter for interior slopes? ** (Note: Side slopes up to 3:1 (h:v) allowed with approval by District Maintenance.) ☐Yes ☐No
11. If significant sediment is expected from nearby slopes, can the Detention Device be designed with additional volume equal to the expected annual loading? ** ☐Yes ☐No
12. Is flow path as long as possible ($\geq$ 2:1 length to width ratio at WQV elevation is recommended)? ** ☐Yes ☐No

ATTACHMENT 9

BIOSWALE CALCULATIONS

BIOSWALE (Bioswale Design Program)

Calculated by: Jaimie Azvedo
Date: 1/28/2015

Placer I-80 Auxiliary Lanes Project EA#03F320
Westbound Segment, Bioswale #1

Paved area contributing to bioswale:	A_p =	**0.9800 ac**
Unpaved area contributing to bioswale *(total area typically < 10 acres)*:	A_u =	**0.8500 ac**
Runoff coefficient for pavement *(0.91 maximum due to multiplier):*	C_p =	**0.90**
Runoff coefficient *for unpaved areas (HDM Figure 819.2A) (0.91 maximum):*	C_u =	**0.58**

Comments: Pervious runoff coefficient = 0.20(Relief) + 0.16(Soil Infiltration) + 0.12 (Vegetal Cover) + 0.12 (Surface Storage) = 0.58 (Value matches Infiltration Tool Spreadsheet)

Rainfall Intensity for Q_{25} (from IDF curves):	I_{25} =	**2.90 in/hr**

Comments: I = 2.9 in/hr for project area for minimum Tc=5minutes (calculation sheet attached)

Rainfall Intensity for **Water Quality Flow (WQF)**:	I_{WQF} =	**0.16 in/hr**

(Lake: 0.16 in/hr, Mendocino: 0.27 in/hr, Del Norte & Humboldt: 0.36 in/hr, see PPDG page 2-23)

Open channel calculation for Q_{25}:

Manning's n (0.05 by HDM table 864.3A):	n =	**0.050**	
Swale longitudinal slope *(between 0.25% and 6%, but 1% - 2% is preferred):*	S_L =	**0.73%**	
Side slopes (***z : 1***, *where z = 4 or flatter, R or L looking downstream:*	z_L =	**4**	
	z_R =	**4**	
Width at invert *(0 ft for ditches, and between 2 and 10 ft for trapezoidal channels):*	b =	**2.00 ft**	
Resulting $\mathbf{Q_{25}}$ *(HDM-819(c) requires a multiplier for Q_{25} equal to 1.1):*	$\mathbf{Q_{25}}$ =	**4.39 cfs**	$= 1.1 \cdot I_{25} \cdot (A_p \cdot C_p + A_u \cdot C_u)$
Q for internal calcs *(use goal-seek to make it equal to Q_{25} by varying D_{25}):*	Q =	4.39 cfs	
Depth of flow for Q_{25}:	D_{25} =	**0.67 ft**	must be equal (after goal-seek)
Velocity for Q_{25} *(maximum is 4 ft/s if not by-passed):*	V_{25} =	1.41 ft/s	**OK, <= 4 ft/s**
Water top width for Q_{25}:	T_{25} =	7.33 ft	

Open channel calculation for Q_{WQF} (flow that must be treated by the bioswale):

Manning's n *(0.20 for routinely mowed swales, 0.24 for infrequently mowed ones):*	n =	**0.24**	must be equal (after goal-seek)
Q_{WQF} *("Water Quality Flow" in the swale)*	$\mathbf{Q_{WQF}}$ =	**0.22 cfs**	$= IWQF \cdot (A_p \cdot C_p + A_u \cdot C_u)$
Q for internal calcs *(use goal-seek to make it equal to Q_{WQF} by varying D_{WQF}):*	Q =	0.22 cfs	
Depth of flow for WQF *(maximum is 0.5 ft):*	D_{WQF} =	**0.33 ft**	**OK, <= 0.5 ft**
Velocity for WQF *(maximum is 1 ft/s):*	V_{WQF} =	0.20 ft/s	**OK, <= 1 ft/s**
Water top width for Q_{WQF}:	T_{WQF} =	4.67 ft	

Hydraulic Residence Time Check (HRT):

Length of bioswale:	L =	**100.00 ft**

Comments: Swale is adjacent to right shoulder of westbound Riverside Avenue off-ramp.

Hydraulic Residence Time (minimum is 5 min): *$HRT = (L / V_{WQF}) / 60$*	HRT =	8.30 min	**OK, >= 5 min**
Must satisfy: HRT / ($D_{WQF} \cdot V_{WQF}$) >= 1300 sec^2/ft^2 :		7432	**OK, >= 1300**

If the criteria for the Bioswale cannot be met, three options are available:
i) Consider it a Pollution Prevention BMP instead of a Treatment BMP;
ii) Consider an alternative Treatment BMP at that location;
iii) Petition the RWQCB for a reduced WQF intensity (see section 2.4.2.2).

DESIGN IS OK

Prepared by: Fernando Manzanera, Caltrans District 1 Hydraulics, September 2013
Sources: - Caltrans Stormwater Quality Handbook Biofiltration Swale Design Guidance, September 2012
- Storm Water Quality Handbooks Project Planning and Design Guide (PPDG), CTSW-RT-10-254.03, July 2010

BIOSWALE (Bioswale Design Program)

Calculated by: Jaimie Azvedo
Date: 1/28/2015

Placer I-80 Auxiliary Lanes Project EA#03F320
Westbound Segment, Bioswale #2 -

Paved area contributing to bioswale:	A_p =	**2.2400 ac**
Unpaved area contributing to bioswale *(total area typically < 10 acres)*:	A_u =	**0.7300 ac**
Runoff coefficient for pavement *(0.91 maximum due to multiplier):*	C_p =	**0.90**
Runoff coefficient *for unpaved areas (HDM Figure 819.2A) (0.91 maximum):*	C_u =	**0.52**

Comments: Pervious runoff coefficient = 0.12(Relief) + 0.16(Soil Infiltration) + 0.12 (Vegetal Cover) + 0.12 (Surface Storage) = 0.52 (Value matches Infiltration Tool Spreadsheet)

Rainfall Intensity for Q_{25} (from IDF curves):	I_{25} =	**2.90 in/hr**

Comments: I = 2.9 in/hr for project area for minimum Tc=5minutes (calculation sheet attached)

Rainfall Intensity for **Water Quality Flow (WQF)**:	I_{WQF} =	**0.16 in/hr**

(Lake: 0.16 in/hr, Mendocino: 0.27 in/hr, Del Norte & Humboldt: 0.36 in/hr, see PPDG page 2-23)

Open channel calculation for Q_{25}:

Manning's n (0.05 by HDM table 864.3A):	n =	**0.050**	
Swale longitudinal slope *(between 0.25% and 6%, but 1% - 2% is preferred):*	S_L =	**0.85%**	
Side slopes (***z : 1***, *where z = 4 or flatter, R or L looking downstream:*	z_L =	**4**	
	z_R =	**4**	
Width at invert *(0 ft for ditches, and between 2 and 10 ft for trapezoidal channels):*	b =	**2.00 ft**	
Resulting $\mathbf{Q_{25}}$ *(HDM-819(c) requires a multiplier for Q_{25} equal to 1.1):*	$\mathbf{Q_{25}}$ =	**7.64 cfs**	$= 1.1 \cdot I_{25} \cdot (A_p \cdot C_p + A_u \cdot C_u)$
Q for internal calcs *(use goal-seek to make it equal to Q_{25} by varying D_{25}):*	Q =	7.64 cfs	
Depth of flow for Q_{25}:	D_{25} =	**0.83 ft**	must be equal (after goal-seek)
Velocity for Q_{25} *(maximum is 4 ft/s if not by-passed):*	V_{25} =	1.73 ft/s	**OK, <= 4 ft/s**
Water top width for Q_{25}:	T_{25} =	8.65 ft	

Open channel calculation for Q_{WQF} (flow that must be treated by the bioswale):

Manning's n *(0.20 for routinely mowed swales, 0.24 for infrequently mowed ones):*	n =	**0.24**	must be equal (after goal-seek)
Q_{WQF} *("Water Quality Flow" in the swale)*	$\mathbf{Q_{WQF}}$ =	**0.38 cfs**	$= IWQF \cdot (A_p \cdot C_p + A_u \cdot C_u)$
Q for internal calcs *(use goal-seek to make it equal to Q_{WQF} by varying D_{WQF}):*	Q =	0.38 cfs	
Depth of flow for WQF *(maximum is 0.5 ft):*	D_{WQF} =	**0.42 ft**	**OK, <= 0.5 ft**
Velocity for WQF *(maximum is 1 ft/s):*	V_{WQF} =	0.25 ft/s	**OK, <= 1 ft/s**
Water top width for Q_{WQF}:	T_{WQF} =	5.36 ft	

Hydraulic Residence Time Check (HRT):

Length of bioswale:	L =	**475.00 ft**

Comments: Swale is adjacent to I-80 right shoulder btwn STA 61+80 and STA 66+60

Hydraulic Residence Time (minimum is 5 min): *$HRT = (L / V_{WQF}) / 60$*	HRT =	32.18 min	**OK, >= 5 min**
Must satisfy: HRT / ($D_{WQF} \cdot V_{WQF}$) >= 1300 sec^2/ft^2 :		18690	**OK, >= 1300**

If the criteria for the Bioswale cannot be met, three options are available:
i) Consider it a Pollution Prevention BMP instead of a Treatment BMP;
ii) Consider an alternative Treatment BMP at that location;
iii) Petition the RWQCB for a reduced WQF intensity (see section 2.4.2.2).

DESIGN IS OK

Prepared by: Fernando Manzanera, Caltrans District 1 Hydraulics, September 2013
Sources: - Caltrans Stormwater Quality Handbook Biofiltration Swale Design Guidance, September 2012
- Storm Water Quality Handbooks Project Planning and Design Guide (PPDG), CTSW-RT-10-254.03, July 2010

Attachment H

D-3 TRANSPORTATION MANAGEMENT PLAN CHECKLIST

District / EA: 03-3F2301
Date Prepared: April 17, 2015
Prepared By: Sam Batakji
Stage of Project (X box) ☐ PID ☐ PSSR ☒ PR ☐ PS&E

Co.Rte.-PM Pla-80-PM Var
Location: East of SR-65 Connector to Rocklin Road I/C and Riverside Ave I/C to Douglas Blve I/C.
Description: Adding Auxilliary Lanes/ 5th Lane Extension

Item	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	UNIT COST	REQUIRED IN SPEC.
1.0 Public Information Strategies							
1.1 Brochures and Mailers	X				Per recommendation of PIO		
1.2 Media Releases (& minority media sources)	X						
1.3 Paid Advertising			X				
1.4 Public Information Center		X					
1.5 Public Meetings/Speakers Bureau		X		066063			
1.6 Project Telephone Hotline		X					
1.7 Internet, E-Mail	X						
1.8 Local cable TV and News		X					
1.9 Notification to Impacted groups	X				Placer County, City of Roseville and City of Rocklin		
(i.e. bicycle users, pedestrians with disabilities, others)							
1.10 Project Web Page		X					
1.11 Caltrans Public Information Office		X		066063			
1.12 Consultant Public Information Office			X				
1.13 Other items			X				
2.0 Traveler Information Strategies							
2.1 Changeable Message Signs (permanent)		X					
2.2 Changeable Message Signs (portable)	X			128650	$125 per sign per day		X
2.3 Special Construction Signs		X		120690			
2.4 Traveler Information Systems (CHIN/Internet)			X	861985			
2.5 Highway Advisory Radio "HAR" (fixed or mobile)			X	860520			
2.6 Radar Speed Sign			X	066064			
2.7 Traffic Management Team			X				
2.8 Revised Transit Schedules/ Maps			X				
2.9 Bicycle community information			X				
2.10 Other item			X				
3.0 Incident Management							
3.1 COZEEP	X			066062	$1000/day & $2000/night		
3.2 Freeway Service Patrol (tow truck service patrol)		X		066065			
3.3 Traffic Surveillance Stations (loops or CCTV)			X	066876			
3.4 Transportation Management Center	X						
3.5 Traffic Control Inspector (Caltrans)	X						
3.6 Traffic Management Team	X						
3.7 On-site Traffic Advisor (contractor)		X					
3.8 Other Items			X				
4.0 Construction Strategies							
4.1 Incentive/Disincentive Clauses		X					
4.2 Delay damage clause	X				Per Lane Closure Charts		X
4.3 Night work	X				Per Lane Closure Charts		X
4.4 Weekend Work	X						X
4.5 Extended Weekend Closures		X					
4.6 Planned Lane/Ramp Closures		X					
4.7 Total Facility Closure			X				
4.8 Project Staging/Traffic Handling	X						X
4.9 Truck Traffic Restrictions			X				
4.10 Reduced Lane Widths		X					

4.0 Construction Strategies (Continued)

Item	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	UNIT COST	REQUIRED IN SPEC.
4.11 Temporary K-Rail	X			129000			X
4.12 Temporary Traffic Screens		X		129150			
4.13 Reduced Speed Zones		X					
4.14 Traffic Control Improvements		X					
4.15 Contingency Plans	X						X
4.15.1 Material Plant on standby			X				
4.15.2 Extra Critical Equipment on site			X				
4.15.3 Material Testing Plan			X				
4.15.4 Alternate Material on site			X				
(In case of failure or major delays)							
4.15.5 Emergency Detour Plan	X						
4.15.6 Emergency Notification Plan	X						
4.15.7 Weather Conditions Plan	X						
4.15.8 Delay Timing and Documentation Plan		X					
4.15.9 Late Closure Reopening Notification	X						
4.16 Signal timing modification		X					
4.17 Coordination with adjacent construction	X				Check NR Construction Reports		X
4.18 Double Fine Zone (signs)		X					
4.19 Right of Way Delay			X	066022			
4.20 Other Items			X				

5.0 Demand Management

Item	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	UNIT COST	REQUIRED IN SPEC.
5.1 HOV Lanes/Ramps			X				
5.2 Ramp metering		X					
5.3 Park-and-Ride Lots			X				
5.4 Parking Management/Pricing			X				
5.5 Rideshare Incentives			X				
5.6 Rideshare Marketing			X	066069			
5.7 Transit, Train, or Light-Rail Incentives			X	066066			
5.8 Transit Service Modification			X				
5.9 Variable Work Hours			X				
5.10 Telecommute			X				
5.11 Other Items			X				

6.0 Alternate Route Strategies

Item	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	UNIT COST	REQUIRED IN SPEC.
6.1 Ramp Closures	X						
6.2 Street Improvements			X				
6.3 Reversible Lanes			X				
6.4 Temporary Lanes or Shoulders Use			X				
6.5 Freeway to freeway connector closures			X				
6.6 Encroachment Permit from City/County			X				

7.0 Other Strategies

Item	REQUIRED	RECOMMENDED	NOT APPLICABLE	BEES Item No.	COMMENTS	UNIT COST	REQUIRED IN SPEC.
7.1 Application of new technology			X				
7.2 Other Items			X				

Comments:

TRANSPORTATION MANAGEMENT PLAN DATA SHEET

To: Rod Murphy
Project Manager

April 22, 2015
EA 03-3F2301
03-PLA-80 Var

From: Dokken Engineering

Subject: I-80 Auxiliary Extension Project Report
Transportation Management Plan (TMP) Data Sheet

Location

This project is on I-80, a multi-lane freeway located in Placer County from 0.1 mile east of Sacramento/Placer County line to Douglas Blvd Interchange and from 0.8 mile east of SR 65 connector to Rocklin Road Interchange. I-80 connects the Bay area and the Tahoe/Nevada area and functions as a primary transportation corridor through the Sierra Nevada. The speed limit for this facility is 65 mph.

Scope of Work

The project proposes to widen the existing I-80 by adding an eastbound auxiliary lane 0.8 miles east of SR 65 to Rocklin Road, and a westbound auxiliary lane between Douglas Boulevard and Riverside Avenue. An alternative is being considered to convert the proposed westbound auxiliary lane into a fifth through lane from east of Douglas Boulevard to west of Riverside Avenue where five through lanes currently exist.

Work will also include construction of outside shoulder barriers, retaining walls, soundwalls, pavement and bridge widening and installation of overhead signs.

For Traffic volumes refer to **Table-1**

Table-1: Traffic Volumes
(2013 Traffic Volumes on California State Highways)

Location Description	**Type of Roadway**	**Peak-Hour (vph)** (both directions combined)	**AADT (vpd)**
03-Pla-80-PM 0.1/2.2	Freeway	14,400	180,000
03-Pla-80-PM 4.1/6.0	Freeway	13,600	163,000

Truck traffic on I-80 within the project limits averages 6% of the total AADT.

Recommendation

- Because of high traffic volumes on I-80, work requiring traffic control on mainline, ramps, and shoulders will be allowed generally from late evening to early morning hours.
- Lane closures will be performed in accordance with Standard Plan Sheet T10, "Traffic Control System for Lane Closure on Freeways and Expressways".
- The use of stage construction K-rail will allow for daytime operations without restriction and roadway utilization by the public, and to minimize lane closures.
- When K-rail is used, gawk screen will be required to prevent excessive slowing of traffic through the project limits. However, during peak commute hours, the contractor may be ordered to halt all work behind K-rail, if adjacent traffic volumes become congested to the point where Public Safety and Public Convenience provisions of the contract apply.
- Ramps will be stage-constructed to remain open during daytime hours and when complete nighttime closures are necessary, traffic will be detoured in accordance with traffic handling plans prepared by the Project Engineer during the PS&E design phase.
- No lane closures, shoulder closures, or other traffic restrictions will be allowed on Special Days, designated holidays and the day preceding designated holidays.
- Coordinating with the City of Roseville and the City of Rocklin is required to handle traffic through the work area.
- Coordinating with adjacent projects within, or nearby the project limits will be required to avoid conflicts.
- The Use of A+B Bidding is recommended to expedite the project.
- Incentive/disincentive provision in the contract is recommended.
- Ensure inside shoulders can support live traffic.
- Work at this location will require a full time COZEEP presence.
- Freeway Service Patrol (FSP) is recommended during construction.
- Portable changeable message signs will be required in direction of traffic during construction for each lane or shoulder closure.
- SSPs, detailed lane closure charts and cost estimate will be developed for the final TMP prior to P&E

Cost

For estimating purposes, the cost for Traffic Management Plan (TMP) items during construction is $0.6 Millions, which is 5% of the construction costs. TMP items include Traffic Control Systems, Portable Changeable Message Signs, Maintain Traffic, and TMP-Public Information. .

- COZEEP is estimated at $1,000.00 per working day and $2,000.00 per working night whenever CHP involvement is needed during construction. COZEEP estimate should include 2 officers per vehicle when performing night work.

- Additionally, Freeway Service Patrol (FSP) is estimated at $1000.00 per working day.

Attachment I

Placer I-80 Auxiliary Lanes Project *NADR*

Noise Abatement Decision Report

Placer I-80 Auxiliary Lanes Project

Placer County, City of Rocklin, City of Roseville

District 3-PLA-80-PM 4.1-6.0 / District 3-PLA-80-PM 2.2-0.1

EA-03F230

June 2015

Caltrans

Noise Abatement Decision Report

Placer I-80 Auxiliary Lanes Project

Placer County, City of Rocklin, City of Roseville

District 3-PLA-80-PM 4.1-6.0 / District 3-PLA-80-PM 2.2-0.1

EA-03F230

June 2015

Prepared By: ______________________ Date: 6/1/15

Zach Liptak
Environmental Planner
Dokken Engineering
916-858-0642

Approved By: ______________________ Date: 6/1/2015

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Project Engineer
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Exp. 6/30/15
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STATE OF CALIFORNIA

Concurred By: ______________________ Date: 6/18/15

Saeid Zandian-Jazi
Transportation Engineer
Caltrans, District 3
530-741-4581

List of Abbreviated Terms

Activity Category D	This activity category includes the interior impact criteria for certain land use facilities listed in Activity Category C (parks, campgrounds, golf courses, ect.) that may have interior uses
Caltrans	California Department of Transportation
Benefited Residence	A dwelling unit expected to receive a noise reducton of at least 5 dBA from the proposed abatement measure
CHP	California Highway Patrol
Critical Design Receiver	The design receiver that is impacted and for which the absolute noise levels, build vs. existing noise levels, or achievable noise reduction will be at a maximum where noise abatement is considered
Date of Public Knowledge	The date that a project is approved—approval of the final environmental documentation (e.g., Record of Decision) is complete
dB	A measure of sound pressure level on a logarithmic scale
dBA	A-weighted sound pressure level
ED	Environmental Document
FTIP	Federal Transportation Improvement Program
HOV	High-Occupancy Vehicles
Leq	Equivalent sound level (energy averaged sound level)
Leq[h]	A-weighted, energy average sound level during a 1-hour period
NAC	Noise Abatement Criteria
NADR	Noise Abatement Decision Report
NSR	Noise Study Report
Planned, Designed, and Programmed	A noise-sensitive land use is considered planned, designed, and programmed when it has received final development approval (generally the issuance of a building permit) from the local agency with jurisdiction
Reasonable Allowance	A single dollar value - a reasonable allowance per benefited residence that embodies three reasonableness factors
ROW	Right-of-Way
Type I Project	Proposed Federal or Federal-aid highway project for the construction of a highway on a new location or the physical alteration of an existing highway where there is either a substantial horizontal or substantial vertical alteration. Refer to 23CFR772.5 for details on the types of projects that qualify as Type I.

*According to the NSR approved on April 7, 2015.

*According to the NSR approved on April 7, 2015.

1. Introduction

The Noise Abatement Decision Report (NADR) presents the preliminary noise abatement decision as defined in the Caltrans Traffic Noise Analysis Protocol (Protocol). This report has been appoved by a Calfornia licensed professional civil engineer. The project level noise study report (NSR) (March 2015) prepared for this project is hereby incorporated by reference.

1.1 Noise Abatement Assessment Requirements

Title 23, Code of Federal Regulations (CFR), Part 772 of the Federal Highway Administration (FHWA) standards (23 CFR 772) and the Caltrans Traffic Noise Analysis Protocol (Protocol) require that noise abatement be considered for projects that are predicted to result in traffic noise impacts. A traffic noise impact is considered to occur when future predicted design-year noise levels with the project “approach or exceed” Noise Abatement Criteria (NAC) defined in 23 CFR 772 or when the predicted design-year noise levels with the project substantially exceed existing noise levels. A predicted design-year noise level is considered to “approach” the NAC when it is within 1 dB of the NAC. A substantial increase is defined as being a 12-dB increase above existing conditions.

23 CFR 772 requires that noise abatement measures that are reasonable and feasible and are likely to be incorporated into the project be identified before adoption of the final environmental document (ED).

The Protocol establishes a process for assessing the reasonableness and feasibility of noise abatement. Before publication of the draft ED, a *preliminary noise abatement decision* is made. The preliminary noise abatement decision is based on the *feasibility* of evaluated abatement and the *preliminary reasonableness determination.* Noise abatement is considered to be acoustically feasible if it is predicted to provide noise reduction of at least 5 dBA at an impacted receptor. Other nonacoustical factors relating to geometric standards (e.g., sight distances), safety, maintenance, and security can also affect feasibility.

The overall reasonableness of noise abatement is determined by the following three factors:

- the viewpoints of benefited receptors,
- the cost of noise abatement, and
- the noise reduction design goal.

*According to the NSR approved on April 7, 2015.

The preliminary reasonableness determination reported in this document is based on the noise reduction design goal and the cost of abatement. The viewpoints of benefited receptors are determined by a survey that is normally conducted during the public review period for the project ED.

Caltrans' noise reduction design goal is that a barrier must be predicted to provide at least 7 dB of noise reduction at one or more benefited receptors. The cost reasonableness of abatement is determined by calculating a cost allowance that is considered to be a reasonable amount of money to spend on abatement. This *reasonable allowance* is then compared to the engineer's cost estimate for the abatement. If the engineer's cost estimate is less than the allowance and the abatement will provide at least 7 dB of noise reduction at one or more benefited receptors, then the preliminary determination is that the abatement is reasonable. If the cost estimate is higher than the allowance or if the design goal cannot be achieved, the preliminary determination is that abatement is not reasonable.

The NADR presents the preliminary noise abatement decision based on acoustical and nonacoustical feasibility factors, the design goal, and the relationship between noise abatement allowances and the engineer's cost estimate. The NADR does not present the final decision regarding noise abatement; rather, it presents key information on abatement to be considered throughout the environmental review process, based on the best available information at the time the draft ED is published. The final overall reasonableness decision will take this information into account, along with the results of the survey of benefited receptors conducted during the environmental review process.

At the end of the public review process for the ED, the final noise abatement decision is made and is indicated in the final ED. The preliminary noise abatement decision will become the final noise abatement decision unless compelling information received during the environmental review process indicates that it should be changed. During final design, the exact placement and height of the barriers will be finalized to meet the noise abatement criteria.

1.2 Purpose of the Noise Abatement Decision Report

The purpose of the NADR is to:

- summarize the conclusions of the NSR relating to acoustical feasibility and the reasonable allowances for abatement evaluated,
- present the engineer's cost estimate for evaluated abatement,

*According to the NSR approved on April 7, 2015.

- present the engineer's evaluation of nonacoustical feasibility issues,
- present the preliminary noise abatement decision, and
- present preliminary information on secondary effects of abatement (impacts on cultural resources, scenic veiws, hazardous materials, biology, etc.).

The NADR does not address noise barriers or other noise-reducing treatments required as mitigation for significant adverse environmental effects identified under the California Environmental Quality Act (CEQA).

1.3 Project Description

The Placer County Transportation Planning Agency (PCTPA), in cooperation with the California Department of Transportation (Caltrans), Placer County, City of Rocklin, and City of Roseville, propose to widen the existing Interstate 80 (I-80) adding an eastbound auxiliary lane between State Route 65 (SR 65) and Rocklin Road, and a westbound auxiliary lane between Douglas Boulevard and Riverside Avenue (see Figure 1: Project Vicinity and Figure 2: Project Location). Consideration is being given to an alternative that would convert the proposed westbound auxiliary lane into a fifth through lane from east of Douglas Boulevard to west of Riverside Avenue (where five through lanes currently exist). The project is located in Placer County, California. Caltrans is the lead agency under the California Environmental Quality Act (CEQA) and is the lead agency under the National Environmental Policy Act (NEPA). The PCTPA, City of Rocklin, City of Roseville, and Placer County are the cooperating agencies.

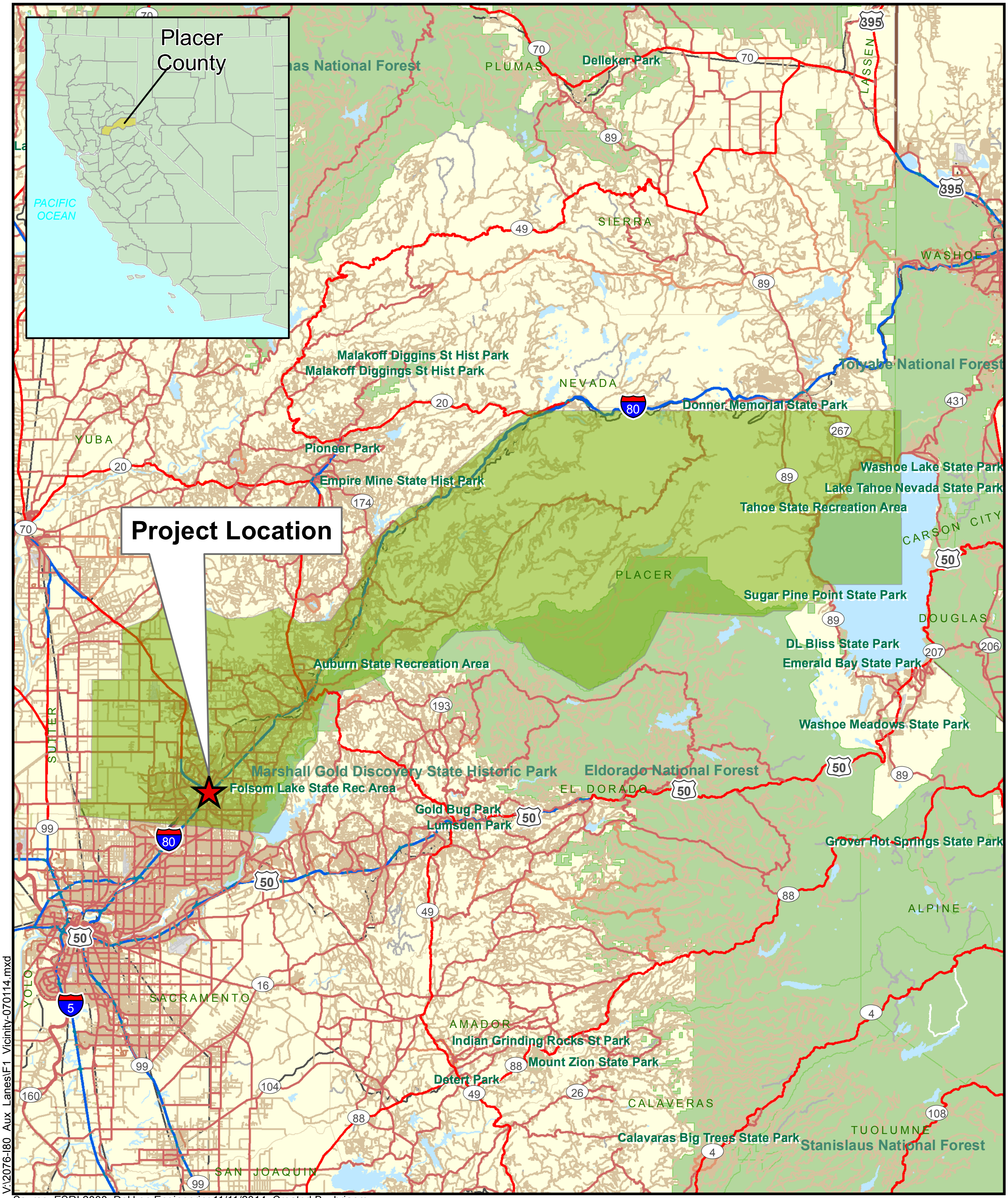
Purpose and Need

The purpose of the project is to:

- Enhance through traffic capacity on I-80 in two locations: eastbound from State Route 65 through the Rocklin Road Interchange, and westbound from Douglas Boulevard through the Riverside Avenue Interchange;
- Reduce existing congestion and operational problems on I-80 that cause back up on I-80 and on local roadways, and;
- Improve safety by reducing stop and go traffic through enhanced capacity, merging and weaving facilities.

The project is needed because the freeway is experiencing operational problems caused by high peak period traffic volumes. Vehicle hours of delay, average speeds, travel times, and other traffic performance measures will continue to degrade as growth increases. I-80 is a primary transcontinental freeway which primarily serves as a transportation corridor for both passengers and goods throughout the United States. Additionally, growth in the South Placer County region has increased daily commuter traffic and traffic to major commercial and educational centers in the area. This increased traffic demand, together with increased demand generated from recreational facilities in the Sierra Nevada Mountains to the east and the San Francisco Bay Area to the west have resulted in reduced levels of service on I-80. This segment of I-80 serves the national movement of goods and passengers, as well as the City of Roseville, City of Rocklin, and Placer County and is heavily used throughout the day.

*According to the NSR approved on April 7, 2015.



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Source: ESRI 2008; Dokken Engineering11/11/2014; Created By: brianm

Figure 1
Project Vicinity
EA-03F230
Placer I-80 Auxiliary Lanes Project
Placer County, California

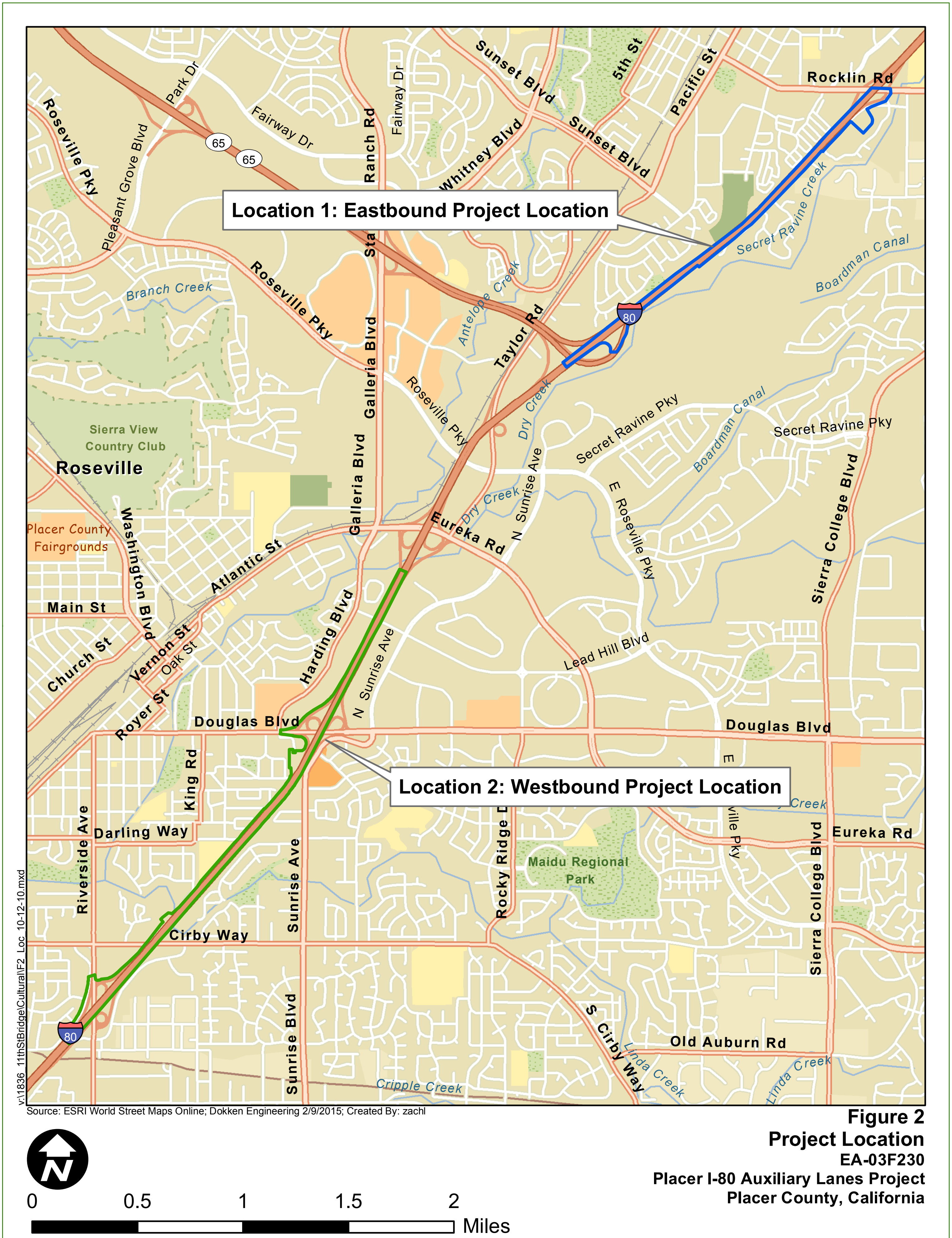


Figure 2
Project Location
EA-03F230
Placer I-80 Auxiliary Lanes Project
Placer County, California

Project Overview

I-80 is the principal east-west route through Northern California and a primary transcontinental freeway serving passenger and goods movement from the San Francisco Bay Area, Northern California, through the Midwest and extending to the eastern United States. Maintaining adequate passenger and goods movement on this critical component of the National Highway System is essential. SR 65 in Placer County is a major north-south facility and connects to I-80 from the north generally along the borders of the cities of Rocklin and Roseville. It is a major transportation corridor for the region and Northern California.

PCTPA, together with Caltrans, Placer County, City of Rocklin, and City of Roseville, have identified the need for additional transportation improvements in the area. Two key improvements to the regional plan are the addition of auxiliary lanes on I-80 in the westerly direction between Douglas Boulevard and Riverside Avenue, and in the easterly direction between SR 65 and Rocklin Road. Consideration is also being given to constructing a fifth through lane in the westbound direction instead of the auxiliary lane. Both the eastbound and westbound auxiliary lanes by definition are a portion of roadway, supplementary to the through movements, which enter at an on-ramp and exit at the following off-ramp. They provide an area for weaving and speed changes and enhance capacity. A through lane carries vehicles through an interchange and traffic can continue past an off-ramp.

Alternatives

The proposed project has three alternatives (see Appendix A for Figure 3: Project Features):

- Alternative 1 – Eastbound and Westbound Auxiliary Lanes
- Alternative 2 – Eastbound Auxiliary Lane and Westbound 5th Lane
- Alternative 3 – No Build (No Project)

Specifics of each alternative are discussed below:

Alternative 1 –Eastbound and Westbound Auxiliary Lanes

Alternative 1 includes the following eastbound and westbound auxiliary lanes:

I-80 Eastbound Auxiliary Lane – SR 65 to Rocklin Road

The eastbound auxiliary lane is proposed to be constructed between SR 65 and Rocklin Road with standard 12-foot lane and 10-foot shoulder widths. Non-standard shoulder widths are proposed at the overhead signs near the Rocklin Road exit. The auxiliary lane would begin 0.3 miles east of SR 65 and continue to the Rocklin Road off-ramp. In order to accommodate traffic from the new auxiliary lane, the eastbound Rocklin Road off-ramp would be widened to two exit lanes. The gore at the Rocklin Road off-ramp would have to be shifted to accommodate the new auxiliary lane. The project would require sliver right-of-way acquisitions from a few parcels adjacent to I-80.

Three retaining walls would be constructed along the eastbound auxiliary lane. The first location would be along a small hill along the freeway to allow for the widening of I-80 without encroaching into an enviromentally sensitive area. The second location would retain the widened I-80 embankment from encroaching onto the adjacent frontage road. A third wall would be needed where China Garden Road is elevated above I-80 and a wall is needed to retain this frontage road.

I-80 Westbound Auxiliary Lane – Douglas Boulevard to Riverside Avenue

The westbound auxiliary lane is proposed to be constructed between Douglas Boulevard and Riverside Avenue with a standard 12-foot lane and 10-foot shoulder widths. The auxiliary lane would begin at the Douglas Boulevard loop on-ramp to westbound I-80, and continue to the Riverside Avenue off-ramp. In order to accommodate the new auxiliary lane, the Douglas Boulevard slip on-ramp to westbound I-80 would have to be realigned, with a second lane added. The gores at both Douglas Boulevard on-ramps and at the Riverside Avenue off-ramp would have to be realigned to accommodate the new auxiliary lane. The project would require sliver right-of-way acquisitions from a few parcels adjacent to I-80.

Alternative 1 also requires the widening of Linda Creek Bridge, a continuous three span, cast-in-place, reinforced concrete T-Beam Bridge. The total bridge width is currently 149.5 feet. In order to accommodate the auxiliary lane, an additional approximate 12.5 foot widening is required to the northwest (downstream) side with a column added at each bent. If a sound wall is needed on the bridge to shield the adjacent residences from noise, the new girder load capacity can be increased to carry this additional load without deepening the girder depth. Footings would be constructed immediately adjacent to the concrete lined channel, requiring partial removal and reconstruction of the channel.

A series of retaining walls, sound walls, and combination retaining/sound walls would be constructed alongside the proposed auxiliary lane. A sound wall currently exists along some portions of I-80, which in some areas would need to be removed and replaced adjacent to the proposed shoulder with a combination retaining/sound wall. Retaining walls would be constructed adjacent to Jo Anne Lane and under the Cirby Way Overcrossing.

*According to the NSR approved on April 7, 2015.

Project Funding and Construction Time

Alternative 1 is included in the Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Improvement Program (MTIP) as SACOG ID's PLA25519 for the eastbound auxiliary lane and PLA25542 for the westbound auxiliary lane. The eastbound auxiliary lane is funded through the federal High Priority Projects program, while the westbound auxiliary lane is funded through the federal National Corridor Infrastructure Improvement Program. Construction of the auxiliary lanes is anticipated to last for 12 months.

Alternative 2 –Eastbound Auxiliary Lane and Westbound 5th Lane

Alternative 2 includes the following eastbound auxiliary lane and westbound 5th lane extension:

I-80 Eastbound Auxiliary Lane – SR65/I-80 Connector to Rocklin Road

Alternative 2 is the same as Alternative 1 for the eastbound auxiliary lane. The eastbound auxiliary lane is proposed to be constructed between SR 65 and Rocklin Road with standard 12-foot lane and 10-foot shoulder widths. Non-standard shoulder widths are proposed at the overhead signs near the Rocklin Road exit. The auxiliary lane would begin 0.3 miles east of SR 65 and continue to the Rocklin Road off-ramp. In order to accommodate traffic from the new auxiliary lane, the eastbound Rocklin Road off-ramp would be widened to two exit lanes. The gore at the Rocklin Road off-ramp would have to be shifted to accommodate the new auxiliary lane. The project would require sliver right-of-way acquisitions from a few parcels adjacent to I-80.

Three retaining walls would be constructed along the eastbound auxiliary lane. The first location would be along a small hill along the freeway to allow for the widening of I-80 without encroaching into an enviromentally sensitive area. The second location would retain the widened I-80 embankment from encroaching onto the adjacent frontage road. A third wall would be needed where China Garden Road is elevated above I-80 and a wall is needed to retain this frontage road.

Westbound 5th Lane Extension – Douglas Boulevard to Riverside Avenue

The westbound 5th lane extension alternative is proposed to be constructed between Douglas Boulevard and Riverside Avenue with a standard 12-foot lane and 10-foot shoulder widths. The 5th lane extension would begin approximately 1,000 feet east of the Douglas Boulevard off-ramp from westbound I-80, and extend to 600 feet west of the Riverside Avenue overcrossing, where the freeway currently has five lanes. The Douglas Boulevard off-ramp would be reduced from a 2-lane off-ramp with a trapped lane to a 1-lane off-ramp without a trapped lane. Both Douglas Boulevard on-ramps would have to be realigned to accommodate the 5th lane extension. Additionally, the Riverside Avenue loop on-ramp would require realignment in order to connect to the 5th lane extension. The project would require sliver right-of-way acquisitions from a few parcels adjacent to I-80.

Alternative 2 also requires the widening of Linda Creek Bridge, a continuous three span, cast-in-place, reinforced concrete T-Beam Bridge. The total bridge width is currently 149.5 feet. In order to accommodate the 5th lane extension, an additional approximate 12.5 foot widening is required to the northwest (downstream) side with a column added at each bent. If a sound wall is needed on the bridge to shield the adjacent residences from noise, the new girder load capacity can be increased to carry this additional load without deepening the girder depth. Footings would be constructed immediately adjacent to the concrete lined channel, requiring partial removal and reconstruction of the channel.

A series of retaining walls, sound walls, and combination retaining/sound walls would be constructed alongside the proposed 5th lane extension. A sound wall currently exists along some portions of I-80, which in some areas would need to be removed and replaced adjacent to the proposed shoulder with a combination retaining/sound wall. Retaining walls would be constructed adjacent to Jo Anne Lane and under the Cirby Way Overcrossing. The realignment of the slip on ramp at Douglas Boulevard would require the removal and replacement of existing retaining walls.

Project Phasing

Due to lack of available funding, Alternative 2 may need to be constructed in two phases. Phase I of Alternative 2 would construct the eastbound auxiliary lane from SR 65 to Rocklin Road and a westbound auxiliary lane from Douglas Boulevard to Riverside Avenue. The westbound auxiliary lane would begin at the eastbound Douglas Boulevard loop on-ramp, and continue to the Riverside Avenue off-ramp. Phase I would be similar in nature to Alternative 1.

Phase II of Alternative 2 would complete the remaining components, basically converting the westbound Phase I auxiliary lane to the 5th lane extension previously described.

Project Funding and Construction Time

Phase I of Alternative 2 of the proposed project is included in the Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Improvement Program (MTIP) as

SACOG ID’s PLA25519 for the eastbound auxiliary lane and PLA25542 for the westbound auxiliary lane. The westbound segment of Phase II of Alternative 2 of the proposed project is not included in the SACOG MTIP. The westbound 5th lane extension is anticipated to be included in the upcoming 2036 MTP and 2015-18 MTIP in spring 2016, prior to project approval. The eastbound auxiliary lane is funded through the federal High Priority Projects program, while the westbound auxiliary lane is funded through the federal National Corridor Infrastructure Improvement Program. Construction is anticipated to last for 12 months for Phase I of Alternative 2 and 9 months for Phase II of Alternative 2.

Alternative 3 - No Build (No Project)

The no build alternative would not construct either Alternative 1 or Alternative 2 along I-80, would not alleviate traffic delays, and would not change the present roadway geometrics. The no build alternative would not meet the purpose and need of the proposed project. Traffic would continue to back up on I-80 and congest local roads as a result of the no build alternative.

1.4 Affected Land Uses

A general reconnaissance of the proposed project area was performed within the project limits to identify noise-sensitive land uses. Field visits, aerial and Microstation mapping provided by the project Engineer, street views in Google Maps and field photographs of the project area were used to identify noise-sensitive land uses. Single and multi-family residences were identified along eastbound I-80 between State Route 65 (SR 65) and Rocklin Road. Single and multi-family residences and one school were identified along westbound of I-80 between Douglas Boulevard and Riverside Avenue where outdoor frequent human use would occur as shown in Figure 4. These land use types fall into NAC Activity Category B for the residences and Category C for the school.

Although all developed land uses are evaluated in this analysis, as required by the Protocol, noise abatement was considered only for areas of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as recreation areas.

2 Results of the Noise Study Report

The NSR for this project was prepared by Joza Burnam and approved by Michelle Jones of Entech Consulting Group on March 2, 2015; it was subsequently concurred by Saeid Zandian-Jazi of Caltrans, on April 7, 2015.

According to 23 CFR 772(13)(c), federal funding may be used for the following abatement measures:

- Construction of noise barriers, including acquisition of property rights, either within or outside the highway right-of-way. Landscaping is not a viable noise abatement measure.
- Traffic management measures including, but not limited to, traffic control devices and signage for prohibition of certain vehicle types, time-use restrictions for certain vehicle types, modified speed limits, and exclusive lane designations.
- Alteration of horizontal and vertical alignments.
- Acquisition of real property or interests therein (predominantly unimproved property) to serve as a buffer zone to preempt development which would be adversely impacted by traffic noise. This measure may be included in Type I projects only.
- Noise insulation of Activity Category D land use facilities. Post- installation maintenance and operational costs for noise insulation are not eligible for Federal- aid funding.
-

The traffic noise modeling results in Table B-1 (Appendix C) indicate that traffic noise levels at residential areas and the school along Location 1 and Location 2 are predicted to be in the range of 60 to 71 dBA Leq(h) in the design year. Noise levels from Existing to 2035 No-Build conditions are expected to increase by 0 to 2 dB. The increase in noise levels is due to the increases in traffic volumes from Existing to 2035 No-Build conditions. Noise levels for the 2035 Design Year under the Build Alternative are expected to increase by 0 to 3 dB compared to 2035 Design Year No-Build noise levels. Proposed improvements bring traffic closer to nearby receivers which results in increased noise levels. Due to these increased noise levels, potential for noise impacts had to be considered within the Noise Study Report.

The proposed project Alternatives 1 and 2 vary in design features, however for the purposes of assessing noise impacts; the difference between the type of lane addition (auxiliary lane or an additional 5th lane) does not have a noticeable effect on noise levels experienced at nearby sensitive receivers because both alternatives would bring traffic closer to nearby receivers by the same distance. Noise levels presented for eastbound and westbound auxiliary lanes for Alternatives 1 and 2 are similar in nature therefore, impacts evaluated are identical for either alternative.

*According to the NSR approved on April 7, 2015.

A detailed modeling analysis was conducted for the existing barriers along I-80 to determine if they will continue to abate the increase in noise volumes. All existing walls were found to abate the anticipated build noise levels, and do not require modification to their design height. At Location 2, a number of wall segments will be removed and replaced in-kind along the edge of Caltrans right-of-way; however, these replaced walls will also continue to abate the anticipated build noise levels and do not require modification to their design height.

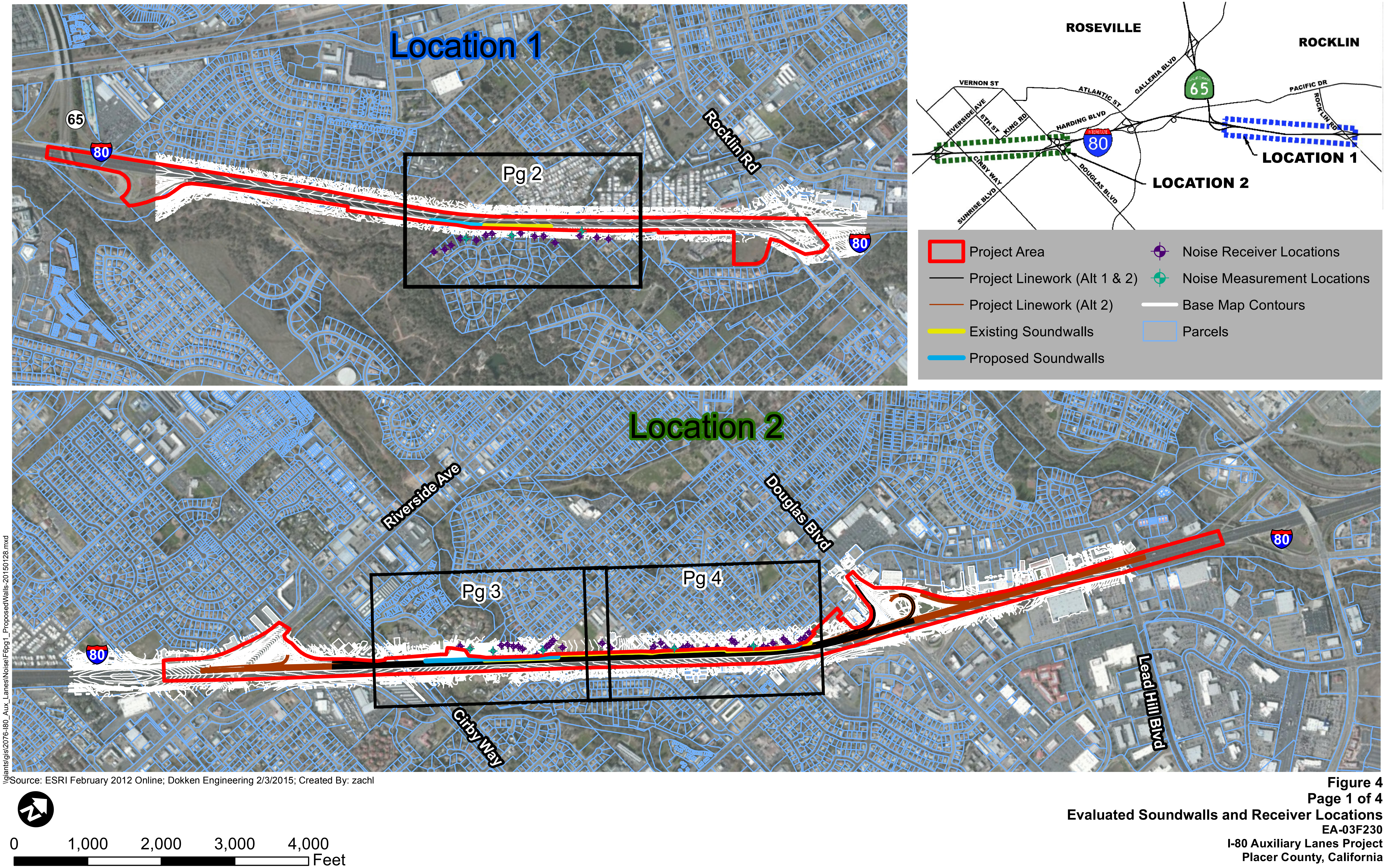
For receivers not currently behind existing noise barriers, the predicted build noise levels approach or exceed their respective NAC Activity criteria (67 dBA Leq[h]) at seventeen residences, five at Location 1 and twelve at Location 2. Therefore, a noise abatement evaluation was required.

The noise abatement evaluation was conducted to determine if additional barriers along I-80 would provide at least a 5 dB reduction for the residences that are anticipated to approach or exceed their respective NAC Activity criteria. In addition to the 5 dB reduction, the abatement must achieve, per the 23CFR772 Caltrans acoustical design goal, at least 7 dB of noise reduction at one or more benefited receptors to be considered for further evaluation. Residences approaching or exceeding the NAC which would receive a 5 dB reduction from noise abatement, but would not receive a 7 dB reduction for at least one of the residences are not considered feasible per the Caltrans acoustical design goal and are eliminated from further evaluation.

The Noise Study Report evaluated three barriers for feasibility, one at Location 1 and two at Location 2, along the edge of right-of-way (ROW). Barrier SW-E1, at Location 1, was found to be effective at achieving a 5 dB reduction for each resident, with at least one resident receiving a 7 dB reduction at a height of 16 feet. Barrier SW-W1, at Location 2, was found to be effective at achieving a 5 dB reduction for each resident, with at least one resident receiving a 7 dB reduction at a height of 12 feet. Barrier SW-W2, at Location 2, was not found to be effective in achieving a 7 dB reduction for one resident at any evaluated height, although it did achieve a 5 dB reduction for the affect receptors. For this reason, Barrier SW-W2 is not considered feasible in the Noise Study Report and is not considered for evaluation within the NADR. The barriers evaluated that achieve the abatement design criteria are identified on Figure 4 following; however, SW-W2, in the vicinity of noise receiver locations WB-38 and WB-39, is not displayed as it is not considered feasible.

Barrier heights in the range of 8 to 16 feet were evaluated in two-foot increments. 16 feet is the maximum height allowable under Caltrans design criteria for sound barriers. Table B-1 in Appendix C summarizes the results of the barrier analysis at all effective design heights for each impacted receptor location along the project.

*According to the NSR approved on April 7, 2015.



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Source: ESRI February 2012 Online; Dokken Engineering 2/3/2015; Created By: zachl

Figure 4
Page 1 of 4
Evaluated Soundwalls and Receiver Locations
EA-03F230
I-80 Auxiliary Lanes Project
Placer County, California

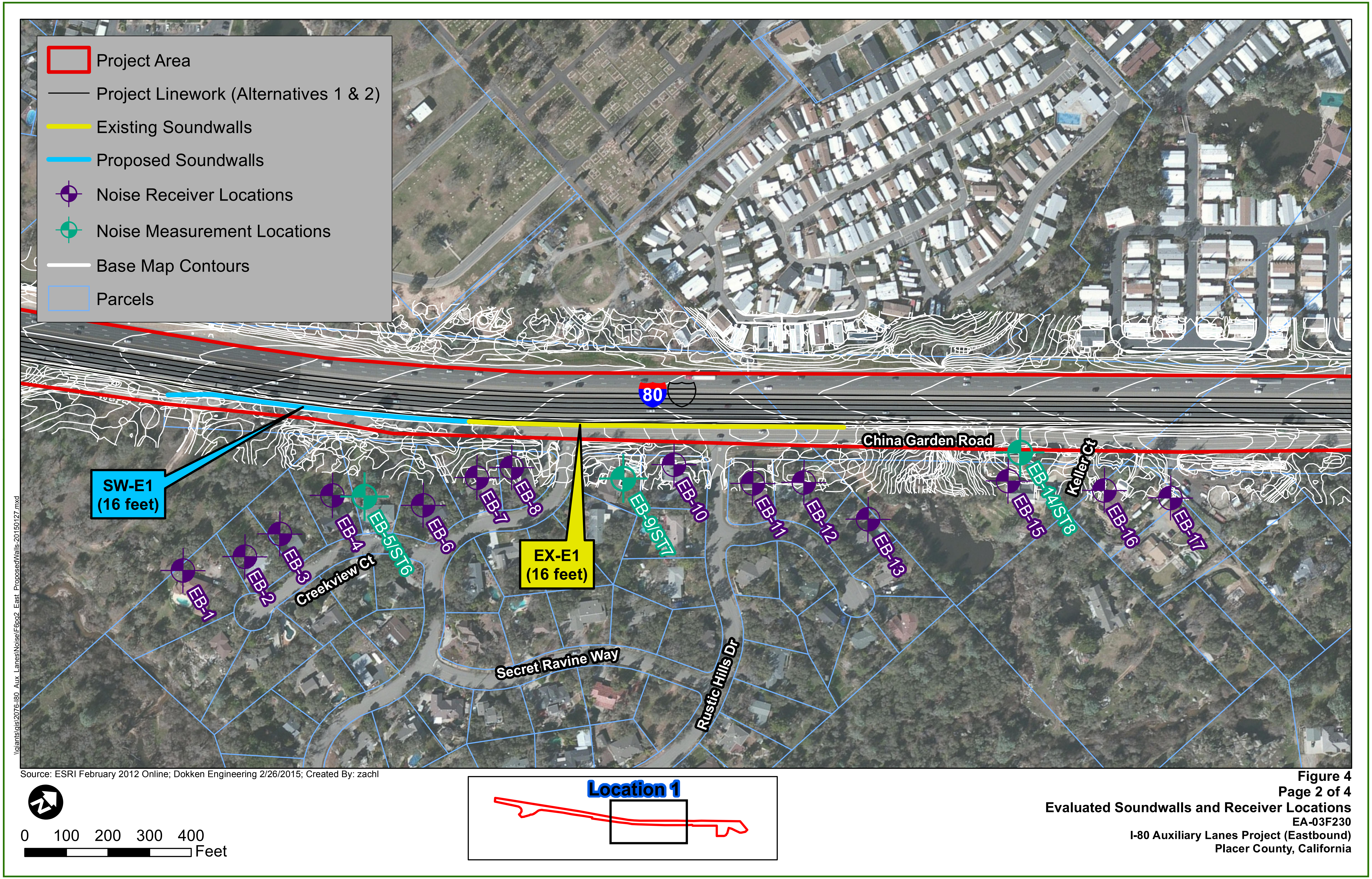
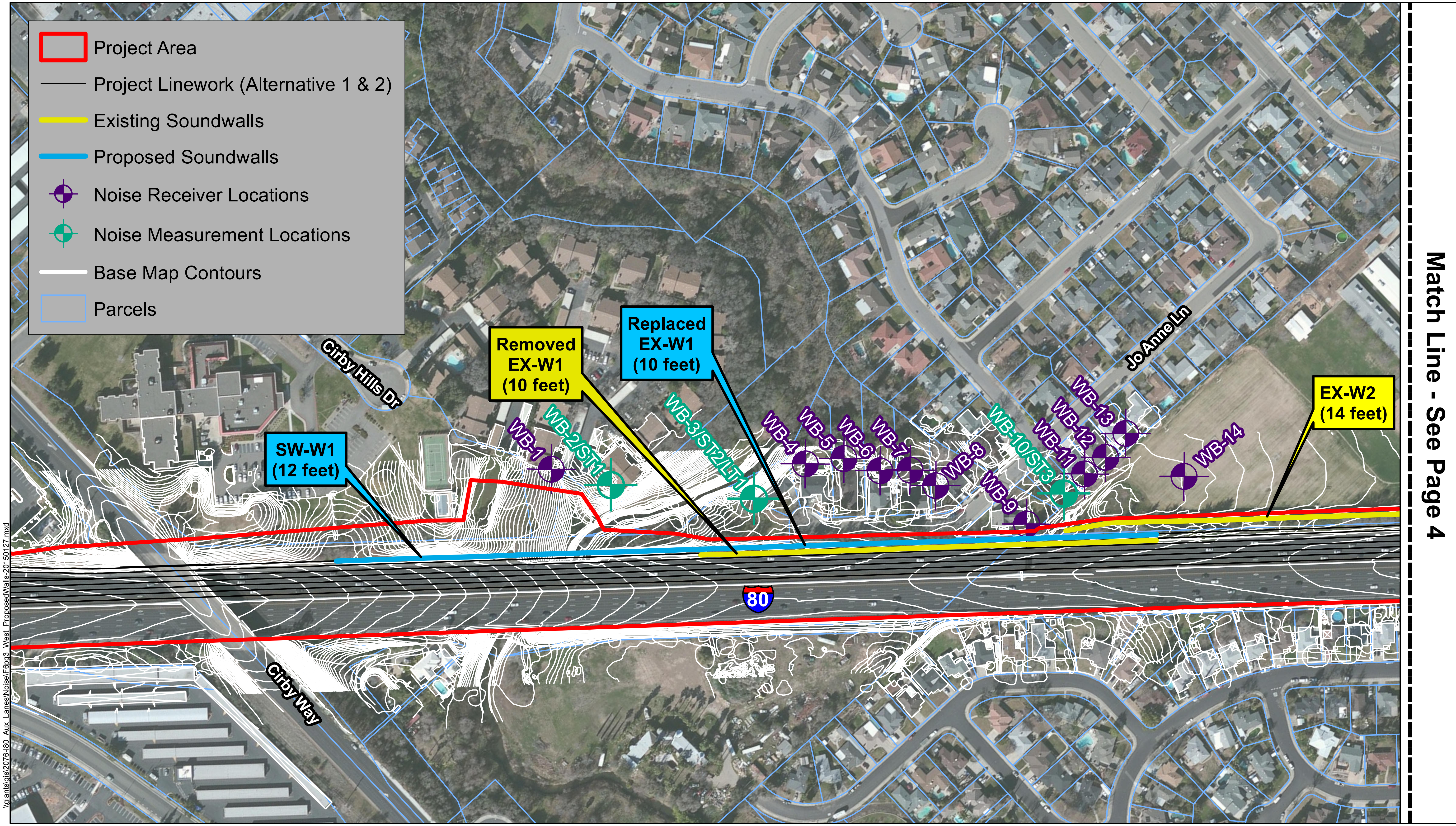


Figure 4
Page 2 of 4
Evaluated Soundwalls and Receiver Locations
EA-03F230
I-80 Auxiliary Lanes Project (Eastbound)
Placer County, California

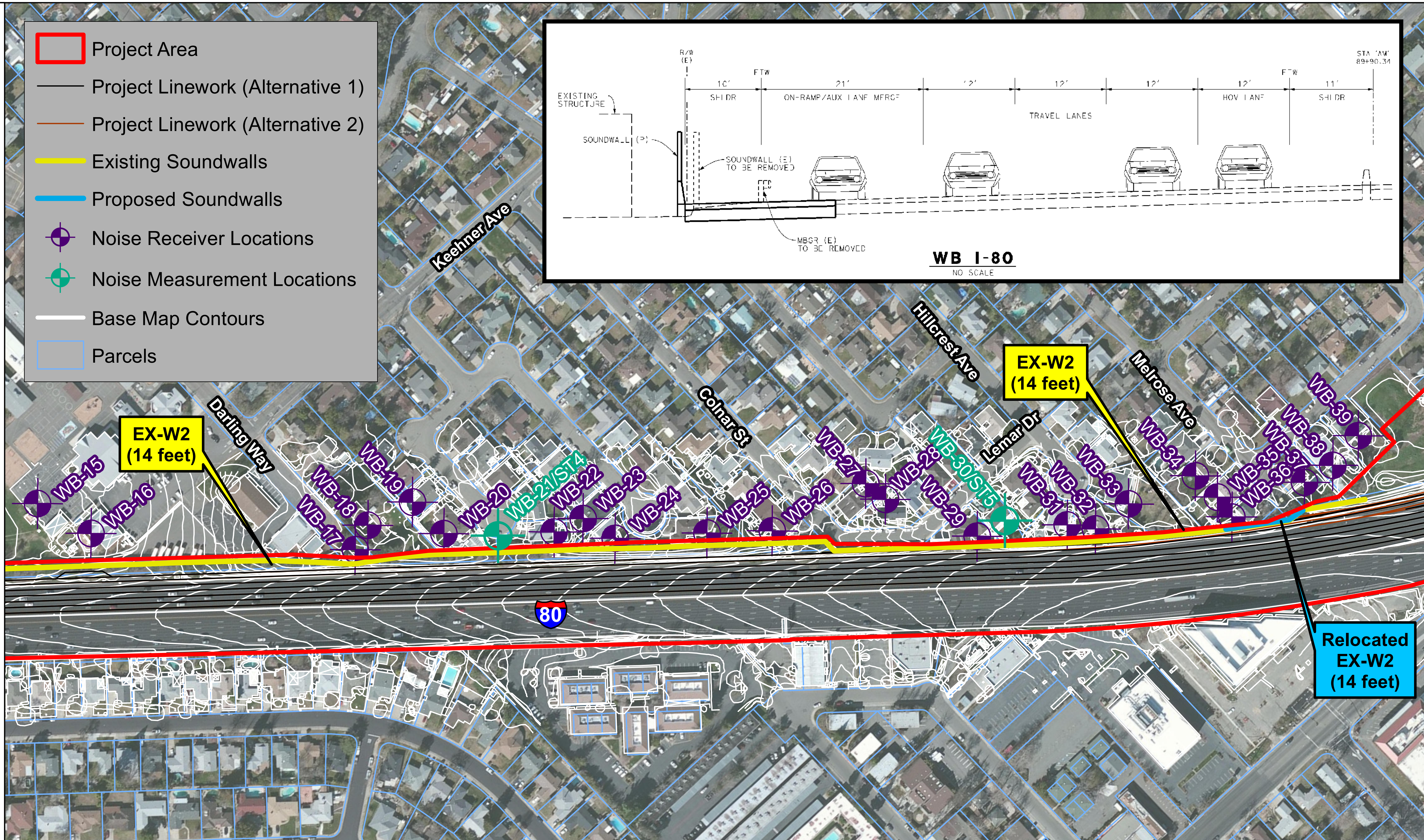


Source: ESRI February 2012 Online; Dokken Engineering 2/26/2015; Created By: zachl

0 100 200 300 400 Feet

Figure 4
Page 3 of 4
Evaluated Soundwalls and Receiver Locations
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California

Match Line - See Page 3



\\giants\gis\2076-I-80_Aux_Lanes\Noise\F6pg4_West_ProposedWalls-20150127.mxd

Source: ESRI February 2012 Online; Dokken Engineering 2/25/2015; Created By: zachl

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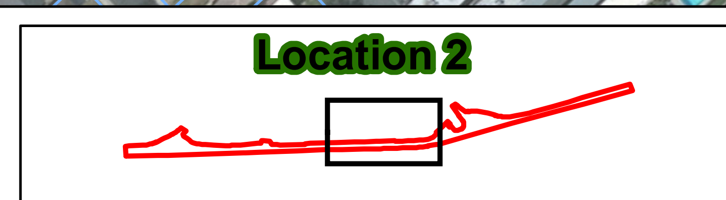


Figure 4
Page 4 of 4
Evaluated Soundwalls and Receiver Locations
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California

Each noise barrier has been evaluated for feasibility based on achievable noise reduction. For each noise barrier found to be acoustically feasible, reasonable cost allowances were calculated. The total reasonable allowance for the cost of construction of the wall is calculated by multiplying the number of benefitted receivers by the reasonable allowance per benefitted receiver, which is currently $64,000.

Receptors EB-4 through EB-8 represent a total of five benefited receptors from Barrier SW-E1. Receptors WB-1 and WB-2 represent ten benefited receptors from Barrier SW-W1. Receptors WB-38 and WB-39 represent a total of two benefited receptors from SW-W2; however, the wall abating noise for these two receptors was not evaluated for reasonableness in this NADR as the wall did not achieve a 7 dB reduction for either receiver at any evaluated height.

Table 2-1 and 2-2 below list the acoustically feasible heights for the SW-E1 and SW-W1 walls, the number of benefited receivers, and the reasonable allowances per benefitted receiver, and the total reasonable allowance for each height of each wall (in this case, barriers ranging from 12 feet to 16 feet in height were determined to be feasible for Barrier SW-E1 and barriers ranging from 8 feet to 16 feet in height were determined to be feasible for Barrier SW-W1. These heights were considered feasible as they achieved a reduction of 5 dB for each benefitted receiver; however, SW-E1 only achieved the 7 dB reduction goal for at least one resident at a height of 16 feet and SW-W1 achieved this goal at a height of 12 feet).

Table 2-1. Summary of Reasonableness Determination Data—SW-E1 Alternative 1 & 2

Barrier I.D.: SW-E1	**12-Foot**	**14-Foot**	**16-Foot**
Number of Benefited Receivers	3	5	5
Reasonable Allowance Per Benefited Receiver	$64,000	$64,000	$64,000
Total Reasonable Allowance	$192,000	$320,000	$320,000

Table 2-2. Summary of Reasonableness Determination Data—SW-W1 Alternative 1 & 2

Barrier I.D.: SW-W1	**8-Foot**	**10-Foot**	**12-Foot**	**14-Foot**
Number of Benefited Receivers	6	6	10	10
Reasonable Allowance Per Benefited Receiver	$64,000	$64,000	$64,000	$64,000
Total Reasonable Allowance	$384,000	$384,000	$640,000	$640,000

For any noise barrier to be considered reasonable from a cost perspective, the estimated cost of the noise barrier should be within 10% or less than the total reasonable cost allowance calculated for the barrier. The cost calculations of the noise barrier should include all items appropriate and necessary for construction of the barrier, such as traffic control, drainage modification, and retaining walls.

*According to the NSR approved on April 7, 2015.

The design of the noise barrier presented in this report is preliminary and has been conducted at a level appropriate for environmental review and not for final design of the project. Preliminary information on the physical location, length, and height of noise barrier is provided in this report. During final design, the exact placement and height of the barriers will be finalized to meet the noise abatement criteria.

*According to the NSR approved on April 7, 2015.

3 Preliminary Noise Abatement Decision

The Preliminary Noise Abatement Decision is made by comparing total reasonable allowance, as determined by the number of benefitted receivers for each acoustically feasible wall height, to the estimated construction cost. Appendix C shows evaluated barrier heights which must achieve at least a 7 dB reduction for at least one residence to be considered acoustically feasible. Appendix D includes engineering estimates for the construction costs of each wall. If these cost estimates are within 10% of the total reasonable allowance, the wall is considered feasible and reasonable and is recommended to be included as part of the project's features. These recommendations will be found under Section 3.3 of the NADR.

3.1 Summary of Key Information

As shown in Appendix C and Table 3-1 below, Barrier SW-E1 is acoustically feasible at a height of 16 feet. Stationed between 177+00 and 184+52, the total length of the proposed Barrier SW-E1 is 752 feet. From this length, the number of benefited residences (5) yields a total reasonable allowance of $320,000 for each soundwall height. Based on the engineer's cost estimate including costs required to construct the abatement - cost of the wall, footings, traffic control, drainage, modified or additional plantings, and miscellaneous items, the 16-foot soundwall is estimated to cost $340,000 ($28.26 per square foot, respectively). Comparing the total reasonable allowances to the estimated construction costs, the soundwall SW-E1 is determined to be fiscally reasonable, within 10%, at a height of 16 feet.

Table 3-1 Summary of Abatement Key Information

Barrier	Location	Station (INT15 Line)	Height (meters [feet])	Breaks Line of Sight?*	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost within 10% of Allowance?
SW-E1	Along ROW	177+00 to 184+52	5.0 (16)	YES	YES	5	$320,000	**$340,000**	**YES**

As shown in Appendix C and Table 3-2 below, Barrier SW-W1 is acoustically feasible at a height of 12 feet. Stationed between 40+00 and 47+00, the total length of the proposed Barrier SW-W1 is 700 feet. From this length, the number of benefited residences (10) yields a total reasonable allowance of $640,000 for each soundwall height. Based on the engineer's cost estimate including costs required to construct the abatement - cost of the wall, footings, traffic control, drainage, modified or additional plantings, and miscellaneous items, the 12-foot soundwall is estimated to cost $410,000 ($48.81 per square foot). Comparing the total reasonable allowances to the estimated construction costs, the soundwall SW-W1 is determined to be fiscally reasonable, within 10%, at a height of 12 feet.

Table 3-2 Summary of Abatement Key Information

Barrier	Location	Station (INT15 Line)	Height (meters [feet])	Breaks Line of Sight?*	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?
SW-W1	Along ROW	40+00 to 47+00	3.7 (12)	YES	YES	10	$640,000	**$410,000**	**YES**

*According to the NSR approved on April 7, 2015.

3.2 Nonacoustical Factors Relating to Feasibility

Several nonacoustical factors were considered relating to the feasibility of the proposed soundwall such as geometric standards, safety, maintenance, security, geotechnical considerations, and utility relocations. The soundwall meets geometric standards for sight distance and placement along the travel way. There are no unusual utility or geotechnical considerations, and as such, no nonacoustical items affect feasibility.

3.3 Preliminary Recommendation and Decision

The evaluation of Barrier SW-E1 indicates that the barrier height determined by the Noise Study Report to mitigate the noise impact is fiscally reasonable at a barrier height of 16 feet. In addition, a 16-foot high wall has been determined to meet the line of sight criteria. As a result, the 16-foot barrier is recommended as the most cost effective alternative at this location. The 16-foot barrier is measured from the top of the wall to the top of the footing, which may be buried under fill at the toe of the slope. The exposed portion of the wall may vary in height depending on how much of the wall is below the fill, but the top of wall elevations will be set to meet the noise abatement criteria.

The evaluation of Barrier SW-W1 indicates that the barrier height determined by the Noise Study Report to mitigate the noise impact is fiscally reasonable at a barrier height of 12 feet. In addition, a 12-foot high wall has been determined to meet the line of sight criteria. As a result, the 12-foot barrier is recommended as the most cost effective alternative at this location.

The preliminary noise abatement decision presented in this report is based on preliminary project alignments and profiles, which may be subject to change. As such, the physical characteristics of noise abatement described herein also may be subject to change.. During final design, the exact placement and height of the barriers will be finalized to meet the noise abatement criteria.

The preliminary noise abatement decision presented here will be included in the draft environmental document, which will be circulated for public review.

*According to the NSR approved on April 7, 2015.

4 Secondary Effects of Abatement

Potential secondary effects from the placement of a sound wall at the evaluated location were considered. Based on analyses found in the draft Historic Property Survey Report, cultural resources are not anticipated in the project area including the sound wall location. Based on the Natural Environment Study, no sensitive natural communities or habitats are located at the sound wall location. Further, no designated scenic resources are in the area as discussed in the Visual Impact Assessment. The locations of the soundwalls are adjacent to existing sound walls, and with the lack of scenic resources in the area a substantial visual impact is not anticipated. Further, no reflective noise effects are anticipated as a result of the new barriers due to noise reflecting off the new barriers to the opposite side of the freeway. A minimum width-to-height ratio of less than 10:1 is necessary for reflective noise impacts, and the new soundwalls exceed this minimum ratio. Effects on cultural resources, biological resources, visual resources, or other resource areas are not anticipated.

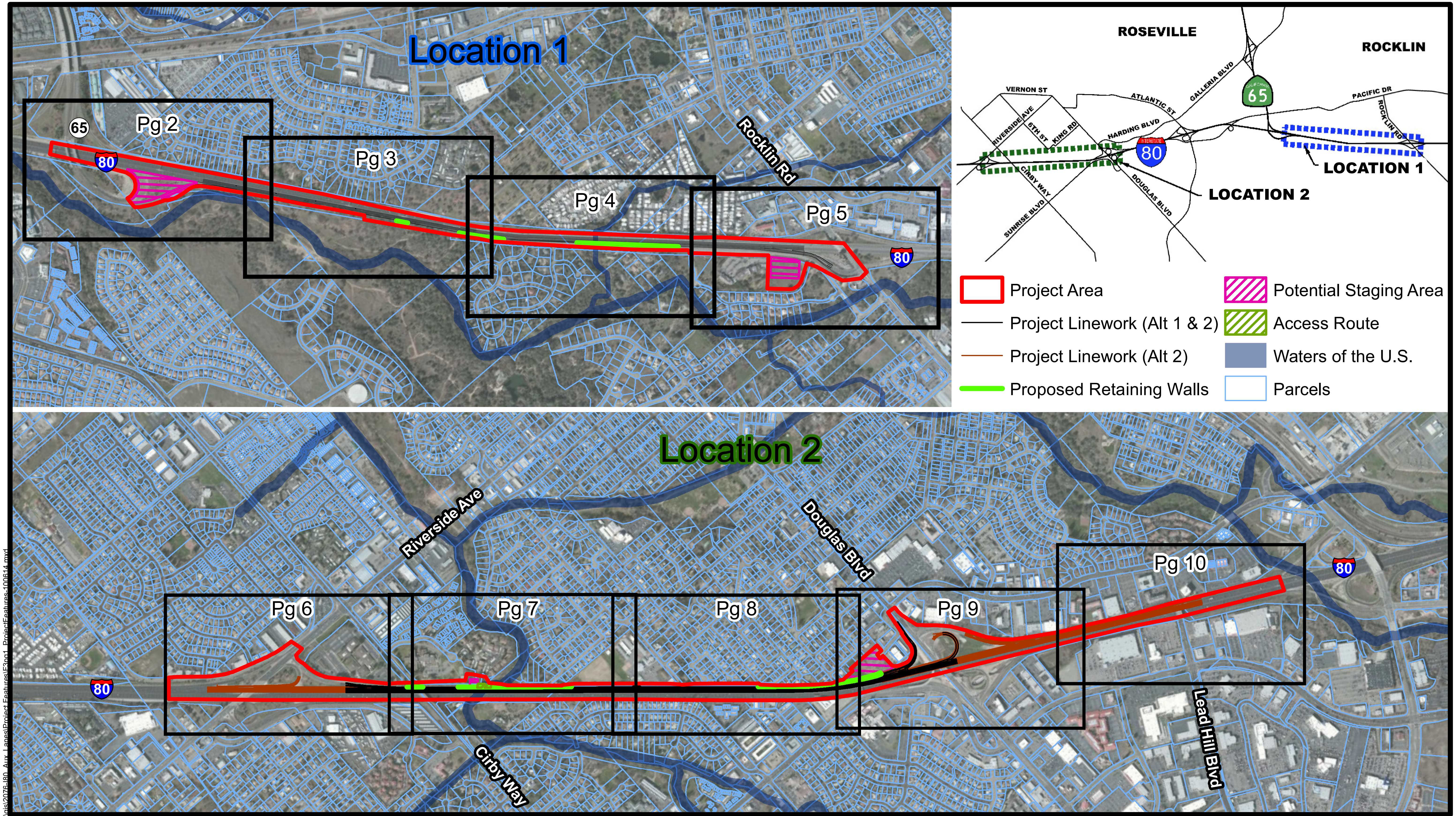
*According to the NSR approved on April 7, 2015.

5 References

2015. *Placer I-80 Auxiliary Lanes Noise Study Report.*

*According to the NSR approved on April 7, 2015.

Appendix A Project Features Exhibit



Source: ESRI February 2012 Online; Dokken Engineering 2/17/2015; Created By: zachl

0 1,000 2,000 3,000 4,000 Feet

Figure 3
Page 1 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project
Placer County, California

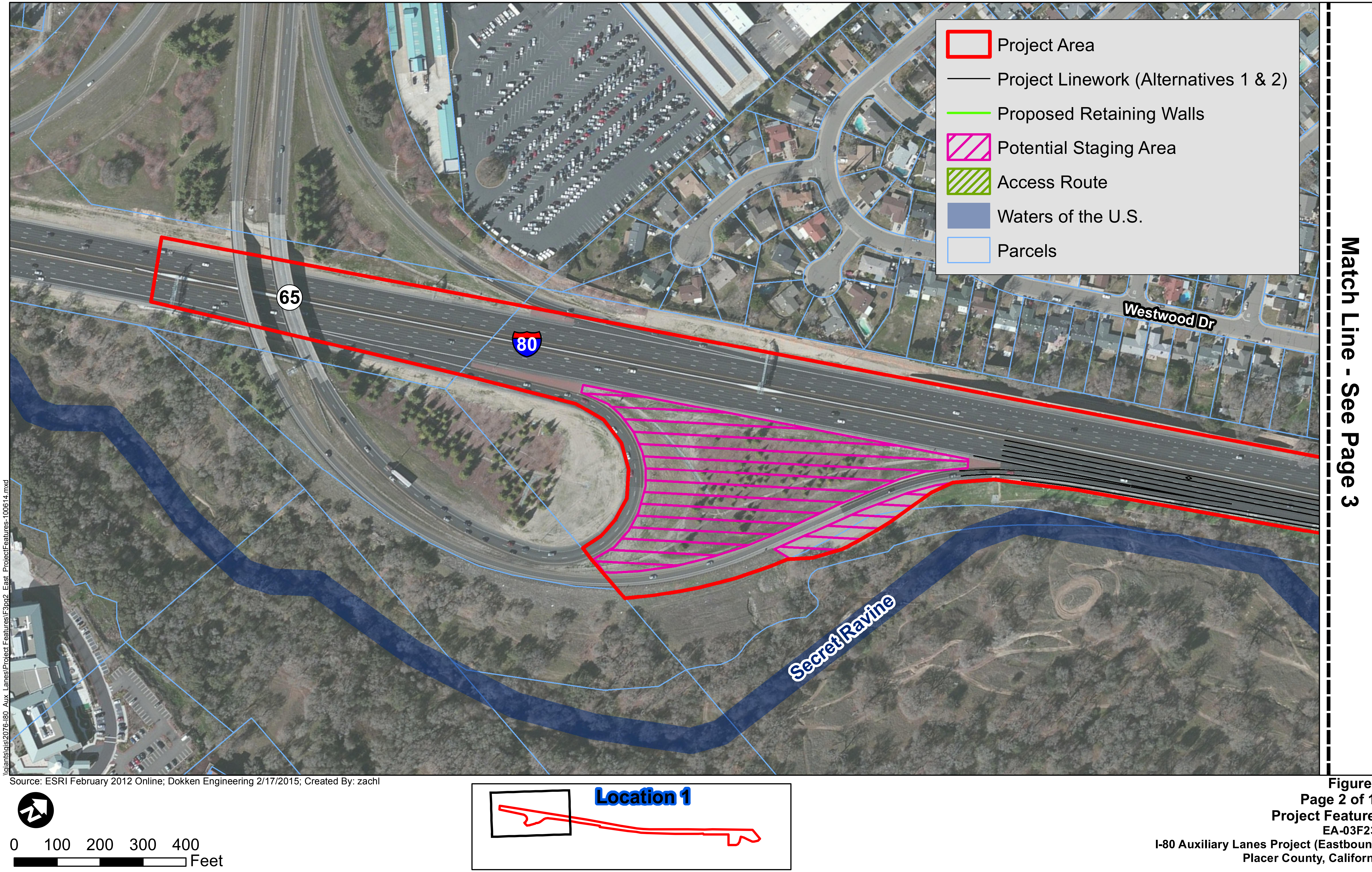


Figure 3
Page 2 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Eastbound)
Placer County, California

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Source: ESRI February 2012 Online; Dokken Engineering 2/17/2015; Created By: zachl

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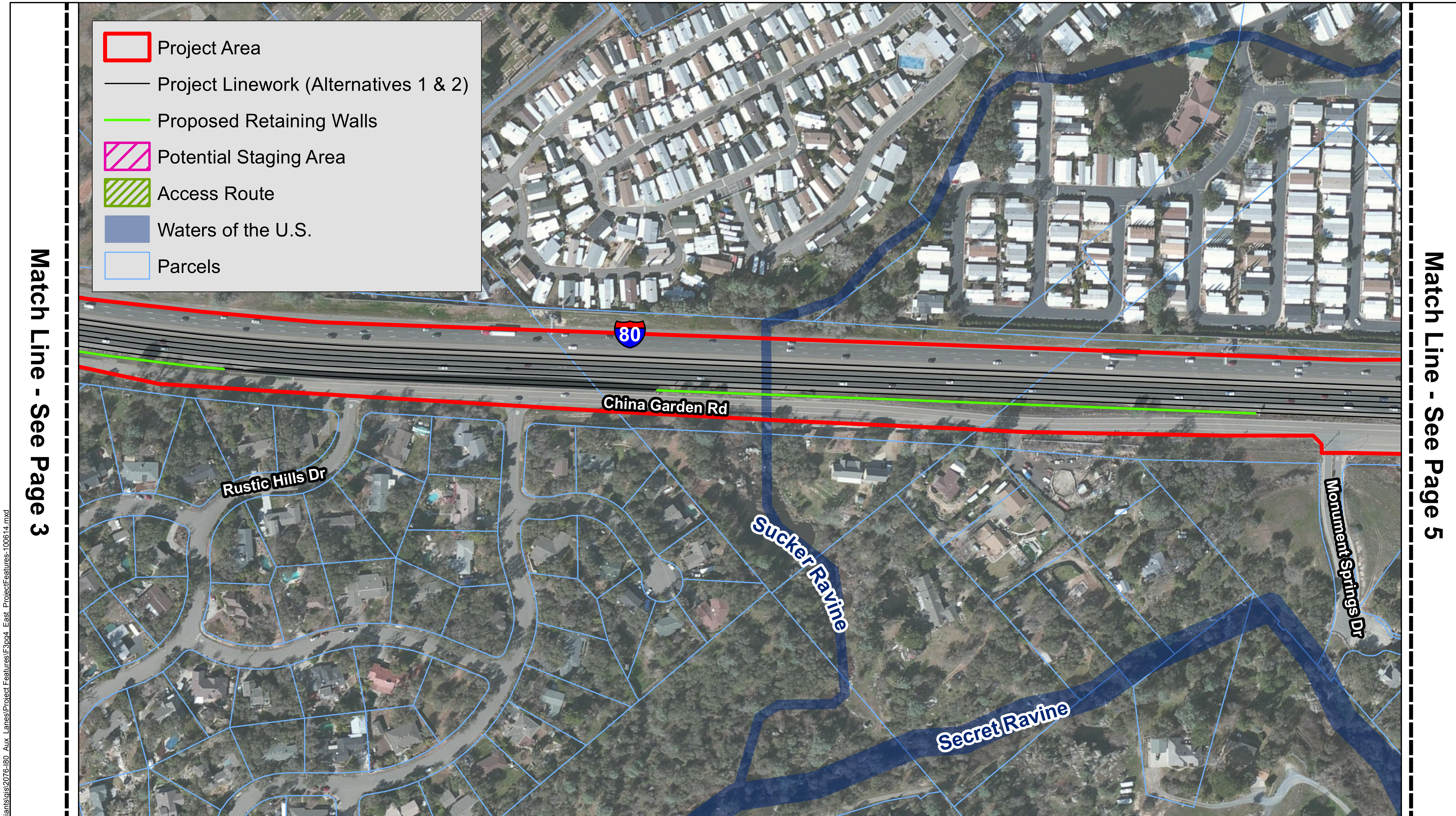
Location 1

Figure 3
Page 3 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Eastbound)
Placer County, California



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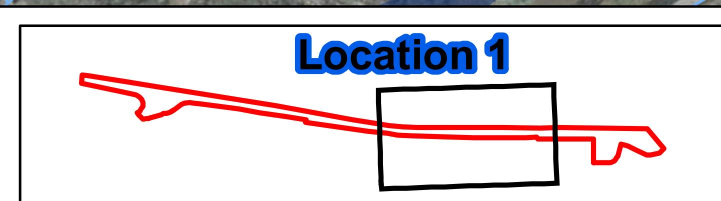
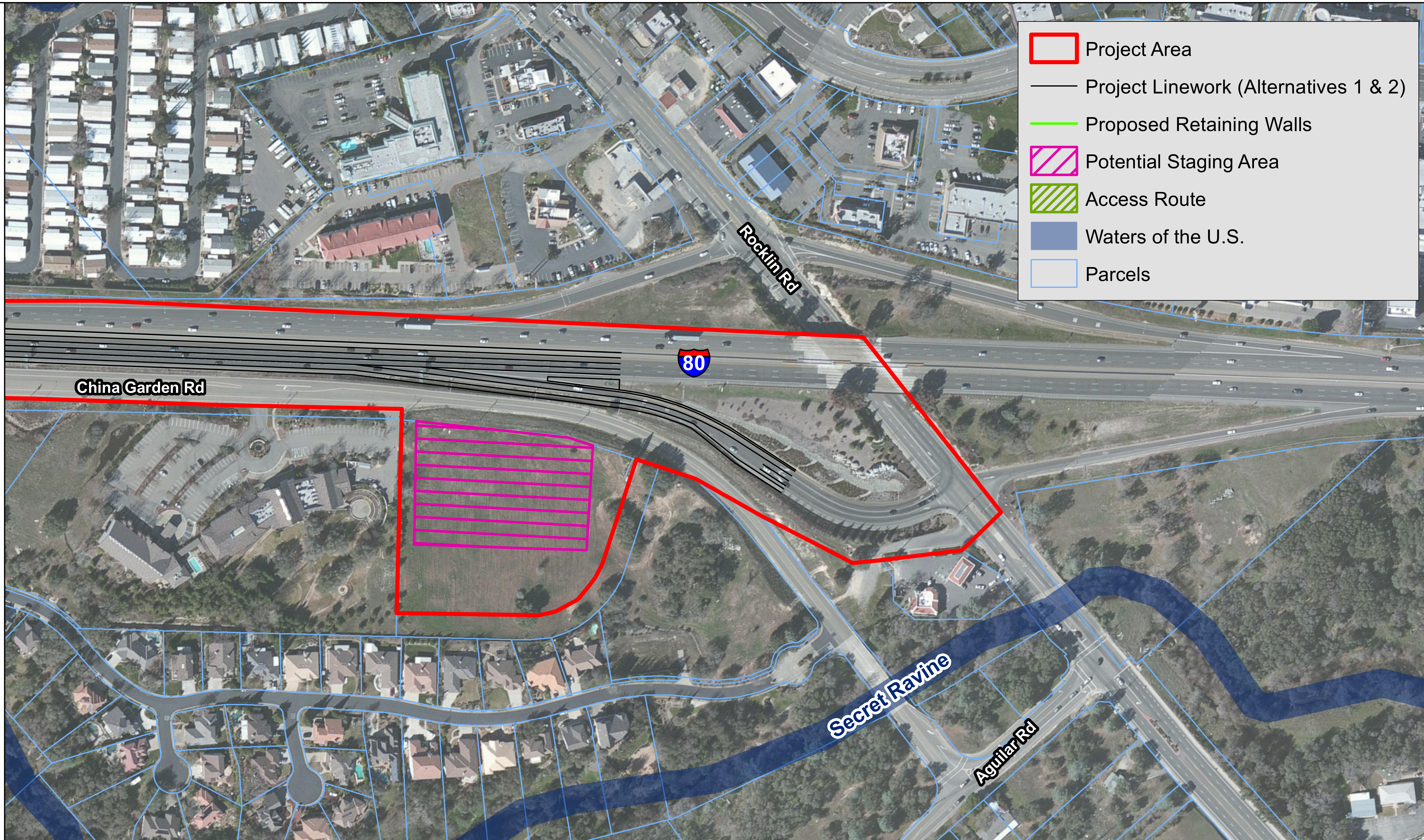


Figure 3
Page 4 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Eastbound)
Placer County, California

Match Line - See Page 4



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Source: ESRI February 2012 Online; Dokken Engineering 2/17/2015; Created By: zachl

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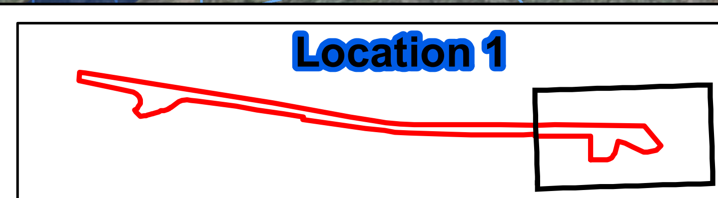

Figure 3
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Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Eastbound)
Placer County, California

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Source: ESRI February 2012 Online; Dokken Engineering 2/17/2015; Created By: zachl

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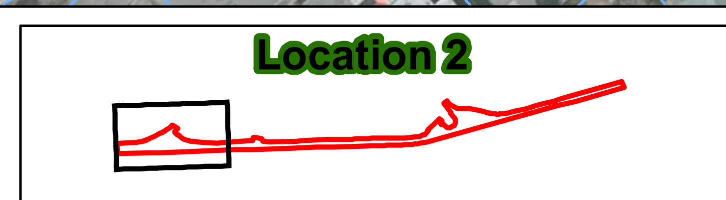

Figure 3
Page 6 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California

Source: ESRI February 2012 Online; Dokken Engineering 2/17/2015; Created By: zachl

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Feet

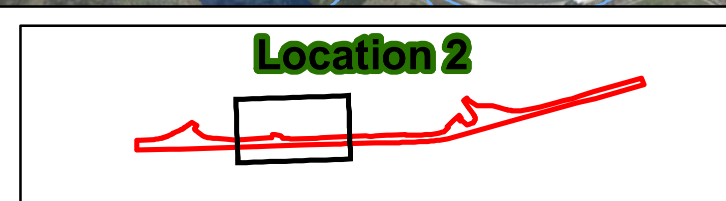

Figure 3
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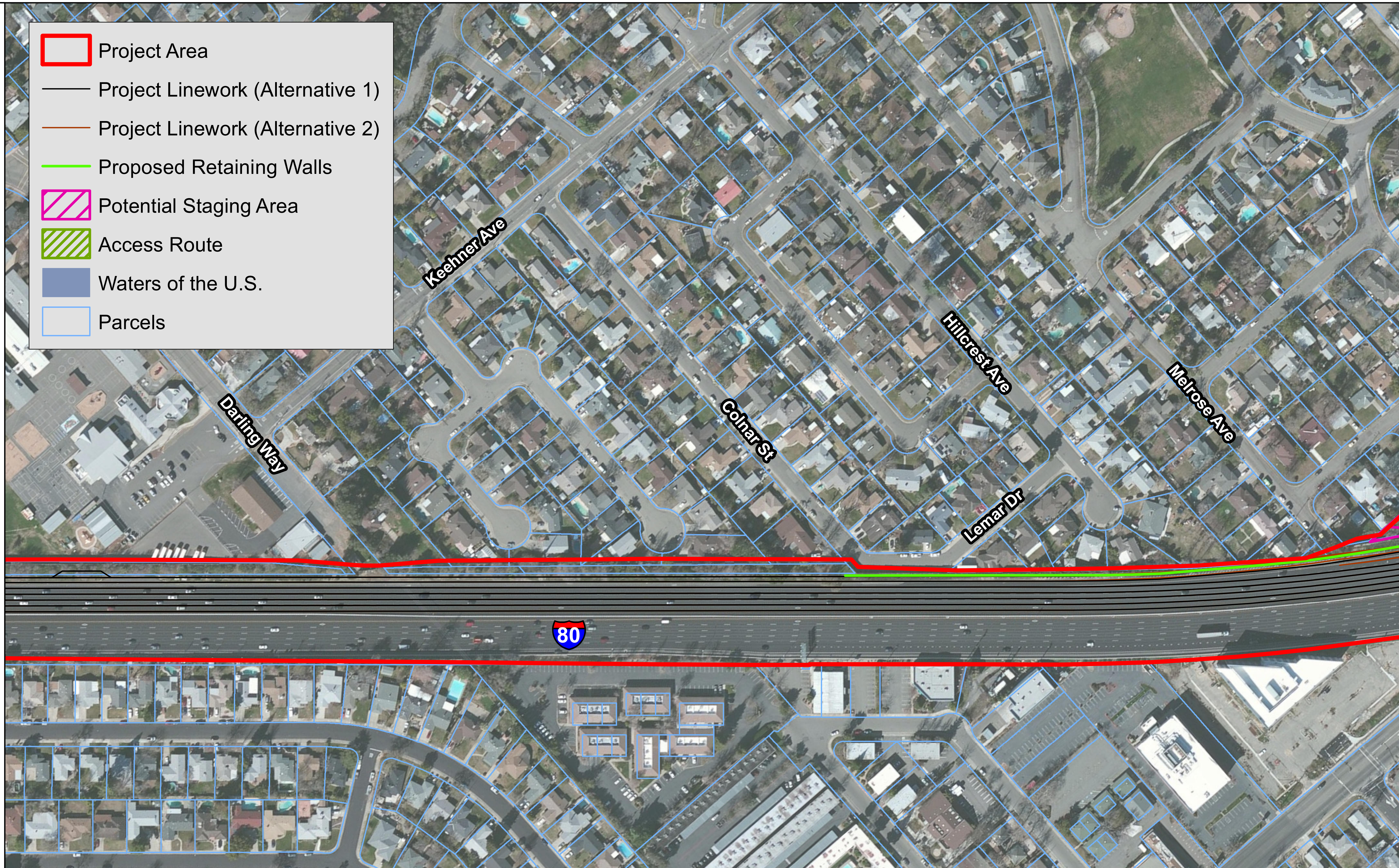
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California

Match Line - See Page 7



Match Line - See Page 9

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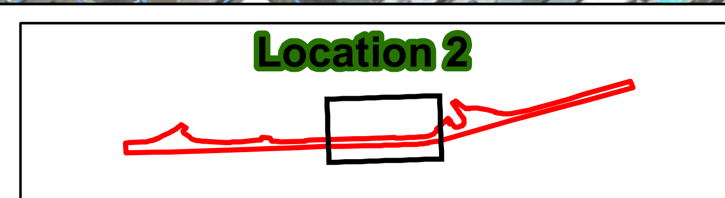
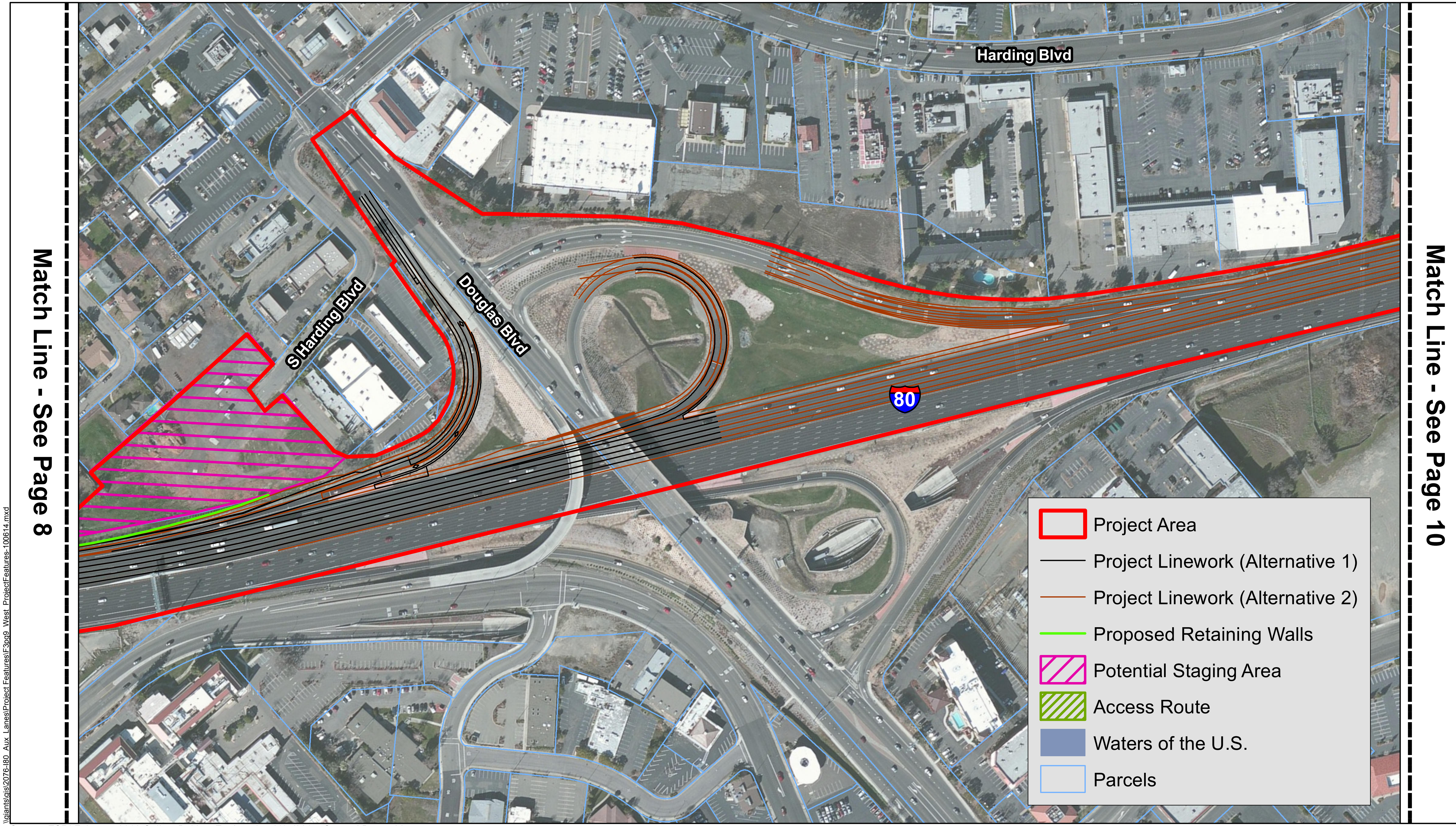


Figure 3
Page 8 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California



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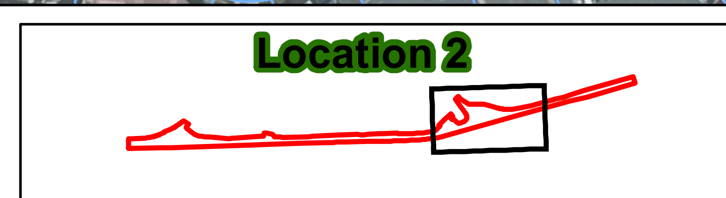

Figure 3
Page 9 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California

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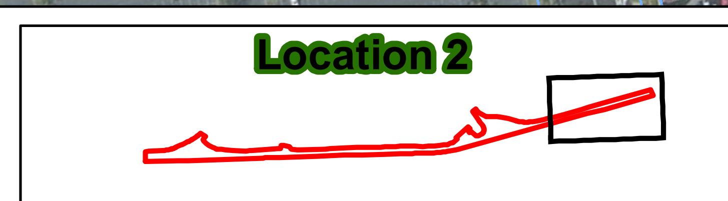

Figure 3
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Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California

Appendix B Traffic Data

Table A-1. Traffic Data for Noise Model Calibration

	Number of Lanes	Total 1-Hour Adjusted Traffic[1]	Auto		Medium Trucks		Heavy Trucks		Speed[2] (A/MT/HT)
			%	Volume	%	Volume	%	Volume	
Calibration Sites ST1 and ST2 - 12:39 to 12:54 - 11/19/2014									
Eastbound I-80 (Total)	5	6,552	93.77%	6,144	1.28%	84	4.95%	324	65/65/60
HOV Lane	1	1,310	98.72%	1,294	1.28%	17	0.00%	0	
Inside Lane	1	1,310	98.72%	1,294	1.28%	17	0.00%	0	
Middle Lane	1	1,310	98.72%	1,294	1.28%	17	0.00%	0	
Outside Lane 1	1	1,310	86.36%	1,131	1.28%	17	12.36%	162	
Outside Lane 2	1	1,310	86.36%	1,131	1.28%	17	12.36%	162	
Westbound I-80 (Total)	4	5,604	94.65%	5,304	2.78%	156	2.57%	144	65/65/60
HOV Lane	1	1,401	97.22%	1,362	2.78%	39	0.00%	0	
Inside Lane	1	1,401	97.22%	1,362	2.78%	39	0.00%	0	
Middle Lane	1	1,401	92.08%	1,290	2.78%	39	5.14%	72	
Outside Lane	1	1,401	92.08%	1,290	2.78%	39	5.14%	72	
Calibration Site ST3 - 1:41 to 1:56 - 11/19/2014									
Eastbound I-80 (Total)	5	5,412	96.01%	5,196	1.33%	72	2.66%	144	65/65/60
HOV Lane	1	1,082	98.72%	1,068	1.28%	14	0.00%	0	
Inside Lane	1	1,082	98.72%	1,068	1.28%	14	0.00%	0	
Middle Lane	1	1,082	98.72%	1,068	1.28%	14	0.00%	0	
Outside Lane 1	1	1,082	92.07%	996	1.28%	14	6.65%	72	
Outside Lane 2	1	1,082	92.07%	996	1.28%	14	6.65%	72	
Westbound I-80 (Total)	4	5,076	93.14%	4,728	2.84%	144	4.02%	204	65/65/60
HOV Lane	1	1,269	97.16%	1,233	2.84%	36	0.00%	0	
Inside Lane	1	1,269	97.16%	1,233	2.84%	36	0.00%	0	
Middle Lane	1	1,269	89.13%	1,131	2.84%	36	8.04%	102	
Outside Lane	1	1,269	89.13%	1,131	2.84%	36	8.04%	102	
Calibration Site ST5 - 3:14 to 3:29 - 11/19/2014									
Eastbound I-80 (Total)	5	6,732	96.97%	6,528	0.71%	48	2.32%	156	65/65/60
HOV Lane	1	1,346	98.72%	1,337	1.28%	10	0.00%	0	
Inside Lane	1	1,346	98.72%	1,337	1.28%	10	0.00%	0	
Middle Lane	1	1,346	98.72%	1,337	1.28%	10	0.00%	0	
Outside Lane 1	1	1,346	92.93%	1,251	1.28%	10	5.79%	78	
Outside Lane 2	1	1,346	92.93%	1,251	1.28%	10	5.79%	78	
Westbound I-80 (Total)	4	5,832	95.88%	5,592	1.44%	84	2.67%	156	65/65/60
HOV Lane	1	1,458	98.56%	1,437	1.44%	21	0.00%	0	
Inside Lane	1	1,458	98.56%	1,437	1.44%	21	0.00%	0	
Middle Lane	1	1,458	93.21%	1,359	1.44%	21	5.35%	78	
Outside Lane	1	1,458	93.21%	1,359	1.44%	21	5.35%	78	

Notes:

1 - It is assumed that the traffic volumes are equally distributed across the mainlines.

2 - Observed speeds were used for modeling.

Table A-1. Traffic Data for Noise Model Calibration

	Number of Lanes	Total 1-Hour Adjusted Traffic[1]	Auto		Medium Trucks		Heavy Trucks		Speed[2] (A/MT/HT)
			%	Volume	%	Volume	%	Volume	
Calibration Site ST6 - 10:15 to 10:30 - 11/20/2014									
Eastbound I-80 (Total)	3	2,820	93.62%	2,640	2.13%	60	4.26%	120	65/65/60
Inside Lane	1	940	97.87%	920	2.13%	20	0.00%	0	
Middle Lane	1	940	91.49%	860	2.13%	20	6.38%	60	
Outside Lane	1	940	91.49%	860	2.13%	20	6.38%	60	
Westbound I-80 (Total)	3	3,384	95.74%	3,240	1.06%	36	3.19%	108	65/65/60
Inside Lane	1	1,128	98.94%	1,116	1.06%	12	0.00%	0	
Middle Lane	1	1,128	94.15%	1,062	1.06%	12	4.79%	54	
Outside Lane	1	1,128	94.15%	1,062	1.06%	12	4.79%	54	
Calibration Site ST7 - 9:25 to 9:40 - 11/20/2014									
Eastbound I-80 (Total)	3	2,640	90.91%	2,400	3.18%	84	5.91%	156	65/65/60
Inside Lane	1	880	96.82%	852	3.18%	28	0.00%	0	
Middle Lane	1	880	87.95%	774	3.18%	28	8.86%	78	
Outside Lane	1	880	87.95%	774	3.18%	28	8.86%	78	
Westbound I-80 (Total)	3	4,020	93.43%	3,756	2.09%	84	4.48%	180	65/65/60
Inside Lane	1	1,340	97.91%	1,312	2.09%	28	0.00%	0	
Middle Lane	1	1,340	91.19%	1,222	2.09%	28	6.72%	90	
Outside Lane	1	1,340	91.19%	1,222	2.09%	28	6.72%	90	
Calibration Site ST8 - 10:58 to 11:13 - 11/20/2014									
Eastbound I-80 (Total)	3	3,204	89.51%	2,868	3.37%	108	7.12%	228	65/65/60
Inside Lane	1	1,068	96.63%	1,032	3.37%	36	0.00%	0	
Middle Lane	1	1,068	85.96%	918	3.37%	36	10.67%	114	
Outside Lane	1	1,068	85.96%	918	3.37%	36	10.67%	114	
Westbound I-80 (Total)	3	3,408	92.61%	3,156	1.76%	60	5.63%	192	65/65/60
Inside Lane	1	1,136	98.24%	1,116	1.76%	20	0.00%	0	
Middle Lane	1	1,136	89.79%	1,020	1.76%	20	8.45%	96	
Outside Lane	1	1,136	89.79%	1,020	1.76%	20	8.45%	96	

Notes:

1 - It is assumed that the traffic volumes are equally distributed across the mainlines.

2 - Observed speeds were used for modeling.

Table A-2. Traffic Data for Existing TNM Noise Models

	Segment	Number of Lanes	Total Peak Hour Volume[1]	Auto		Medium Trucks[2]		Heavy Trucks[2]		Speed[3]
				%	Volume	%	Volume	%	Volume	(A/MT/HT)
Eastbound I-80 (Total)	Riverside Avenue to Douglas Boulevard	5	7,969	94.90%	7,563	2.00%	159	3.10%	247	65/65/55
HOV Lane		1	1,085	98.00%	1,063	2.00%	22	0.00%	0	
Inside Lane		1	1,721	98.00%	1,687	2.00%	34	0.00%	0	
Middle Lane		1	1,721	98.00%	1,687	2.00%	34	0.00%	0	
Outside Lane 1		1	1,721	90.79%	1,563	2.00%	34	7.21%	124	
Outside Lane 2		1	1,721	90.79%	1,563	2.00%	34	7.21%	124	
Doulgas Boulevard Off-ramp		1	1,000	94.90%	949	2.00%	20	3.10%	31	
Westbound I-80 (Total)		4	6,558	94.90%	6,224	2.00%	131	3.10%	203	65/65/55
HOV Lane		1	1,008	98.00%	975	2.00%	33	0.00%	0	
Inside Lane		1	1,850	98.00%	1,817	2.00%	33	0.00%	0	
Middle Lane		1	1,850	92.49%	1,715	2.00%	33	5.51%	102	
Outside Lane		1	1,850	92.49%	1,715	2.00%	33	5.51%	102	
Douglas Boulevard On-ramp		1	461	94.90%	437	2.00%	9	3.10%	14	
Eastbound I-80 (Total)	State Route 65 to Rocklin Road	3	4,591	94.60%	4,343	1.70%	78	3.70%	170	65/65/55
Inside Lane		1	1,530	98.30%	1,504	1.70%	26	0.00%	0	
Middle Lane		1	1,530	92.75%	1,419	1.70%	26	5.56%	85	
Outside Lane		1	1,530	92.75%	1,419	1.70%	26	5.56%	85	
Westbound I-80 (Total)		3	3,599	94.60%	3,405	1.70%	61	3.70%	133	65/65/55
Inside Lane		1	1,200	98.30%	1,180	1.70%	20	0.00%	0	
Middle Lane		1	1,200	92.72%	1,113	1.70%	20	5.58%	67	
Outside Lane		1	1,200	92.72%	1,113	1.70%	20	5.58%	67	

Notes:

1 - Total volume based on existing peak hour traffic volumes from Placer I-80 Auxiliary Lanes Transportation Analysis Report, Fehr & Peers, January 2015, or capped at LOS D/E volumes of 1,850 vehicles per hour per lane for main lanes, 1,600 vehicles per hour per lane for HOV lanes, and 1,000 vehicles per hour per lane for ramps.

2 - Truck percentages were provided by Fehr & Peers.

3 - Posted speeds were used for modeling.

Table A-3. Traffic Data for Design Year No Build TNM Noise Models

	Segment	Number of Lanes	Total Peak Hour Volume[1]	Auto		Medium Trucks[2]		Heavy Trucks[2]		Speed[3]
				%	Volume	%	Volume	%	Volume	(A/MT/HT)
Eastbound I-80 (Total)	Riverside Avenue to Douglas Boulevard	5	8,950	94.90%	8,494	2.00%	179	3.10%	277	65/65/55
HOV Lane		1	1,600	98.00%	1,568	2.00%	32	0.00%	0	
Inside Lane		1	1,838	98.00%	1,801	2.00%	37	0.00%	0	
Middle Lane		1	1,838	98.00%	1,801	2.00%	37	0.00%	0	
Outside Lane 1		1	1,838	90.44%	1,662	2.00%	37	7.56%	139	
Outside Lane 2		1	1,838	90.44%	1,662	2.00%	37	7.56%	139	
Doulgas Boulevard Off-ramp		1	1,000	94.90%	949	2.00%	20	3.10%	31	
Westbound I-80 (Total)		4	7,150	94.90%	6,785	2.00%	143	3.10%	222	65/65/55
HOV Lane		1	1,600	98.00%	1,564	2.00%	36	0.00%	0	
Inside Lane		1	1,850	98.00%	1,814	2.00%	36	0.00%	0	
Middle Lane		1	1,850	92.00%	1,703	2.00%	36	6.00%	111	
Outside Lane		1	1,850	92.00%	1,703	2.00%	36	6.00%	111	
Douglas Boulevard On-ramp		1	660	94.90%	626	2.00%	13	3.10%	20	
Eastbound I-80 (Total)	State Route 65 to Rocklin Road	3	5,550	94.60%	5,250	1.70%	94	3.70%	205	65/65/55
Inside Lane		1	1,850	98.32%	1,819	1.68%	31	0.00%	0	
Middle Lane		1	1,850	92.76%	1,716	1.68%	31	5.57%	103	
Outside Lane		1	1,850	92.76%	1,716	1.68%	31	5.57%	103	
Westbound I-80 (Total)		3	5,250	94.60%	4,967	1.70%	89	3.70%	194	65/65/55
Inside Lane		1	1,750	98.30%	1,720	1.70%	30	0.00%	0	
Middle Lane		1	1,750	92.76%	1,623	1.70%	30	5.54%	97	
Outside Lane		1	1,750	92.76%	1,623	1.70%	30	5.54%	97	

Notes:

1 - Total volume based on 2040 peak hour traffic volumes from Placer I-80 Auxiliary Lanes Transportation Analysis Report, Fehr & Peers, January 2015, or capped at LOS D/E volumes of 1,850 vehicles per hour per lane for main lanes, 1,600 vehicles per hour per lane for HOV lanes., and 1,000 vehicles per hour per lane for ramps.

2 - Truck percentages were provided by Fehr & Peers.

3 - Posted speeds were used for modeling.

Table A-4. Traffic Data for Design Year Build Alternative 1 and 2 TNM Noise Models

	Segment	Number of Lanes	Total Peak Hour Volume[1]	Auto		Medium Trucks[2]		Heavy Trucks[2]		Speed[3] (A/MT/HT)
				%	Volume	%	Volume	%	Volume	
Eastbound I-80 (Total)	Riverside Avenue to Douglas Boulevard	5	8,620	94.70%	8,163	2.10%	181	3.20%	276	65/65/55
HOV Lane		1	1,600	97.90%	1,566	2.10%	34	0.00%	0	
Inside Lane		1	1,755	97.90%	1,718	2.10%	37	0.00%	0	
Middle Lane		1	1,755	97.90%	1,718	2.10%	37	0.00%	0	
Outside Lane 1		1	1,755	90.04%	1,580	2.10%	37	7.86%	138	
Outside Lane 2		1	1,755	90.04%	1,580	2.10%	37	7.86%	138	
Doulgas Boulevard Off-ramp		1	1,000	94.70%	947	2.10%	21	3.20%	32	
Westbound I-80 (Total)		5	8,960	94.70%	8,485	2.10%	188	3.20%	287	65/65/55
HOV Lane		1	1,600	97.90%	1,562	2.10%	38	0.00%	0	
Inside Lane		1	1,840	97.90%	1,802	2.10%	38	0.00%	0	
Middle Lane		1	1,840	97.90%	1,802	2.10%	38	0.00%	0	
Outside Lane		1	1,840	90.13%	1,659	2.10%	38	7.77%	143	
Auxiliary/5th Lane		1	1,840	90.13%	1,659	2.10%	38	7.77%	143	
Douglas Boulevard On-ramp		1	710	94.70%	672	2.10%	15	3.20%	23	
Eastbound I-80 (Total)	State Route 65 to Rocklin Road	4	6,230	94.80%	5,906	1.60%	100	3.60%	224	65/65/55
Inside Lane		1	1,558	98.40%	1,533	1.60%	25	0.00%	0	
Middle Lane		1	1,558	93.59%	1,458	1.60%	25	4.81%	75	
Outside Lane		1	1,558	93.59%	1,458	1.60%	25	4.81%	75	
Auxiliary Lane		1	1,558	93.59%	1,458	1.60%	25	4.81%	75	
Westbound I-80 (Total)		3	5,260	94.80%	4,986	1.60%	84	3.60%	189	65/65/55
Inside Lane		1	1,753	98.40%	1,725	1.60%	28	0.00%	0	
Middle Lane		1	1,753	92.98%	1,630	1.60%	28	5.42%	95	
Outside Lane		1	1,753	92.98%	1,630	1.60%	28	5.42%	95	

Notes:

1 - Total volume based on 2040 peak hour traffic volumes from Placer I-80 Auxiliary Lanes Transportation Analysis Report, Fehr & Peers, January 2015, or capped at LOS D/E volumes of 1,850 vehicles per hour per lane for main lanes, 1,600 vehicles per hour per lane for HOV lanes., and 1,000 vehicles per hour per lane for ramps.

2 - Truck percentages were provided by Fehr & Peers.

3 - Posted speeds were used for modeling.

Appendix C Predicted Future Noise Levels and Noise Barrier Analysis

Table B-1. Predicted Future Noise Levels - Eastbound Auxiliary Lane (Alternative 1 & 2)

Receiver I.D.[1]	Barrier I.D.	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	6 feet $L_{eq}(h)$	6 feet I.L.[3]	6 feet NBR	8 feet $L_{eq}(h)$	8 feet I.L.[3]	8 feet NBR	10 feet $L_{eq}(h)$	10 feet I.L.[3]	10 feet NBR	12 feet $L_{eq}(h)$	12 feet I.L.[3]	12 feet NBR	14 feet $L_{eq}(h)$	14 feet I.L.[3]	14 feet NBR	16 feet $L_{eq}(h)$	16 feet I.L.[3]	16 feet NBR
						I-80 Auxiliary Lanes Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA						Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																	
EB1	--	1	SFR	4050 Creekview Court	59	60	61	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB2	--	1	SFR	4040 Creekview Court	60	61	63	1	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB3	--	1	SFR	4030 Creekview Court	63	64	65	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB4	SW-E1 Right of Way	1	SFR	4020 Creekview Court	66	67	68	1	1	B (67)	A/E	66	2	0	65	3	0	64	4	0	63	5	1	63	5	1	61 [T]	7	1
EB5/ST6	SW-E1 Right of Way	1	SFR	4010 Creekview Court	66	67	68	1	1	B (67)	A/E	66	2	0	65	3	0	64	4	0	63	5	1	62	6	1	61 [T]	7	1
EB6	SW-E1 Right of Way	1	SFR	6375 Rustic Hills Drive	65	66	67	1	1	B (67)	A/E	66	1	0	64	3	0	63	4	0	63	4	0	61	6	1	60 [T]	7	1
EB7	SW-E1 Right of Way	1	SFR	6385 Rustic Hills Drive	67	68	69	1	1	B (67)	A/E	67	2	0	67	2	0	65	4	0	64	5	1	63	6	1	63 [T]	6	1
EB8	SW-E1 Right of Way	1	SFR	6395 Rustic Hills Drive	65	66	67	1	1	B (67)	A/E	66	1	0	65	2	0	63	4	0	63	4	0	62	5	1	61 [T]	6	1
EB9/ST7 [W]	--	1	SFR	6390 Rustic Hills Drive	57	58	59	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB10 [W]	--	1	SFR	6000 Rustic Hills Drive	61	62	62	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB11 [W]	--	1	SFR	4105 Pinecrest Court	58	59	60	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB12 [W]	--	1	SFR	4115 Pinecrest Court	62	63	64	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB13	--	1	SFR	4125 Pinecrest Court	62	63	65	1	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB14/ST8	--	--	--	5880 China Garden Road	73	74	75	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB15	--	1	SFR	5880 China Garden Road	63	64	65	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB16	--	1	SFR	5745 Keller Court	63	64	65	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB17	--	1	SFR	5765 Keller Court	62	64	64	2	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
1. Receivers EB14/ST8 was chosen for monitoring purposes and was not located at an outdoor use area; however, this site is representative of nearby outdoor use areas.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC).
3. I.L. = Insertion Loss
4. '-- A barrier was not analyzed for this receiver.
5. SFR = Single Family Residence
6. T - Minimum height required to block the line-of-sight from the receiver to truck exhaust stacks.
7. W - Includes the benefit of an existing soundwall.

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Table B-1. Predicted Future Noise Levels - Westbound Auxiliary/5th Lane (Alternative 1 & 2)

Receiver I.D.[1]	Barrier I.D.	Number of Dwelling Units	Land Use	Address	Existing Noise Level L_{eq}(h), dBA	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	6 feet L_{eq}(h)	6 feet I.L.[3]	6 feet NBR	8 feet L_{eq}(h)	8 feet I.L.[3]	8 feet NBR	10 feet L_{eq}(h)	10 feet I.L.[3]	10 feet NBR	12 feet L_{eq}(h)	12 feet I.L.[3]	12 feet NBR	14 feet L_{eq}(h)	14 feet I.L.[3]	14 feet NBR	16 feet L_{eq}(h)	16 feet I.L.[3]	16 feet NBR
						I-80 Auxiliary Lanes Future Worst Hour Noise Levels - L_{eq}(h), dBA						Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																	
WB1	SW-W1 & EX - SW1 Shoulder	6	MFR	300 Cirby Hills Drive	66	66	69	0	3	B (67)	A/E	65	4	0	64	5	6	64	5	6	62 [T]	7	6	62	7	6	-- [6]	--	--
WB2/ST1		4	MFR	300 Cirby Hills Drive	69	69	71	0	2	B (67)	A/E	68	3	0	67	4	0	67	4	0	65 [T]	6	4	64	7	4	-- [6]	--	--
WB3/ST2 [W]		1	SFR	812 Jo Anne Lane	64	64	65	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB4 [W]		1	SFR	810 Jo Anne Lane	63	64	65	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB5 [W]		1	SFR	808 Jo Anne Lane	63	63	64	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB6 [W]		1	SFR	806 Jo Anne Lane	61	61	63	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB7 [W]		1	SFR	804 Jo Anne Lane	60	61	63	1	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB8 [W]		1	SFR	802 Jo Anne Lane	61	61	63	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB9 [W]		1	SFR	737 Jo Anne Lane	64	64	65	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB10/ST3 [W]		1	SFR	735 Jo Anne Lane	62	62	64	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB11 [W]	--	1	SFR	733 Jo Anne Lane	62	62	64	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB12 [W]		1	SFR	731 Jo Anne Lane	62	62	63	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB13 [W]		1	SFR	729 Jo Anne Lane	61	61	62	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB14 [W]		1	SCH	814 Darling Way	62	62	63	0	1	C (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB15 [W]		1	SCH	814 Darling Way	62	63	63	1	0	C (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB16 [W]		1	SCH	814 Darling Way	63	63	64	0	1	C (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB17 [W]		1	SCH	814 Darling Way	64	64	65	0	1	C (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB18 [W]		1	SFR	1007 Darling Way	64	64	64	0	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB19 [W]		1	SFR	1010 Linier Court	59	59	60	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB20 [W]		1	SFR	1014 Linier Court	61	62	62	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
1. Receivers EB21/ST4 was chosen for monitoring purposes and was not located at an outdoor use area; however, this site is representative of nearby outdoor use areas.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC).
3. I.L. = Insertion Loss
4. '-- A barrier was not analyzed for this receiver.
5. SFR = Single Family Residence, SCH = School
6. Per the Highway Design Manual, the maximum height of a noise barrier should not exceed 14 feet in height when located 15 feet or less from edge of traveled way.
7. T - Minimum height required to block the line-of-sight from the receiver to truck exhaust stacks.
8. W - Includes the benefit of an existing soundwall.

Table B-1. Predicted Future Noise Levels - Westbound Auxiliary/5th Lane (Alternative 1 & 2)

Receiver I.D.[1]	Barrier I.D.	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA	I-80 Auxiliary Lanes Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA: Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR): 6 feet $L_{eq}(h)$	6 feet I.L.[3]	6 feet NBR	8 feet $L_{eq}(h)$	8 feet I.L.[3]	8 feet NBR	10 feet $L_{eq}(h)$	10 feet I.L.[3]	10 feet NBR	12 feet $L_{eq}(h)$	12 feet I.L.[3]	12 feet NBR	14 feet $L_{eq}(h)$	14 feet I.L.[3]	14 feet NBR	16 feet $L_{eq}(h)$	16 feet I.L.[3]	16 feet NBR
WB21/ST4 W	--	--	--	1017 Linier Court	63	63	64	0	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB22 W		1	SFR	1017 Linier Court	62	63	63	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB23 W		1	SFR	1018 Azuure Court	63	63	64	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB24 W		1	SFR	1020 Azure Court	63	64	65	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB25 W		1	SFR	1025 Azure Court	64	64	65	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB26 W		1	SFR	1026 Colnar Street	63	64	65	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB27 W		1	SFR	1031 Colnar Street	62	63	63	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB28 W		2	SFR	410 Lemar Street	63	63	64	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB29 W		1	SFR	407 Lemar Drive	64	64	65	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB30/ST5 W		2	SFR	405 Lemar Drive	63	64	64	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB31 W		1	SFR	1104 Hillcrest Avenue	63	63	63	0	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB32 W		1	SFR	1106 hHillcrest Avenue	63	63	64	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB33 W		1	SFR	1111 Hillcrest Avenue	63	63	63	0	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB34 W		2	SFR	1112 Melrose Avenue	62	62	62	0	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB35 W		1	SFR	1114 Melrose Avenue	62	62	63	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB36 W		1	SFR	1116 Melrose Avenuve	63	63	65	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB37 W		1	SFR	313 Marian Way	63	64	64	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB38	SW-W2 & EX-SW2 Right-of-Way	1	SFR	311 Marian Way	67	67	69	0	2	B (67)	A/E	68	1	0	68	1	0	67	2	0	66	3	0	65	4	0	64 T	5	1
WB39		1	SFR	309 Marian Way	65	66	67	1	1	B (67)	A/E	67	0	0	66	1	0	66	1	0	65	2	0	64	3	0	62 T	5	1

Notes:

1. Receivers EB21/ST4 was chosen for monitoring purposes and was not located at an outdoor use area; however, this site is representative of nearby outdoor use areas.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC).
3. I.L. = Insertion Loss
4. '-- A barrier was not analyzed for this receiver.
5. SFR = Single Family Residence, SCH = School
6. Per the Highway Design Manual, the maximum height of a noise barrier should not exceed 14 feet in height when located 15 feet or less from edge of traveled way.
7. T - Minimum height required to block the line-of-sight from the receiver to truck exhaust stacks.
8. W - Includes the benefit of an existing soundwall.

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Appendix D Noise Barrier Cost Estimates

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

BRIDGE GENERAL PLAN ESTIMATE ___ **OR** **PLANNING ESTIMATE** X

DPD-DSD-DIS (Rev 8/92)

STRUCTURE Eastbound 16' Sound Wall	BR. NO. TBD	RCVD BY	ESTIMATING GROUP IN OUT
TYPE	DISTRICT 3 / CO SAC	RTE 80 / KP	
LENGTH 752.00' x HEIGHT 16.00'	= AREA 12032 SF		

DESIGN SECTION DOKKEN STRUCTURES AND ROADWORK

QUANTITIES BY R. Griggs DATE 4/8/15 ESTIMATE NO

QUANTITIES CHK BY T. Osterkamp DATE 4/10/15 PRICED BY: RG

CHG UNIT AND EA 2013 COST INDEX

	CONTRACT ITEMS	UNIT	QUANTITY	PRICE	AMOUNT
498016	16" CAST-IN-DRILLED-HOLE CONCRETE PILING (SOUND WALL)	LF	939	$55.00	$51,627
582001	SOUND WALL (MASONRY BLOCK)	SQFT	9,776	$20.00	$195,520
839734	CONCRETE BARRIER (TYPE 736SV)	LF	352	$45.00	$15,840

This is 939 vertical feet of pile needed under the portion of the soundwall that is outside the limits of the retaining wall/soundwall combination

This is 16' tall x 752' long minus the concrete barrier area since the soundwall sits on top of the barrier rail.

The unit price is the difference between the soundwall barrier and the roadway barrier that would be needed regardless of whether or not there is a soundwall = $145/LF - $100/LF = $45/LF.

Notes:

SUB TOTAL	$262,987
MOBILIZATION (10%)	$29,221
SUB TOTAL BRIDGE ITEMS	$292,207
CONTINGENCIES (15%)	$43,831
BRIDGE TOTAL	$336,039
FOR BUDGET PURPOSES ONLY - SAY	$340,000

COMMENTS $ 28.26 / SF

This is in an open area where construction of the soundwall will be easy and there should be very few surprises. Given this, use 15%.

FM 91 1416

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

BRIDGE GENERAL PLAN ESTIMATE __ OR PLANNING ESTIMATE X

DPD-DSD-DIS (Rev 8/92)

STRUCTURE: Westbound 12' Sound Wall	BR. NO.: TBD		RCVD BY		ESTIMATING GROUP IN
TYPE: 12' SW STA 40+00 TO STA 47+00	DISTRICT: 3	CO: SAC	RTE: 80	KP	OUT
LENGTH 700.00'	x HEIGHT 12.00'	= AREA 8400 SF			

DESIGN SECTION	DOKKEN	QUANTITIES BY	R. Griggs	DATE 4/8/15	ESTIMATE NO
	STRUCTURES	QUANTITIES CHK BY	T. Osterkamp	DATE 4/10/15	PRICED BY: RG
AND	ROADWORK	CHG UNIT AND EA		2013	COST INDEX

	CONTRACT ITEMS	UNIT	QUANTITY	PRICE	AMOUNT
	Bridge upgrades to accommodate the weight of the sound wall	1	1	$22,000.00	$22,000
490508	FURNISH STEEL PILING (HP 10 X 57)	LF	500	$35.00	$17,500
490509	DRIVE STEEL PILE (HP 10 X 57)	EA	10	$1,500.00	$15,000
498016	16" CAST-IN-DRILLED-HOLE CONCRETE PILING (SOUND WA	LF	1,024	$55.00	$56,320
582001	SOUND WALL (MASONRY BLOCK)	SQFT	6,300	$20.00	$126,000
839734	CONCRETE BARRIER (TYPE 736SV)	LF	380	$145.00	$55,100

Additional steel piling every 12' will be required as a result of the soundwall.

This is 1,024 vertical feet of pile needed under the portion of the soundwall that is outside the limits of the retaining wall/soundwall combination

This is 12' tall x 700' long minus the concrete barrier area since the soundwall sits on top of the barrier rail.

The unit price of the concrete barrier which would not be required if there was not a soundwall.

Notes:

SUB TOTAL	$291,920
MOBILIZATION (10%)	$32,436
SUB TOTAL BRIDGE ITEMS	$324,356
CONTINGENCIES (25%)	$81,089
BRIDGE TOTAL	$405,444
FOR BUDGET PURPOSES ONLY - SAY	$410,000

This is in an confined area where construction of the soundwall will be difficult and there may be some surprises. Given this, use 25%.

COMMENTS $ 48.81 / SF

FM 91 1416

Attachment J

LIFE CYCLE COST ANALYSIS
for
Placer I-80 Auxiliary Lanes Project
EA-03F230

FROM: Nathan Donnelly, Project Engineer

DATE: July 7, 2015

The purpose of this memo is to discuss the Life Cycle Cost Analysis (LCCA) and its results for the I-80 Auxiliary Lanes project.

PROJECT BACKGROUND

The proposed project has two alternatives with two locations each. The first alternative extends an eastbound auxiliary lane 0.8 miles east of SR 65 to Rocklin Road, and adds a westbound auxiliary lane between Douglas Boulevard and Riverside Avenue. The second alternative adds the same eastbound auxiliary lane between SR 65 and Rocklin Road, and a westbound fifth through lane from east of Douglas Boulevard to west of Riverside Avenue where only four through lanes currently exist. The proposed through lane in Alternative 2 is in the same location as the auxiliary lane from Alternative 1 but extends further east and west.

The existing structural section for the eastbound auxiliary lane that this project extends to Rocklin Road is:

0.69' Hot Mix Asphalt (Type A)
1.62' Aggregate Base

The existing structural section for the traffic lanes (lanes 1 thru 4) adjacent to the westbound auxiliary lane or fifth through lane is:

0.16' Open Grade Asphalt Concrete
0.64' Hot Mix Asphalt (Type A)
0.69' Cement Treated Base
1.00' Aggregate Subbase

LIFE CYCLE COST ANALYSIS

The LCCA was done in accordance with the LCCA Procedures Manual and the "Documenting Life-Cycle Cost Analysis for Pavements" from the Project Development Procedures Manual. Attached are two highlighted copies of the LCCA Widening Pavement Type Selection Flowchart from the LCCA Procedures Manual. One is highlighted for the eastbound auxiliary lane, the other for a combination of the westbound auxiliary lane and 5th lane alternatives.

Eastbound

The first flowchart highlights the decision path for both Alternative 1 and 2 in yellow as the alternatives are the same in this location. The end result of the flowchart is "Choose 40-yr design of same surface type as exist". Therefore, an LCCA for this location is not required.

Westbound

The second flowchart is for the westbound direction alternatives. The yellow highlight on the westbound direction is for Alternative 1, the auxiliary lane, which shows the result of "Choose 40-yr design of same surface type as exist". Therefore, an LCCA for this alternative in this location is not required.

The Westbound direction's Alternative 2, the fifth lane, follows the green highlighted path to the end result of:

"Compare:

1. 20-yr Flexible
2. 40-yr Flexible
3. 40-yr Composite (optional)"

Therefore, a LCCA has been completed for the westbound direction of Alternative 2, the fifth through lane.

Westbound Alternative 2 LCCA

RealCost was used to compare three LCCA options for the westbound fifth lane alternative: a 20 year flexible pavement, a 40 year flexible pavement and a 40 year Rigid Pavement. RealCost is software developed by the Federal Highway Administration (FHWA) to support the application of life-cycle cost analysis in the pavement project-level decision making process. All three LCCA options use a 55 year analysis period, which assumes proper maintenance and rehabilitation occur over the full analysis period. The pavement sections for each alternative were developed based on the structural section recommendations in the Preliminary Geotechnical Design Reports prepared by Geocon Consultants, Inc., dated May 2015.

The 20 year flexible pavement (LCCA Option 1) structural section is:
0.20' Rubberized Hot Mix Asphalt (Type G)
0.85' Hot Mix Asphalt (Type C)
1.95' Aggregate Base

The 40 year flexible pavement (LCCA Option 2) structural section is:
0.20' Rubberized Hot Mix Asphalt (Type G)
1.90' Hot Mix Asphalt (Type C)
0.50' Aggregate Base

The 40 year Composite (LCCA Option 3) structural section is:
1.25' Joint Plain Concrete Pavement
0.10' Hot Mix Asphalt (Type A)
0.35' Lean Concrete Base
0.70' Aggregate Subbase

The existing structural section for lanes 1-4 (as shown above) is
0.16' Open Grade Asphalt Concrete
0.64' Hot Mix Asphalt (Type A)
0.69' Cement Treated Base
1.00' Aggregate Subbase

The existing structural section is similar to LCCA Option 1.

Results for Westbound Alternative 2 Fifth Lane

The results of the LCCA are in the attached LCCA Form. The total life-cycle costs are summarized as follows:

LCCA Option 1, 20 year flexible pavement	$6.19 million
LCCA Option 2, 40 year flexible pavement	$6.96 million
LCCA Option 3, 40 year composite pavement	$4.70 million

RECOMMENDATION

Westbound

LCCA Option 3, 40 year Composite, has the lowest present value agency cost and lowest present value user cost for the fifth lane alternative; however, the PDT has discussed rigid pavement and decided it will not be used, as the surrounding pavement sections do not incorporate rigid pavement.

LCCA Option 1, 20 year flexible, has the lowest life-cycle cost of the remaining flexible pavement options. According to Table 612.2 of the HDM, the minimum pavement design life shall be 40 years if the average daily traffic (ADT) is greater than 150,000. The project location will have a higher ADT than 150,000 by the year 2040; however, the adjacent traffic lanes have a structural section similar to the 20 year flexible pavement. LCCA Option 1 has the lowest life-cycle cost of the flexible pavement options LCCA Option 1, 20 year flexible, is recommended for westbound Alternative 2, the fifth lane alternative.

By extension, the 20 year flexible pavement is also recommended for westbound Alternative 1, the auxiliary lane.

Eastbound

For the eastbound direction, the existing section of the SR 65 on-ramp to eastbound I-80 is a 20-yr flexible pavement. The proposed auxiliary lane extends this existing lane; it is recommended to use the same surface type and structural section as existing for both alternatives in the eastbound direction, the 20 year flexible pavement design.

For questions on the Life Cycle Cost Analysis, please contact Nathan Donnelly at ndonnelly@dokkenengineering.com or 916-858-0642.

PLACER I-80 AUXILIARY LANES PROJECT
EA 03-03F230

Life Cycle Cost Analysis Form-
Westbound Alternative 2 (5th Lane)

LCCA Option 1:
Rubberized Hot Mix Asphalt, Type G (RHMA-G), Hot Mix Asphalt, Type C (HMA-C) (20 year flexible pavement)

0.20’ Rubberized Hot Mix Asphalt, 0.85’ Hot Mix Asphalt, 1.95’ Aggregate Base

Pavement Design Life: 20 Years		
Initial Construction Cost:	$ 3,170,375	
Future Maintenance & Rehabilitation Cost:**	$2,605,775	
TOTAL AGENCY COST:		$ 5,776,150
TOTAL USER COST:		$ 410,500
TOTAL LIFE-CYCLE COST:		$ 6,186,650

LCCA Option 2:
Rubberized Hot Mix Asphalt, Type G (RHMA-G), Hot Mix Asphalt, Type C (HMA-C)(40 Year Flexible Pavement)

0.20' Rubberized Hot Mix Asphalt, 1.90’ Hot Mix Asphalt, 0.50’ Aggregate Base According to section 633.1 of the HDM, enhancements such as non-structural wearing course above the surface layer should be used to achieve a 40 yr. design.

Pavement Design Life: 40 Years		
Initial Construction Cost:	$ 4,854,369.17	
Future Maintenance & Rehabilitation Cost:**	$1,907,090.83	
TOTAL AGENCY COST:		$ 6,761,460
TOTAL USER COST:		$ 198,960
TOTAL LIFE-CYCLE COST:		$ 6,960,420

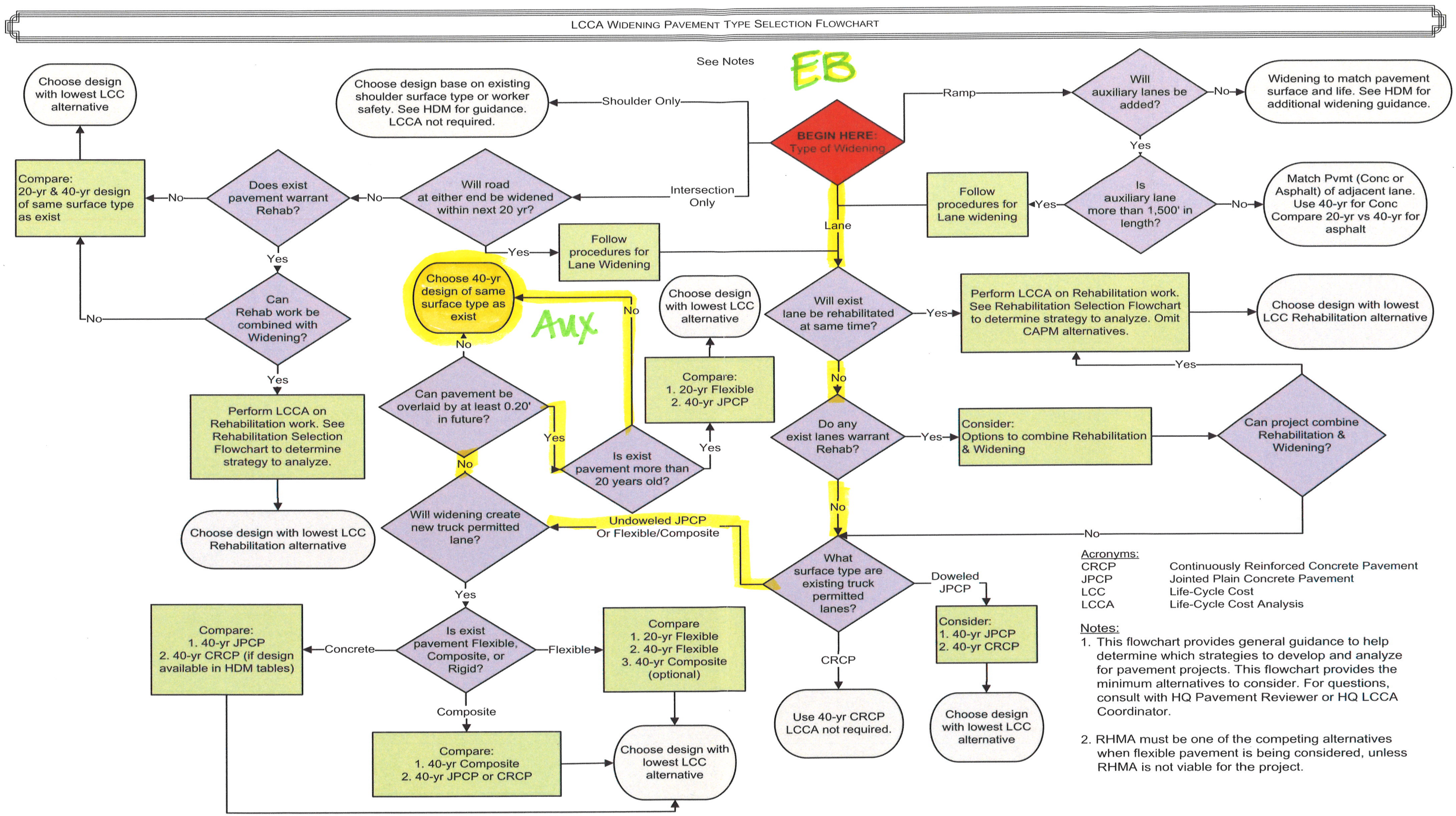
LCCA Option 3:
Jointed Plain Concrete Pavement (JPCP)(40 Year Rigid Pavement)

1.25’ Jointed Plain Concrete Pavement, 0.35’ Lean Concrete Base, 0.70’ Aggregate Subbase

Pavement Design Life: 40 Years		
Initial Construction Cost:	$ 4,430,203.91	
Future Maintenance & Rehabilitation Cost:**	$243,366.09	
TOTAL AGENCY COST:		$ 4,673,570
TOTAL USER COST:		$ 31,210
TOTAL LIFE-CYCLE COST:		$ 4,704,780

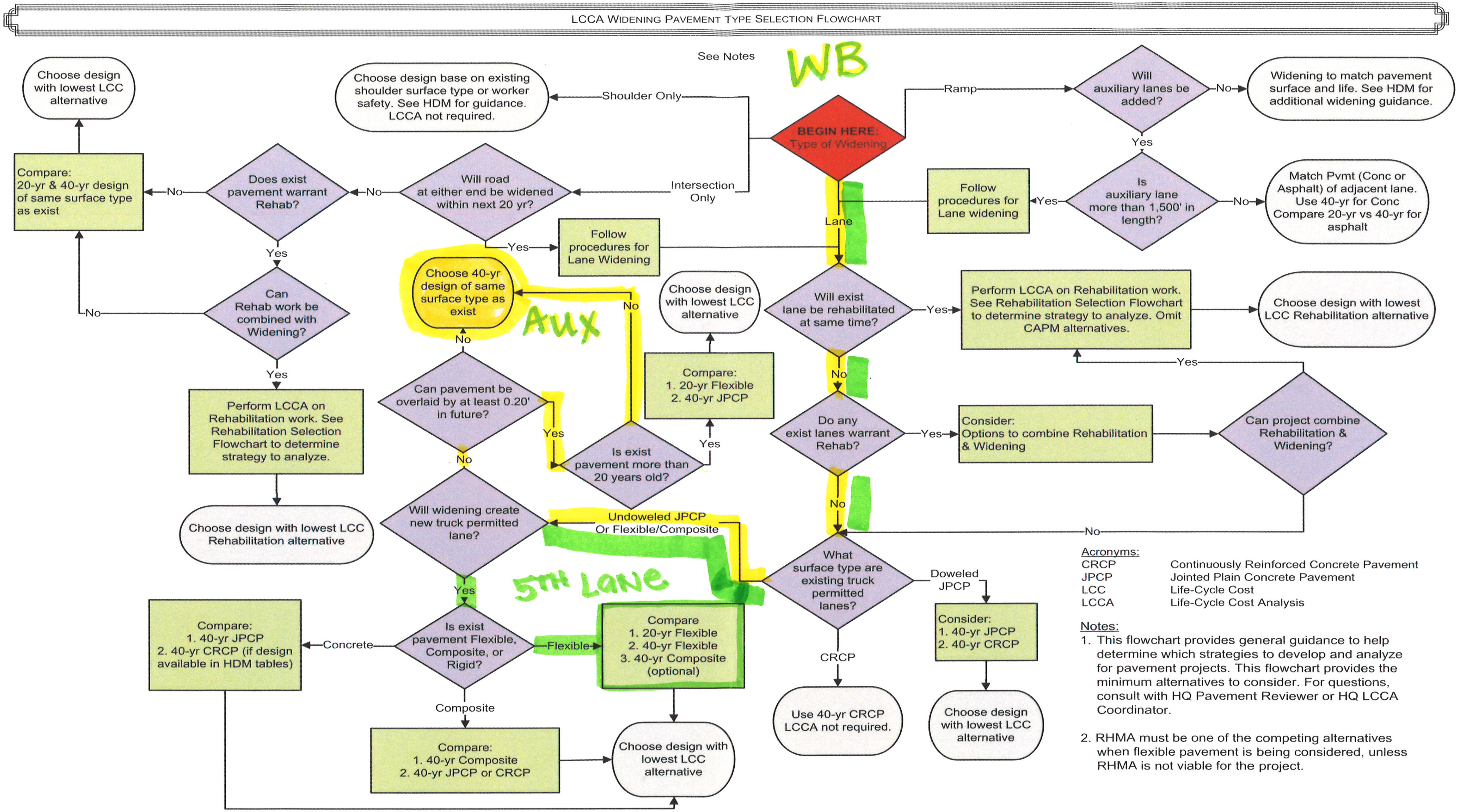
LCCA Option 3, 40 year Composite, has the lowest present value agency cost and lowest present value user cost. However, the PDT has discussed rigid pavement and decided it will not be used, as the surrounding pavement sections do not incorporate rigid pavement. LCCA Option 1, 20 year flexible, has the lowest life-cycle cost of flexible pavements. According to Table 612.2 of the HDM, the minimum pavement design life shall be 40 years if the average daily traffic (ADT) is greater than 150,000. The project location will have a higher ADT than 150,000 by the year 2040. However, as the adjacent traffic lanes have a structural section similar to the 20 year flexible pavement and LCCA Option 1 has the lowest life-cycle cost of the flexible pavement options, LCCA Option 1, 20 year flexible, is recommended for westbound Alternative 2, the fifth lane alternative

** Includes future maintenance, construction, and project support costs over a Life Cycle Cost Analysis Period of 55 years.



Combined Figure 2-2, Figure 2-3, and Figure 2-4 LCCA Widening Pavement Type Selection Flowchart

EASTBOUND FLOWCHART



Acronyms:

CRCP	Continuously Reinforced Concrete Pavement
JPCP	Jointed Plain Concrete Pavement
LCC	Life-Cycle Cost
LCCA	Life-Cycle Cost Analysis

Notes:

1. This flowchart provides general guidance to help determine which strategies to develop and analyze for pavement projects. This flowchart provides the minimum alternatives to consider. For questions, consult with HQ Pavement Reviewer or HQ LCCA Coordinator.
2. RHMA must be one of the competing alternatives when flexible pavement is being considered, unless RHMA is not viable for the project.

Combined Figure 2-2, Figure 2-3, and Figure 2-4 LCCA Widening Pavement Type Selection Flowchart

WESTBOUND FLOWCHART

Attachment K

LEVEL 2 - RISK REGISTER				Project Name:	Placer I-80 Auxiliary Lanes Project		DIST- EA	03-F230	Project Manager	Rodney Murphy							
Risk Identification							Risk Assessment							Risk Response			
Status	ID #	Type	Category	Title	Risk Statement	Current status/assumptions	Probability	Cost Impact	Cost Score	Time Impact	Time Score	Rationale	Strategy	Response Actions		Risk Owner	Updated
Active		Threat	Environmental	Challenge to the Environmental Document	Potential lawsuits may challenge the environmental report, delaying the start of construction or threatening loss of funding.		1-Very Low	4 -Moderate	4	8 -High	8		Mitigate	Address concerns of stakeholders and public during environmental process		PCTPA	5/5/2015
Active		Threat	Environmental	Nesting Birds	Nesting birds, protected from harassment under the Migratory Bird Treaty Act, may delay construction during the nesting season.		2-Low	2 -Low	4	8 -High	16		Mitigate	Schedule contract work to avoid the nesting season or remove nesting habitat before starting work.		PCTPA	5/5/2015
Active		Threat	Environmental	Design changes require additional Environmental analysis	Following PA&ED, a completely new design team could be assigned to the project and decide to incorporate design features outside the environmental study footprint.		2-Low	2 -Low	4	4 -Moderate	8		Mitigate	Be sure the PSE design team is fully aware of the environmental constraints. If an environmental re-evalutation is required, be sure the PSE design schedule accommodates this action.		PCTPA	5/5/2015
Active		Threat	Design	Survey File	Inaccuracies or incomplete information in the survey file could lead to rework of the design.		3-Moderate	2 -Low	6	2 -Low	6		Mitigate	During the PSE phase, augment the PA&ED aerial survey with field collected topographical survey.		PCTPA	5/5/2015
Active		Threat	Design	Construction or pile driving noise and vibration impacting resident at Melrose Ave soundwall reconstruction	Not properly documenting the foundation and structure condition of the existing house prior to construction could allow the property owner to claim the vibrations from the soundwall construction caused damage to the residence.		2-Low	4 -Moderate	8	2 -Low	4		Mitigate	Perform and document a pre-construction inspection of the residence and also minimize construction vibration as much as possible.		PCTPA	5/5/2015
Active		Threat	Design	Foundation and geotechnical tasks (foundation drilling and material testing) not identified and included in project workplan	PA&ED phase did not include geotechnical borings so the wall designs could change during PSE.		2-Low	2 -Low	4	1 -Very Low	2		Mitigate	Collect geotechnical borings first thing during the PSE design phase.		PCTPA	5/5/2015
Active		Threat	Design	Bridge is a habitat to bats or other species requiring mitigation or seasonal construction													
Active		Threat	Design														
Active		Threat	ROW	Delay of ROW Acquisition													
Active		Threat	ROW	Discovery of hazardous waste in the right of way phase													
Active		Threat	ROW	Utility company workload, financial condition or timeline													
Active		Threat	Construction	Buried Objects	Unanticipated buried man-made objects uncovered during construction require removal and disposal resulting in additional costs.		2-Low	4 -Moderate	8	4 -Moderate	8		Accept	Include a Supplemental Work item to cover this risk.		PCTPA	5/5/2015
Active		Threat	Construction	Hazardous Materials	Hazardous materials encountered during construction will require an on-site storage area and potential additional costs to dispose		2-Low	2 -Low	4	1 -Very Low	2		Accept	Ensure storage space will be available		PCTPA	5/5/2015
Active		Threat	Construction	Late discovery of aerially deposited lead													
Active		Threat	Construction	Delay in demolition due to sensitive habitat requirements or other reasons													
Active		Threat	Organizational	Capital Funding Unavailable for Construction	If the project is advanced to Final Design without construction funding available, the environmental document may require a re-evaluation, traffic patterns could change substaintially requiring design changes, design standards may change requiring additional design excpetions and additional years of escalation could push the project costs beyond the funded allotment.		3-Moderate	4 -Moderate	12	4 -Moderate	12		Accept			PCTPA	5/5/2015

Attachment L

I-80 AUXILIARY LANES PROJECT

PLACER COUNTY
CITY OF ROCKLIN, CITY OF ROSEVILLE
DISTRICT 3-PLA-80-PM 0.1-2.2
DISTRICT 3-PLA-80-PM 4.1-6.0
EA-03-03-F230
SCH #2016012021

INITIAL STUDY WITH MITIGATED NEGATIVE DECLARATION

Prepared by the
California State Department of Transportation and
Placer County Transportation Planning Agency

August 2016

Caltrans

PLACER COUNTY
TRANSPORTATION
PLANNING AGENCY

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SCH #2016012021

General Information about this Document

WHAT'S IN THIS DOCUMENT:

This document contains a final Initial Study with Mitigated Negative Declaration that describes the project, the existing environment that could be affected by the project, potential impacts from the project, and proposed avoidance, minimization, and/or mitigation measures.

The draft Initial Study with proposed Mitigated Negative Declaration was circulated for public review and comment from January 11, 2016 to February 11, 2016. An opportunity for a public hearing was offered to the public; however, a public hearing was not held as it was not requested during public circulation of the draft environmental document. Comment letters were received on the draft document. All comments and the responses to the comments received on the circulated document are shown in Appendix E, Response to Public Comments, which has been added since the draft. Elsewhere throughout this document, a line in the right margin indicates a significant change made since the draft document circulation.

WHAT HAPPENS AFTER THIS:

The proposed project has completed environmental compliance after circulation of this document and filing of the Notice of Determination with the Office of Planning and Research—State Clearinghouse. Once funding is appropriated, the Placer County Transportation Planning Agency, in coordination with Caltrans, can design, acquire right-of-way for, and build all or part of the project.

This document can also be accessed electronically at the following website:

http://pctpa.net/projects/i-80-auxiliary-lanes/

PRINTING THIS DOCUMENT:

To save paper, this document has been set up for two-sided printing (to print the front and back of a page). Blank pages occur where needed throughout the document to maintain proper layout of the chapters and appendices.

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: *Laura Loeffler* Ph: (530)741-4592, or use the California Relay Service TTY number, 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

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I-80 Auxiliary Lanes Project

DISTRICT 3-PLA-80-PM 0.1-2.2
DISTRICT 3-PLA-80-PM 4.1-6.0
EA-03-03F230

INITIAL STUDY with Proposed Mitigated Negative Declaration

Submitted Pursuant to: (State) Division 13,
California Resources Code

THE STATE OF CALIFORNIA
Department of Transportation

1/5/2016
Date of Approval

John D. Webb, Chief
North Region Environmental Services, South
California Department of Transportation CEQA Lead Agency

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SCH #2016012021

Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

PROJECT DESCRIPTION

The California Department of Transportation (Caltrans), in conjunction with the Federal Highway Administration (FHWA), Placer County Transportation Planning Agency (PCTPA), Placer County, the City of Rocklin, and the City of Roseville propose to widen the existing Interstate 80 (I-80) adding an eastbound auxiliary lane between State Route 65 (SR 65) and Rocklin Road, and a 5th lane from 1,000 feet east of Douglas Boulevard to west of Riverside Avenue (where four through lanes currently exist).

The purpose of the project is to:

- Enhance through traffic capacity on I-80 in two locations: eastbound from 65 through the Rocklin Road Interchange, and westbound from Douglas Boulevard through the Riverside Avenue Interchange;
- Reduce existing congestion and operational problems on I-80 that cause back up on I-80 and on local roadways, and;
- Improve safety by reducing stop and go traffic through enhanced capacity, merging and weaving facilities.

DETERMINATION

Caltrans has prepared an Initial Study for this project and following public review, Caltrans has determined from this study that the project will not have a significant effect on the environment for the following reasons:

The project will have no effect on land use and planning, population and housing, recreation, and utilities and service systems.

The project will have a less than significant effect on aesthetics, air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, public services, and transportation/traffic with incorporation of avoidance and minimization measures.

The project will have a less than significant effect on biological resources and noise with incorporation of the following avoidance, minimization, and mitigation measures:

> Removal of oak trees will be compensated through replacement at a ratio of 2:1 trees for native oaks and 5:1 trees for City of Rocklin designated heritage trees removed in Location 1 and at a ratio of a 15 gallon tree for every 1 inch dbh removed, a 24 inch box tree for every two inches dbh removed or a 36 inch box tree for every three inches dbh removed in Location 2 within the City of Roseville.
>
> Permanent impacts to wetlands/other Waters of the U.S. will be mitigated through payment into the in-lieu fee program or at an on or off-site, agency approved location, at

a 2:1 ratio. Temporary impacts to Cirby Creek will be recontoured to pre-construction conditions. Exact mitigation ratios and locations will be determined during the environmental permitting phase of the project.

Impacts to Essential Fish Habitat will be mitigated through an on or off-site agency approved location at a 3:1 ratio. Exact mitigation ratios and locations will be determined during the environmental permitting phase of the project.

Suzanne Melim for
Susan D. Bauer, Chief
North Region Environmental Services, South
California Department of Transportation
CEQA Lead Agency

8-15-16
Date

Executive Summary

The California Department of Transportation (Caltrans), in conjunction with the Federal Highway Administration (FHWA), Placer County Transportation Planning Agency (PCTPA), Placer County, the City of Rocklin, and the City of Roseville propose improvements along I-80 between SR 65 and Rocklin Road and between 1,000 feet east of Douglas Boulevard and Riverside Avenue.

Location 1 of the proposed project, between SR 65 and Rocklin Road, is within the City of Rocklin and Location 2 of the proposed project, between 1,000 feet east of Douglas Boulevard and Riverside Avenue, is within the City of Roseville, both within Placer County.

Alternative 1 of the proposed project would widen the existing I-80 by adding an eastbound auxiliary lane at Location 1, and a westbound auxiliary lane at Location 2.

Alternative 2 of the proposed project would also widen the existing I-80 by adding an eastbound auxiliary lane at Location 1, and at Location 2 would widen I-80 to add a fifth through lane (mixed flow) from 1,000 feet east of Douglas Boulevard to west of Riverside Avenue (where four through lanes currently exist), instead of an auxiliary lane.

The “No Build” Alternative would not implement any of the proposed improvements. Routine and necessary maintenance would continue along I-80; however, operational features would not be improved. Without plans to address roadway deficiencies, the existing facility would not be upgraded to meet forecasted traffic demands and safety features would not be enhanced.

After consideration of impacts associated with each alternative, Caltrans, in coordination with the project development team, selected Alternative 2 as the preferred alternative. Alternative 2 was selected as the preferred alternative because it provides the most public good with the least environmental harm, and best meets the purpose and need of the project.

The project was designed with appropriate avoidance, minimization, and mitigation measures, which will have less than significant impacts on aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, public services, and transportation/traffic. A summary of these measures can be found in Appendix C: Mitigation, Monitoring, and Reporting Program. Therefore, the proposed project will not result in impacts considered “significant” under CEQA.

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Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Less Than Significant Impact" as indicated by the discussion within the document and the checklist found in Appendix B.

- ☒ Aesthetics
- ☐ Agricultural Resources
- ☒ Air Quality
- ☒ Biological Resources
- ☒ Cultural Resources
- ☒ Geology/Soils
- ☒ Greenhouse Gas Emissions
- ☒ Hazards and Hazardous Materials
- ☒ Hydrology/Water Quality
- ☐ Land Use/Planning
- ☐ Mineral Resources
- ☒ Noise
- ☐ Population/Housing
- ☐ Public Services
- ☐ Recreation
- ☒ Transportation/Traffic
- ☒ Utilities/Service Systems
- ☒ Mandatory Findings of Significance

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List of Abbreviations

AB	Assembly Bill
APE	Area of Potential Effects
ARB	Air Resources Board
ARPA	Archaeological Resources Protection Act
AUL	Activity and Use Limitations
BMPs	Best Management Practices
BOD	Biological Oxygen Demand
BSA	Biological Study Area
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CERFA	Community Environmental Response Facilitation Act (CERFA) of 1992
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CH_4	Methane
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CRHR	California Register of Historical Resources
CW	Commercial-Water Related
dBA	Decibel A-weighted
DO	Dissolved oxygen

EDR	Environmental Data Report
EIR	Environmental Impact Report
E.O.	Executive Order
EPA	Environmental Protection Agency
ESA	Environmentally Sensitive Area
FESA	Federal Endangered Species Act
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRM	Flood Insurance Rate Map
FTA	Federal Transit Administration
GHG	greenhouse gases
H_2S	Hydrogen Sulfide
HCP	Habitat Conservation Plan
HFC	Hydrofluorocarbons
HOV	High Occupancy Vehicle
I-80	Interstate 80
IPCC	Intergovernmental Panel on Climate Change
ISA	Initial Site Assessment
La	Lang sandy loam
Lb	Pound
Ldn	day-night average sound level
Leq	equivalent continuous sound level
Lmax	maximum sound level
LOS	Level of Service
MBTA	Migratory Bird Treaty Act
MFR	Multi-family residence
mg/m^3	Milligrams per cubic meter
MND	Mitigated Negative Declaration
Mph	miles per hour
MRZ	Mineral Resource Zone

MTIP	Metropolitan Transportation Improvement Program
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Protection Act
NES	Natural Environment Study
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NOA	Naturally occurring asbestos
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
O_3	Ozone
OSHA	Occupational Safety and Health Act
PA	Programmatic Agreement
Pb	Lead
PCAPCD	Placer County Air Pollution Control District
PCTPA	Placer County Transportation Planning Agency
PDT	Project Development Team
PFC	Perfluorocarbons
PM	particulate matter
ppb	parts per billion
ppm	parts per million
PRC	Public Resources Code
PSI	Pounds per Square Inch
Qha	Quaternary Holocene alluvium
ROG	Reactive organic compounds

RP	Recreations-Parks
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SCHL	School
SF_6	Sulfur hexafluoride
SFR	Single family residence
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SPCCP	Spill Prevention, Control, and Countermeasure Program
SR 65	State Route 65
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	Sacramento Water Resources Control Board
SVAB	Sacramento Valley Air Basin
TNM	Traffic Noise Model
TSCA	Toxic Substances Control Act
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
VMT	Vehicle miles traveled
VOC	volatile organic compounds

1.0 PROPOSED PROJECT

1.1 INTRODUCTION

The California Department of Transportation (Caltrans), in conjunction with the Federal Highway Administration (FHWA), Placer County Transportation Planning Agency (PCTPA), Placer County, the City of Rocklin, and the City of Roseville, also referred to as the Project Development Team (PDT), propose to widen the existing I-80 adding an eastbound auxiliary lane at Location 1 between SR 65 and Rocklin Road, and a westbound auxiliary lane at Location 2 between Douglas Boulevard and Riverside Avenue (see Figure 1: Project Vicinity and Figure 2: Project Location). Consideration is being given to an alternative that would provide a fifth through lane (mixed flow) from 1,000 feet east of Douglas Boulevard to west of Riverside Avenue (where four through lanes currently exist) instead of the proposed auxiliary lane. The project is located in Placer County, California. Caltrans is the lead agency under the California Environmental Quality Act (CEQA) and is the lead agency under the National Environmental Policy Act (NEPA). The PCTPA, City of Rocklin, City of Roseville, and Placer County are the cooperating agencies.

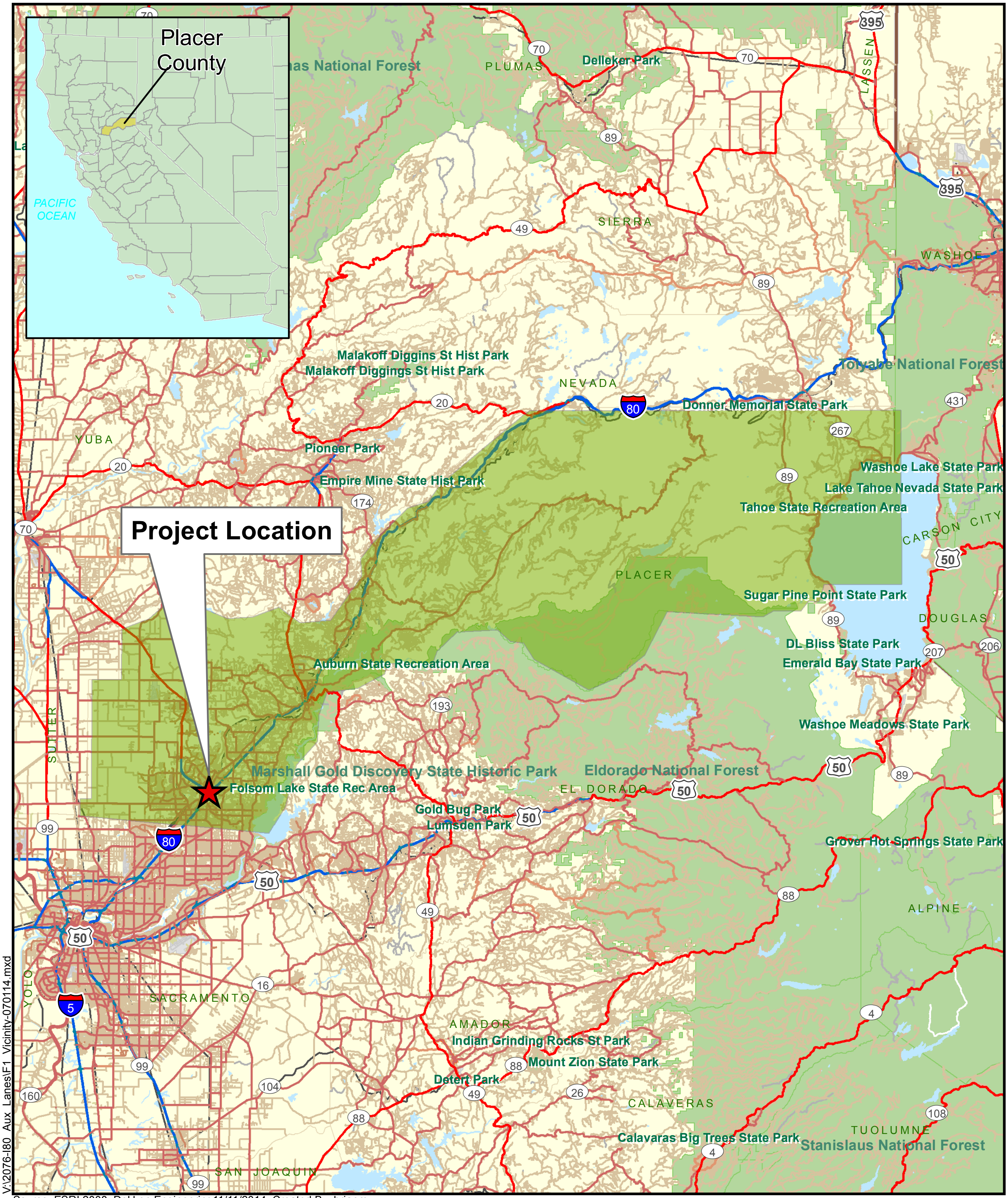
1.2 PURPOSE

The purpose of the project is to:

- Enhance through traffic capacity and flow on I-80 in two locations: eastbound from SR 65 through the Rocklin Road Interchange, and westbound from Douglas Boulevard through the Riverside Avenue Interchange;
- Reduce existing congestion and operational problems on I-80 that cause back up on I-80 and on local roadways, and;
- Improve safety by reducing stop and go traffic and, merging and weaving through the implementation of enhanced capacity and flow facilities.

1.3 NEED

The project is needed because the freeway is experiencing operational problems caused by high peak period traffic volumes. Vehicle hours of delay, average speeds, travel times, and other traffic performance measures will continue to degrade as growth increases. I-80 is a primary transcontinental freeway which primarily serves as a transportation corridor for both passengers and goods throughout the United States. Additionally, growth in the South Placer County region has increased daily commuter traffic and traffic to major commercial and educational centers in the area. This increased traffic demand, together with increased demand generated from recreational facilities in the Sierra Nevada Mountains to the east and the San Francisco Bay Area to the west have resulted in reduced levels of service on I-80. This segment of I-80 serves the national movement of goods and passengers, as well as the City of Roseville, City of Rocklin, and Placer County and is heavily used throughout the day.



Source: ESRI 2008; Dokken Engineering11/11/2014; Created By: brianm

Figure 1
Project Vicinity
EA-03F230
Placer I-80 Auxiliary Lanes Project
Placer County, California

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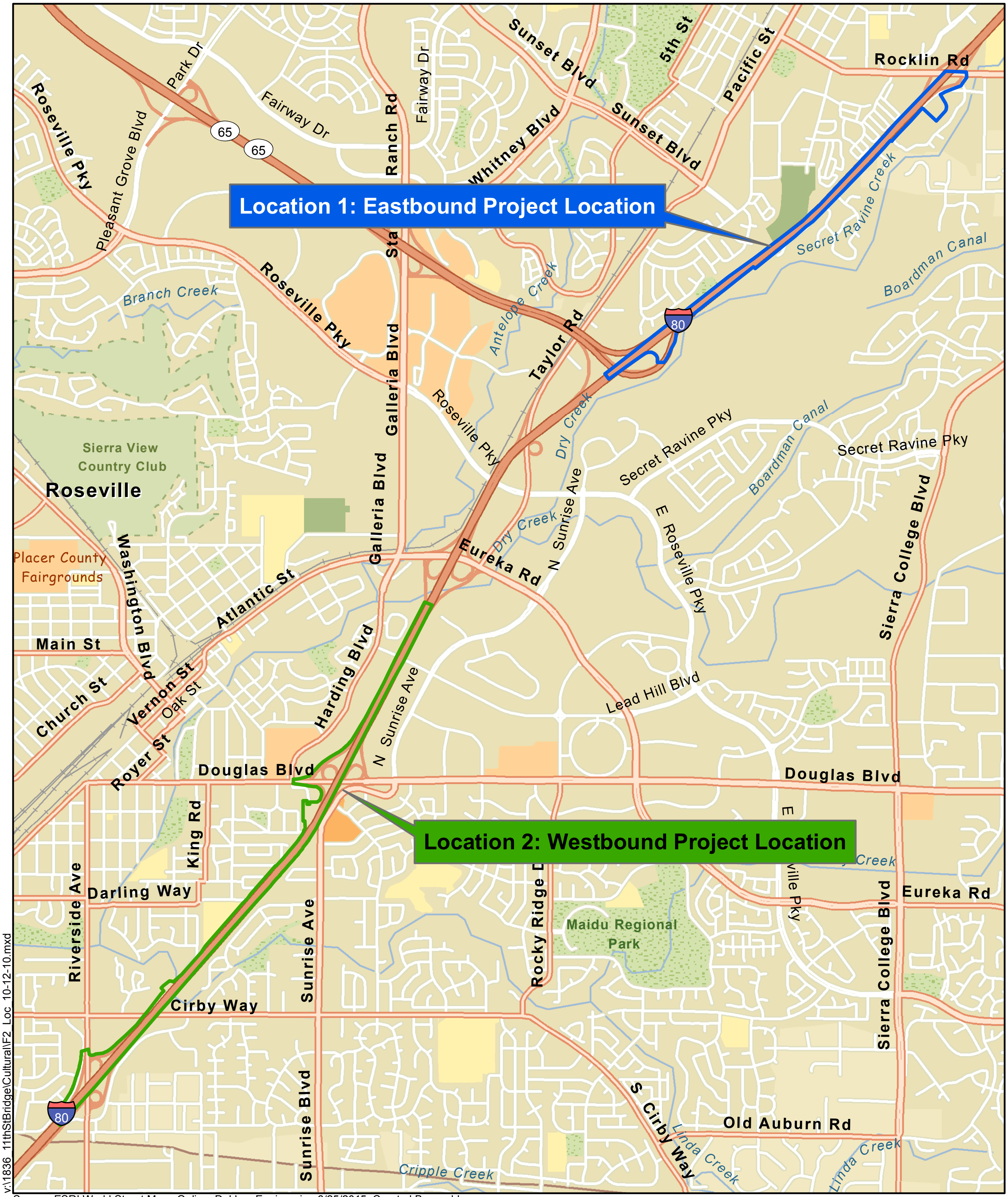
Miles



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Source: ESRI World Street Maps Online; Dokken Engineering 6/25/2015; Created By: zachl

0 0.5 1 1.5 2 Miles

Figure 2
Project Location
EA-03F230
Placer I-80 Auxiliary Lanes Project
Placer County, California

1.4 PROJECT OVERVIEW

I-80 is the principal east-west route through Northern California and a primary transcontinental freeway serving passenger and goods movement from the San Francisco Bay Area, Northern California, through the Midwest and extending to the eastern United States. Maintaining adequate passenger and goods movement on this critical component of the National Highway System is essential. SR 65 in Placer County is a major north-south facility and connects to I-80 from the north generally along the borders of the cities of Rocklin and Roseville. It is a major transportation corridor for the region and Northern California.

Caltrans, together with FHWA, PCTPA, Placer County, City of Rocklin, and City of Roseville, have identified the need for additional transportation improvements in the area. Two key improvements to the regional plan are the addition of auxiliary lanes on I-80 in the westerly direction between Douglas Boulevard and Riverside Avenue, and in the easterly direction between SR 65 and Rocklin Road. Consideration is being given to an alternative that would provide a fifth through lane (mixed flow) from 1,000 feet east of Douglas Boulevard to west of Riverside Avenue (where four through lanes currently exist). Both the eastbound and westbound auxiliary lanes by definition are a portion of roadway, supplementary to the through movements, which enter at an on-ramp and exit at the following off-ramp. They provide an area for weaving and speed changes and enhance capacity. A through lane carries vehicles through an interchange and traffic can continue past an off-ramp.

1.5 ALTERNATIVES

The proposed project has three alternatives (see Figure 3: Project Features):

- Alternative 1 – Eastbound and Westbound Auxiliary Lanes
- Alternative 2 – Eastbound Auxiliary Lane and Westbound 5th Lane
- Alternative 3 – No Build (No Project)

Specifics of each alternative are discussed below:

Alternative 1 –Eastbound and Westbound Auxiliary Lanes
Alternative 1 includes the following eastbound and westbound auxiliary lanes:

I-80 Eastbound Auxiliary Lane – Location 1 - SR 65 to Rocklin Road
The eastbound auxiliary lane is proposed to be constructed between SR 65 and Rocklin Road with standard 12-foot lane and 10-foot shoulder widths. The auxiliary lane would begin 0.3 miles east of SR 65 and continue to the Rocklin Road off-ramp. In order to accommodate traffic from the new auxiliary lane, the eastbound Rocklin Road off-ramp would be widened to two exit lanes. The gore at the Rocklin Road off-ramp would have to be shifted to accommodate the new auxiliary lane. The project would require sliver right-of-way acquisitions from a few parcels adjacent to I-80.

Three retaining walls would be constructed along the eastbound auxiliary lane. The first location would be along a small hill along the freeway to allow for the widening of I-80 without encroaching into an environmentally sensitive area. The second location would retain the widened I-80 embankment from encroaching onto the adjacent frontage road. A third wall would be needed where China Garden Road is elevated above I-80 and a wall is needed to retain this frontage road.

I-80 Westbound Auxiliary Lane – Location 2 - Douglas Boulevard to Riverside Avenue

The westbound auxiliary lane is proposed to be constructed between Douglas Boulevard and Riverside Avenue with a standard 12-foot lane and 10-foot shoulder widths. The auxiliary lane would begin at the Douglas Boulevard loop on-ramp to westbound I-80, and continue to the Riverside Avenue off-ramp. In order to accommodate the new auxiliary lane, the Douglas Boulevard slip on-ramp to westbound I-80 would have to be realigned, with a second ramp high occupancy vehicle (HOV) lane added. The gores at both Douglas Boulevard on-ramps and at the Riverside Avenue off-ramp would have to be shifted to accommodate the new auxiliary lane. The project would require sliver right-of-way acquisitions from a few parcels adjacent to I-80.

Alternative 1 also requires the widening of Linda Creek Bridge, a continuous three span, cast-in-place, reinforced concrete T-Beam Bridge. The total bridge width is currently 149.5 feet. In order to accommodate the auxiliary lane, an additional approximate 12.5 foot widening is required to the northwest (downstream) side with a column added at each pier. If a sound wall is needed on the bridge to shield the adjacent residences from noise, the new girder load capacity can be increased to carry this additional load without deepening the girder depth. Footings would be constructed immediately adjacent to the concrete lined channel, requiring partial removal and reconstruction of the channel.

A series of retaining walls, sound walls, and combination retaining/sound walls would be constructed alongside the proposed auxiliary lane. A sound wall currently exists along some portions of I-80, which in some areas would need to be removed and replaced adjacent to the proposed shoulder with a combination retaining/sound wall. Retaining walls would be constructed adjacent to Jo Anne Lane and under the Cirby Way Overcrossing.

Project Funding and Construction Time

Alternative 1 is included in the Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Improvement Program (MTIP) as SACOG ID's PLA25519 for the eastbound auxiliary lane and PLA25542 for the westbound auxiliary lane. The eastbound auxiliary lane is funded through the federal High Priority Projects program, while the westbound auxiliary lane is funded through the federal National Corridor Infrastructure Improvement Program. Construction of the auxiliary lanes is anticipated to last for 12 months.

Alternative 2 –Eastbound Auxiliary Lane and Westbound 5th Lane

Alternative 2 includes the following eastbound auxiliary lane and westbound 5th lane extension:

I-80 Eastbound Auxiliary Lane – Location 1 - SR 65 to Rocklin Road

Alternative 2 is the same as Alternative 1 for the eastbound auxiliary lane. The eastbound auxiliary lane is proposed to be constructed between SR 65 and Rocklin Road with standard 12-foot lane and 10-foot shoulder widths. The auxiliary lane would begin 0.3 miles east of SR 65 and continue to the Rocklin Road off-ramp. In order to accommodate traffic from the new auxiliary lane, the eastbound Rocklin Road off-ramp would be widened to two exit lanes. The gore at the Rocklin Road off-ramp would have to be shifted to accommodate the new auxiliary lane. The project would require sliver right-of-way acquisitions from a few parcels adjacent to I-80.

Three retaining walls would be constructed along the eastbound auxiliary lane. The first location would be along a small hill along the freeway to allow for the widening of I-80 without encroaching into an environmentally sensitive area. The second location would retain the widened I-80 embankment from encroaching onto the adjacent frontage road. A third wall would be needed where China Garden Road is elevated above I-80 and a wall is needed to retain this frontage road.

Westbound 5th Lane Extension – Location 2 - Douglas Boulevard to Riverside Avenue

The westbound 5th lane extension alternative is proposed to be constructed between Douglas Boulevard and Riverside Avenue with a standard 12-foot lane and 10-foot shoulder widths. The 5th lane extension would begin approximately 1,000 feet east of the Douglas Boulevard off-ramp from westbound I-80, and extend to 600 feet west of the Riverside Avenue overcrossing, where the freeway currently has five westbound lanes. The Douglas Boulevard off-ramp would be reduced from a 2-lane off-ramp with a trapped lane to a 1-lane off-ramp without a trapped lane. Both Douglas Boulevard on-ramps would have to be realigned to accommodate the 5th lane extension. Additionally, the Riverside Avenue loop on-ramp would require realignment in order to connect to the 5th lane extension. The project would require sliver right-of-way acquisitions from a few parcels adjacent to I-80.

Alternative 2 also requires the widening of Linda Creek Bridge, a continuous three span, cast-in-place, reinforced concrete T-Beam Bridge. The total bridge width is currently 149.5 feet. In order to accommodate the mixed flow lane, an additional approximate 12.5 foot widening is required to the northwest (downstream) side with a column added at each pier. If a sound wall is needed on the bridge to shield the adjacent residences from noise, the new girder load capacity can be increased to carry this additional load without deepening the girder depth. Footings would be constructed immediately adjacent to the concrete lined channel, requiring partial removal and reconstruction of the channel.

A series of retaining walls, sound walls, and combination retaining/sound walls would be constructed alongside the proposed 5th lane extension. A sound wall currently exists along some portions of I-80, which in some areas would need to be removed and replaced adjacent to the proposed shoulder with a combination retaining/sound wall. Retaining walls would be constructed adjacent to Jo Anne Lane and under the Cirby Way Overcrossing.

Project Funding and Construction Time

Alternative 2 of the proposed project is included in the Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Improvement Program (MTIP) as SACOG ID's PLA25519 for the eastbound auxiliary lane and PLA25576 for the westbound 5th lane. The eastbound auxiliary lane is funded through the federal High Priority Projects program, while the westbound 5th lane extension is funded through the federal National Corridor Infrastructure Improvement Program. Construction is anticipated to last for 16 months.

Alternative 3 - No Build (No Project)

The no build alternative would not construct either project Alternative 1 or Alternative 1 along I-80, would not alleviate traffic delays, and would not change the present roadway geometrics. The no build alternative would not meet the purpose and need of the proposed project. Traffic would continue to back up on I-80 and congest local roads as a result of the no build alternative.

1.6 IDENTIFICATION OF A PREFERRED ALTERNATIVE

After comparing and weighing the benefits and impacts of the Alternatives, Caltrans, in coordination with the PDT, identified the Alternative 2 as the preferred alternative, because Alternative 2 improves existing and future I-80 operations, alleviates existing congestion in the project area and provides a transportation facility consistent with Caltrans Roadway Design Standards in comparison to Alternative 1 and the No-Build Alternative. Additionally, Alternative

2 is consistent with all applicable state, regional, and local plans. Alternative 2 would provide improved safety by reducing stop and go traffic and, merging and weaving through the implementation of enhanced capacity and flow facilities.

1.7 PERMITS AND APPROVALS NEEDED

Environmental findings within the project include impacts to water quality, waters of the U.S. and State, air quality, cultural resources, special status species, sensitive noise receptors, and project right of way. The following consultations and environmental permits will be obtained prior to the start of construction.

Agency	Permit/Approval
U.S. Fish and Wildlife Service	Section 7 Biological Opinion
State Water Resources Control Board	Section 401 Certification
California Department of Fish and Wildlife	1602 Streambed Alteration Agreement
U.S. Army Corps of Engineers	Section 404 Nationwide Permit 14
Regional Water Quality Control Board	National Pollutant Discharge Elimination System 402 General Permit for Storm Water Discharges Associated with Construction Activity

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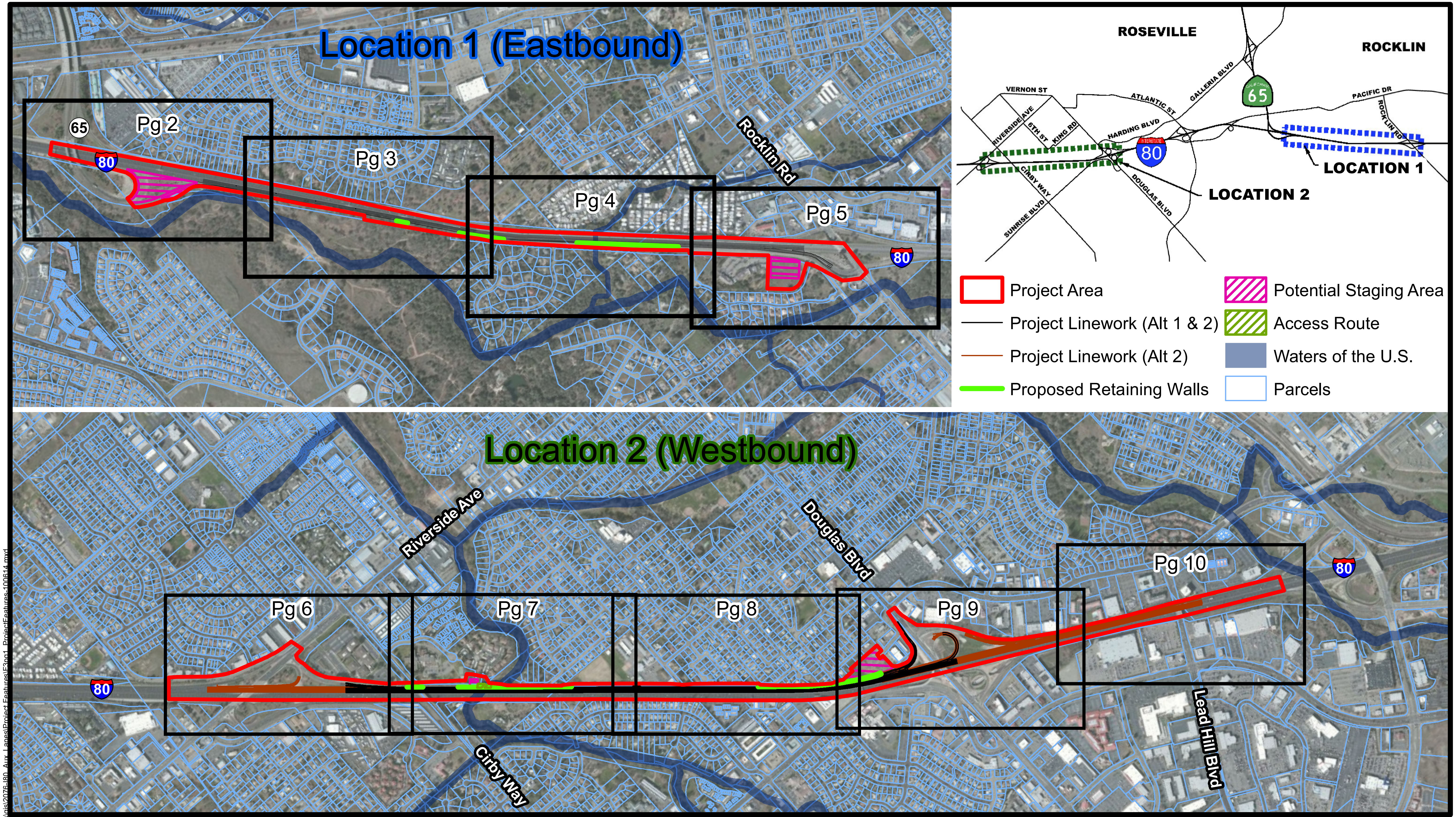

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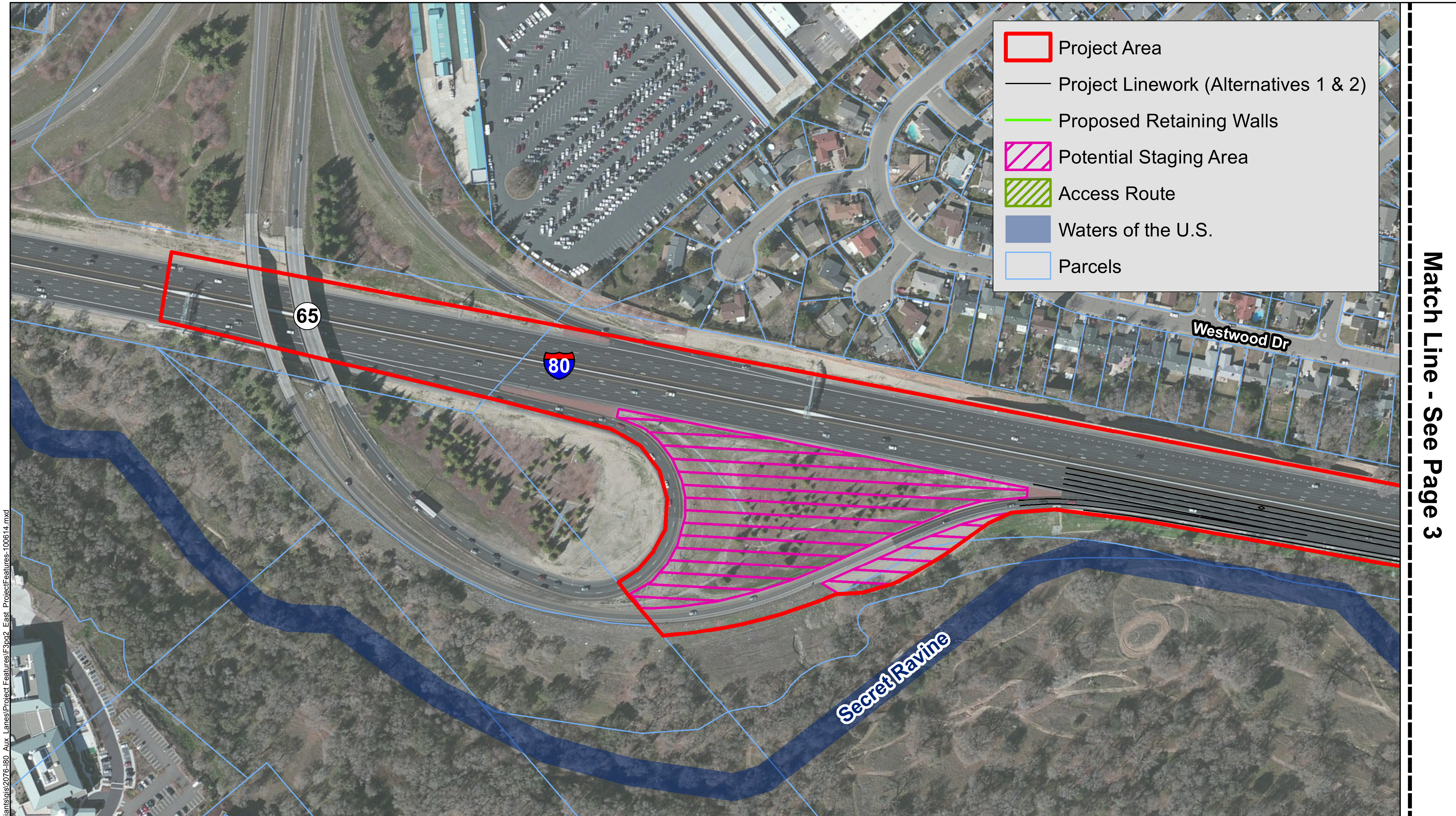
Figure 3
Page 1 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project
Placer County, California



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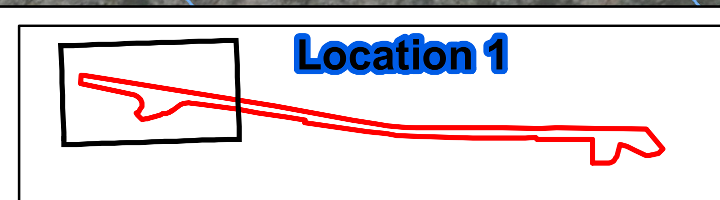

Figure 3
Page 2 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Eastbound)
Placer County, California

Match Line - See Page 2

Match Line - See Page 4

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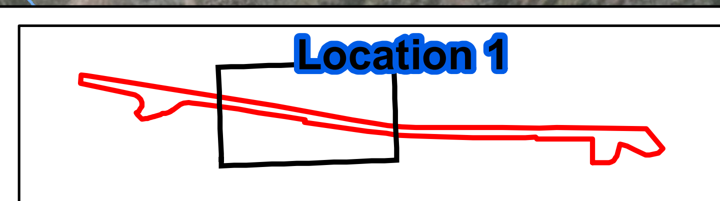
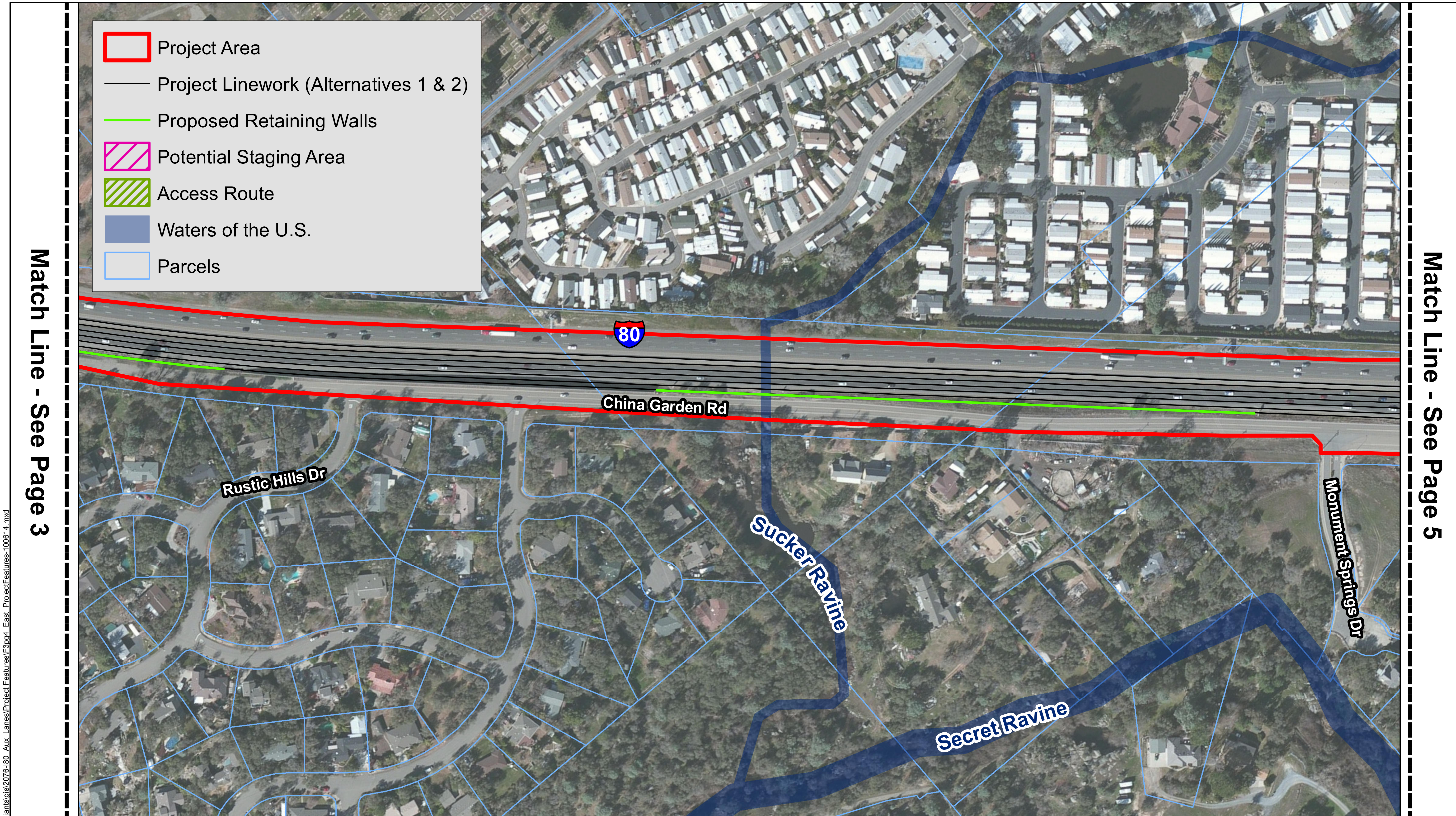


Figure 3
Page 3 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Eastbound)
Placer County, California



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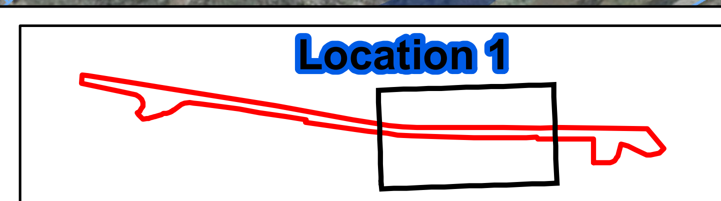
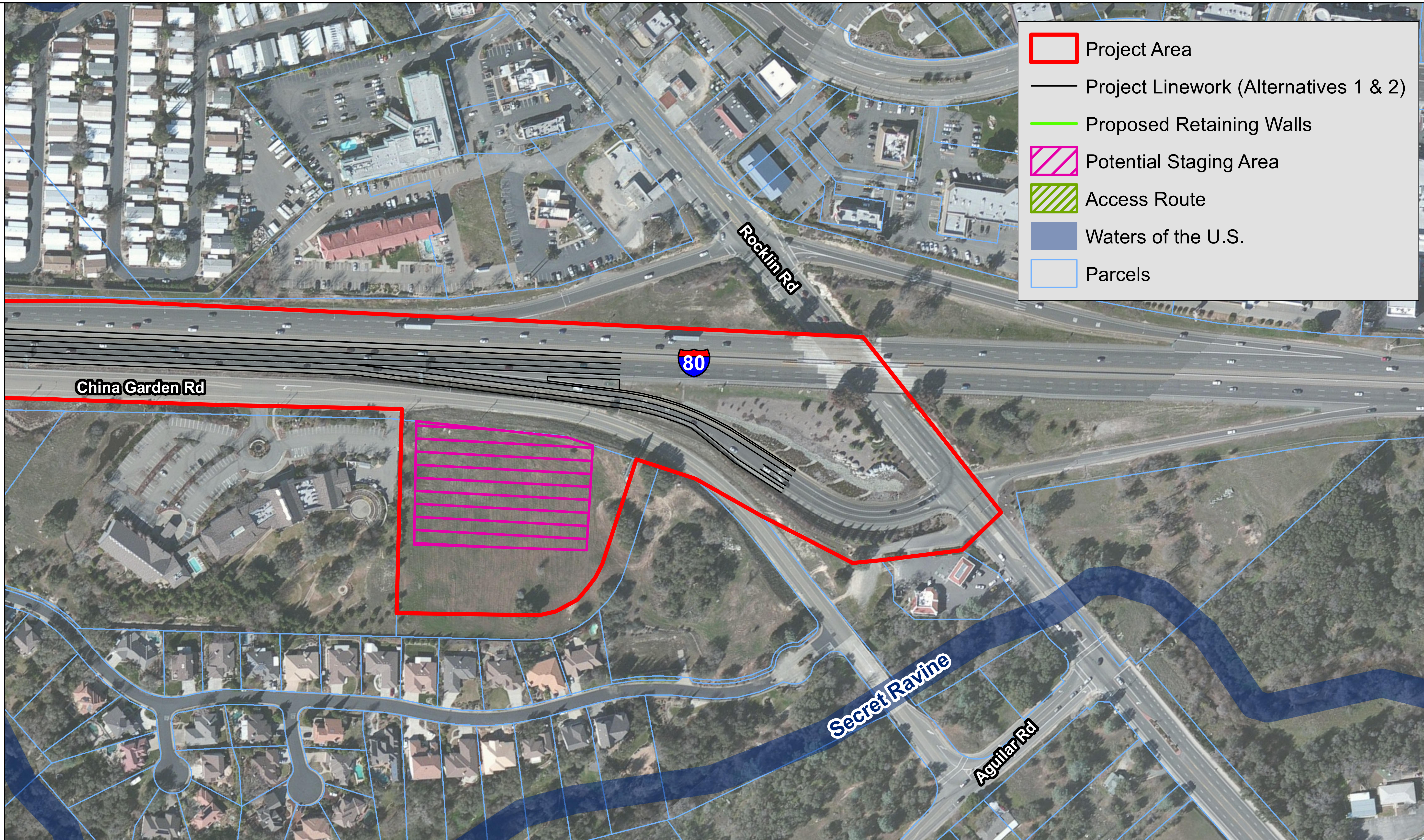


Figure 3
Page 4 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Eastbound)
Placer County, California

Match Line - See Page 4



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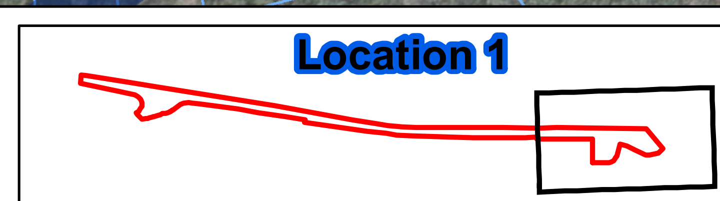

Figure 3
Page 5 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Eastbound)
Placer County, California

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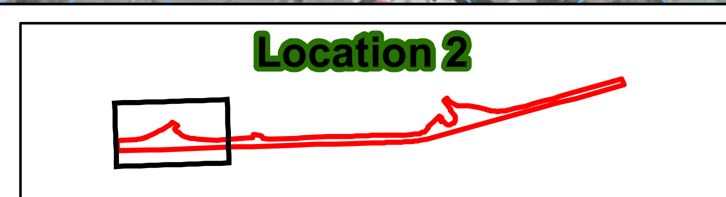

Figure 3
Page 6 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California

Match Line - See Page 6

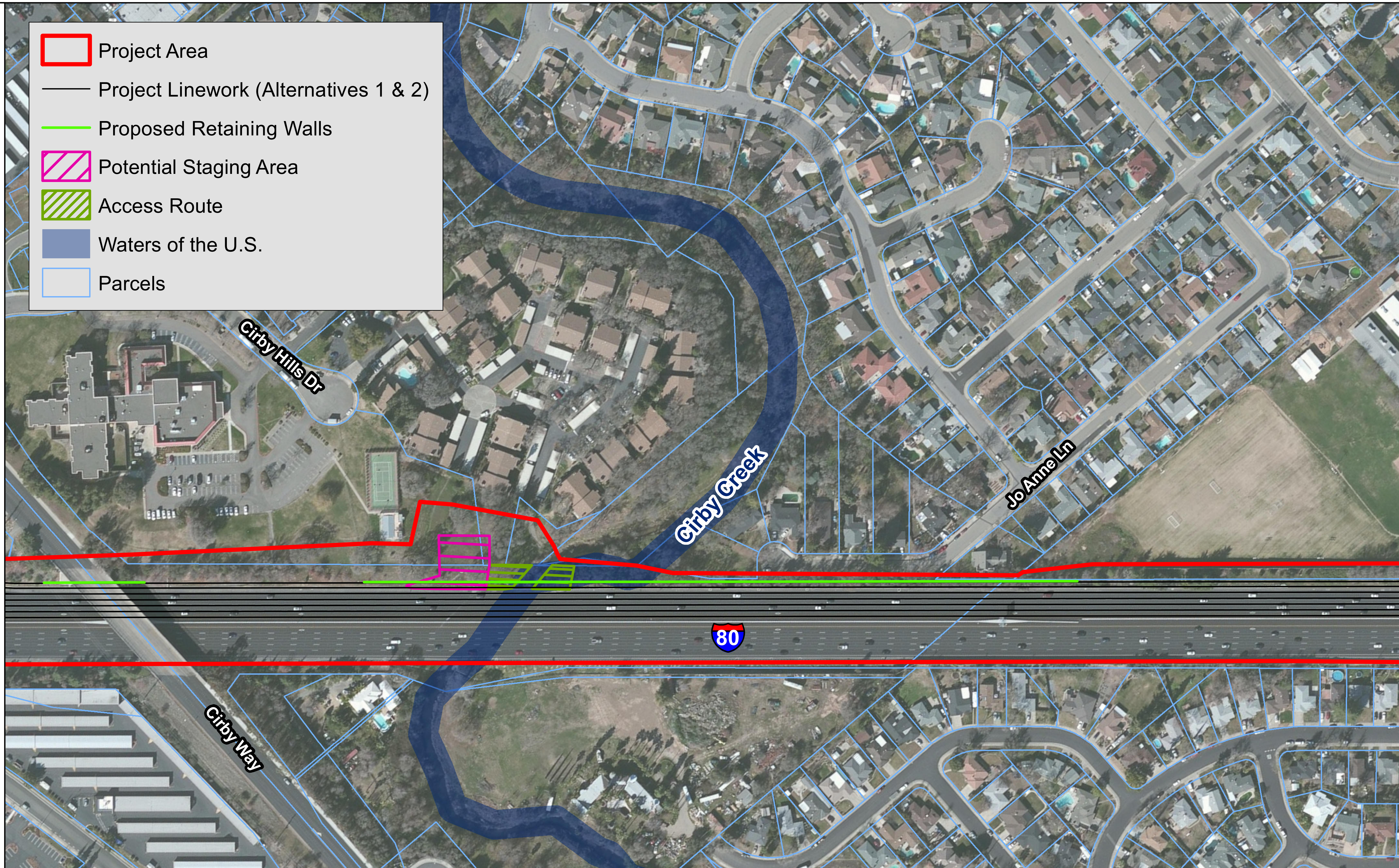

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Figure 3
Page 7 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California

Match Line - See Page 7

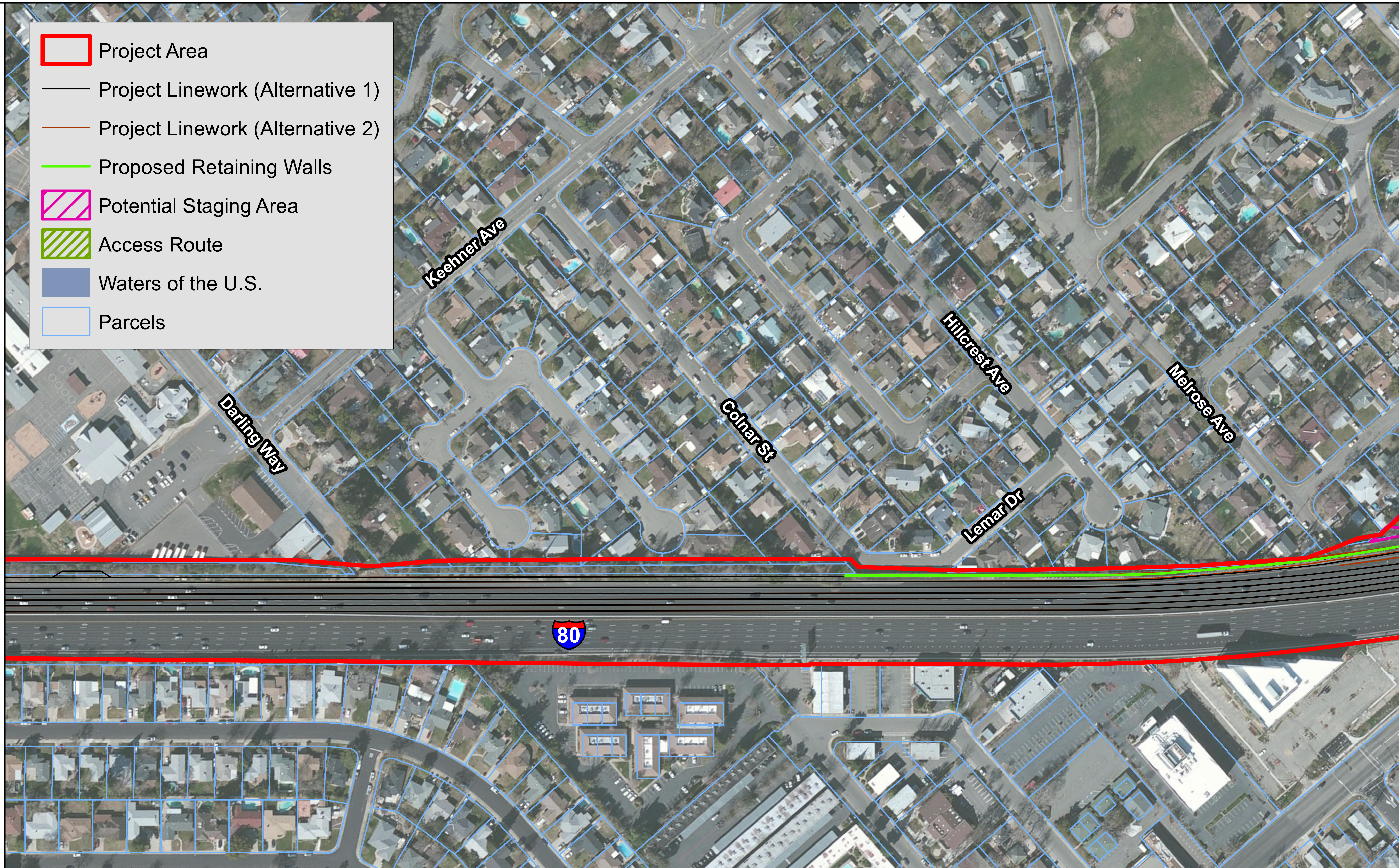

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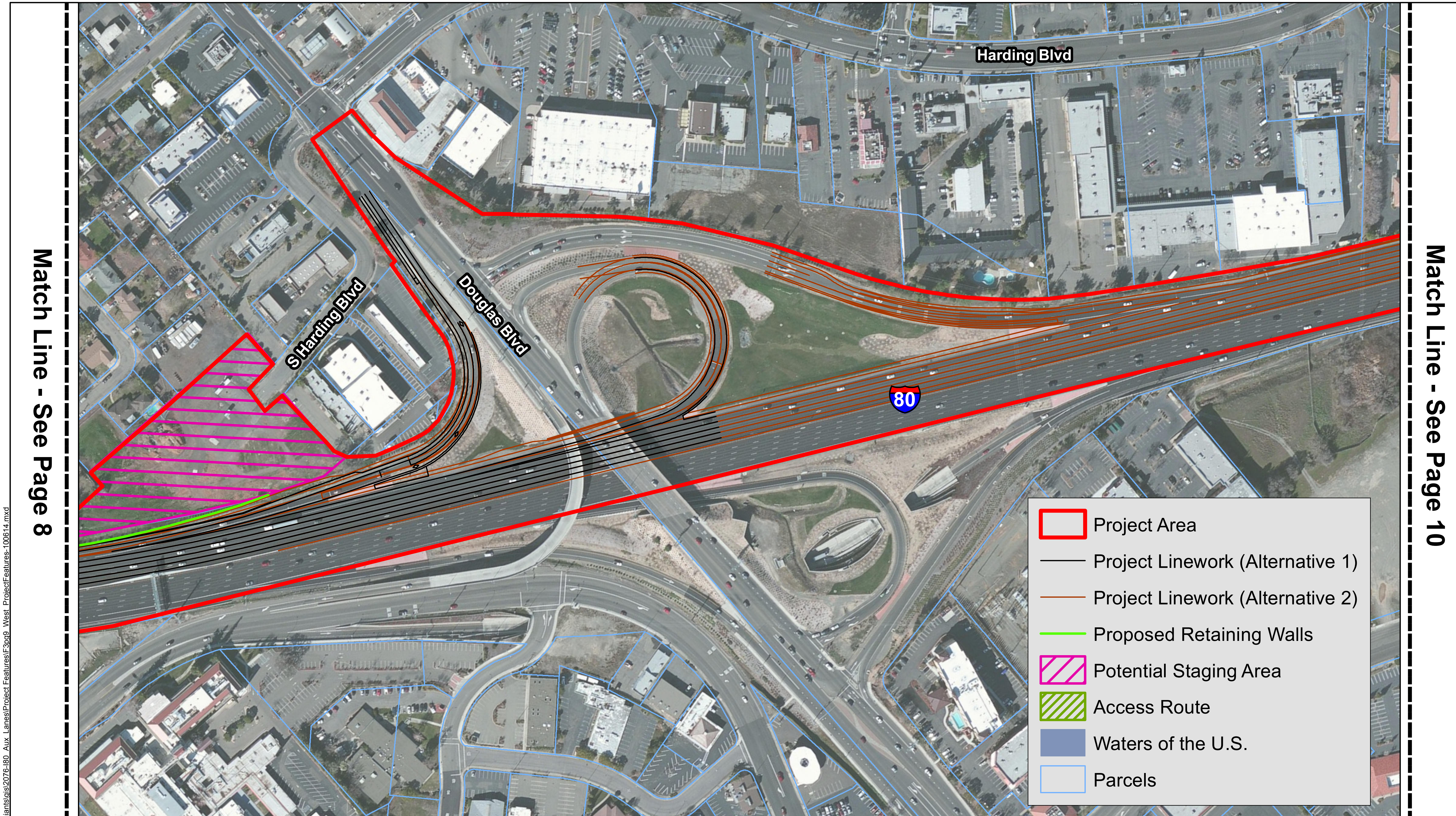
Figure 3
Page 8 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California



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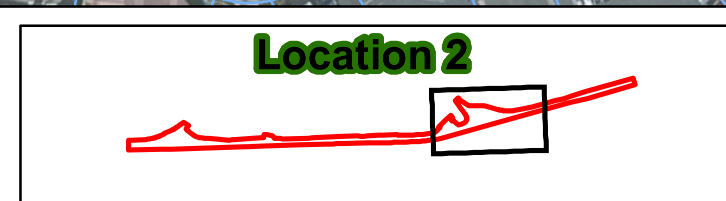
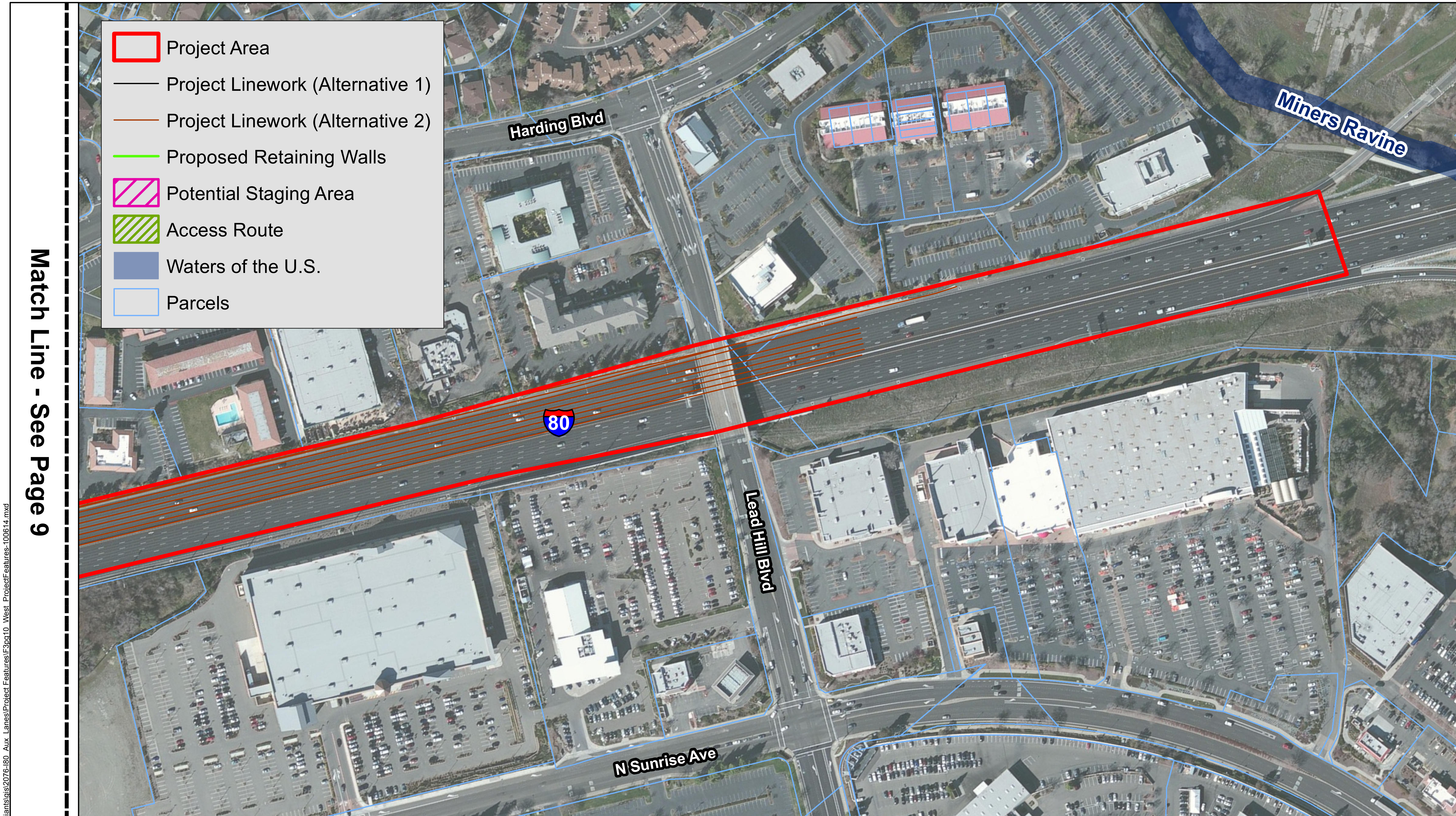


Figure 3
Page 9 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California



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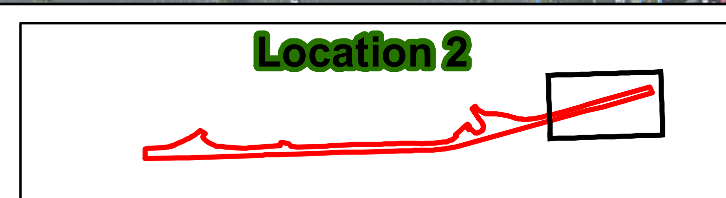

Figure 3
Page 10 of 10
Project Features
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California

2.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

This chapter explains the impacts that the project would have on the human, physical, and biological environments in the project area. It describes the existing environment that could be affected by the project, potential impacts from the alternatives, and proposed avoidance, minimization, and/or mitigation measures. Any indirect impacts are included in the general impacts analysis and discussions that follow.

As part of the environmental analysis conducted, the following environmental issues were considered, but no potential for adverse impacts were identified. Consequently, there is no further discussion regarding these issues in the document:

> Agriculture and Forest Resources—No Important Farmland (which includes Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance) is within or near the proposed project area as shown by the Placer County Important Farmland Map (2012). The nearest Important Farmland is approximately 1.5 miles west of the project site. In addition, there is no Williamson Act contract land in the project study area.
>
> Coastal Zone: The project is not located in a coastal zone.
>
> Farmlands and Timberlands: The project location is not located in farmland and no Timber resources are impacted by the project according to the state database.
>
> Environmental Justice: The US Census database does not show any populations listed as "communities of concern" for income, ethnicity, housing, or disability within the project limits. Rocklin Estates, a mobile home community, exists to the northwest of Location 1, adjacent to westbound I-80. Impacts to this community were considered during environmental analysis; however, no potential for adverse impacts were identified.
>
> Mineral Resources: No mineral resources are located within the vicinity of the project area.
>
> Paleontology: There are no paleographic resources identified within the project limits.
>
> Wild and Scenic Rivers: The state database does not list the Cirby Creek or Sucker Ravine as a designated Wild and Scenic River.

2.1 AESTHETICS

REGULATORY SETTING

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

AFFECTED ENVIRONMENT

The project location and setting provides for the context for determining the type of changes to the existing visual environment. Location 1 of the proposed project is located on eastbound I-80 between SR 65 and Rocklin Road in the City of Rocklin in Placer County, California.

Location 2 of the proposed project is located on westbound I-80 between Douglas Blvd and Riverside Ave in the City of Roseville in Placer County, California.

The project is located in a transitional zone containing both the flat valley floor and the rolling hills of the western slope of the Sierra Nevada. The dominant natural vegetation is annual grassland and native oak trees occurring in varying densities. Water features in the region include Folsom Lake and the American River. A mix of agricultural, developed, and natural landscapes characterize the region. The landscape pattern is influenced by development occurring from existing cities and major roadways in the region.

Development occurs along both sides of I-80, which bisects the cities of Roseville and Rocklin. Land uses include residential, commercial, industrial, and public. Development occurs most heavily within city limits and at freeway interchanges. Other developed features include utility lines and electrical towers. Open space consisting of annual grasslands and native oaks is present, especially at the eastern end of the project area near the I-80/SR 65 interchange. Cirby Creek, Linda Creek, Dry Creek, and Miners and Secret Ravines are the primary water features in the project area. Cirby Creek passes under I-80 approximately 1,000 feet northeast of the Cirby Way overcrossing. The water is not visible from I-80 at most locations, due to its lowered elevation and the visual obstruction of mature vegetation. The project corridor is defined as the area of land that is visible from, adjacent to, and outside the highway right-of-way, and is determined by topography, vegetation, and viewing distance.

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in essentially identical impacts.

A Visual Impact Assessment for this project was approved by Caltrans in February 2015. As discussed in the assessment, the project would slightly alter the visual quality (described using "vividness," "intactness," and "unity") of the existing corridor. The visual character of the proposed project will be somewhat compatible with the existing visual character of the corridor. The existing lines in the project area are very straight and linear, formed by I-80's pavement and adjacent soundwalls. The existing dominant features in the project area are the asphalt, soundwalls, and adjacent vegetation along the soundwalls and undeveloped parcels. The color in the project area is largely defined by the asphalt and soundwalls, although the vegetation varies by the season, from dark greens to light browns. There is little diversity within the project area, as the vast majority of the area is made up by I-80's lanes, with ruderally disturbed vegetation along the shoulders, with clusters of trees and residential and business development adjacent to the project area, largely obscured by soundwalls.

The continuity of the site is high, as the interstate carries on in a largely straight and linear manner through Placer County. With the build alternative, the lines within the project area would become more defined as the roadway would continue to be the dominate feature within the area. The color in the site would change slightly to include additional black from the new asphalt pavement, while the seasonal colors would remain. The visual diversity within the project would remain the same with the new pavement and walls, and the continuity would remain about the same as the new lanes would continue to run adjacent to the residential and commercial development along I-80, often divided by retaining and soundwalls.

The visual quality of the existing corridor would be slightly altered by the proposed project. Existing visual quality of the project area is moderately-low due to the vividness, intactness, and unity throughout the site. The vividness of the project area is moderately-low as the project area consists of an interstate with adjacent clusters of trees and residential/commercial development, and lacks distinctive or memorable features. Intactness of the project area is moderate as the project area is largely developed and disturbed. Unity in the project area is moderate due to the largely developed area with the paved interstate, local roads and interchanges, and existing residential and commercial development adjacent to the highway.

Resource Change (changes to visual resources as measured by changes in visual character and visual quality) would be low. The overall visual resource change as a result of the proposed project is expected to be low, as visual character and quality would change minimally from the current existing conditions. The change in visual character would be low, as all of the attributes which make up the visual character would only slightly change as a result of the proposed alternative. The project area would become more uniform with the addition of the proposed additional lanes. The proposed project would not change the visual character of the area through these additional lanes and associated retaining and soundwalls.

Further the change in visual quality from the proposed project would be low as the vividness of the proposed project would be the same, the project area would continue to consist of an interstate with adjacent clusters of trees and residential/commercial development, and lack distinctive or memorable features. The intactness and unity of the area will remain the same due to the proposed project's proximity to a largely developed and disturbed environment. With the proposed project, the area would continue to become developed. This project is not considered an adverse resource change as the project type is consistent with the planned development in this area. Visual impacts are determined by assessing changes to the visual resources and predicting viewer response to those changes.

The proposed project would be visible from the existing residents in the project's vicinity and motorists along the interstate and adjacent local roadways. The residents in proximity to the proposed project would have obscured views to the changes from the new lanes due to the existing and proposed soundwalls. Some soundwalls may be closer to resident's homes as a result of the proposed project; however, this shift would be marginal and the change would result in very similar views for these residents. Vehicles are anticipated to travel each portion of I-80 each day. The viewer exposure duration for residents is considered to be fairly long and residents are highly aware of the surrounding visual environment. The viewer exposure duration for motorists is low, as the views would be brief and fleeting, although these viewers would not notice much change as this is an existing multi-lane facility. Overall visual impacts as a result of the proposed project would be moderate-low, as the viewer response would be moderate for residents and low for motorists.

Construction

Construction-related vehicle access and staging of construction materials would occur within disturbed or developed areas along the length of the project site. The project area is currently lighted at each interchange. With the proposed project, primary sources of light and glare in the area would include motor vehicle headlights, streetlights along local roads, and streetlights at each interchange along the interstate. Currently, light and glare exist at the residential and commercial areas adjacent to the proposed project.

Project construction would expose surfaces, construction debris, equipment, and truck traffic to nearby viewers. Construction vehicle access and staging of construction materials would be visible from residents and commercial businesses located in the project vicinity. Temporary impacts due to project construction would be short-term and would cease upon project completion. Visible short-term fugitive dust associated with construction would be reduced through the implementation of dust suppression measures outlined within Placer County Air Pollution Control District's (PCAPCD's) Rules 202 (Visible Emissions), 205 (Nuisance), and 228 (Fugitive Dust) must be followed, as well as implementation of Caltrans Standard Specifications for Construction, such as Section 10 and 18 (Dust Control). Adhering to Caltrans Standard Specifications for Construction would also minimize visual impacts through the use of opaque temporary construction fencing that would be situated around construction staging areas. Additionally, implementation of Avoidance/Minimization Measure 4 (Construction Lighting) would require the review of construction lighting types, plans, and placement to minimize light and glare impacts to surrounding sensitive uses.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The project would have less than significant impacts relating to aesthetics with the following measures:

VIS-1: Areas that have removed trees, shrubs and created soil disturbance due to construction activities will be re-established by applying a permanent erosion control and planting trees and shrubs where they are deemed appropriate. All finished slopes and graded areas shall be hydro seeded with a permanent seed mix composed of native plant species indigenous to the area.

VIS-2: All disturbed areas during each construction season shall utilize best management practices (BMPs) which will include temporary erosion control consisting of a native seed mix at the end of each construction season.

VIS-3: Aesthetic elements, such as implementation of additional retaining walls and soundwalls, shall conform to existing aesthetic elements along I-80. If additional aesthetic elements, such as aesthetic treatments and/or landscaping, are incorporated during Final Design, such features would be designed and implemented in coordination with the project proponent, arborists, and environmental planners.

VIS-4: Vegetation clearing must only occur within the delineated project boundaries. Where feasible, Environmental Sensitive Area (ESA) fencing will be established at the driplines of oak trees within or adjacent to construction. Where complete avoidance is not feasible, trees will be preferentially trimmed wherever possible. All tree trimming of a protected tree designated to be preserved must be supervised by the project biologist. Severe trimming likely to result in the decline and/or death of the tree must be mitigated as a full removal.

VIS-5: All disturbed areas including staging of vehicles and equipment will be restored to pre-construction contours and revegetated, either through hydroseeding or other means, with native species.

VIS-6: Construction lighting types, plans, and placement shall comply with Caltrans and local standards in order to minimize light and glare impacts on surrounding sensitive uses.

VIS-7: Implement dust suppression measures as applicable from PCAPCD's Rules 202 (Visible Emissions), 205 (Nuisance), and 228 (Fugitive Dust).

VIS-8: Reconstructed walls should match the most recent soundwall aesthetics of the surrounding region.

2.2 AIR QUALITY

REGULATORY SETTING

The Federal Clean Air Act (FCAA) as amended in 1990 is the primary federal law that governs air quality while the California Clean Air Act is its companion state law. These laws and related regulations by the United States Environmental Protection Agency (EPA) and California Air Resources Board (CARB) set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards (Table 1) have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$), and sulfur dioxide (SO_2). In addition, national and state standards exist for lead (Pb) and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants; some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

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

Conformity

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

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

Regional level conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, and in some areas (although not in California) SO_2. California has attainment or maintenance areas for all of these transportation-related criteria pollutants except SO_2, and also has a nonattainment area for Pb; however, Pb is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emissions analysis of the Metropolitan Transportation Plan (MTP) and Metropolitan Transportation Improvement Program (MTIP) that include all transportation projects planned for a region over a period of at least 20 years for the MTP and 4 years for the MTIP. MTP and MTIP conformity determinations use travel demand and emissions models to determine whether or not the implementation of those projects would conform to emissions budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the SIP are met.

If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA), make determinations that the MTP and MTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the MTP and/or MTIP must be modified until conformity is attained. If the design concept, scope, and "open-to-traffic" schedule of a proposed transportation project are the same as described in the MTP and MTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Conformity analysis at the project-level includes verification that the project is included in the regional conformity analysis and a "hot-spot" analysis if an area is "nonattainment" or "maintenance" for CO, PM_{10} and/or $PM_{2.5}$. A region is "nonattainment" if one or more of the monitoring stations in the region measures a violation of the relevant standard and the EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by EPA and are then called "maintenance" areas. "Hot-spot" analysis is essentially the same, for technical purposes, as CO or PM analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot-spot analysis. In general, projects must not cause the "hot-spot" related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or PM violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Table 1. Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM10)[8]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[8]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[9]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[10]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[10]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[10]	—	
Lead[11,12]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[13]	8 Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[11]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

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1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.

8. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

9. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

10. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

11. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

12. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

13. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

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Source: CARB 2013a

AFFECTED ENVIRONMENT

Conformity

Alternative 1 and Alternative 2 of the proposed project are listed in the Sacramento Area Council of Governments (SACOG) financially constrained 2035 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) (SACOG 2016a). The project is also included in the SACOG financially constrained 2015/2018 Metropolitan Transportation Improvement Program (MTIP) (SACOG 2016b). SACOG adopted the Final 2015/18 MTIP, Amendment #20 to the MTP/SCS 2035, and Air Quality Conformity Analysis on February 18, 2016. FHWA and FTA approved the 2015/18 MTIP and Air Quality Conformity Analysis on April 1, 2016. The design concept and scope of the proposed project is consistent with the project description in the 2035 MTP, 2015/2018 MTIP, and the “open to traffic” assumptions of the SACOG 2016 Air Quality Conformity Analysis (SACOG 2016a).

Additionally, Alternative 1 and Alternative 2 of the Placer I-80 Auxiliary Lanes project were included in the regional emissions analysis conducted by SACOG for the conforming 2035 MTS/SCS. The plan is in conformity, and therefore, the individual projects contained in the plan are conforming projects and will have air quality impacts consistent with those identified in the state implementation plans (SIPs) for achieving the National Ambient Air Quality Standards (NAAQS). The FHWA determined the MTP to conform to the SIP on April 1, 2016.

The project meets the regional conformity requirements established by the federal Clean Air Act.

Further, the project is subject to PM conformity analysis because it is located within a $PM_{2.5}$ nonattainment area. As the first step in demonstrating $PM_{2.5}/PM_{10}$ conformity, SACOG completed an Interagency Consultation to determine if it is a Project of Air Quality Concern (POAQC) as defined in 40 CFR 93.116 and 93.123 and U.S.EPA’s Hot-Spot Guidance. SACOG obtained concurrence from both EPA and FHWA that the Project is not a POAQC in Summer 2015.

Emissions

The California Environmental Protection Agency’s (CalEPA) Air Resources Board (ARB) air quality monitoring program collects accurate real-time measurements of ambient level pollutants at over 40 sites located throughout the state.

The closest ARB air quality monitoring station to the project is located 0.1 mi to the east of Location 2, at 151 N Sunrise Ave, Roseville, CA 95661. A summary of 2011-2013 monitoring data from this station is included in Table 2. Ambient carbon monoxide (CO), sulfur dioxide (SO_2), and hydrogen sulfide (H_2S) concentrations are not monitored at the 151 N Sunrise Ave location. The nearest station that monitors CO is located 5 mi to the southwest, at 7823 Blackfoot Way, Antelope, CA 95843. CO data from the 7823 Blackfoot Way monitoring station are included in Table 2. The data in Table 2 were compiled from the California Air Resources Board's *iADAM: Air Quality Data Statistics* (CARB 2014) and the Environmental Protection Agency’s *Monitor Values Report* (EPA 2014).

As shown in Table 2, the area surrounding the project did not exceed the state standards for $PM_{2.5}$, 1-hour and 8-hour carbon monoxide, or nitrogen dioxide in the period 2011–2013. Levels of PM_{10} exceeded the state 24-hour standard 6.1 times in 2011, 0 times in 2012, and insufficient (or no) data was available for 2013. Levels of ozone exceeded the state 1-hour standard 11 times in 2011, 9 times in 2012, and 2 times in 2013, and exceeded state 8-hour standard 15 times in 2011, and 13 times in 2012, and twice in 2013.

Table 2. Ambient Air Quality Data

Pollutant	Ambient Air Quality Standard	2011	2012	2013
Ozone (O_3)				
Maximum 1 Hour Concentration (ppm)		0.109	0.108	0.111
Number of Days Exceeded	State: > 0.09	11	9	2
Maximum 8 Hour Concentration (ppm)		0.094	0.092	0.083
Number of Days Exceeded	State: > 0.07	15	13	2
Respirable Particulate Matter (PM10)				
Maximum 24 Hour Concentration (µg/m^3)		56.5	43.2	55.5
Number of Days Exceeded (estimated)	State: > 50	6	0	N/D
Annual Arithmetic Mean Concentration (µg/m^3)		17.5	15.3	N/D
Exceeded for the Year	State: > 20	No	No	N/D
Fine Particulate Matter (PM2.5)				
Maximum 24 Hour Concentration (µg/m^3)		42.3	16.1	23.7
98th Percentile 24 hour concentration (µg/m3)		23.0	14.9	18.9
Exceeded 98th Percentile	State: N/A	--	--	--
State Annual Standard Design Value (µg/m3)		11.0	11.0	11.0
Exceeded for the Year	State: > 12	No	No	No
Carbon Monoxide (CO) (7823 Blackfoot Way)				
Maximum 1 Hour Concentration (ppm)		2.3	2.1	1.9
Number of Days Exceeded	State: > 20	0	0	0
Maximum 8 Hour Concentration (ppm)		1.9	1.7	1.4
Number of Days Exceeded	State: > 9	0	0	0
Nitrogen Dioxide (NO_2)				
Maximum 1 Hour Concentration (ppb)		66	55	56
Number of Days Exceeded	State: > 180	0	0	0
Annual Arithmetic Mean Concentration (ppb)				
Exceeded for the Year	State: > 30	N/A	N/A	N/A

State law requires the ARB to designate areas of the state as attainment, nonattainment, nonattainment-transitional, or unclassified for each California Ambient Air Quality Standard (CAAQS). An area is designated attainment for a given criteria pollutant if the state standard for that pollutant was not violated at any site in the area during a three-year period. An area is designated nonattainment for a given pollutant if there was at least one violation of a state standard for that pollutant in the area. A pollutant is designated nonattainment-transitional if the area is close to attaining the standard for that pollutant. A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment. To identify the severity of the problem and the extent of planning required, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe, extreme).

The size of the CAAQS designated areas may vary depending on the pollutant, the location of contributing emission sources, the meteorology, and the topographic features. Currently, areas for ozone, nitrogen dioxide, PM_{10}, sulfates, and visibility reducing particles are designated at the air basin level. Areas for carbon monoxide, sulfur dioxide, lead, and hydrogen sulfide are designated at the county level. Each year, the Board reviews the area designations and updates them as appropriate, based on the three most recent complete and validated calendar years of air quality data.

Table 3 provides a summary of the CAAQS attainment status in the vicinity of the project.

Table 3. NAAQS and CAAQS Attainment Status

Pollutant	CAAQS Designation/Classification
Ozone – 8-Hour	Nonattainment - Severe
Ozone – 1-Hour	Nonattainment
PM_{10}	Nonattainment
$PM_{2.5}$	Attainment
Carbon Monoxide	Attainment
Nitrogen Dioxide	Attainment
Sulfur Dioxide	Attainment
Sulfates	Attainment
Lead	Attainment
Hydrogen Sulfide	Unclassified
Visibility Reducing Particles	Unclassified
Sources: CARB 2013b, EPA 2014a	

Sensitive receptors are facilities that house or attract children, the elderly, people with illnesses or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors. Air quality problems arise when sources of air pollutants and sensitive receptors are located near one another.

Location 1 of the project is located within 1,000 ft of the proposed Rocklin Park Senior Living Center, which is planned to be constructed adjacent to the potential staging area proposed project. No schools are adjacent to Location 1 of the proposed project; however, residential neighborhoods consisting of both single and multi-family dwellings are adjacent to the project area. Location 2 of the project is located adjacent to Kaiser Permanente, a hospital located at the Riverside Ave off-ramp. Additionally, there is a school, George Cirby Elementary School, which is directly adjacent to the north of the project area. There are also residential neighborhoods, consisting of both single- and multi-family dwellings adjacent to the project area.

ENVIRONMENTAL CONSEQUENCES

Project Impacts

Implementation of the build alternative would serve to redistribute traffic from the local roadways to the mainline I-80 corridor, relieving congestion on the local roadway network. Based on the AADTs, higher volumes of traffic would travel along I-80 with the build alternative compared to the no build alternative. These higher volumes of traffic would travel at a higher rate of speed and with less vehicle hours of delay. This would result in improvements in operations at local intersections, as LOS and delay would improve due to the lower volumes of traffic at intersections within the region. Discussion of environmental consequences associated with Build Alternative 1 and Build Alternative 2 can be found below:

Environmental consequences discussed below are associated with Build Alternative 1 compared to the No-Build Alternative:

The project does not significantly increase traffic volumes. Alternative 1 provides auxiliary lanes along I-80 which will increase the number of vehicles traveling along the highway, decreasing the traffic on local roads. Location 1 will see a traffic volume increase of 3.1% while Location 2 will see a traffic volume increase of 4.8%, which averages to a net traffic volume increase of 4.0%. Additionally, average speeds will increase throughout the region as more vehicles will be traveling along the highway instead of local roads as a result of Alternative 1.

The project is anticipated to improve traffic flow by alleviating congestion from local roads and providing auxiliary lanes for better traffic flow along I-80. The design year AM peak period average speed is anticipated to increase from 41.4 mph to 42.6, while the PM peak period average speed is anticipated to increase from 26.5 to 34.5. Additionally, the vehicle hours of delay for the AM peak period is anticipated to decrease from 6,590 to 5,970, while the PM peak period is anticipated to decrease from 22,320 to 13,270. Alternative 1 does not reduce average speeds or increase vehicles hours of delay, therefore, it is not anticipated to worsen traffic flow such that it results in worsening air quality.

Environmental consequences discussed below are associated with Build Alternative 2 compared to the No-Build Alternative:

The project does not significantly increase traffic volumes. Alternative 2 provides an auxiliary lane and an additional 5th lane along I-80 which will increase the number of vehicles traveling along the highway, decreasing the traffic on local roads. Location 1 will see a traffic volume increase of 3.5% while Location 2 will see a traffic volume increase of 5.9%, which averages to a net traffic volume increase of 4.7% for the project. Additionally, average speeds will increase throughout the region as more vehicles will be traveling along the highway instead of local roads as a result of Alternative 2.

The project is anticipated to improve traffic flow by alleviating congestion from local roads and providing auxiliary lanes for better traffic flow along I-80. The design year AM peak period average speed is anticipated to increase from 41.4 mph to 42.5, while the PM peak period average speed is anticipated to increase from 26.5 to 36.8. Additionally, the vehicle hours of delay for the AM peak period is anticipated to decrease from 6,590 to 6,060, while the PM peak period is anticipated to decrease from 22,320 to 11,210. Alternative 2 does not reduce average speeds or increase vehicles hours of delay, therefore, it is not anticipated to worsen traffic flow such that it results in worsening air quality.

Construction Impacts

Construction air quality impacts are generally attributable to dust generated by equipment and vehicles. Fugitive dust is emitted both during construction activity and as a result of wind erosion over exposed earth surfaces. Clearing and earth moving activities do comprise major sources of construction dust emissions, but traffic and general disturbances of soil surfaces also generate significant dust emissions. Further, dust generation is dependent on soil type and soil moisture.

Adverse effects of construction activities include increased dust-fall and locally elevated levels of total suspended particulate. Dust-fall can be a nuisance to neighboring properties or previously completed developments surrounding or within the project area and may require frequent washing during the construction period. Further, asphalt-paving materials used during construction will present temporary, minor sources of hydrocarbons that are precursors of ozone.

Environmental consequences discussed below are associated with Build Alternative 1:

Alternative 1 project's construction is anticipated to take 12 months. The project's construction emissions were estimated using the Roadway Construction Emissions Model by the Sacramento Metropolitan Air Quality Management District (Version 7.1.5.1 SMAQMD 2014), which is the accepted model for all CEQA roadway projects throughout California. As summarized in Table 4, construction activities from Alternative 1 of the project would not exceed emission thresholds established by the PCAPCD

Table 4. Maximum Daily Construction Emissions and Local Thresholds for Alternative 1

	Project Maximum Daily Construction Emissions	PCAPCD Air Quality Significance Thresholds
NO_x	81.1 lbs/day	82 lbs/day
ROG	8.7 lbs/day	82 lbs/day
PM_{10}	54.0 lbs/day	82 lbs/day
CO	56.2 lbs/day	Violation of CAAQS for CO
Source: SMAQMD 2013, PCAPCD 2012		

Environmental consequences discussed below are associated with Build Alternative 2:

Construction of Alternative 2 is anticipated to take 16 months. The project's construction emissions were estimated using the Roadway Construction Emissions Model by the Sacramento Metropolitan Air Quality Management District (Version 7.1.5.1 SMAQMD 2014), which is the accepted model for all CEQA roadway projects throughout California. As summarized in Table 4, construction activities from Alternative 2 of the project would not exceed emission thresholds established by the PCAPCD.

Table 5. Maximum Daily Construction Emissions and Local Thresholds for Alternative 2

	Project Maximum Daily Construction Emissions	PCAPCD Air Quality Significance Thresholds
NO_x	81.1 lbs/day	82 lbs/day
ROG	8.7 lbs/day	82 lbs/day
PM_{10}	54.0 lbs/day	82 lbs/day
CO	56.2 lbs/day	Violation of CAAQS for CO
Source: SMAQMD 2013, PCAPCD 2012		

Alternative 1 and Alternative 2 would result in similar construction emissions, no air quality impacts are anticipated with either alternative if measures AQ-1 through AQ-3 are implemented.

Naturally Occurring Asbestos

Based on review of the map, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos* (California Department of Conservation, Division of Mines and Geology, 2000), ultramafic rock occurrence is not mapped in the southwest portion of Placer County and therefore NOA is not expected to occur at the project site.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following measures would be implemented as part of the project to minimize short term construction related air quality emissions:

AQ-1: The construction contractor shall comply with Caltrans' Standard Specifications Section 14-9.03 Dust Control of Caltrans' Standard Specifications (2010).

AQ-2: The construction contractor shall comply with Section 7-1.02 Emissions Reduction and Section 18 Dust Palliative of Caltrans' Standard Specifications (2010).

AQ-3: The Wind Erosion Control BMP (WE-1) from Caltrans' Construction Site *Best Management Practices Manual* will be implemented as follows:

- Water shall be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses and nozzles that will ensure even distribution.
- All distribution equipment shall be equipped with a positive means of shutoff.
- Unless water is applied by means of pipelines, at least one mobile unit shall be available at all times to apply water or dust palliative to the project.
- If reclaimed water is used, the sources and discharge must meet California Department of Health Services water reclamation criteria and the Regional Water Quality Control Board requirements. Non-potable water shall not be conveyed in tanks or drain pipes that will be used to convey potable water and there shall be no connection between potable and non-potable supplies. Non-potable tanks, pipes and other conveyances shall be marked "NON-POTABLE WATER – DO NOT DRINK."
- Materials applied as temporary soil stabilizers and soil binders will also provide wind erosion control benefits.

2.3 BIOLOGICAL RESOURCES

2.3.1 Natural Communities

REGULATORY SETTING

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as Critical Habitat under the Federal Endangered Species Act are discussed in Section 2.3.5 of this document. Wetlands and other waters are also discussed in the following section, Section 2.3.2.

AFFECTED ENVIRONMENT

The project's Biological Study Area (BSA) contains approximately 144 acres. The project area is heavily disturbed and urbanized. The landscape within the BSA is dominated by hardscape (roadway and urban developments) and landscaped vegetation. Smaller components of the BSA include isolated patches of Blue Oak Woodland Alliance (BOW) and Valley Foothill Riparian (VRI) (CDFW 2005).

The BSA is located in the Great Central Valley floristic region. Regional vegetation typically includes trees dominated by valley oak, interior live oak (*Quercus wislizenii*), Fremont's cottonwood (*Populus fremontii*), willows (*Salix* sp.), and box elder (*Acer negundo*) series. Understory plants that typically dominate the region include grassland vegetation in the California annual grassland series; shrublands such as toyon (*Heteromeles arbutifolia*) series, California yerba santa (*Eriodictyon californicum*) series, California wild grape (*Vitis californica*) series and lupine (*Lupinus* sp.) series (CNPS 1997). Vegetation communities specific to the BSA are BOW, VRI and Urban/Disturbed (see Figure 4: Vegetation Communities).

Urban/Disturbed
Urban/Disturbed lands typically occur in areas of existing roadways, urban development and landscaping. Within the BSA, Urban/Disturbed habitat consists of I-80, all city roadways, residential structures and roadway landscaping. Landscaping along I-80 consists of native and non-native vegetation including oak trees (*Quercus* sp.), pine trees (*Pinus* sp.), willow trees, cottonwoods (*Populus* sp.), Chinese pistache (*Pistacia chinensis*), and California sycamore (*Platanus racemosa*). Urban/Disturbed makes up a majority of the BSA, approximately 141 acres (see Figure 4: Vegetation Communities).

Blue Oak Woodland Alliance
BOW is typically composed of broad-leaved trees intergrading with open annual grasslands. BOW is composed primarily of blue oaks with associated shrub species including poison oak (*Toxicodendron diversiloba*), California coffeeberry (*Frangula californica*), California buckeye and manzanita species (*Arctostaphylos* sp.) (CDFW 2005). Within the BSA dominant species in the BOW community include blue oaks, interior live oaks (*Quercus wislizeni*), canyon live oaks (*Quercus chysolepis)* with an understory of poison oak, horseweed (*Erigeron Canadensis*), field mustard (*Brassica rapa*) and annual grasslands. BOW habitat makes up approximately 3.45 acres of the BSA (see Figure 4: Vegetation Communities).

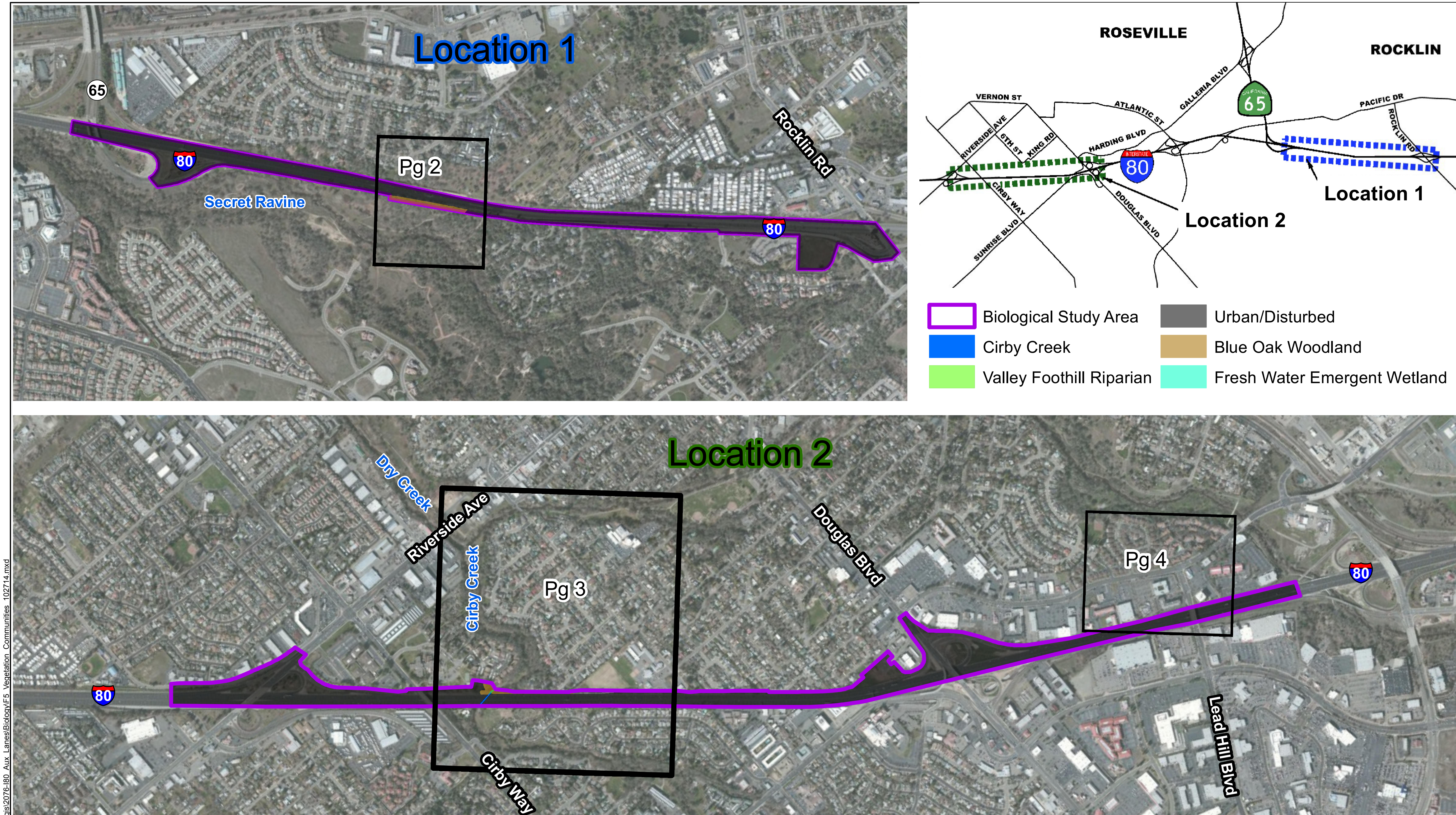
The BOW alliance is a State Rank 4 community and is identified as a sensitive habitat under CDFW and is therefore afforded protection (CDFW 2010). Native BOW is a mix of broad-leaved trees forming open savannah-like strands on gentle slopes found at elevations between 500 to 4,000 feet above mean sea level. Soils found in areas with oaks allow for deep roots and contain equal proportion of sand, silt, and clay characteristics. The BOW is comprised of blue oaks, interior live oaks, valley oak, and foothill pine with poison oak, coyote brush (*Baccharis pilularis*), ceanothus and intergrades with annual grasslands consisting of wild oat, ripgut brome, and fiddleneck (*Amsinckia intermedia*) (CNPS 1997).

The natural BOW habitat is located in two locations within the BSA and is dominated by blue oaks and interior live oaks. The BOW located in Location 2 adjacent to Cirby Creek contains both mature oaks as well as developing oak woodlands with trees less than 6 inches diameter at breast height (dbh). The largest area of mature well established blue oaks is located in Location 1 with the majority of the population consisting of trees with trunks much greater than 6 inches dbh. Within the approximate 2.97 acres of natural BOW habitat approximately 159 oak trees were counted equaling 6 inches dbh or greater (Table 6. Native Oaks Within the BSA).

Table 6. Native Oaks Within the BSA

Oak Location Type	Number of Protected Oak Trees
Blue Oak Woodland Alliance	159
Isolated Native Oak	52
Total	**211**

Additional landscaped oaks and isolated oaks also occur within the Urban/Disturbed and VRI communities of the BSA. These areas consist of medians, road shoulders, creek banks and the remnants of extirpated oak woodlands with isolated mature trees. The majority of the oaks within these isolated areas are under 6 inches dbh. The BSA is estimated to contain an approximate total of 52 isolated native oaks with trunks greater than 6 inches dbh (Table 6. Native Oaks Within the BSA).



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Source: ESRI February 2012 Online; Dokken Engineering 12/8/2014; Created By: zachl

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Figure 4
Page 1 of 4
Vegetation Communities
EA-03F230
I-80 Auxiliary Lanes Project
Placer County, California

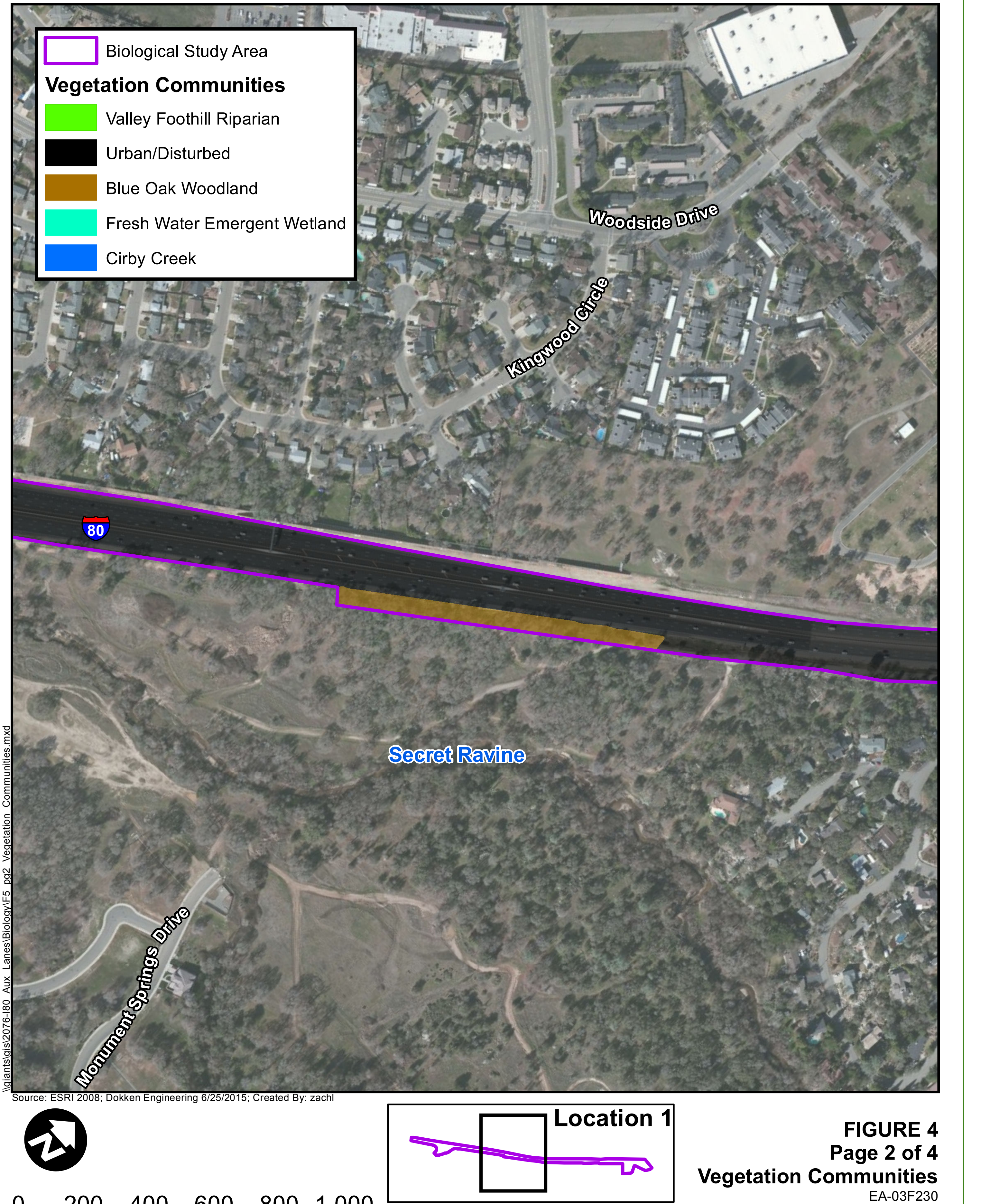
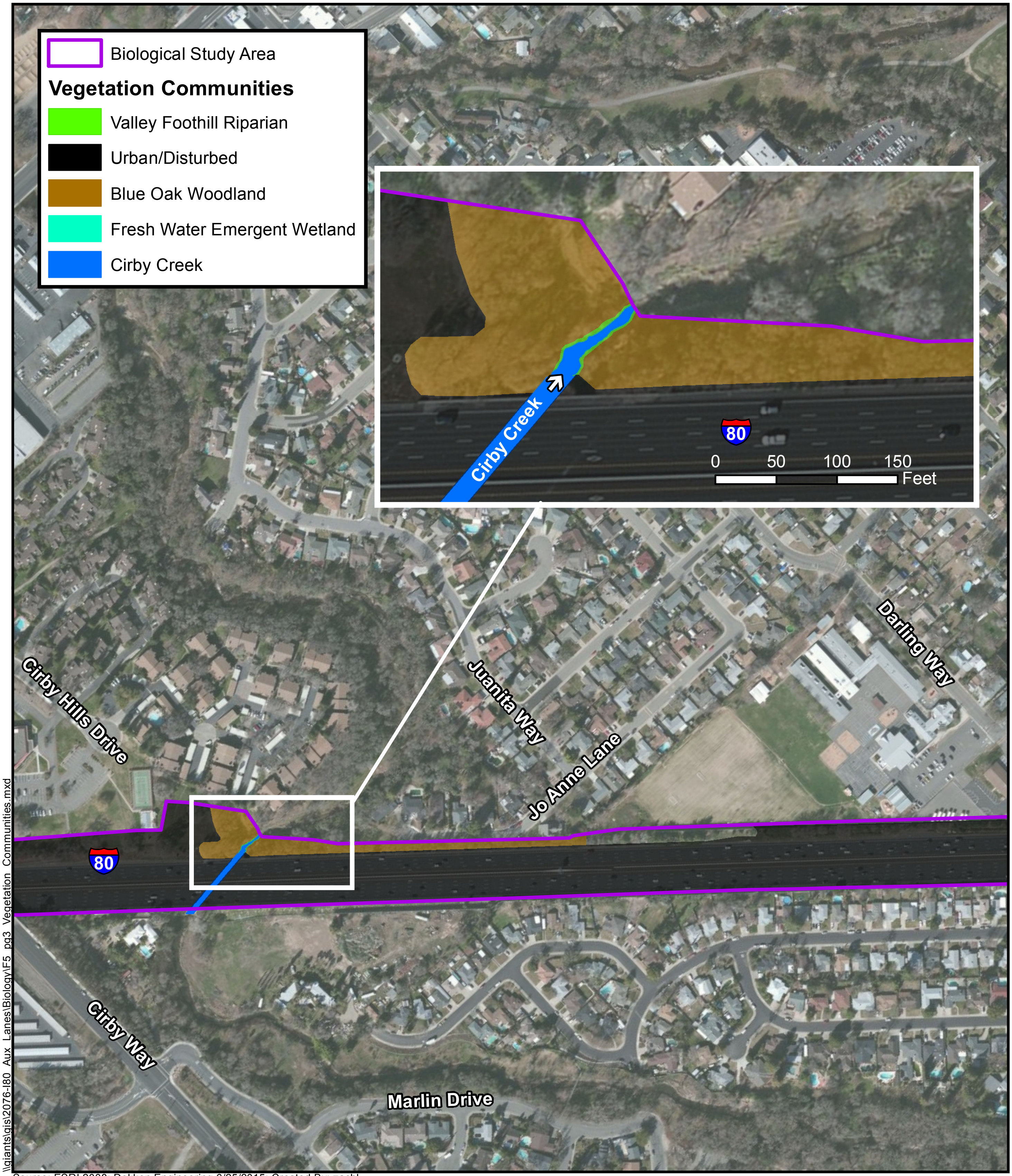


FIGURE 4
Page 2 of 4
Vegetation Communities
EA-03F230
I-80 Auxillary Lanes Project
Placer County, California



\giants\gis\2076-I80 Aux Lanes\Biology\F5 pg3 Vegetation Communities.mxd

Source: ESRI 2008; Dokken Engineering 6/25/2015; Created By: zachl

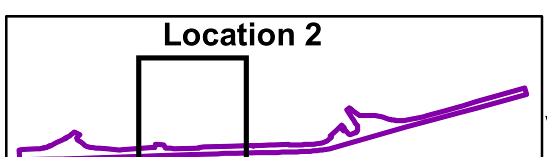


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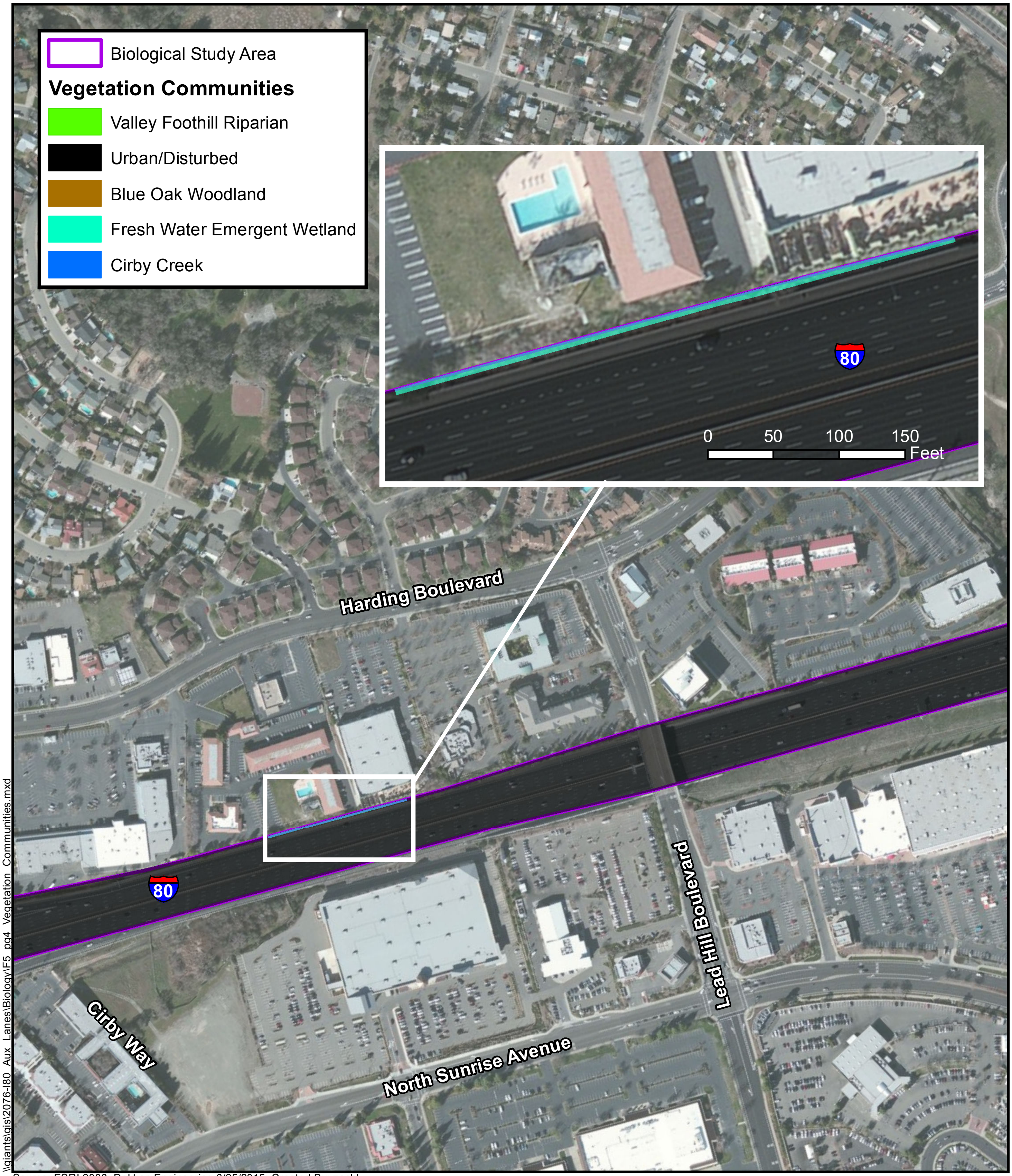
FIGURE 4
Page 3 of 4
Vegetation Communities
EA-03F230
I-80 Auxillary Lanes Project
Placer County, California



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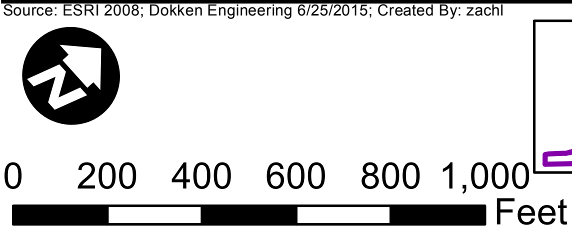
Source: ESRI 2008; Dokken Engineering 6/25/2015; Created By: zachl



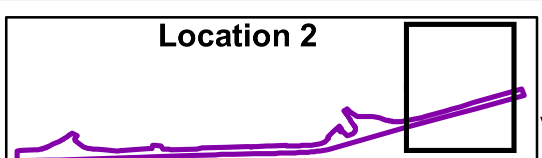


FIGURE 4
Page 4 of 4
Vegetation Communities
EA-03F230
I-80 Auxillary Lanes Project
Placer County, California

ENVIRONMENTAL CONSEQUENCES

Blue Oak Woodland Alliance

The project will have permanent and temporary effects to BOW. The permanent impacts include the removal of trees and understory habitat for areas where the proposed I-80 widening is anticipated (approximately 0.36 acres). The temporary impacts BOW include areas being used as access roadways and staging areas (approximately 1.10 acres) (see Figure 4: Vegetation Communities) (SCR-17). Impacts to BOW are anticipated to be the same for both Alternative 1 and Alternative 2. The project anticipates to mitigate for temporary and permanent BOW impacts at an on or off-site agency approved location.

Isolated Native Oaks

The project will require the removal of isolated native oak trees for areas where the proposed I-80 widening are anticipated. Impacts to isolated native oaks are anticipated to be the same for both Alternative 1 and Alternative 2 Protected trees will be avoided to the greatest extent practicable through the use of ESA fencing, restricted access roads and planned staging areas. The project anticipates to mitigate for the removal of isolated native oaks at an on or off-site agency approved location.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The project has been designed to minimize and avoid temporary and permanent impacts to oak woodlands and isolated oaks to the greatest extent practicable. The project will comply with the following measures:

BIO-1: Vegetation clearing must only occur within the delineated project boundaries. Where feasible, ESA fencing will be established at the driplines of oak trees within or adjacent to construction (see Figure 3: Project Features). Where complete avoidance is not feasible, trees will be preferentially trimmed wherever possible. All tree trimming of a protected tree, designated to be preserved, must be supervised by the project biologist. Severe trimming likely to result in the decline and/or death of the tree must be mitigated as a full removal.

BIO-2: All initial grading, cutting or filling within the dripline of a tree designated to be preserved must be supervised by the project biologist. The project biologist is responsible for maintaining protective fencing and ensuring the protected oak trees are not damaged by grading related activities. Damage likely to result in the decline and/or death of the tree must be mitigated as a full removal.

BIO-3: Mitigation for the removal of oak trees greater than or equal to 6 inches dbh must be compensated as follows:

- Within the City of Rocklin's jurisdiction, removed trees must be replaced at a ratio of 2:1 trees for native oaks and 5:1 trees for City of Rocklin designated heritage trees per with a dbh of 24 or greater as defined in the City of Rocklin Municipal Code Chapter 17.77 – Oak Tree Preservation.
- Within the City of Roseville's jurisdiction, removed trees must be mitigated by replacing a 15 gallon tree for every 1 inch dbh removed, a 24 inch box tree for every two inches dbh removed or a 36 inch box tree for every three inches dbh removed. The combined diameter of replacement trees must be equal or greater than the total tree dbh removed and 50 percent of the replacements must be native oaks. This condition also applies to all City of Roseville designated

heritage oak trees, as defined in the Roseville Municipal Code Chapter 19.66 – Tree Preservation Ordinance.

2.3.2 WETLANDS AND OTHER WATERS

REGULATORY SETTING

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 U.S. Code [USC] 1344) is the primary law regulating wetlands and surface waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

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

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

At the state level, wetlands and waters are regulated primarily by the California Department of Fish and Wildlife (CDFW), the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Wildlife Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCBs also issue water quality certifications in compliance with Section 401 of the Clean Water Act. Please see Section 2.8, Hydrology and Water Quality, for additional details.

AFFECTED ENVIRONMENT

As part of the Natural Environment Study (2015), Biologists identified any jurisdictional features within the BSA. Evaluation of potential jurisdictional waters followed the guidelines provided in the United States Corps of Engineers (USACE) *Wetlands Delineation Manual and Arid West regional supplement to the USACE Wetland Delineation Manual* (USACE 1987, USACE 2008). Wetlands and other waters within the project site consist of Valley Foothill Riparian, Riverine, and Fresh Emergent Wetland.

Valley Foothill Riparian
Field surveys identified less than 0.01 acres of associated Valley Foothill Riparian (VRI) within the BSA within Location 2. The remnant VRI is concentrated along the banks of Cirby Creek (see Figure 4: Vegetation Communities). The corridor is disturbed and thinly vegetated due to urbanization and prior construction projects.

Riverine
Field surveys identified approximately 0.11 acres of the Cirby Creek channel within the BSA at Location 2. Cirby Creek contains natural streambed bedrock upstream and downstream of the concrete lined stream way. However, Cirby Creek is completely concrete lined directly beneath the Linda Creek Bridge crossing and contains a low water fish passage approximately 1 foot deep and 2 feet wide (see Figure 4: Vegetation Communities). The low water fish passage is lined with riverbed cobble. During the October 2014 survey, a minimum depth of 6 inches of water was flowing within the low water fish passage.

Freshwater Emergent Wetland
Jurisdictional wetlands, approximately 0.04 acres, were observed within the BSA adjacent to westbound I-80 at Location 2 (see Figure 4: Vegetation Communities). The wetland feature is a result of ponding from roadside and commercial drainage and continues as a formalized, partially concrete lined drainage feature. At the time of the survey, the wetland feature contained standing water and hydrophytic vegetation such as cattails and sedges followed by transitions to willows and cottonwoods.

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

The expansion of the Linda Creek Bridge will result in permanent and temporary impacts to Cirby Creek and associated VRI woodlands; no impacts to Freshwater Emergent Wetlands are anticipated (see Figure 5: Project Effects to Jurisdictional Waters). Table 7 outlines these effects to waters within the BSA.

Table 7. Effects to Jurisdictional Waters

	U.S. & State Jurisdiction		**CDFW Jurisdiction**	
Jurisdictional Waters	*Permanent Impacts (acres)*	*Temporary Impacts (acres)*	*Permanent Impacts (acres)*	*Temporary Impacts (acres)*
Valley Foothill Riparian	--	--	<0.01	<0.01
Riverine (Cirby Creek)	<0.01	0.01	<0.01	0.01
Total	**<0.01**	**0.01**	**<0.01**	**0.01**

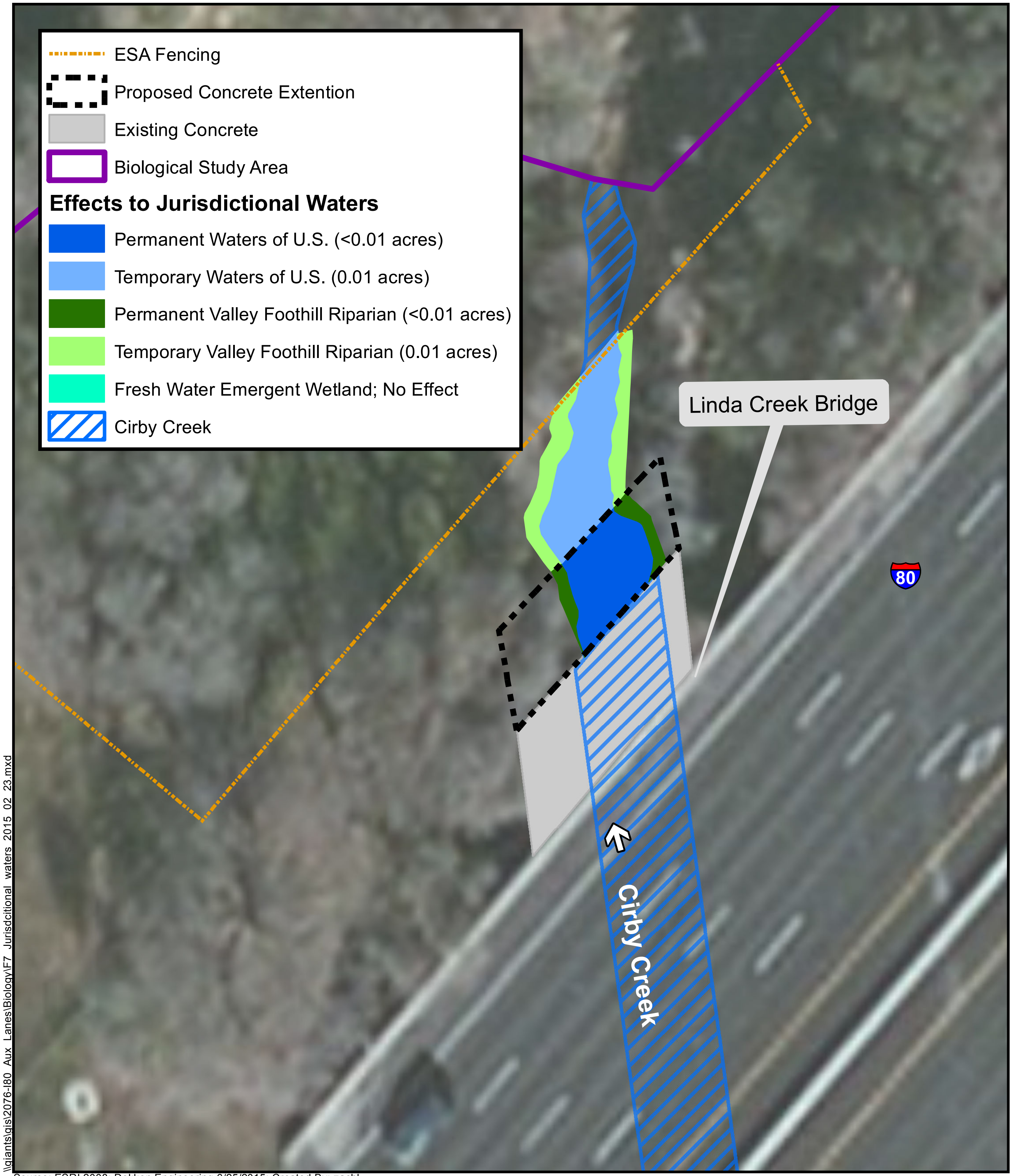
Valley Foothill Riparian

The project will permanently affect less than 0.01 acres and temporarily affect less than 0.01 acres of VRI (see Table 7. Effects to Jurisdictional Waters and Figure 5: Project Effects to Jurisdictional Waters). Impacts include installation of scour protection, which includes extending the concrete pavers under the structure to match with the existing conditions and the requisite temporary access. The new bridge extension will include placing approximately 200 square feet (4 cubic yards) of pavers and approximately 60 square feet (3 cubic yards) of concrete within the VRI. Impacts to VRI are anticipated to be the same for both Alternative 1 and Alternative 2. To minimize impacts to VRI, the avoidance and minimization measures **BIO-4** through **BIO-8** listed below will be implemented.

Riverine

The widening of Linda Creek Bridge over Cirby Creek is designed to fully span the active channel, with no piers to be permanently placed within Cirby Creek. However, installation of scour protection, which includes extending the existing 22 foot wide concrete lined channel approximately 12 feet downstream to match with the existing conditions, will permanently affect approximately 0.01 acres of Cirby Creek.

The new bridge extension will include placing approximately 280 square feet (12 cubic yards) of concrete within Cirby Creek. To construct, Cirby Creek will be temporarily diverted (with pipes, k-rail and sandbags, or similar method) in stages to allow for isolated pouring and curing of the channel extension. At completion, the concrete will be approximately one foot thick. The channel is designed to be consistent with the existing cobbled low water notch supportive of fish passage (See Table 7 and Figure 5). Impacts to Cirby Creek are anticipated to be the same for both Alternative 1 and Alternative 2.



Source: ESRI 2008; Dokken Engineering 6/25/2015; Created By: zachl

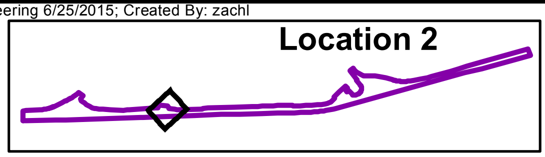


FIGURE 5
Page 1 of 2
Project Effects to Jurisdictional Waters

EA-03F230
I-80 Auxillary Lanes Project
Placer County, California

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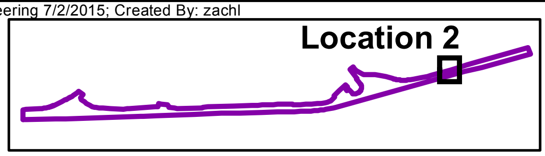
Source: ESRI 2008; Dokken Engineering 7/2/2015; Created By: zachl



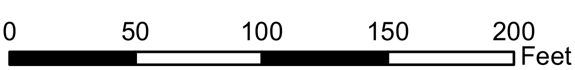


FIGURE 5
Page 2 of 2
Project Effects to Jurisdictional Waters

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I-80 Auxillary Lanes Project
Placer County, California

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

To avoid and minimize impacts to jurisdictional waters the following avoidance and minimization efforts will be implemented:

BIO-4: Prior to the start of construction activities, the project limits in proximity to jurisdictional waters (wetlands, Cirby Creek and VRI) must be marked with high visibility ESA fencing or staking, where permanent barriers currently do not exist, to ensure construction will not further encroach into waters. Best Management Practices (BMPs) will be incorporated into the project design and project management to minimize impacts on the environment including reduction of sedimentation and release of pollutants (oil, fuel, etc.). Examples of minimization efforts include the use of silt fencing, temporary energy dissipation facilities, and wattles.

Implementation of BMPs will reduce the potential for impacts from occurring outside of the construction footprint. The following measures will be implemented to ensure BMPs.

BIO-5: Erosion Control BMPs must be implemented during construction. To minimize the mobilization of sediment to adjacent water bodies, the following erosion control and sediment-control measures will be included in the construction specifications, based on standard Caltrans measures and standard dust-reduction measures.

- Soil exposure will be minimized by limiting the area of construction and disturbance and through the use of temporary BMPs, groundcover, and stabilization measures. These measures may include mulches, soil binders and erosion control blankets, silt fencing, fiber rolls, temporary berms, sediment de-silting basins, sediment traps, and check dams.
- Plastic mono-filament netting (erosion control matting) or similar material that could trap wildlife must not be used. Acceptable substitutes include, but are not limited to, jute, coconut coir matting or tackified hydroseeding compounds.
- Energy dissipaters and erosion control pads would be provided at the bottom of slope drains. Other flow conveyance control mechanisms may include earth dikes, swales, or ditches. Stream bank stabilization measures would also be implemented.
- Existing vegetation would be protected where feasible to reduce erosion and sedimentation. Vegetation would be preserved by installing temporary fencing, or other protection devices, around areas to be protected.
- Exposed soils would be covered by loose bulk materials or other materials to reduce erosion and runoff during rainfall events.
- Exposed soils would be stabilized, through watering or other measures, to prevent the movement of dust at the project site caused by wind and construction activities such as traffic and grading activities.
- All construction roadway areas would be properly protected to prevent excess erosion, sedimentation, and water pollution.
- The contractor must conduct periodic maintenance of erosion- and sediment control measures. All erosion control measures and storm water control measures must be properly maintained until the site has returned to a pre-construction state.

- All disturbed areas including staging of vehicles and equipment will be restored to pre-construction contours and revegetated, either through hydroseeding or other means, with native species.
- All construction materials must be hauled off-site after completion of construction.

BIO-6: To conform to water quality requirements, the Storm Water Pollution Prevention Plan (SWPPP) must include the following:

- Vehicle maintenance, staging and storing equipment, materials, fuels, lubricants, solvents, and other possible contaminants must be a minimum of 100 feet from riparian, wetlands or aquatic habitats. Any necessary equipment washing must occur where the water cannot flow into waterways, including Cirby Creek. The project proponent will prepare a spill prevention and clean-up plan. In the event of an emergency, maintenance would occur away from Cirby Creek;
- Construction equipment will not be operated in flowing water;
- Construction work must be conducted according to site-specific construction plans that minimize the potential for sediment input to Cirby Creek;
- Raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life must be prevented from contaminating the soil or entering Cirby Creek;
- All concrete curing activities must be conducted to minimize spray drift and prevent curing compounds from entering the waterway directly or indirectly.
- Equipment used in and around Cirby Creek must be in good working order and free of dripping or leaking engine fluids; and,
- Any surplus concrete rubble, asphalt, or other debris from construction must be taken to an approved disposal site.

BIO-7: Within jurisdictional waters, where feasible, the project will cut vegetation at ground level and avoid grubbing of roots to allow riparian vegetation to re-sprout following construction. Upon completion of construction activities, any barriers to surface water flow must be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

BIO-8: Permanent impacts to Cirby Creek (U.S., state and CDFW jurisdiction) and VRI (CDFW jurisdiction) will be mitigated by obtaining a Section 401 Water Quality Certification, Section 404 Nationwide Permit, and a Section 1602 Streambed Alteration Agreement, which will require appropriate mitigation. A 2:1 mitigation ratio is anticipated and will be mitigated through payment into the in-lieu fee program or at an on or off-site, agency approved location. Temporary impacts to Cirby Creek will be re-contoured to pre-construction conditions. For temporary impacts to VRI, the project is anticipated to, through permitting, mitigate at a 1:1 ratio with the installation of native hydroseed, native riparian plant materials, or a combination of both. Exact mitigation ratios and locations will be determined during the environmental permitting phase of the project.

2.3.3 PLANT SPECIES

REGULATORY SETTING

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

This section of the document discusses all the other special-status plant species, including CDFW fully protected species and species of special concern, USFWS candidate species, and non-listed California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at 16 USC, Section 1531, et seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at California Fish and Wildlife Code, Section 2050, et seq. Caltrans Projects are also subject to the Native Plant Protection Act, found at Fish and Wildlife Code, Section 1900-1913, and the California Environmental Quality Act, Public Resources Code, Sections 2100-21177.

AFFECTED ENVIRONMENT

Based on preliminary literature research and aerial reconnaissance, habitat conditions within the BSA were determined to only be potentially suitable for Sanford's arrowhead. In addition, preliminary research determined the nearest known Sanford’s arrowhead population, CNDDB occurrence number 49, is 3 miles from potentially suitable habitat within the BSA. During the focused botanical survey on October 7, 2014 no Sanford's arrowhead were observed in suitable ditch habitats present within the BSA; therefore, all sensitive plant species are presumed absent.

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

All special status plant species are presumed absent from the BSA. The project would have no impacts to special status plant species.

2.3.4 Animal Species

REGULATORY SETTING

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NOAA Fisheries Service) and the CDFW are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals, including those not listed or proposed for listing under the federal or state Endangered Species Act. All other special-status animal species are also discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

AFFECTED ENVIRONMENT

Preliminary literature research determined special status animal species have the potential to occur in the project vicinity. On October 7, 2014 Dokken Engineering biologists Carolynn Daman and Angela Scudiere surveyed the BSA for sensitive wildlife. No special status species were observed within the BSA. However, four special status species, which include Central Valley steelhead (*Oncorhynchus mykiss irideus*), fall-run Chinook salmon, purple martin (*Progne subis*), and western pond turtle (*Emys marmorata*) have potential to occur. Central Valley steelhead are considered a federally threatened species, see under Section 2.3.5 Threatened and Endangered Species for discussion of this special status species.

Central Valley Fall/Late Fall-Run Chinook Salmon

Review of available literature and occurrence data indicate that Cirby Creek historically served as a migration corridor for fall-run Chinook accessing spawning and rearing sites within Linda Creek. Although fall-run Chinook may have historically used Cirby Creek, the creek has become an urban stream and is no longer anticipated to regularly support fall-run Chinook. Cirby Creek lacks adequate deep pools for resting, has marginal to no in-stream cover for juvenile rearing, and during low flow seasons, lacks sufficient fall-run Chinook passage depth (Placer and Sacramento Counties 2003, NOAA 2014). However, should flow conditions be suitable, fall-run Chinook migrating up Dry Creek have entered Linda Creek to spawn. Therefore, Cirby Creek is anticipated to only be used as a migratory corridor for fall-run Chinook salmon entering Linda Creek (NOAA 2014). However, extremely low numbers of fall-run Chinook salmon, adults and juveniles, occur within Linda Creek indicating only a small, residual run migrates through Cirby Creek (GANDA 2001, Placer County 2004). Based on project location maps and NMFS EFH mapper, the project is located within designated Pacific Salmon EFH.

The section of Cirby Creek present at the project site contains two channel substrate characteristics, concrete lined and natural bottomed. The natural channel downstream of the Linda Creek Bridge contains clear, shallow, riffles and gravel and cobble buried with silt and sand (a result of urban and floodway construction over the years). However, Cirby Creek located under the Linda Creek Bridge contains a concrete lined channel with a low water fish passage. Natural riparian vegetation present onsite is variable, with portions of the project area devoid of the tall, dense, woody overhanging vegetation necessary for salmonids.

Purple Martin Survey Results

The purple martin is listed by CDFW as a Special Species of Concern and is protected under the MBTA. This species is distributed throughout much of eastern North America and locally in the Pacific Coast at low to intermediate elevations (Shuford 2008). The species is a summer migrant in California, arriving in March and departing late September, with the breeding season occurring from May to mid-August. Purple martins inhabit riparian habitats with tall, old, isolated trees for nesting, in proximity to a body of water with abundance of dragon flies, and other aerial insects (Zeiner 1988-1990). They also inhabit manmade structures like hollow box bridges in Sacramento, which house some of the species largest colonies in the western U.S. (Shuford 2008).

The BSA contains highly disturbed VRI woodland (forest edges) and several bridge structures with potentially suitable habitat for purple martin foraging and nesting. The nearest recorded occurrence of the species is approximately 0.20 miles from the project within a bridge structure. It was determined the purple martin has a high potential to occur within the BSA.

Western Pond Turtle Survey Results

Western pond turtle is listed by the CDFW as a species of special concern. It is a semiaquatic turtle distributed throughout non-Sierran California inhabiting ponds, marshes, rivers, and streams with aquatic vegetation. The species requires suitable basking sites such as logs, rocks, and exposed banks and associated upland habitat consisting of sandy banks or grassy open fields for reproduction. Young turtles are mostly carnivorous, feeding on small aquatic invertebrates gradually becoming more herbivorous as they age. The western pond turtle is known to hibernate underwater beneath a muddy bottom in colder climates and reproduce from March to August (Zeiner 1990).

Literature searches showed recorded observations of western pond turtle within approximately four miles of the project area. Biological surveys on October 7, 2014 did not observe western pond turtle within the BSA. However, the BSA contains two locations that could provide suitable habitat for western pond turtle, Cirby Creek and the BOW community. Cirby Creek provides suitable migration and aquatic habitat with minimal upland habitat containing annual grasslands and oak woodlands. Additionally a water feature outside of the project area in Location 1 also contains suitable aquatic habitat, therefore the BOW community in Location 1 also supports suitable dispersal upland habitat for western pond turtle.

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

Central Valley Fall/Late Fall-Run Chinook Salmon

Widening of Linda Creek Bridge over Cirby Creek is anticipated to permanently disturb less than 0.01 acres of streambed habitat and less than 0.01 acres of disturbance to Pacific Salmon EFH shaded riverine aquatic habitat.

Potential construction related direct effects to fall-run Chinook salmon include the temporary increase in sedimentation and turbidity, the temporary increase in underwater noise and vibrations from pile driving, and risks associated with accidental spills of hazardous chemicals and materials into waters. Indirect effects include impacts associated with the removal of shaded riverine aquatic habitat. Considering the infrequent, small run size utilizing Cirby Creek and the proposed seasonality constraints for in-channel work which avoids the peak mid-October to late December adult migratory season and the almost completely avoids the February-June juvenile emigration season, the likelihood of the species presence onsite is low/moderate; therefore, no direct effects to fall-run Chinook salmon are anticipated. The project may affect fall-run Chinook salmon individuals; however with the implementation of minimization and avoidance measures **BIO-4** through **BIO-17**, the project will not impact the viability of the fall-run Chinook salmon population or adversely modify Pacific Salmon EFH (see Figure 6: Project Effects to Pacific Salmon EFH).

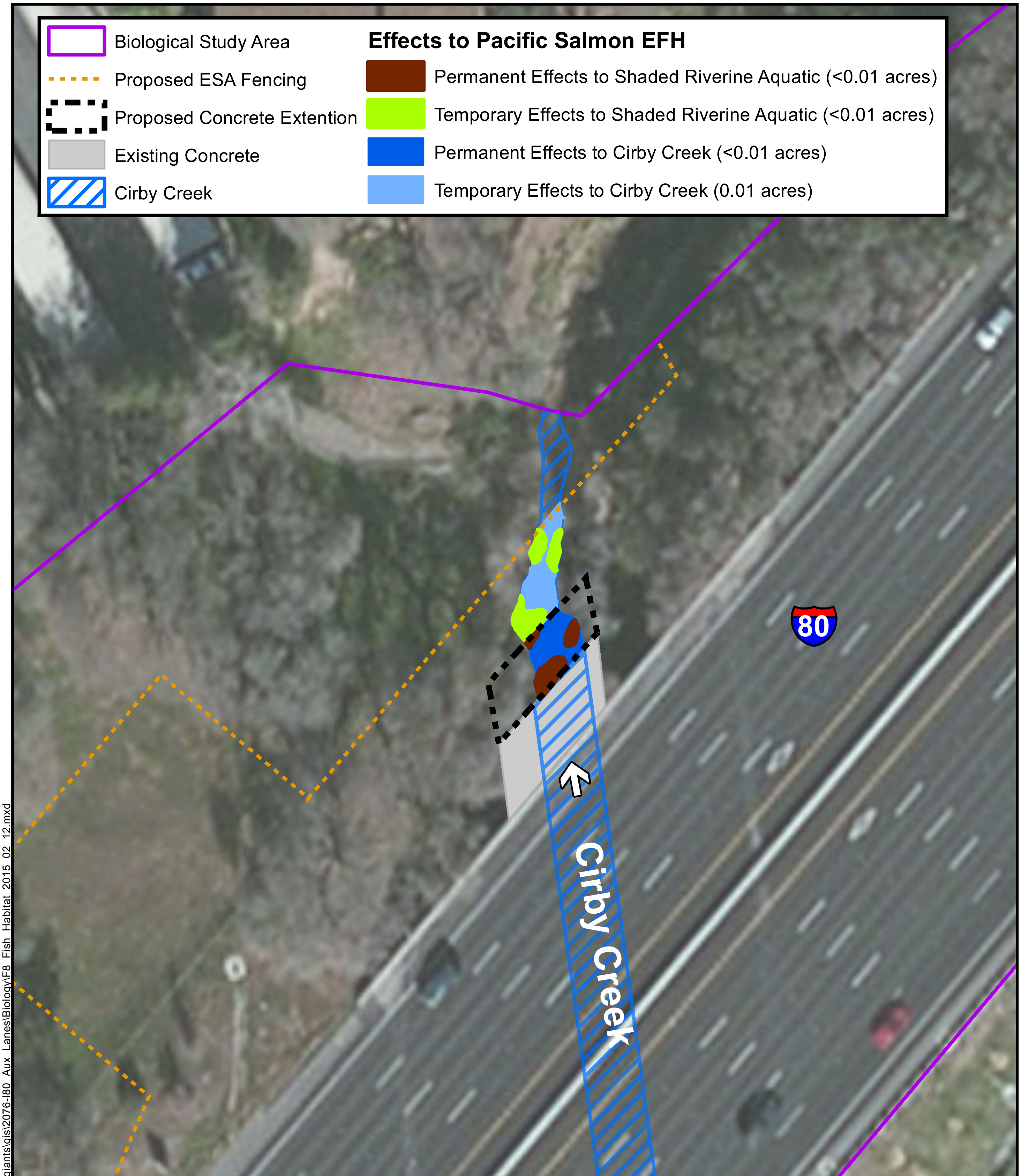
Consistent with the requirements of Section 7 of the Endangered Species Act, Caltrans initiated Section 7 Consultation with the National Marine Fisheries Service for potential impacts to Pacific Salmon EFH. Caltrans requested initiation of informal consultation with the NMFS on October 2, 2015. NMFS deemed the formal consultation package from Caltrans complete on October 29, 2015 and initiated formal consultation. On November 13, 2015, NMFS issued a Letter of Concurrence concluding that the project would not adversely affect Pacific Salmon EFH. The Letter of Concurrence from NMFS is included under Appendix D.

Purple Martin

Although no purple martin were observed during surveys, potentially suitable nesting habitat occurs within the BSA. However, with the implementation of avoidance and minimization measures **BIO-9** and **BIO-18**, impacts to the purple martin are not anticipated.

Western Pond Turtle

Although western pond turtle was not observed during the October 7, 2014 biological survey, the species has a low/moderate potential to occur within the BSA. The project will temporarily impact potentially suitable western pond turtle habitat by removing potentially suitable upland basking and breeding habitat and temporarily impacting potentially suitable aquatic foraging and refuge habitat. However, considering the scale of the project, duration of project activities and implementation of avoidance and minimization measures **BIO-8** and **BIO-19** through **BIO-21**, impacts to the viability of the overall population is not anticipated.



Source: ESRI 2008; Dokken Engineering 6/25/2015; Created By: zachl

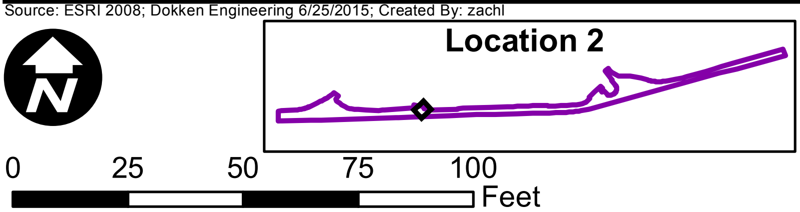


FIGURE 6
Project Effects to Pacific Salmon EFH
EA-03F230
I-80 Auxillary Lanes Project
Placer County, California

Avoidance, Minimization, and/or Abatement Measures

In addition to measures **BIO-4** through **BIO-8**, the following avoidance and minimization measures will be implemented for steelhead:

BIO-9: Before any activities begin on the project, the project biologist will conduct environmental awareness training for all construction personnel. At a minimum, the training will include a description of sensitive species with potential to occur, including steelhead, their habitat, the project specific measures being implemented to conserve the species, and the boundaries within which the project may be accomplished.

BIO-10: The project biologist must be onsite during the installation of any stream diversion or initial dewatering efforts.

BIO-11: In-channel gravel and rock substrate removed during project construction must be set aside, rinsed, and placed in the newly extended concrete lined low water fish passage following the completion of in-channel construction. The substrate placed within the low water fish channel must allow for a minimum of 1 foot in depth for fish passage. The remaining substrate will be disposed at an approved site.

BIO-12: All in-channel construction including creek diversions, creek crossings, or any work in the channel bed must occur within the June 1 – October 15 work window.

BIO-13: Pile driving activities must occur within the June 1 – October 15 work window which coincides with the least likely occurrence of upstream migrating adults.

In addition to the steelhead measures above, the following measures have been incorporated into the project design to minimize and avoid project effects to fall-run Chinook salmon.

BIO-14: Project activities that may affect the flow of the creek through placement of fill, bridge construction, or diversion of the channel must comply with the *2001 NMFS Guidelines for Salmonid Passage at Stream Crossing*, where applicable. The guidelines include but are not limited to:

- A minimum water depth (12 inch for adults and 6 inch for juveniles) at the low fish passage;
- A maximum hydraulic drop of 12 inch for adults and 6 inch for juveniles;
- Avoidance of abrupt changes in water surface and velocities; and
- Structures shall be aligned with the stream, with no abrupt changes in flow direction upstream or downstream of the crossing.

BIO-15: Night work must not be conducted within the Cirby Creek channel or the adjacent banks to afford fish quiet, unobstructed passage during night time migratory hours.

BIO-16: All water pumping or withdrawal from the creek must comply with 1997 NMFS *Fish Screening Criteria for Anadromous Salmonids*, where applicable, to avoid entrainment of fish. The criteria include but are not limited to the following:

- Screen design must provide for uniform flow distribution over the surface of the screen;
- Screen material openings must not exceed 3/32 inches for fry (fish capable of feeding themselves) sized salmonids and must not exceed 1/4 inch for fingerling sized salmonids;

- Where physically practical, the screen must be constructed at the dewatering system entrance. The screen face should be generally parallel to river flow and aligned with the adjacent bankline; and
- The design approach velocity must not exceed 0.33 feet per second for fry sized salmonids or 0.8 feet per second for fingerling sized salmonids.

BIO-17: Permanent impacts to fall-run Chinook salmon EFH shaded riverine aquatic habitat is anticipated to be mitigated at a 3:1 ratio at an on or off-site agency approved location. Exact mitigation ratios and locations will be determined during the environmental permitting phase of the project.

The following avoidance and minimization efforts will be implemented to avoid and minimize potential impacts to purple martin:

BIO-18: All vegetation should be removed outside of the nesting season (February 15th – September 15th). If construction requires the removal of vegetation during the nesting season (February 15th – September 15th), a pre-construction nesting bird survey must be conducted within 7 days prior to vegetation removal. Within 2 weeks of the nesting bird survey, all vegetation cleared by the biologist must be removed by the contractor.

A minimum 100 foot no-disturbance buffer must be established around any active nest to limit the impacts of construction activities. The contractor must immediately stop work in the nesting area until the appropriate buffer is established and is prohibited from conducting work that could disturb the birds (as determined by the project biologist and in coordination with wildlife agencies) in the buffer area until the project biologist determines the young have fledged.

To minimize and avoid potential impacts to western pond turtle, the following avoidance and minimization efforts has been included into the project design:

BIO-19: If sensitive species are encountered during the course of construction, construction will temporarily stop within the area of discovery. The project biologist will be contacted immediately for further guidance. Work will not resume in the area of discovery until the project biologist has cleared the area or the animal has passively left the construction area unharmed and unmolested.

BIO-20: All food-related trash must be disposed into closed containers and must be removed from the project area daily. Construction personnel must not feed or otherwise attract wildlife to the project area.

BIO-21: Plastic mono-filament netting (erosion control matting) or similar material that could trap wildlife must not be used. Acceptable substitutes include jute, coconut coir matting or tackified hydroseeding compounds.

2.3.5 Threatened and Endangered Species

REGULATORY SETTING

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

California has enacted a similar law at the state level, the CESA, California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. CDFW is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by the CDFW. For species listed under both the FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

AFFECTED ENVIRONMENT

Central Valley Steelhead

The NES (2015) included evaluation of threatened and/or endangered species potentially within the BSA. On October 7, 2014 Dokken Engineering biologists Carolynn Daman and Angela Scudiere surveyed the BSA for threatened and/or endangered species. Potential habitat for the federally threatened Central Valley steelhead (*Oncorhynchus mykiss irideus*) has potential to occur within the BSA. Review of available literature and occurrence data indicate that Cirby Creek historically served as a migration corridor for steelhead accessing spawning and rearing sites within Linda Creek. Although steelhead may have historically used Cirby Creek, the creek has become an urban stream and is no longer anticipated to be used by steelhead. Cirby Creek lacks adequate deep pools for resting, has marginal to no in-stream cover for juvenile rearing, and during low flow seasons, lacks sufficient steelhead passage depth (Placer and Sacramento Counties 2003, NOAA 2014). However, should flow conditions be suitable, there is some potential that steelhead migrating up Dry Creek could attempt to enter Linda Creek to spawn. Therefore, steelhead have a low/moderate potential to occur within Cirby Creek, both upstream and downstream of the project area. The nearest occurrence of steelhead is located within Secret Ravine approximately 3.5 creek miles from the project site in 2007 (approximately 3 creek miles upstream from the Dry Creek/Cirby Creek confluence). In addition, based on project location maps and NMFS 2005 steelhead Critical Habitat maps, the project is not located within designated Critical Habitat. The nearest designated steelhead Critical Habitat is located along Dry Creek, approximately 0.50 miles upstream of Cirby Creek from the project area.

The section of Cirby Creek present at the project site contains two channel substrate characteristics, concrete lined and natural bottomed. The natural channel downstream of the Linda Creek Bridge contains clear, shallow, riffles and gravel and cobble buried with silt and sand (a result of urban and floodway construction over the years). However, Cirby Creek located under the Linda Creek Bridge contains a concrete lined channel with a low water fish passage. Natural riparian vegetation present onsite is variable, with portions of the project area devoid of the tall, dense, woody overhanging vegetation necessary for salmonids.

In addition, the existing conditions at the Linda Creek Bridge over Cirby Creek include an existing 22 foot wide, 250 foot long concrete lining with an established 1 foot low water notch. A 1-D model (HEC-RAS) of Cirby Creek was used to evaluate 50 % of the 2 year exceedance under the existing conditions. The HEC-RAS model determined that existing velocities exceed the NFMS requisite 3 feet/second velocity for crossings between 200 and 300 feet long (NMFS 2001). These elevated velocities are a result of a more restricted stream channel and therefore, would act as a fish barrier during migrations, should salmonids attempt to enter Cirby Creek. Table 8 shown below summarizes the flows experienced under the existing conditions. Further, there is no indication in the model that backwater occurs under the bridge during flow events. Water depths both up and downstream of the bridge typically range between 5 and 6 feet during the 2 year flood event.

Table 8. Existing Conditions: 1-D Model (HEC-RAS) 50% of the 2 Year Exceedance Within Cirby Creek at the Linda Creek Bridge

HEC-RAS Channel Condition	Upstream Velocities (30 feet)	Upstream Velocities (Immediate)	Under Linda Creek Bridge Velocities (Upstream Section)	Under Linda Creek Bridge Velocities (Downstream Section)	Downstream Velocities (Immediate)	Downstream Velocities (120 feet)
Existing Condition (Concrete Lined Channel)	2 ft/s	5 ft/s	5 ft/s	8 ft/s	8 ft/s	3 ft/s

ENVIRONMENTAL CONSEQUENCES

Central Valley Steelhead

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

Widening of Linda Creek Bridge over Cirby Creek is anticipated to permanently disturb less than 0.01 acres of streambed habitat for steelhead, with less than 0.01 acres of disturbance of shaded riverine aquatic habitat for steelhead. In addition, less than 0.01 acres (20 linear feet) of Cirby Creek and approximately 0.01 acres of shaded riverine aquatic cover will be temporarily affected.

Indirect effects to steelhead include impacts associated with the removal of shaded riverine aquatic habitat. However, considering the insufficient fish passage during the low flow seasons, the lack of current documented occurrences utilizing Cirby Creek, and the complete avoidance of the November-March adult migratory season and the March - May juvenile emigration season, the species is not anticipated to be present during in-channel construction activities. Therefore, no direct effects or take of steelhead are anticipated. With the implementation of minimization and avoidance measures **BIO-4** through **BIO-13**, the project is not likely to adversely affect steelhead.

The widening of Linda Creek Bridge over Cirby Creek will require the installation of scour protection, which includes extending the existing 22 foot wide, 250 foot long concrete lined channel by approximately 12.5 feet downstream to match with the existing conditions. However, Cirby Creek located under the Linda Creek Bridge currently contains a low water notch, supportive of fish passage, approximately 1-2 feet wide, approximately 1-2 feet deep and lined with clean native cobble, which are consistent with the *2001 NMFS Guidelines for Salmonid Passage at Stream Crossings*. The *2001 NMFS Guidelines for Salmonid Passage at Stream Crossings* requires a minimum water depth (12 inch for adults and 6 inch for juveniles) at the low fish passage with a maximum hydraulic drop of 12 inch for adults and 6 inch for juveniles. The project is designed to match the existing low water notch, supportive of fish passage. Further, the slope of the new approximate 12.5 foot channel extension will match the slope of the existing channel, which is at an approximate 0.3 % grade under the existing bridge structure.

In addition, a 1-D model (HEC-RAS) of Cirby Creek was used to evaluate the 50 % 2 year exceedance flows. Pursuant to the *2001 NMFS Guidelines for Salmonid Passage at Stream Crossings,* NMFS' has determined crossings between 200 and 300 feet long with velocities over 3 feet/second to be barriers to fish passage. Values generated from the HEC-RAS model determined that the velocities within the existing 250 foot concrete lined channel already exceed the NFMS' 3 feet/second velocity threshold for crossings between 200 and 300 feet long. In addition to the existing condition, the model also evaluated what effect two additional channel conditions would have on fish passage flow velocities: the proposed approximate 12.5 foot concrete extension (Proposed Condition- Concrete Extension), and a hypothetical condition that assumes all concrete is absent from the existing channel (Existing Condition- Without Concrete).

Based on the HEC-RAS model, all potential channel conditions (proposed condition, existing condition & hypothetical existing condition- without concrete) at the Linda Creek Bridge do not meet the NFMS requisite 3 feet/second velocity for crossings between 200 and 300 feet long (NMFS 2001). These elevated velocities are a result of a more restricted stream channel. Although the project would extend the existing concrete channel by 12.5 feet, no effective change in velocities would occur and therefore, the Linda Creek Bridge would remain a potential fish barrier. Table 9 summarizes the anticipated flow velocities with the Proposed Condition (Concrete Extension), Existing Condition (Concrete Lined Channel) and the hypothetical Existing Condition - Without Concrete.

The project has further explored the fish passage at the bridge location and has determined that it would be infeasible to reduce flows to 3ft/s. As shown in Table 9, even with the hypothetical complete removal of the concrete lining within the channel, velocities would still be too high.

Short of completely exposing the columns and/or completely removing the existing bridge, there is no way to reduce the flows to 3ft/s. The cost associated with such a change would be in the millions and therefore prohibitively high.

Incorporation of baffles to reduce velocities was also considered. Again, the roughness coefficient would have to be increased to 0.1, the piers exposed, and a variety of other modifications to the channel would have to be performed before the velocities reach the 3 ft/s threshold. A roughness coefficient of 0.1 corresponds with large trees and substantial vegetation being within the channel and impeding the flow. Therefore, it was determined that constructing baffles within either the low flow notch or within the channel will not help to achieve water velocities less than or equal to 3 ft/s.

Table 9. 1-D Model (HEC-RAS) 50% of the 2-Year Exceedance Within Cirby Creek at the Linda Creek Bridge

HEC-RAS Channel Condition	Upstream Velocities (30 feet)	Upstream Velocities (Immediate)	Under Linda Creek Bridge Velocities (Upstream Section)	Under Linda Creek Bridge Velocities (Downstream Section)	Downstream Velocities (Immediate)	Downstream Velocities (120 feet)
Proposed Condition (12.5 Foot Concrete Extension)	2ft/s	5ft/s	5ft/s	8ft/s	8 ft/s	3 ft/s
Existing Condition (Concrete Lined Channel)	2 ft/s	5ft/s	5ft/s	8ft/s	8 ft/s	3 ft/s
Existing[1] Condition-Without Concrete	2 ft/s	4 ft/s	4ft/s	7ft/s	8 ft/s	3 ft/s

[1]Hypothetical condition that assumes all concrete is absent from the channel; however, this condition is not a proposed design option and is mentioned for comparative discussions only.

Consistent with the requirements of Section 7 of the Endangered Species Act, Caltrans initiated Section 7 Consultation with the National Marine Fisheries Service for potential impacts to Central Valley Steelhead. Caltrans requested initiation of informal consultation with the NMFS on October 2, 2015. NMFS deemed the formal consultation package from Caltrans complete on October 29, 2015 and initiated formal consultation. On November 13, 2015, NMFS issued a Letter of Concurrence that the project may affect, but is not likely to adversely affect Central Valley Steelhead. The Letter of Concurrence from NMFS is included under Appendix D.

Additional avoidance, minimization, and mitigation measures included in the Letter of Concurrence from NMFS to protect fish during construction and are included below. With the implementation of minimization and avoidance measures **BIO-4** through **BIO-13** and **BIO-22** through **BIO-25**, the project is not likely to adversely affect steelhead.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

See **BIO-4** through **BIO-13** above for avoidance, minimization, and mitigation measures relating to Central Valley steelhead. Measures BIO-22 through BIO-25 below includes any additional measures from the NMFS Letter of Concurrence.

BIO-22: Adequate flow will be maintained through the Action Area by diverting the active channel in Cirby Creek. A temporary water diversion will be installed using either 24-inch plastic pipe or K-rail lined with plastic and clean gravel. Regardless of the method used, the water diversion will be covered and protected from debris, contaminants, and sediment. The diversion structure will be removed upon project completion and flow conditions will be returned to a pre-project state.

BIO-23: Contractors must use biodegradable lubricants and hydraulic fluid in construction machinery. The use of petroleum alternatives can greatly reduce the risk of contaminants directly or indirectly entering the aquatic ecosystem.

BIO-24: Contractors must use hydro seeding mulches that contain low concentrations of fertilizer to minimize harmful runoff and excessive inorganic nutrient input into the aquatic ecosystem.

BIO-25: Signs must be posted in the Action Area about storm water pollution and runoff, advising citizens of the presence of listed fish species and to not discharge any chemicals, oils or other waste products near the stream.

2.4 CULTURAL RESOURCES

REGULATORY SETTING

The term "cultural resources" as used in this document refers to all "built environment" resources (structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance.

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

Delivery Program (23 United States Code [USC] 327).

The proposed project is a federal undertaking subject to 36 CFR Part 800, implementing regulations for Section 106 of the National Historic Preservation Act (NHPA) and conducted under the guidelines of the First Amended Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act (January 1, 2014) (PA). The PA is the FHWA's procedure for taking into account the effects of the Federal Aid Transportation Program on historic properties in California and meeting compliance with Section 106 of the National Historic Preservation Act (36 CFR 800). In addition, the project is subject to state historic preservation laws and regulations set forth in the California Environmental Quality Act (PRC§21000 et seq.).

AFFECTED ENVIRONMENT

In accordance with Attachment 3 of the PA, the project's Area of Potential Effects (APE) and archaeological survey area were established to encompass the maximum limits of all potential ground disturbing construction activities associated with the proposed work, including but not limited to, all existing and proposed new rights-of-way, temporary construction easements, utility relocations, and equipment staging areas. The Project Area limits found on Figure 3: Project Features is the project's APE (see Figure 3: Project Features).

Tribal consultation under Public Resources Code 21074 (aka Assembly Bill 52 [AB52]) was initiated as part of the project to determine potential impacts to tribal cultural resources (TCR). As part of the AB52 tribal consultation process, tribes and interested parties were contacted by letter based on the Section 106 consultation list provide by the Native American Heritage Commission. Only the Shingle Springs Rancheria responded, and no TCRs were identified within the project area during the consultation period.

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

Caltrans archaeologists conducted an archaeological inventory of the project's APE consisting of: (1) literature and records research at the North Central Information Center; (2) A search of district files and the Caltrans Cultural Resource Database (CCRD); (3) consultation with the Native American Heritage Commission, as well as with local Indian tribes/individuals; (4) consultation with local historic societies, museums, and interested members of the public; (5) examination of local historic maps and plans; and (6) an intensive pedestrian field survey of the APE conducted by professional archaeologists who meet the Secretary of Interior's qualification standards.

As a result of the cultural resource inventory, one cultural resource was within the project area; however, this resource has been removed during construction of the I-80/SR 65 interchange. The archaeological field investigations resulted in the identification of exempt historic-period resources. Additionally, based on the presence of bedrock outside the I-80 corridor, the fact that the soil within the corridor has been completely reworked due to the construction of I-80, and the presence of housing developments along the corridor, there is little potential for buried sites. Given that no known cultural resources exist within the project area, the project will have no effect on any cultural resources.

No TCRs were identified within the project area during tribal consultation; no substantial change to a TCR is anticipated as a result of the proposed project.

With any project requiring ground disturbance, there is always the possibility that unmarked burials may be unearthed during construction. This impact is considered potentially significant. Implementation of Mitigation Measure **CR-1** and **CR-2** would reduce this impact to a less-than significant level.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following avoidance and minimization measures will be implemented:

CR-1: If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a qualified archaeologist can assess the significance of the find and develop a plan for documentation and removal of resources if necessary. Additional archaeological survey will be needed if project limits are extended beyond the present survey limits.

CR-2: Section 5097.94 of the Public Resources Code and Section 7050.5 of the California Health and Safety Code protect Native American burials, skeletal remains and grave goods, regardless of age and provide method and means for the appropriate handling of such remains. If human remains are encountered, work should halt in that vicinity and the county coroner should be notified immediately. At the same time, an archaeologist should be contacted to evaluate the situation. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within twenty-four hours of such identification. CEQA details steps to be taken if human burials are of Native American origin.

2.5 GEOLOGY AND SOILS

REGULATORY SETTING

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

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design.

Earthquakes are prime considerations in the design and retrofit of structures.

AFFECTED ENVIRONMENT

The dominant soil types in the project area are composed of well drained mixed alluvium loams derived from granite. According to the NRCS, the soil series within the BSA include: Xerarents-Fiddyment complex, 0 to 8 percent slopes; Xerorthents, cut and fill; Cometa-Fiddyment complex, 1 to 5 percent slopes; Caperton-Andregg coarse sandy loam, 2 to 15 percent slopes; Exchequer very stony loam, 2 to 15 percent slopes; and Andregg coarse sandy loam, 2 to 9 percent slopes (NRCS 2014)

Landslides usually occur in locations with steep slopes and unstable soils. As with liquefaction, Placer County has not yet been mapped by the Seismic Hazards Zonation Program to determine landslide potential. In 2011, the State Department of Conservation issued a map showing Susceptibility to Deep-Seated Landslides in California. The map takes previously known landslides, average annual rainfall, and earthquake shaking potential, as well as rock strength and slope class into account. Western Placer County is mostly rated as having no landslide susceptibility, with a few pockets of low to moderate susceptibility.

The majority of the project area is situated on flat or very gently sloping topography where the potential for slope failure is minimal to low.

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

The project would not expose people or structures to potential substantial adverse effects, involving rupture of a known fault, strong seismic ground shaking, seismic-related ground failure, or landslides. The project is not on an Alquist Priolo Earthquake Fault Zone requiring special study for fault rupture hazard. Seismic-related failure, including liquefaction, is also a less than significant impact because the potential is believed to be slight at this predominantly flat, low-seismicity site. The project area is located on a flat area. No impact from landslides would occur with the project. Design and construction in accordance with Caltrans' seismic design criteria will ensure that substantial impacts due to seismic forces and displacements are avoided or minimized to the extent feasible.

Erosion and loss of top soil would be a less than significant impact with mitigation. Grading and earthwork during construction may result in erosion and sedimentation. This impact would be mitigated through implementation of the Stormwater Pollution Prevention Plan (SWPPP) which would incorporate erosion control methods. Measure GEO-1 details this.

The project is not on a geologic unit or soil that is unstable or that would become unstable as a result of the project. On-or off-site landslide, lateral spreading, subsidence, liquefaction or collapse is not anticipated. No mitigation is required.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

GEO-1: Project proponent and the contractor shall implement a SWPPP to include erosion control methods. This SWPPP shall be prepared for the Section 402 permit, *NPDES General Permit for Discharges of Storm Water Associated with Construction Activity*.

2.6 GREENHOUSE GAS EMISSIONS

REGULATORY SETTING

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: “Greenhouse Gas Mitigation” and “Adaptation.” "Greenhouse Gas Mitigation" is a term for reducing GHG emissions to reduce or "mitigate" the impacts of climate change. “Adaptation" refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)[1].

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

State

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

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

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

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

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal EPA) and state agencies with regard to climate change.

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

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

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the CARB to set regional emissions reduction targets from passenger vehicles.

[1] http://climatechange.transportation.org/ghg_mitigation/
[2] http://www.fhwa.dot.gov/environment/climate_change/mitigation/

The MPO for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

Senate Bill 391 (SB 391) Chapter 585, 2009 California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

<u>Federal</u>

Although climate change and GHG reduction are a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level GHG analysis.[3] FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process–from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514 - Federal Leadership in Environmental, Energy and Economic Performance.

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

The U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six greenhouse gases constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions. U.S. EPA in conjunction with National Highway Traffic Safety Administration (NHTSA) issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.[4]

[3] To date, no national standards have been established regarding mobile source GHGs, nor has U.S. EPA established any ambient standards, criteria or thresholds for GHGs resulting from mobile sources.
[4] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

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

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

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

The complementary U.S. EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO_2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

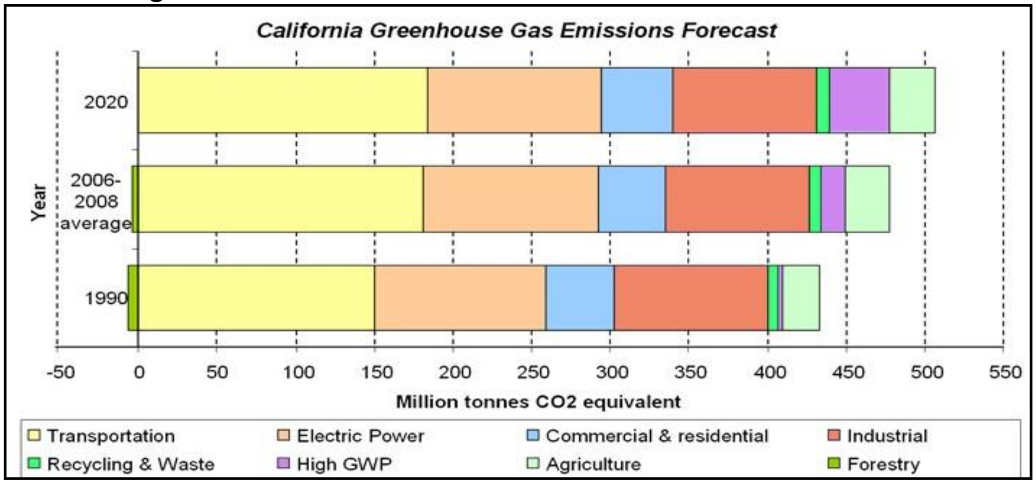
ENVIRONMENTAL CONSEQUENCES

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of GHG.[5] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented (see Figure 7). The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

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

Figure 7. California Greenhouse Gas Emissions Forecast

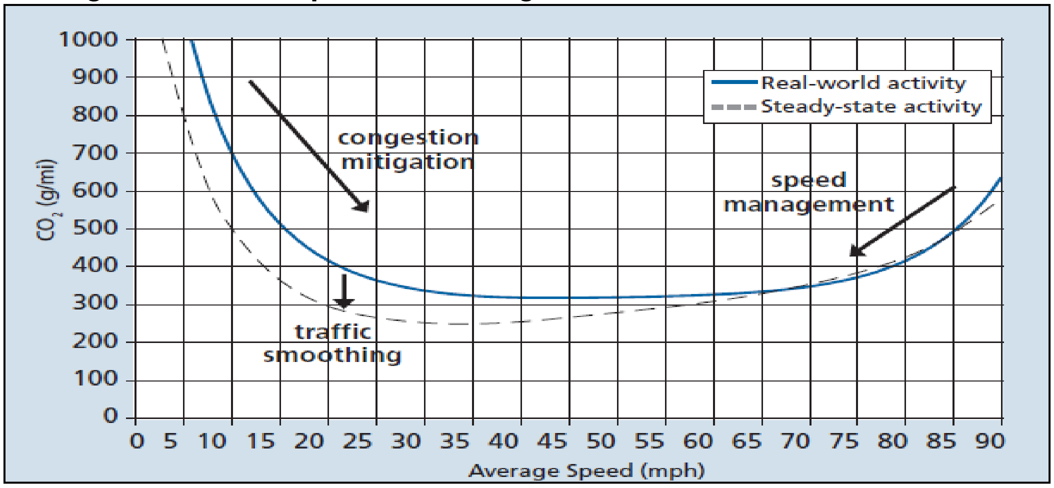


Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

The Caltrans and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.[6]

One of the main strategies in the Caltrans's Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of CO_2 from mobile sources such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and at speeds over 55 miles per hour; the most severe emissions occur from 0-25 miles per hour (see Figure 8 below). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors GHG emissions, particularly CO_2, may be reduced.

Figure 8. Traffic Operation Strategies and On-Road CO_2 Emissions[7]



[6] Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf
[7] Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010)<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>

The project is designed to reduce congestion and vehicle delays. As discussed in the project's Design Year Traffic Operations Analysis Results (Fehr & Peers 2015), the Build Alternative would increase vehicle miles traveled, but would also reduce vehicle hours of delay (VHD) in the project area by 9% - 50% (compared to the No-Build Alternative). Additionally, as discussed in the 2035 MTP/Sustainable Communities Strategy (SCS) by SACOG, implementation of the MTP/SCS was "developed to not only achieve the goals of SB 375, but create an efficient land use plan and robust transportation network that would meet AB 32 goals and further reduce our impact on climate change." As an integral part of the MTP/SCS, implementation of the project would therefore be a part of this regional GHG emissions reduction.

Quantitative Analysis

Table 10 gives projected CO_2 emissions for existing, opening year No-Build, opening year Build, future year No Build, and future year Build Alternative 1 and Build Alternative 2 for the entire project (Location 1 and 2). Daily CO_2 emissions in the design year are expected to be approximately 132% higher than existing conditions, whether or not the project is implemented. This large increase in CO_2 emissions can be attributed to the large projected increases in traffic volume, VMT, and VHD.

Table 10. Existing and 2040 CO_2 Emissions (tons/day) for Location 1 and 2

Existing	Alternatives (Opening)			Alternatives (Future)		
	No Build	1	2	No Build	1	2
182.4	249.518	252.147	252.799	423.622	391.446	383.385
Change from No-Build:		+2.629	+3.281		-32.176	-40.237

*Based on CT-EMFAC Version 5.0.0.14319 and Transportation Analysis Results (TAR) (2015). Truck percentage and vehicles/hour was calculated using Table 13 of the TAR, Avg. Idling Time used PM Peak Period Average Delay per Vehicle (min) from Table 15 of the TAR, and VMT Distribution by Speed Bin (mph) was calculated using the PM Peak Period VMT from the VMT by Speed Bin located in the TAR Appendix.

Environmental consequences discussed below are associated with Build Alternative 1:

Under Build Alternative 1 conditions, CO_2 emissions will be lower than under No-Build conditions. Build Alternative 1 is projected to have higher traffic volume and VMT than the No-Build, but higher average speeds and lower average delay per vehicle through the project area. In other words, implementing the project will result in a substantial increase in travel speeds and decrease in VHD. Build Alternative 1 will have a positive effect on reducing greenhouse gas emissions compared to the No-Build alternative.

Environmental consequences discussed below are associated with Build Alternative 2:

Under Build Alternative 2 conditions, CO_2 emissions will be lower than both the No-Build conditions and Build Alternative 1. Build Alternative 2 is projected to have higher traffic volume and VMT than the Build Alternative 1 and No-Build, but higher average speeds and lower average delay per vehicle through the project area. In other words, implementing the project will result in a substantial increase in travel speeds and decrease in VHD compared to the other alternatives. Build Alternative 2 will have a positive effect on reducing greenhouse gas emissions, more so than Build Alternative 1, resulting in lower emissions.

It should be noted that while these emission numbers are useful for comparing alternatives, they do not necessarily accurately reflect what the true CO_2 emissions will be because CO_2 emissions are dependent on other factors that are not part of the model, such as the fuel mix (EMFAC model emission rates are only for direct engine-out CO_2 emissions, not full fuel cycle; fuel cycle emission rates can vary dramatically depending on the amount of additives like ethanol and the source of the fuel components), rate of acceleration, and the aerodynamics and efficiency of the vehicles. The relative magnitudes however, as used for the comparison above, can be assumed to be reasonably accurate.

Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Per measure CC-2 and Caltrans standards, construction activities will be in compliance with the PCAPCD.

CEQA Conclusion

While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are CC-1 and CC-2.

Greenhouse Gas Reduction Strategies

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies the Caltrans is using to help meet the targets in AB 32 come from then-Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO_2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 9.

Figure 9. Mobility Pyramid

Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. Caltrans works closely with local jurisdictions on planning activities, but does not have local land use planning authority. The Caltrans assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the U.S. EPA and ARB.

Caltrans is also working towards enhancing the State's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391(Liu 2009) requires the State's long-range transportation plan to meet California's climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas (GHG) emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.

The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs.

Table 11 summarizes the Departmental and statewide efforts that Caltrans is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program published by Caltrans (December 2006).

Table 11. Climate Change/CO_2 Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings (million metric tons)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.045 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)[8] provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

Measures CC-1 and CC-2, found in the Avoidance, Minimization, and Mitigation section will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

Adaptation Strategies

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

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House CEQ, the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011[9], outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks .

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

On November 14, 2008, Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency was directed to coordinate with local, regional, state and federal public and private entities to

[8] http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

[9] http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation

develop The California Climate Adaptation Strategy (Dec 2009)[10], which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report[11] to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

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

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academy's Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

All projects that have filed a Notice of Preparation as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The Placer I-80 Auxiliary Lanes project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

[10] http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF

[11] *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at http://www.nap.edu/catalog.php?record_id=13389.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. The Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, the Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, the Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, the Caltrans will be able review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. The Caltrans is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

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

CC-1: The project would incorporate the use of energy-efficient lighting, such as LED traffic signals. LED bulbs cost $60 to $70 each, but last five to six years, compared to the one-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the project's CO_2 emissions.

CC-2: According to the Caltrans's Standard Specifications, the contractor must comply with all local Air Quality Management District rules, ordinances, and regulations for air quality restrictions.

2.7 HAZARDS AND HAZARDOUS MATERIALS

REGULATORY SETTING

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

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

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

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

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

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

AFFECTED ENVIRONMENT

This section presents results of an Initial Site Assessment (ISA) for property associated with the Placer I-80 Auxiliary Lane project conducted in December 2014. The purpose of the ISA is to evaluate the Subject Properties for the presence of Recognized Environmental Conditions (RECs) and/or Activity and Use Limitations (AULs), which are:

REC: "…the presence or the likely presence of any hazardous substances or petroleum hydrocarbons on the (Subject Property) that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum hydrocarbons into structures or into the ground, groundwater, or surface water of the subject property."

AUL: "…an explicit recognition by a federal, tribal, state, or local agency that residual levels of hazardous substances or petroleum hydrocarbons may be present on the property, and that unrestricted use of the property may not be acceptable."

For Location 1, the proposed project would impact the east side of I-80 between the SR 65 connector and Rocklin Road interchange and observations were limited to this area. I-80, an existing 6-lane, Caltrans facility, is bounded to the east by chain link fences and a soundwall between the highway and frontage road. The frontage road, China Garden Road, is a two-lane, 24-foot roadway that runs parallel to the east side of I-80 for approximately 1-mile south of the Rocklin Road interchange. The potential staging area southeast of the Rocklin Road interchange and east of China Garden Road was observed from the roadway at the western property boundary as an undeveloped property comprised of relatively flat topography with grass currently bounded by a barbed wire fence.

The majority of adjacent areas were observed from China Garden Road and land uses were comprised of a hotel, single-family residential properties and undeveloped land with rolling hills, trees and grasses. A minor street, Monument Springs Drive off China Garden Road was driving traversed and a North Placer Municipal Utility District Pump Station was observed at the end of the roadway before the entrance to a private residential community. At the southeast corner of the Rocklin Road interchange lies an AM/PM gas station that is listed on the EDR (Table 4.2, ID# 21-24) with no current open cases of remediation. On the northeast corner of the interchange is undeveloped land with trees and grasses.

The Subject Properties were comprised mostly of existing roadway, with the exception of the potential staging area. No evidence of RECs and structures that may include asbestos-containing materials (ACMs) were evident.

For Location 2, the proposed project would impact the west side of I-80 between the Riverside Avenue and Douglas Boulevard interchanges and observations were limited to this and the adjacent areas. I-80, an existing 9-lane, Caltrans facility, is bounded to the west by soundwalls and berms between the highway and the residential properties adjacent to the highway. The land use adjacent to westbound I-80 is high density single-family residential.

While I-80 was traversed only by driving, the adjacent areas were walking traversed when accessible. Cirby Creek crosses underneath I-80 via an existing bridge and the substructure was explored. Bearing pad shims, a potential source of ACM's, were apparent. An undeveloped parcel to the north of Cirby Creek and adjacent to westbound I-80 was viewed from the end of Jo Anne Lane and was comprised of many trees and grasses. The Charter Hospital of Sacramento, a site approximately 300 feet west of I-80 listed on the EDR was explored. A generator was located on a concrete pad behind a chain link fence. No evidence of leakage was apparent.

One residence that may be impacted by the proposed project at the end of Melrose Avenue was explored from the front of the property. A work truck and equipment was observed parked at the end of Melrose Avenue, abutting the soundwall adjacent to westbound I-80. A potential staging area was observed through a fence from South Harding Boulevard. The property has some vegetation mixed with asphalt and appears to be a storage area for truck trailers.

The southwest corner of the Douglas Boulevard interchange is occupied by medical office buildings and a copy/printing business.

The Subject Properties were comprised mostly of existing roadway, Linda Creek Bridge, and a potential staging area on an undeveloped parcel. Information provided from a previous project along I-80 indicates that there is potential for the Linda Creek Bridge Metal Beam Guardrail Bearing Pad Shims to be asbestos-containing materials. In addition, pavement striping on the existing roadways that need to be removed may contain lead and other heavy metals.

No evidence of RECs or AULs within the project boundaries were found, except those described in Table 12.

TABLE 12: REC OR AUL EVIDENCE

Location	Description of REC Evidence Found	Description of Associated AUL
Existing roadways within project boundaries including Eastbound I-80 btwn SR 65 and Rocklin Road and Westbound I-80 btwn Riverside Avenue and Douglas Blvd interchanges	Potential lead and heavy metals associated with pavement striping. Implementation of improvements may require the removal and disposal of yellow traffic stripe and pavement marking materials (paint, thermoplastic, permanent tape, and temporary tape). Yellow paints made prior to 1995 may exceed hazardous waste criteria under Title 22, California Code of Regulations, and require disposal in a Class I disposal site.	None Found
Linda Creek Bridge	Previous study of the Linda Creek Bridge indicated evidence of asbestos containing material in the Metal Beam Guard Rail bearing pad shim. If removal of the bearing pad shims is necessary to widen the bridge, they will require removal and proper disposal by a licensed and certified asbestos abatement contractor in conjunction with the planned bridge widening. In order to complete the necessary asbestos abatement/removal, a Placer County Air Pollution Control District (PCAPD) permit for the Linda Creek Bridge will be attained.	None Found
Soils adjacent to I-80	Potential contaminated soils associated with aerially deposited lead. Implementation of improvements may require the disturbance and removal of contaminated soils. Disturbance of these soils will require a preparation of a Lead Compliance Plan and Lead Awareness Training. Further sampling and analysis of soil will be initiated during PS&E to determine the extent of lead-contaminated soils. Soils containing hazardous levels of aerially deposited lead will be excavated and disposed of at a Class 1 Disposal Facility or a Class 2 Disposal Facility permitted by the Central Valley Regional Water Quality Control Board (CVRWQCB) before completion of the proposed project.	None Found
Existing buildings that could be demolished/altered due to planned construction activities.	Potential for Asbestos Containing Materials (ACM). New uses of ACM were banned by the EPA in 1989. Revisions to regulations issued by the Occupational Safety & Health Administration (OSHA) on June 30, 1995, require that all thermal systems insulation, surfacing materials, and resilient flooring materials installed prior to 1981 be considered Presumed Asbestos Containing Materials (PAC) and treated accordingly. In order to rebut the designation as PAC, OSHA requires that these materials be surveyed,	None Found

TABLE 12: REC OR AUL EVIDENCE

Location	Description of REC Evidence Found	Description of Associated AUL
	sampled, and assessed in accordance with 40 CFR 763 (Asbestos Hazard Emergency Response Act [AHERA]). ACM have also been documented in the rail shim sheet packing, bearing pads, support piers, and expansion joint material of bridges.	
Existing buildings that could be demolished/altered due to planned construction activities.	Potential lead-based paint on painted portions of existing buildings. Structures constructed prior to 1978 are presumed to contain lead-based paint unless proven otherwise, although buildings constructed after 1978 may also contain lead-based paints.	None Found

<u>Naturally Occurring Asbestos</u>

Naturally Occurring Asbestos (NOA) can occur in serpentine rock. The most common forms of NOA minerals are chrysotile, actinolite, and tremolite. A review of the “General Location Guide for Ultramafic Rocks in California – Areas likely to Contain Naturally Occurring Asbestos” (CGS Open-file Report 2000-19, 2000) indicated that ultramafic rock occurrence is not mapped in the southwest portion of Placer County and therefore NOA is not expected to occur at the project site.

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

Based on the results of the ISA, potential RECs within the project site can be considered of low risk to the project. However, the ISA did not include verification of RECs based upon environmental testing. Based on the governmental records search, aerial photograph and topographic map review and visual site survey, additional actions are recommended to verify the presence/extent of RECs prior to, and during, construction. With the implementation of HAZ-1 through HAZ-4, any potential impacts can be mitigated to a less than significant level.

A sliver acquisition at the one residence at the end of Melrose Avenue has been determined to be possible without affecting the structure. No avoidance or minimize measures related to alteration or demolition of buildings are required.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

HAZ-1: To avoid impacts from pavement striping during construction it is recommended that testing and removal requirements for yellow striping and pavement marking materials be performed in accordance with Caltrans Standard Special Provisions for REMOVE TRAFFIC STRIPE AND PAVEMENT MARKINGS.

HAZ-2: The Linda Creek Bridge bearing pad shims will require removal and proper disposal by a licensed and certified asbestos abatement contractor in conjunction with the planned bridge widening. In order to complete the necessary asbestos abatement/removal, a Placer County Air Pollution Control District (PCAPD) permit for the Linda Creek Bridge will be attained.

HAZ-3: The proposed project will require a Non-Standard Special Provision (NSSP) for excavation and handling of soils contaminated with aerially deposited lead. The NSSP should address CCR Title 8, Section 1532.1, Lead, which includes a Lead Compliance Plan and Lead Awareness training.

HAZ-4: Further sampling and analysis of soil will be initiated during PS&E to determine the extent of lead-contaminated soils. Soils containing hazardous levels of aerially deposited lead will be excavated and disposed of at a Class 1 Disposal Facility or a Class 2 Disposal Facility permitted by the Central Valley Regional Water Quality Control Board (CVRWQCB) before completion of the proposed project.

2.8 HYDROLOGY AND WATER QUALITY

REGULATORY SETTING

Section 401 of the CWA requires water quality certification from the State Water Resources Control Board (SWRCB) or from a RWQCB when the project requires a CWA Section 404 permit. Section 404 of the CWA requires a permit from the U.S. Army Corps of Engineers (Corps) to discharge dredged or fill material into waters of the United States.

Along with CWA Section 401, CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES) permit for the discharge of any pollutant into waters of the United States. The federal Environmental Protection Agency has delegated administration of the NPDES program to the SWRCB and nine RWQCBs. The SWRCB and RWQCB also regulate other waste discharges to land within California through the issuance of waste discharge requirements under authority of the Porter-Cologne Water Quality Act.

The SWRCB has developed and issued a statewide NPDES permit to regulate storm water discharges from all Caltrans activities on its highways and facilities. Caltrans construction projects are regulated under the Statewide permit, and projects performed by other entities on Caltrans right-of-way (encroachments) are regulated by the SWRCB's Statewide General Construction Permit. All construction projects over 1 acre require a SWPPP to be prepared and implemented during construction. Caltrans activities less than 1 acre require a Water Pollution Control Program.

AFFECTED ENVIRONMENT

This section presents results of a Water Quality Assessment Report (2015) and Location Hydraulic Study (2015) associated with the Placer I-80 Auxiliary Lane project.

<u>Hydrology</u>

The proposed project falls within the Secret Ravine Hydrologic Sub-Area (HSA 514.24) in the Foothill Drain Hydrologic Area and the American River Hydrologic Unit.

Location 1 crosses over Sucker Ravine, which drains into Secret Ravine. Sucker Ravine is a perennial stream and a tributary of Secret Ravine. Sucker Ravine flows from northeast to southwest within the City of Rocklin and is part of the Dry Creek watershed. The approximately five mile stream joins Secret Ravine after crossing under I-80 and China Garden Road, near Greenbrae Road.

Secret Ravine runs adjacent and nearly parallel to Eastbound I-80 in a southwesterly direction. Secret Ravine is a 7.8-mile long perennial stream that has a contributing watershed area of approximately 22.3 square miles. Secret Ravine and Sucker Ravine drain the eastern side of the Loomis basin, which discharge ultimately into Dry Creek.

Location 2 crosses over Cirby Creek via an existing bridge approximately 2,900 feet east of the Riverside interchange. Cirby Creek is a perennial stream approximately 2.7 miles long with a watershed area of approximately 3.4 square miles. Linda Creek comprises the upstream sub-watershed and Cirby Creek outflows directly into Dry Creek. The Cirby Creek watershed is almost entirely within the urbanized area of the City of Roseville.

The Dry Creek Watershed is composed of eight named streams, which includes Cirby Creek and Secret Ravine, and covers approximately 101 square miles in southwestern Placer County and northern Sacramento County. Headwaters of the Dry Creek watershed originate in the Sierra Nevada foothills near Newcastle, flow southwesterly into the Sacramento Valley, and empty into the Natomas East Main Drainage Canal. The Natomas East Main Drainage Canal drains into the Sacramento River downstream of Sutter County. The Dry Creek watershed bridges the Sierra Nevada and Central Valley geologic provinces and has year-round flows in its major watercourses.

Floodplains

Location 1 of the project lies within the Federal Emergency Management Agency (FEMA) 100-year Zone AO and AE floodplain map, and Location 2 lies within Zone AE (FEMA 2015).

Areas within Zone AO have a High flood risk. Flood insurance is mandatory and local floodplain development codes apply. River or stream flood hazard areas, and areas with a one percent or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth of one to three feet. These areas have a 26 percent chance of flooding over the life of a 20-year mortgage.

Areas within Zone AE have a High flood risk. Base flood elevations have been determined. Flood insurance is mandatory and local floodplain development codes apply. These properties have a 1 percent annual chance of flooding and a 26 percent chance of flooding over the life of a 30- year mortgage.

Groundwater

Roseville and Rocklin, as well as portions of Sacramento and Sutter Counties, are situated over the north-central portion of the Central Valley groundwater basin, which is estimated to contain 114 million acre-feet of water. An average of 2 million acre-feet is pumped annually for agricultural irrigation and domestic and industrial uses. Groundwater in this area is recharged primarily by rainwater that infiltrates through stream and river bottoms.

According to Department of Water Resources' (DWR's) Groundwater Bulletin 118 (DWR 2003), Placer County overlies the North American subbasin in the eastern central portion of the Sacramento Groundwater Basin. The subbasin is bordered by the Bear River in the north, the Feather River in the west, and the Sacramento River is the southern boundary. The eastern boundary is a north-south line from the Bear River south to Folsom Lake, which passes approximately 2 miles east of the Town of Loomis. The eastern boundary aligns approximately with the border of the alluvial basin, and little or no groundwater flows in or out of the groundwater basin from the rock of the Sierra Nevada. The eastern portion of the subbasin is characterized by lowrolling separated uplands. The western portion is nearly a flat flood basin for the Bear, Feather, Sacramento and American rivers and multiple smaller eastern tributaries. The general direction of drainage is west-southwest at an average grade of about 5%.

Storage capacity for the North American subbasin is estimated by DWR (DWR 1997) to be 4.9 million acre-feet. The groundwater quality of the subbasin has been assessed by DWR and determined to be of good quality in many areas. The three major groundwater types include magnesium calcium bicarbonate, magnesium sodium bicarbonate, and sodium calcium bicarbonate.

According to data from DWR, groundwater levels in Roseville are historically 112–122 feet below land surface between the years of 1982–1992 DWR (DWR 1997).

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

The project would include extension of the Linda Creek Bridge over Cirby Creek and extend the existing concrete lined channel with a low water fish passage within Cirby Creek approximately an additional 15 feet. The addition of an auxiliary lane adjacent to Secret Ravine as well as the addition of an auxiliary lane or a through lane above Cirby Creek would result in an increase to the impervious surface areas on I-80. The project's Total Disturbed Soil Area (DSA) for Alternative 1 for both Location 1 and Location 2 is approximately 16 acres, with Location 1 having 8 acres of DSA (see Figure 3, Pages 2-5) and Location 2 having 8 acres of DSA (see Figure 3, Pages 6-10). The project's DSA for Alternative 2 for both Location 1 and Location 2 is approximately 19 acres, with Location 1 having 8 acres of DSA (see Figure 3, Pages 2-5) and Location 2 having 11 acres of DSA (see Figure 3, Pages 6-10). The project's total increase of impervious surfaces is approximately 3 acres for Alternative 1, and 4 acres with Alternative 2.

Construction of the proposed project could potentially increase the volume of storm water runoff from the roadways surface that could enter the drainage system and eventually either Secret Ravine, Sucker Ravine, or Cirby Creek. Sucker Ravine is currently contained under I-80 through a culvert; however, the proposed project may tie in to existing drainage systems that connects to this waterway. The increased amount of storm water runoff will be determined during final design. Roadway runoff may contain oil, grease, petroleum products, zinc, copper, lead, cadmium, iron, or other trace metals, which could harm aquatic life. Concentrations of these pollutants in storm water runoff would be greatest during the "first flush" storm event, generally the first major rains of the season. Additional water quality impacts may result from sediment – laden storm water discharged into either Secret Ravine or Cirby Creek.

The project will have permanent or temporary impacts to Stream/Riparian habitats. The project will have approximately less than 0.01 acres of permanent affects and 0.01 acres of temporary impacts to Cirby Creek. The concrete lined Cirby Creek stream will be continued downstream approximately 15 feet beyond the edge of bridge with the inclusion of a riverbed cobbled low water fish passage.

Cirby Creek is not included in the RWQCB's list of impaired waters. Although there is the potential for a slight increase in polluted runoff due to increased impervious surfaces (that will be calculated during final design), the project impacts to water quality would be minimal.

The proposed project has a medium sediment risk and a high receiving water risk based on the Risk Determination Worksheet. As a result, the combined risk level for this project has been determined to be 2.

Project features adjacent to Sucker Ravine and Secret Ravine are not anticipated to change the biological characteristics of the aquatic environment. Project features over Cirby Creek would be an extension of the existing Linda Creek Bridge, while project features within Cirby Creek include extending the existing concrete lined channel with a low water fish passage approximately an additional 15 feet. The fish passage is anticipated to be extended in order to ensure scour does not occur within this segment of the channel. The biological characteristics of the aquatic environment at Cirby Creek are anticipated to remain relatively the same due to the minor changes to the channel. The channel will continue to allow potential fish passage and disturbance to riparian vegetation will be minimize. Changes to the habitat for fish and other aquatic organisms, fish passage, wildlife habitat, wildlife passage, endangered species, or invasive species are not anticipated as a result of the project. Avoidance and Minimization Measures WQ-1 and WQ-2 are anticipated to minimize change to the biological characteristics of the aquatic environment.

Given the characteristics of this transportation project, and the existing conditions of Sucker Ravine, Secret Ravine, and Cirby Creek, existing and potential water supplies, water conservation, recreation, navigation, and aesthetics are not likely to be negatively impacted as a result of the project.

Temporary Impacts

Construction activities associated with the project would include disturbances to the ground surface from earthwork, including grading and fill within Cirby Creek. Removal of some of the existing riparian vegetation would be required due to project construction, which could increase the potential for slope erosion. These activities could potentially increase the amount of sediments entering Cirby Creek. Runoff during the winter season is of greater concern due to the potential erosion of unprotected or graded surfaces during rain events. Sediments could potentially harm aquatic resources and water quality. However, standard BMPs would be included in the project under Avoidance and Minimization Measure WQ-1 to avoid or minimize the release of pollutants, including sediments and chemical toxins, into the environment during construction.

Materials used during construction of the project (e.g., concrete curing compounds) could have chemicals that are potentially harmful to aquatic resources and water quality. Accidents or improper use of these materials could result in the release of contaminants into the environment, including the creeks themselves. Additionally, oil and other petroleum products used to maintain and operate construction equipment could be accidentally released. However, standard BMPs would be included in the project to avoid or minimize the release of pollutants, including chemical toxins, into the environment during construction.

The project would be constructed in accordance with applicable water quality regulations and would not be expected to result in substantial water quality impacts during construction.

Construction activities associated with the project would include disturbances to the ground surface from earthwork, including grading and excavation for foundations. Materials used during construction of the project (e.g., concrete curing compounds) could have chemicals that are potentially harmful to water quality. Accidents or improper use of these materials could result in the release of contaminants into the environment, including the Sucker Ravine, Secret Ravine, and/or Cirby Creek itself. Such potential short-term impacts would be avoided and minimized through BMPs included in Avoidance and Minimization Measure WQ-1. Through implementation of Avoidance and Minimization Measure WQ-1, exposed soils would be stabilized and construction areas would be protected to prevent items from entering the waterway.

Given the characteristics of this transportation project, and the existing conditions of the Cirby Creek, the biological characteristics of the aquatic environment would be temporarily impacted during construction during extension of the Linda Creek Bridge and concrete lined channel with a low water fish passage. While aquatic habitat is present within Cirby Creek, special-status species would be addressed through measures noted in the Biological Resources section of this document.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Short term impacts to surface water quality could occur during construction of the project. Since a portion of the construction will take place within Cirby Creek, it is important that water features are protected from increases in sediment load, turbidity, and total dissolved solids generated during construction. While the proposed project would require a Section 1602 Streambed Alteration Agreement through the CDFW to ensure protection from impacts to the streambed, along with a Water Quality Certification (401) from the RWQCB and a Nationwide Permit for impacts to Waters of the U.S. (404) from the U.S. Army Corps of Engineers, the following measures are recommended for inclusion on applicable plans prepared for the project.

BMPs will be incorporated into project design and project management to minimize impacts on the environment including reduction of sedimentation and release of pollutants (oil, fuel, etc.). Examples of minimization efforts include the use of silt fencing, temporary energy dissipation facilities, and wattles. Implementation of BMPs will reduce the potential for impacts from occurring outside of the construction footprint. All BMPs and other measures will be prepared in consultation with the project proponent, the RWQCB, and other regulatory agencies.

WQ-1: The following measures will be implemented to ensure best management practices:

- The area of construction and disturbance would be limited to as small an area as feasible to reduce erosion and sedimentation.
- Measures would be implemented during land-disturbing activities to reduce erosion and sedimentation. These measures may include mulches, soil binders and erosion control blankets, silt fencing, fiber rolls, temporary berms, sediment de-silting basins, sediment traps, and check dams.
- Existing vegetation would be protected where feasible to reduce erosion and sedimentation. Vegetation would be preserved by installing temporary fencing, or other protection devices, around areas to be protected.

- Exposed soils would be covered by loose bulk materials or other materials to reduce erosion and runoff during rainfall events.
- Exposed soils would be stabilized, through watering or other measures, to prevent the movement of dust at the project site caused by wind and construction activities such as traffic and grading activities.
- All construction roadway areas would be properly protected to prevent excess erosion, sedimentation, and water pollution.
- All vehicle and equipment maintenance procedures would be conducted off-site. In the event of an emergency, maintenance would occur away from Cirby Creek.
- All concrete curing activities would be conducted to minimize spray drift and prevent curing compounds from entering the waterway directly or indirectly.
- All construction materials, vehicles, stockpiles, and staging areas would be situated outside of the stream channel as feasible. All stockpiles would be covered, as feasible.
- Energy dissipaters and erosion control pads would be provided at the bottom of slope drains. Other flow conveyance control mechanisms may include earth dikes, swales, or ditches. Stream bank stabilization measures would also be implemented.
- All erosion control measures and storm water control measures would be properly maintained until the site has returned to a pre-construction state.
- All disturbed areas would be restored to pre-construction contours and revegetated, either through hydroseeding or other means, with native or approved non-invasive exotic species.
- All construction materials would be hauled off-site after completion of construction.

WQ-2: Any requirements for additional avoidance, minimization, and/or mitigation measures will be identified in the permits obtained from all required regulatory agencies.

WQ-3: The proposed project would require a National Pollution Discharge Elimination System (NPDES) General Construction Permit for Discharges of storm water associated with construction activities (Construction General Permit 2012-0006-DWQ). A Storm Water Pollution Prevention Plan (SWPPP) would also be developed and implemented as part of the Construction General Permit.

WQ-4: The construction contractor shall adhere to the SWRCB Order No. 2012-0006-DWQ NPDES Permit pursuant to Section 402 of the CWA. This permit authorizes storm water and authorized non-storm water discharges from construction activities. As part of this Permit requirement, a SWPPP shall be prepared prior to construction consistent with the requirements of the RWQCB. This SWPPP will incorporate all applicable BMPs to ensure that adequate measures are taken during construction to minimize impacts to water quality.

WQ-5: Post-construction storm water control requirements will be addressed in accordance with Caltrans' MS4 permit for areas within Caltrans right-of-way. Permanent treatment control BMPs will be evaluated based on effectiveness and feasibility and incorporated into the final design as applicable.

2.9 LAND USE AND PLANNING

AFFECTED ENVIRONMENT

According to the City of Rocklin General Plan, Location 1 of the project area is zoned for residential single family, planned development residential, pre-zoned planned development residential, and planned development commercial. According to the City of Roseville General Plan, Location 2 of the project area is zoned for low density residential, medium density residential, open space, community commercial, and business professional. No agricultural lands are located within or adjacent to the proposed project.

The proposed project is consistent with the general plans from Placer County, City of Roseville, and the City of Rocklin. Alternative 1 and Alternative 2 of the project are included within SACOG MTP and MTIP. Implementation of the proposed project would not conflict with any applicable state, regional, or local plans.

Additionally, the project site is not located within a Habitat Conservation Plan area.

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

The project would not divide an established community. Residential neighborhoods are located to the south and north of the project site and adding an auxiliary lane or through lane to the interstate will not change access to these communities.

The project would not conflict with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigation of an environmental effect.

The proposed project would accommodate traffic associated with planned land uses. The project is needed to improve safety and reduce congestion during high traffic flow.

The project would not conflict with habitat conservation plans or natural community conservation plans. There are currently no habitat conservation plans or natural community conservation plans in this area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No avoidance, minimization, and/or mitigation measures are proposed.

2.10 NOISE

REGULATORY SETTING

CEQA, along with local regulations and standards, provide the broad basis for analyzing and abating traffic noise and vibration effects. The intent of these laws is to promote the general welfare and to foster a healthy environment.

There are no Federal Highway Administration (FHWA) or State standards for vibration impacts.

The traditional view has been that highway traffic and most construction vibrations pose no threat to buildings and structures, and that annoyance to people is similar to typical noise issues experienced from living near highways.

The following information was taken from the Placer I-80 Auxiliary Lanes Noise Study Report (2015).

CALIFORNIA ENVIRONMENTAL QUALITY ACT

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

A substantial increase in noise would be considered to occur when the project's predicted worst-hour design year noise level exceeds the existing worst-hour noise level by 12 dBA or more. The use of 12 dB was established in California many years ago and is based on the concept that a 10 dB increase generally is perceived as a doubling of loudness. A collective decision by Caltrans staff, which was approved by FHWA, was made to use 12 dB. In general, a 3 dBA difference is generally the point at which the human ear will perceive a difference in noise level.

AFFECTED ENVIRONMENT

Noise

The noise environment near the proposed project is dominated by traffic sources. Background noise levels are influenced by I-80 surrounded by residential and commercial uses.

One (1) long-term location and eight (8) short-term locations were identified within the proposed project area and noise measurements were taken from these locations. A total of fifty-six (56) receiver locations with outdoor frequent human use areas were evaluated for the proposed project to determine the existing peak noise levels. Existing peak hour traffic data from the Placer I-80 Auxiliary Lanes Transportation Analysis Report (2015) was entered into Traffic Noise Model (TNM) 2.5, a program used to determine noise volumes, with existing roadway coordinates to estimate existing peak hour traffic noise levels. The measured noise levels from the short-term receivers were used to calibrate the TNM 2.5 results to more accurately predict existing peak noise levels. Existing noise levels during the noisiest hour range at sensitive receivers range from 58 to 69 dBA L_{eq}(h) (see Table 13 below)

Table 13. Summary of Modeled Existing Peak Hour Noise Levels

Receiver ID	Location	Type of Land Use	Number of Dwelling Units	Measured Noise Level, dBA L_{eq}	Modeled Existing Peak Noise Level, dBA L_{eq}(h)
WB-1	300 Cirby Hills Drive	MFR	6	--	66
WB-2/ST1	300 Cirby Hills Drive	MFR	4	66	69
WB-3/ST2/LT1	812 Jo Anne Lane	SFR	1	62	64
WB-4	810 Jo Anne Lane	SFR	1	--	63
WB-5	808 Jo Anne Lane	SFR	1	--	63
WB-6	806 Jo Anne Lane	SFR	1	--	61

Table 13. Summary of Modeled Existing Peak Hour Noise Levels

Receiver ID	Location	Type of Land Use	Number of Dwelling Units	Measured Noise Level, dBA L_{eq}	Modeled Existing Peak Noise Level, dBA $L_{eq}(h)$
WB-7	804 Jo Anne Lane	SFR	1	--	60
WB-8	802 Jo Anne Lane	SFR	1	--	61
WB-9	737 Jo Anne Lane	SFR	1	--	64
WB-10/ST3	735 Jo Anne Lane	SFR	1	59.9	62
WB-11	733 Jo Anne Lane	SFR	1	--	62
WB-12	731 Jo Anne Lane	SFR	1	--	62
WB-13	729 Jo Anne Lane	SFR	1	--	61
WB-14	814 Darling Way	SCHL	1	--	62
WB-15	814 Darling Way	SCHL	1	--	62
WB-16	814 Darling Way	SCHL	1	--	63
WB-17	814 Darling Way	SCHL	1	--	64
WB-18	1007 Darling Way	SFR	1	--	64
WB-19	1010 Linier Court	SFR	1	--	59
WB-20	1014 Linier Court	SFR	1	--	61
WB-21/ST4	1017 Linier Court	SFR	--	60.3	63
WB-22	1017 Linier Court	SFR	1	--	62
WB-23	1018 Azure Court	SFR	1	--	63
WB-24	1020 Azure Court	SFR	1	--	63
WB-25	1025 Azure Court	SFR	1	--	64
WB-26	1026 Colnar Street	SFR	1	--	63
WB-27	1031 Colnar Street	SFR	1	--	62
WB-28	410 Lemar Street	SFR	2	--	63
WB-29	407 Lemar Drive	SFR	1	--	64
WB-30/ST5	405 Lemar Drive	SFR	2	59.4	63
WB-31	1104 Hillcrest Avenue	SFR	1	--	63
WB-32	1106 Hillcrest Avenue	SFR	1	--	63
WB-33	1111 Hillcrest Avenue	SFR	1	--	63
WB-34	1112 Melrose Avenue	SFR	2	--	62
WB-35	1114 Melrose Avenue	SFR	1	--	62
WB-36	1116 Melrose Avenue	SFR	1	--	63
WB-37	313 Marian Way	SFR	1	--	63
WB-38	311 Marian Way	SFR	1	--	67
WB-39	309 Marian Way	SFR	1	--	65
EB-1	4050 Creek view Court	SFR	1	--	59
EB-2	4040 Creek view Court	SFR	1	--	60
EB-3	4030 Creek view Court	SFR	1	--	63
EB-4	4020 Creek view Court	SFR	1	--	66
EB-5/ST6	4010 Creek view Court	SFR	1	64.9	66

Table 13. Summary of Modeled Existing Peak Hour Noise Levels

Receiver ID	Location	Type of Land Use	Number of Dwelling Units	Measured Noise Level, dBA L_{eq}	Modeled Existing Peak Noise Level, dBA $L_{eq}(h)$
EB-6	6375 Rustic Hills Drive	SFR	1	--	65
EB-7	6385 Rustic Hills Drive	SFR	1	--	67
EB-8	6395 Rustic Hills Drive	SFR	1	--	65
EB-9/ST7	6390 Rustic Hills Drive	SFR	1	53.8	57
EB-10	6000 Rustic Hills Drive	SFR	1	--	61
EB-11	4105 Pine crest Court	SFR	1	--	58
EB-12	4115 Pine crest Court	SFR	1	--	62
EB-13	4125 Pine crest Court	SFR	1	--	62
EB-14/ST8[1]	5880 China Garden Road	--	1	73.3	73
EB-15	5880 China Garden Road	SFR	1	--	63
EB-16	5745 Keller Court	SFR	1	--	63
EB-17	5765 Keller Court	SFR	1	--	62

Source: Entech Consulting Group, November 2014
Notes: -- denotes a short-term noise measurement was not taken at this receiver location.
[1] Receiver location is only for model validation. Location is not representative of an area of frequent human use.
MFR – Multi-family residence, SFR – single family residence, SCHL - school

Receivers WB-1 through WB-2 represent the Windscape Apartment complex located near Cirby Hills Drive on the westbound side of I-80. These receivers are not shielded by an existing sound wall. WB-3 through WB-13 represent single family residences along Jo Anne Lane. These receivers are shielded by an existing edge of shoulder sound wall, EX-W1 at a height of 10 feet. Further, an elementary school, George Cirby Elementary school is located in the proposed project area, represented by receivers WB-14 through WB-16. Another existing 14 foot sound wall, EX-W2, located on the right of way of I-80 partially overlaps EX-W1. Additional sensitive receivers, WB-17 through WB-39 were identified northeast of the elementary school along I-80. These receivers represent single family residences along I-80. Receivers WB-38 and WB-39 are partially shielded by an existing 14 foot sound wall, EX-W2, located on the I-80 right of way. All of the westbound receivers are located within the City of Roseville and the dominant noise source is I-80.

Receivers EB-1 through EB-13 represent single family residences located near the China Garden Road, a frontage road on the eastbound side of I-80 where the noise from I-80 is the dominant noise source. EB-9 through EB-13 are shielded by an existing 16 foot sound wall, EX-E1, located along the I-80 right of way. Receivers EB-14 through EB-17 represent four single-family residences located near Keller Court. These four receivers are not shielded by an existing barrier. The dominant noise source for these receivers is traffic traveling on I-80. All of the eastbound receivers are located within the City of Rocklin.

See Figure 10 below for locations of receivers and existing sound barrier locations.

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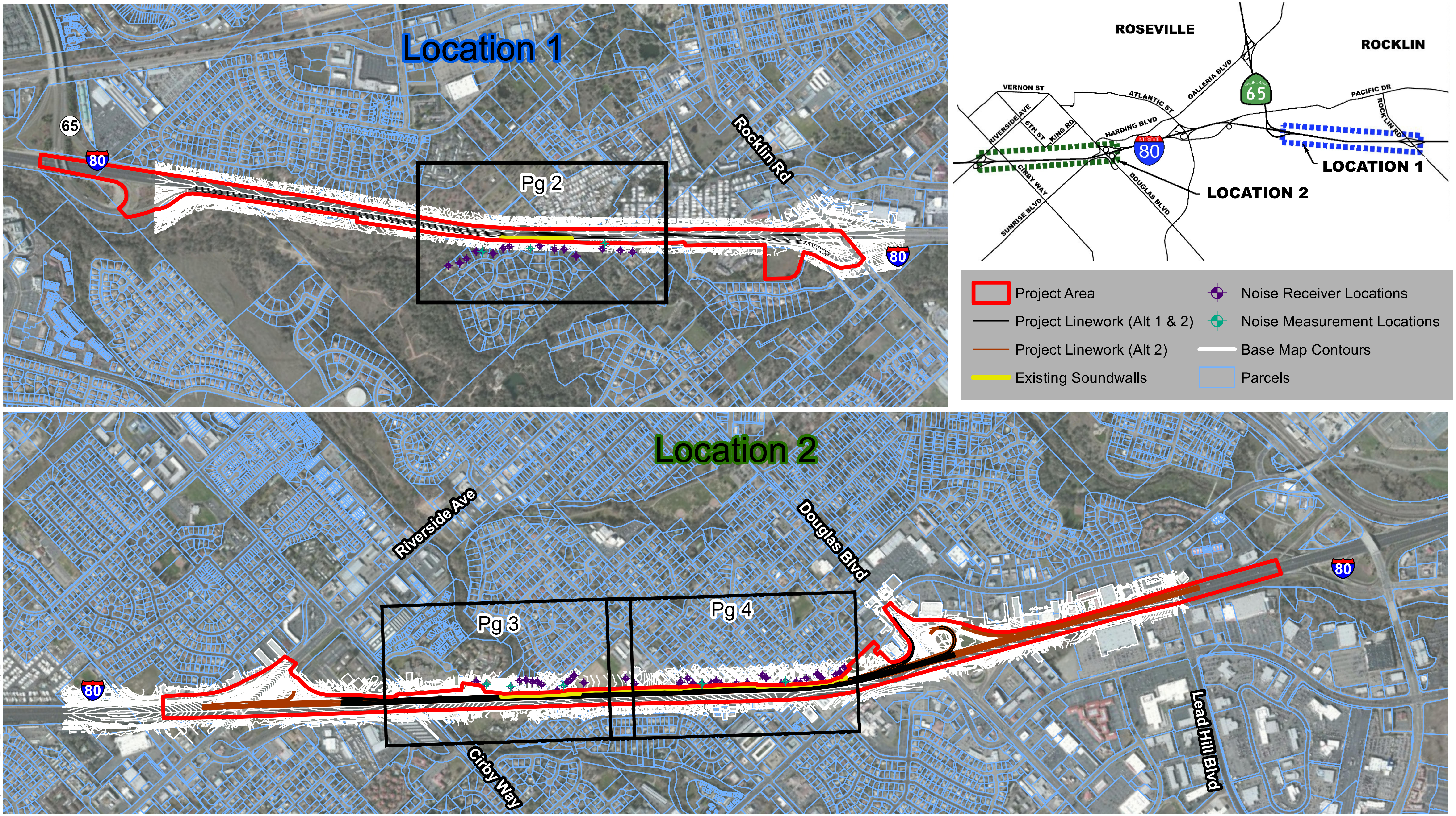

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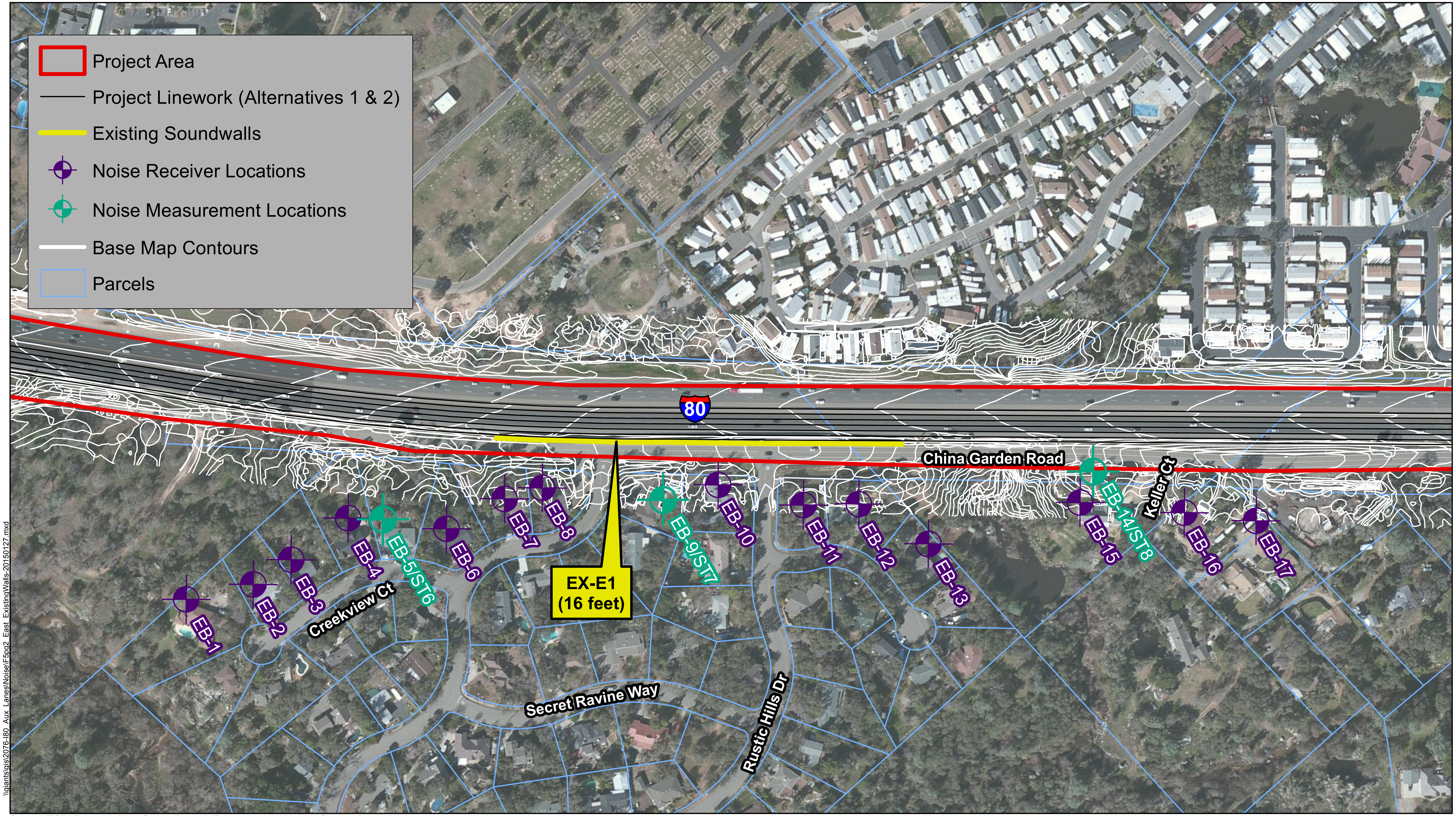
Source: ESRI February 2012 Online; Dokken Engineering 2/3/2015; Created By: zachl

0 1,000 2,000 3,000 4,000 Feet

Figure 10
Page 1 of 4
Existing Soundwalls and Receiver Locations
EA-03F230
I-80 Auxiliary Lanes Project
Placer County, California



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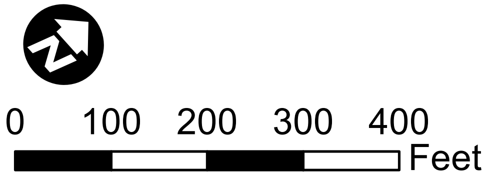


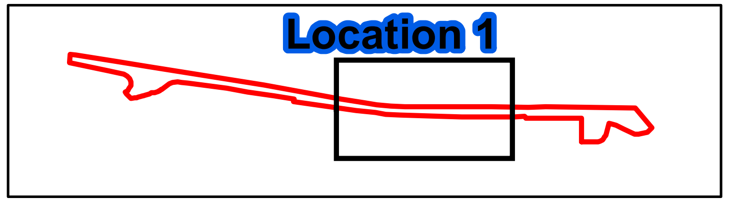
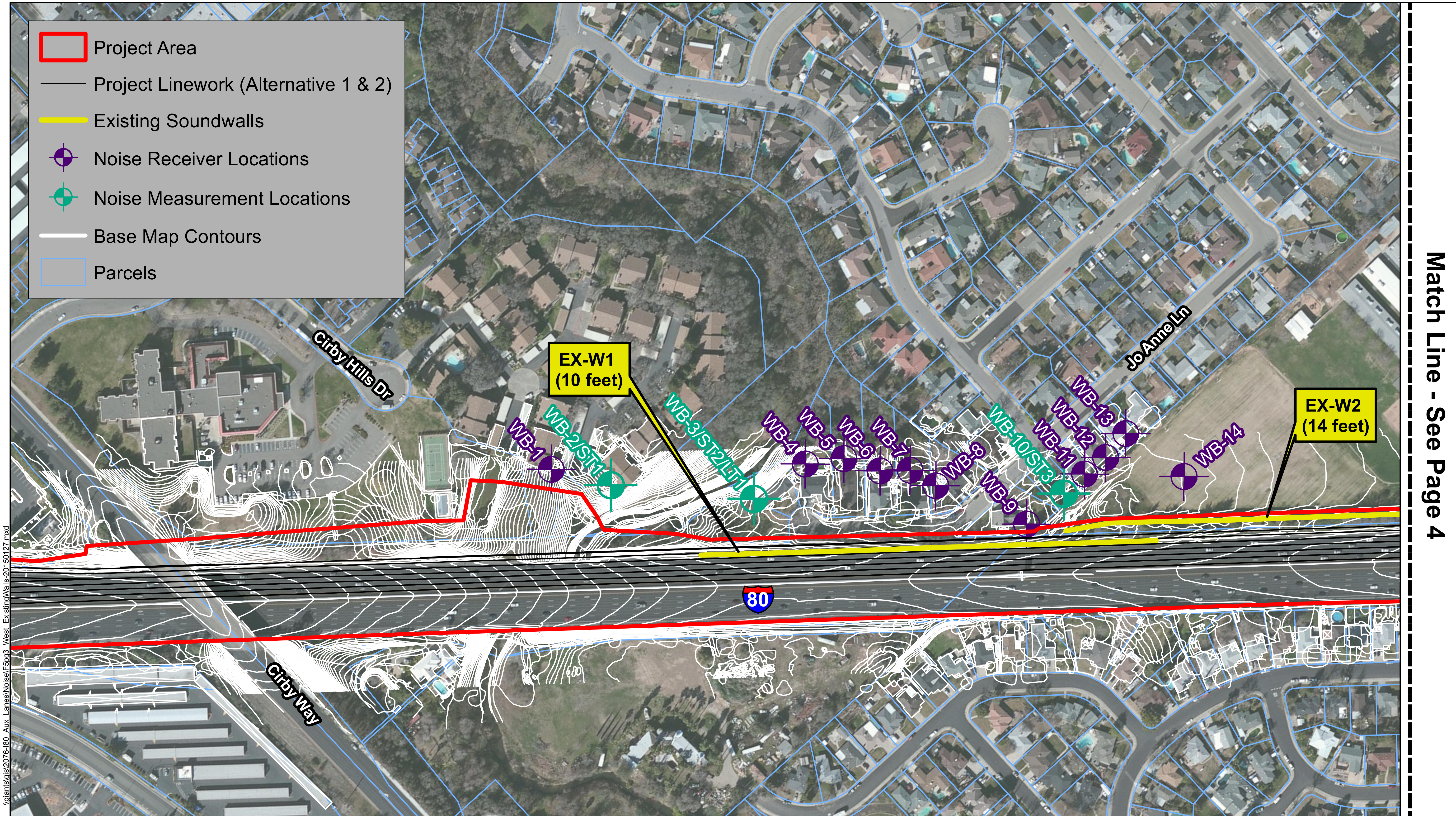


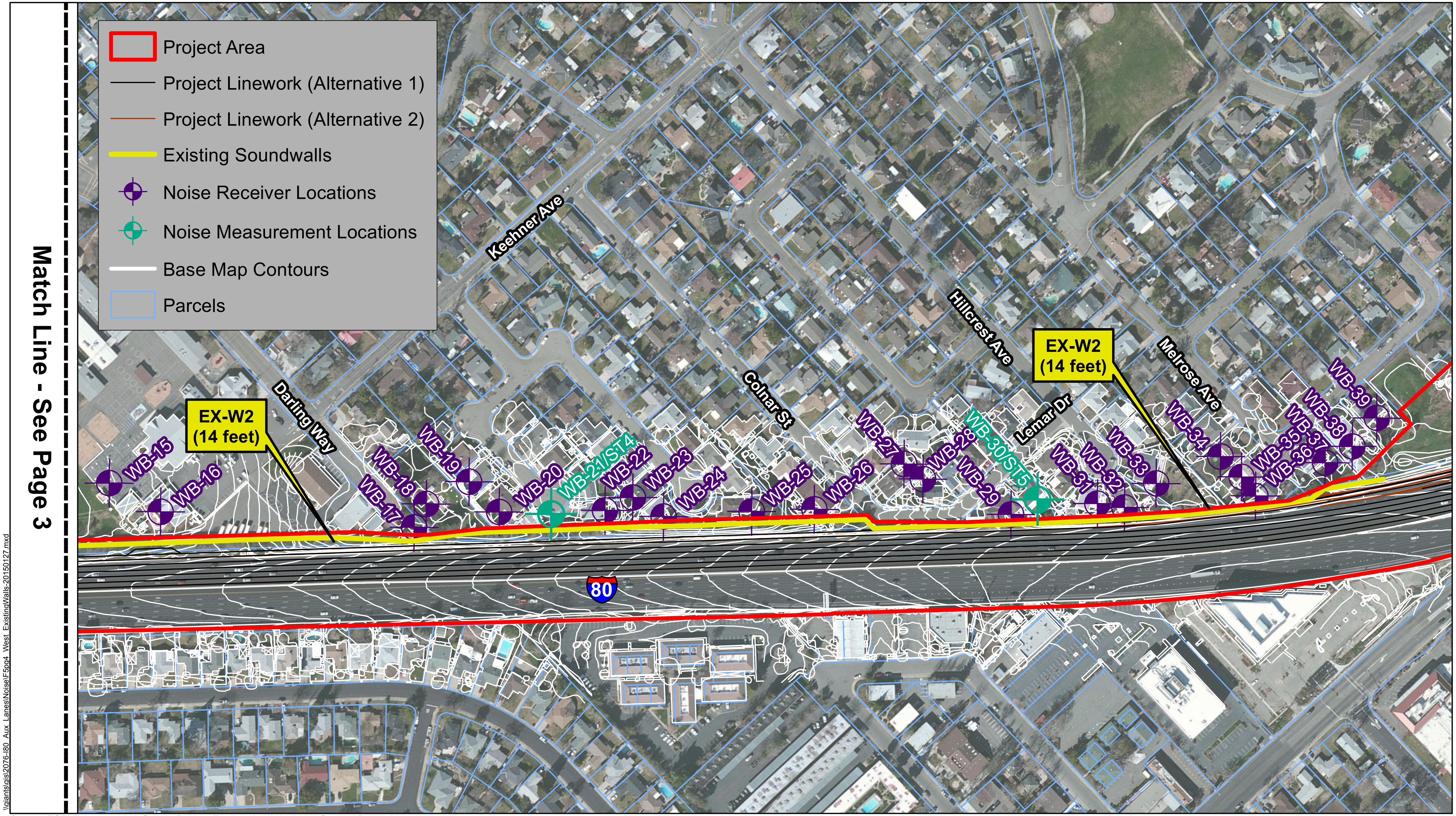
Figure 10
Page 2 of 4
Existing Soundwalls and Receiver Locations
EA-03F230
I-80 Auxiliary Lanes Project (Eastbound)
Placer County, California



Source: ESRI February 2012 Online; Dokken Engineering 2/3/2015; Created By: zachl

0 100 200 300 400
Feet

Figure 10
Page 3 of 4
Existing Soundwalls and Receiver Locations
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California



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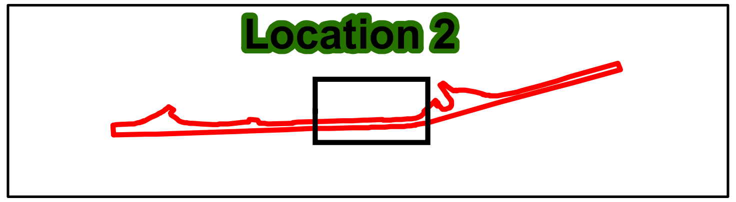

Figure 10
Page 4 of 4
Existing Soundwalls and Receiver Locations
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California

Vibration

There are three types of transportation-related earth-borne vibration sources: normal highway traffic, light and heavy rail operations, and construction equipment and operations. Of the three transportation vibration sources listed above, construction vibrations are of greatest concern because of the nature of the sound waves produced and the potential for greater impacts. Construction equipment and operations on large jobs such as this one usually entail pile driving, excavation, and paving operations, which generate construction vibrations.

Even so, ground vibrations from construction activities do not often reach the levels that can damage structures, but they can achieve the audible and perceptible (i.e., "feelable") ranges in buildings very close to the site. Pile driving has potential impacts to buildings at distances of less than 100 feet from the vibration source.

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

The design year traffic noise modeling results from the project range from 59 to 71 dBA Leq(h) taken from the Noise Study Report (2015). The traffic noise modeling results for the design year No-Build Alternative range from 58 to 69 dBA L_{eq}(h)

Noise levels from Existing to the Build Alternative conditions are expected to increase by up to 5 dB (see Table 14: Predicted Future Noise Levels). Noise levels from Existing to No-Build conditions are expected to increase by up to 2 dB. The increase in noise levels from the Existing to Build Alternative conditions is due to the proposed improvements which bring traffic closer to nearby receivers and results in increased noise levels. The increase in noise levels from the Existing to No-Build conditions is due to the increases in traffic volumes from Existing to No-Build conditions. These noise level increases do not exceed the CEQA thresholds of significance; however, noise barriers were evaluated to reduce the overall volumes for residents along I-80 where volumes were near or exceeding 67 dBA L_{eq} in the design year.

Sound Barrier Locations

Two sound barriers are anticipated be included as parts of the project's features to further reduce volumes for residents adjacent to the proposed project (see Figure 11: Sound Barrier Locations). Any sound barriers required to be removed to accommodate the proposed project will be replaced in-kind at the new edge of the shoulder. The two sound barriers anticipated to be included as parts of the project's features are described below:

Sound Barrier SW-W1: SW-W1 will reduce the sound volumes for receivers WB-1 and WB-2, which represent the Windscape Apartment complex, a multifamily residential community, located on the westbound side of I-80. The addition of the westbound auxiliary lane or 5th lane addition will remove the existing 10 foot edge of shoulder sound wall and bring traffic closer to receivers WB-1 and WB-2 causing noise levels to exceed 67 dBA L_{eq}. The existing 10 foot sound wall will be replaced in-kind at the edge of the shoulder along I-80. SW-W1 will begin at the replaced in-kind soundwall and was evaluated at a height of 12 feet on the edge of shoulder along I-80 to shield receivers WB-1 and WB-2 (see Figure 11: Sound Barrier Locations). SW-W1 was found to be effective in reducing overall volumes for these residents. The sound wall at this height is also able to break the line of sight of an 11.5 foot truck stack.

Sound Barrier SW-E1: SW-E1 will reduce the sound volumes for receivers EB-4 through EB-8, which represent single family homes located along Creekview Court located on the eastbound side of I-80. Currently, there is an existing 16 feet wall along the I-80 right of way that partially shields receivers EB-7 and EB-8 (see Figure 11: Sound Barrier Locations). The proposed eastbound auxiliary lane addition will bring traffic closer to receivers EB-4 through EB-5 causing noise levels to exceed 67 dBA L_{eq}. Alternatives 1 and 2 share the same design year noise levels. SW-E1 was evaluated adjacent to the existing 16 foot sound wall at a height of 16 feet and was found to be effective in reducing overall volumes for these residents. The sound wall at this height is also able to break the line of sight of an 11.5 foot truck stack.

Table 14. Predicted Future Noise Levels

Receiver I.D.[1]	Barrier I.D.	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA	I-80 Auxiliary Lanes Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA																							
						Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																	
												6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
												$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR	$L_{eq}(h)$	I.L.[3]	NBR
EB1	--	1	SFR	4050 Creekview Court	59	60	61	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB2		1	SFR	4040 Creekview Court	60	61	63	1	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB3		1	SFR	4030 Creekview Court	63	64	65	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB4	SW-E1 Right of Way	1	SFR	4020 Creekview Court	66	67	68	1	1	B (67)	A/E	66	2	0	65	3	0	64	4	0	63	5	1	63	5	1	61 [T]	7	1
EB5/ST6		1	SFR	4010 Creekview Court	66	67	68	1	1	B (67)	A/E	66	2	0	65	3	0	64	4	0	63	5	1	62	6	1	61 [T]	7	1
EB6		1	SFR	6375 Rustic Hills Drive	65	66	67	1	1	B (67)	A/E	66	1	0	64	3	0	63	4	0	63	4	0	61	6	1	60 [T]	7	1
EB7		1	SFR	6385 Rustic Hills Drive	67	68	69	1	1	B (67)	A/E	67	2	0	67	2	0	65	4	0	64	5	1	63	6	1	63 [T]	6	1
EB8		1	SFR	6395 Rustic Hills Drive	65	66	67	1	1	B (67)	A/E	66	1	0	65	2	0	63	4	0	63	4	0	62	5	1	61 [T]	6	1
EB9/ST7 [W]	--	1	SFR	6390 Rustic Hills Drive	57	58	59	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB10 [W]		1	SFR	6000 Rustic Hills Drive	61	62	62	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB11 [W]		1	SFR	4105 Pinecrest Court	58	59	60	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB12 [W]		1	SFR	4115 Pinecrest Court	62	63	64	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB13		1	SFR	4125 Pinecrest Court	62	63	65	1	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB14/ST8		--	--	5880 China Garden Road	73	74	75	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB15		1	SFR	5880 China Garden Road	63	64	65	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB16		1	SFR	5745 Keller Court	63	64	65	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EB17		1	SFR	5765 Keller Court	62	64	64	2	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
1. Receivers EB14/ST8 was chosen for monitoring purposes and was not located at an outdoor use area; however, this site is representative of nearby outdoor use areas.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC).
3. I.L. = Insertion Loss
4. '-- A barrier was not analyzed for this receiver.
5. SFR = Single Family Residence
6. T - Minimum height required to block the line-of-sight from the receiver to truck exhaust stacks.
7. W - Includes the benefit of an existing soundwall.

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Table 14. Predicted Future Noise Levels

Receiver I.D.[1]	Barrier I.D.	Number of Dwelling Units	Land Use	Address	Existing Noise Level $L_{eq}(h)$, dBA	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	6 feet $L_{eq}(h)$	6 feet I.L.[3]	6 feet NBR	8 feet $L_{eq}(h)$	8 feet I.L.[3]	8 feet NBR	10 feet $L_{eq}(h)$	10 feet I.L.[3]	10 feet NBR	12 feet $L_{eq}(h)$	12 feet I.L.[3]	12 feet NBR	14 feet $L_{eq}(h)$	14 feet I.L.[3]	14 feet NBR	16 feet $L_{eq}(h)$	16 feet I.L.[3]	16 feet NBR
						I-80 Auxiliary Lanes Future Worst Hour Noise Levels - $L_{eq}(h)$, dBA						Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																	
WB1	SW-W1 & EX - SW1 Shoulder	6	MFR	300 Cirby Hills Drive	66	66	69	0	3	B (67)	A/E	65	4	0	64	5	6	64	5	6	62 [T]	7	6	62	7	6	-- [6]	--	--
WB2/ST1		4	MFR	300 Cirby Hills Drive	69	69	71	0	2	B (67)	A/E	68	3	0	67	4	0	67	4	0	65 [T]	6	4	64	7	4	-- [6]	--	--
WB3/ST2 [W]	--	1	SFR	812 Jo Anne Lane	64	64	65	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB4 [W]		1	SFR	810 Jo Anne Lane	63	64	65	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB5 [W]		1	SFR	808 Jo Anne Lane	63	63	64	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB6 [W]		1	SFR	806 Jo Anne Lane	61	61	63	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB7 [W]		1	SFR	804 Jo Anne Lane	60	61	63	1	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB8 [W]		1	SFR	802 Jo Anne Lane	61	61	63	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB9 [W]		1	SFR	737 Jo Anne Lane	64	64	65	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB10/ST3 [W]		1	SFR	735 Jo Anne Lane	62	62	64	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB11 [W]		1	SFR	733 Jo Anne Lane	62	62	64	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB12 [W]		1	SFR	731 Jo Anne Lane	62	62	63	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB13 [W]		1	SFR	729 Jo Anne Lane	61	61	62	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB14 [W]		1	SCH	814 Darling Way	62	62	63	0	1	C (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB15 [W]		1	SCH	814 Darling Way	62	63	63	1	0	C (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB16 [W]		1	SCH	814 Darling Way	63	63	64	0	1	C (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB17 [W]		1	SCH	814 Darling Way	64	64	65	0	1	C (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB18 [W]		1	SFR	1007 Darling Way	64	64	64	0	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB19 [W]		1	SFR	1010 Linier Court	59	59	60	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB20 [W]		1	SFR	1014 Linier Court	61	62	62	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

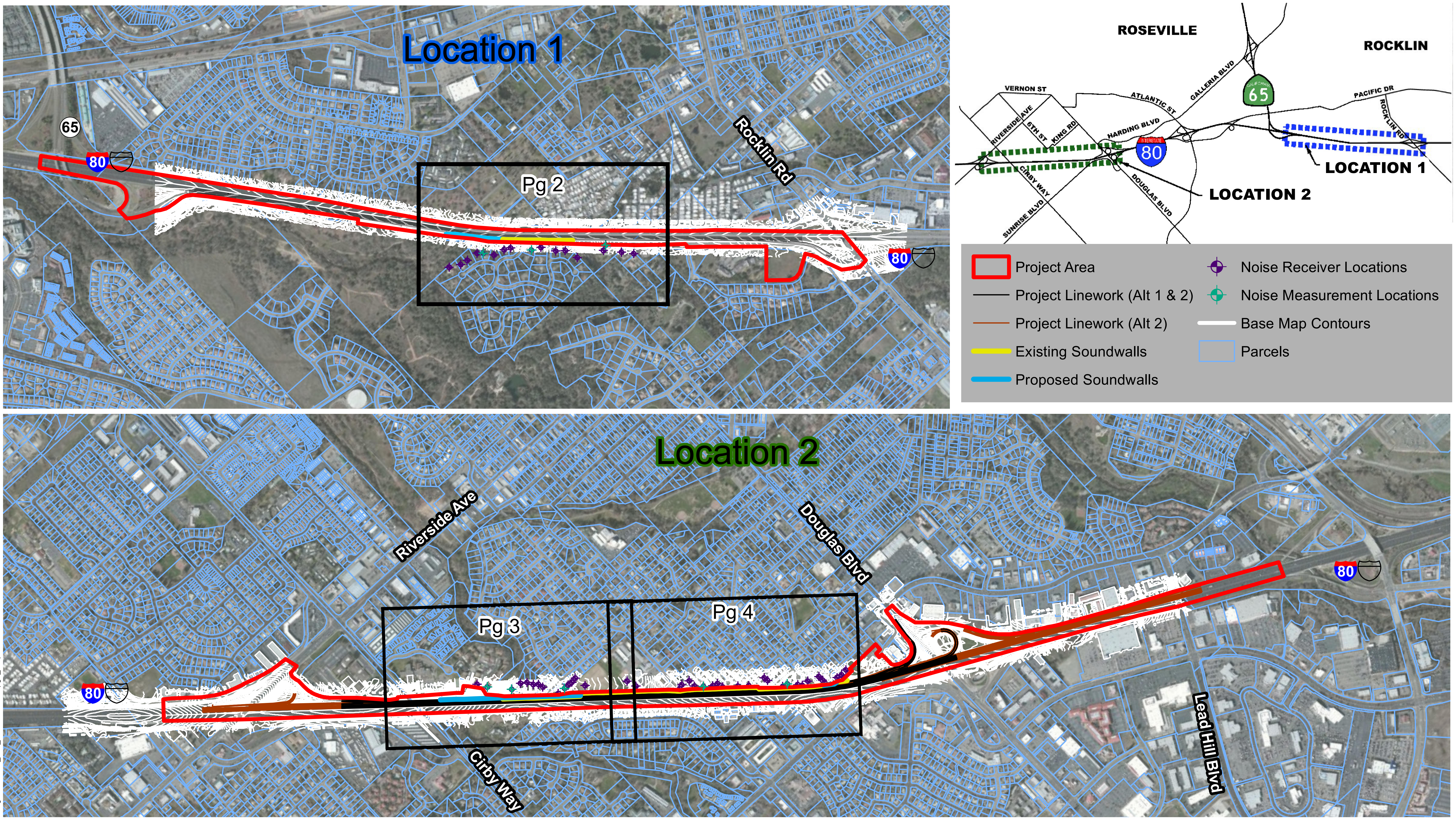
Notes:
1. Receivers EB21/ST4 was chosen for monitoring purposes and was not located at an outdoor use area; however, this site is representative of nearby outdoor use areas.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC).
3. I.L. = Insertion Loss
4. '-- A barrier was not analyzed for this receiver.
5. SFR = Single Family Residence, SCH = School
6. Per the Highway Design Manual, the maximum height of a noise barrier should not exceed 14 feet in height when located 15 feet or less from edge of traveled way.
7. T - Minimum height required to block the line-of-sight from the receiver to truck exhaust stacks.
8. W - Includes the benefit of an existing soundwall.

Table 14. Predicted Future Noise Levels

					I-80 Auxiliary Lanes Future Worst Hour Noise Levels - L_{eq}(h), dBA																								
Receiver I.D.[1]	Barrier I.D.	Number of Dwelling Units	Land Use	Address	Existing Noise Level L_{eq}(h), dBA	Design Year Noise Level without Project	Design Year Noise Level with Project	Design Year Noise Level without Project minus Existing Conditions	Design Year Noise Level with Project minus No Project Conditions	Activity Category (NAC)	Impact Type[2]	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receivers (NBR)																	
												6 feet			8 feet			10 feet			12 feet			14 feet			16 feet		
												L_{eq}(h)	I.L.[3]	NBR	L_{eq}(h)	I.L.[3]	NBR	L_{eq}(h)	I.L.[3]	NBR	L_{eq}(h)	I.L.[3]	NBR	L_{eq}(h)	I.L.[3]	NBR	L_{eq}(h)	I.L.[3]	NBR
WB21/ST4 [W]	--	--	--	1017 Linier Court	63	63	64	0	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB22 [W]		1	SFR	1017 Linier Court	62	63	63	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB23 [W]		1	SFR	1018 Azuure Court	63	63	64	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB24 [W]		1	SFR	1020 Azure Court	63	64	65	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB25 [W]		1	SFR	1025 Azure Court	64	64	65	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB26 [W]		1	SFR	1026 Colnar Street	63	64	65	1	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB27 [W]		1	SFR	1031 Colnar Street	62	63	63	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB28 [W]		2	SFR	410 Lemar Street	63	63	64	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB29 [W]		1	SFR	407 Lemar Drive	64	64	65	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB30/ST5 [W]		2	SFR	405 Lemar Drive	63	64	64	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB31 [W]		1	SFR	1104 Hillcrest Avenue	63	63	63	0	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB32 [W]		1	SFR	1106 hHillcrest Avenue	63	63	64	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB33 [W]		1	SFR	1111 Hillcrest Avenue	63	63	63	0	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB34 [W]		2	SFR	1112 Melrose Avenue	62	62	62	0	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB35 [W]		1	SFR	1114 Melrose Avenue	62	62	63	0	1	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB36 [W]		1	SFR	1116 Melrose Avenuve	63	63	65	0	2	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB37 [W]		1	SFR	313 Marian Way	63	64	64	1	0	B (67)	None	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WB38	SW-W2 & EX-SW2 Right-of-Way	1	SFR	311 Marian Way	67	67	69	0	2	B (67)	A/E	68	1	0	68	1	0	67	2	0	66	3	0	65	4	0	64 [T]	5	1
WB39		1	SFR	309 Marian Way	65	66	67	1	1	B (67)	A/E	67	0	0	66	1	0	66	1	0	65	2	0	64	3	0	62 [T]	5	1

Notes:

1. Receivers EB21/ST4 was chosen for monitoring purposes and was not located at an outdoor use area; however, this site is representative of nearby outdoor use areas.
2. Impact types: A/E - Future noise conditions approach (within 1 dBA) or exceed the Noise Abatement Criteria (NAC).
3. I.L. = Insertion Loss
4. '-- A barrier was not analyzed for this receiver.
5. SFR = Single Family Residence, SCH = School
6. Per the Highway Design Manual, the maximum height of a noise barrier should not exceed 14 feet in height when located 15 feet or less from edge of traveled way.
7. T - Minimum height required to block the line-of-sight from the receiver to truck exhaust stacks.
8. W - Includes the benefit of an existing soundwall.

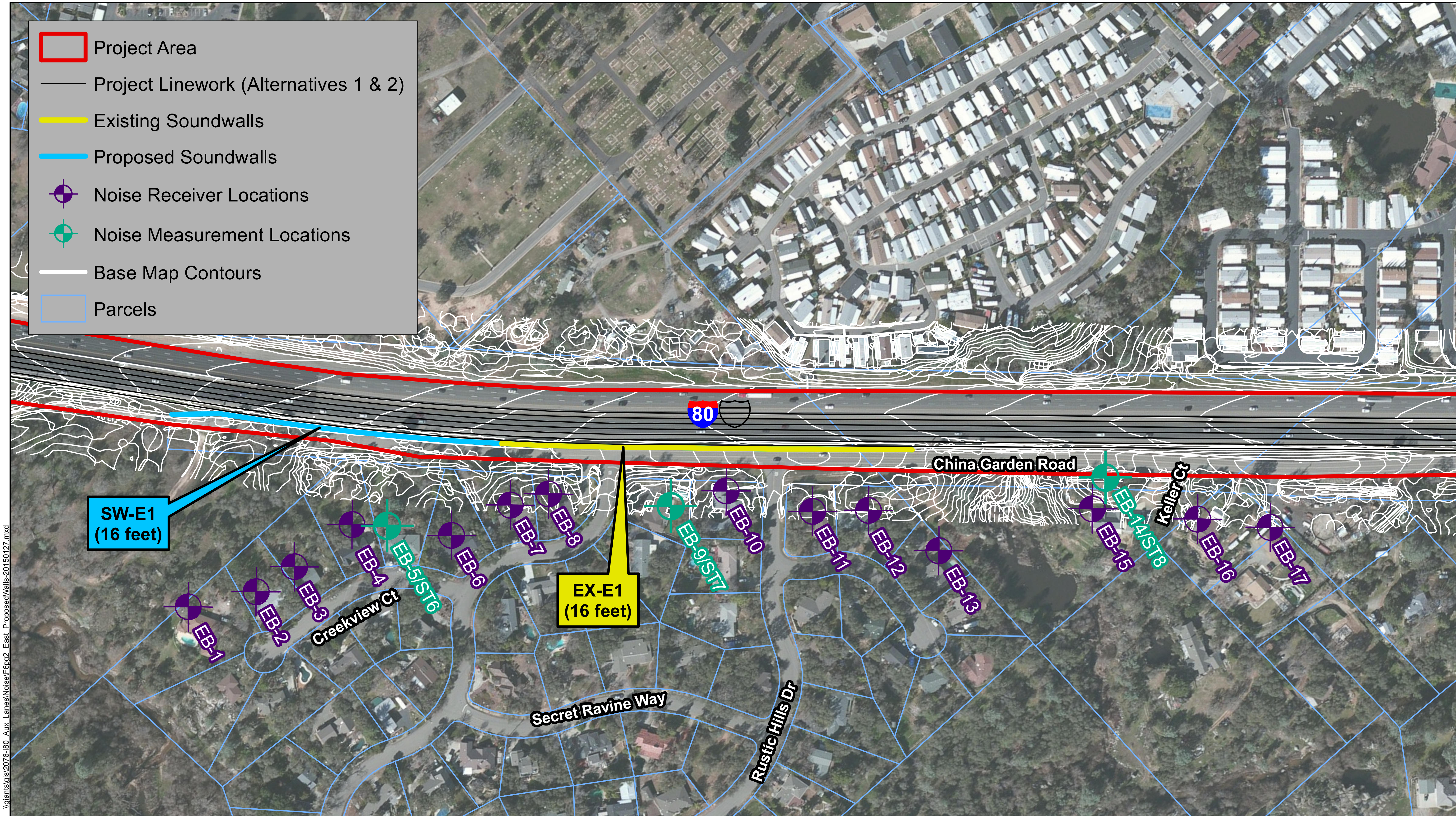


\\giants\gis\2076-I80_Aux_Lanes\Noise\F6pg1_ProposedWalls-20150128.mxd

Source: ESRI February 2012 Online; Dokken Engineering 2/3/2015; Created By: zachl

0 1,000 2,000 3,000 4,000 Feet

Figure 11
Page 1 of 4
Sound Barrier Locations
EA-03F230
I-80 Auxiliary Lanes Project
Placer County, California



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Source: ESRI February 2012 Online; Dokken Engineering 2/26/2015; Created By: zachl

0 100 200 300 400
Feet

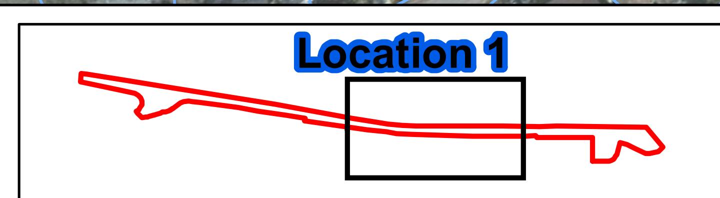
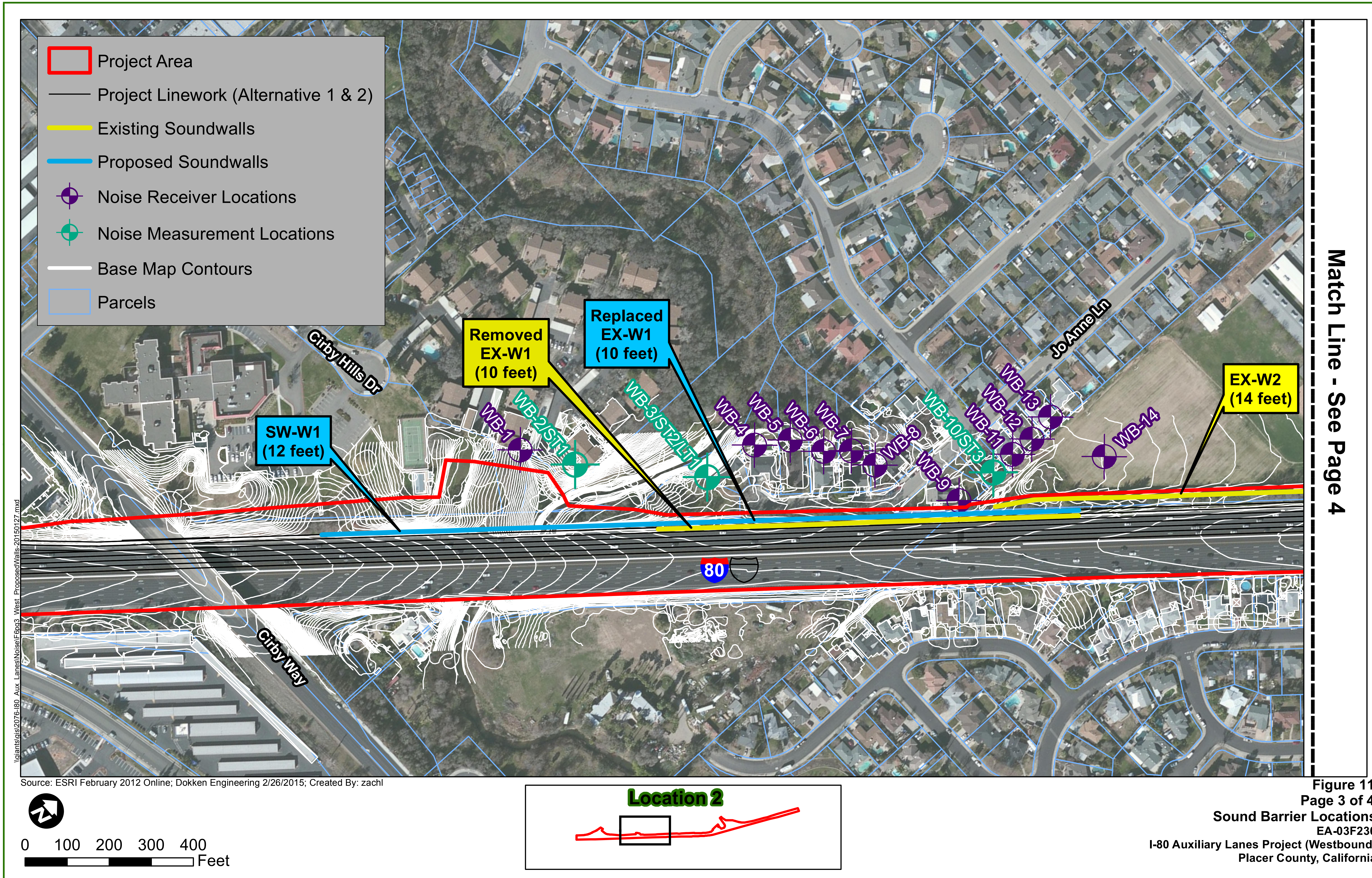
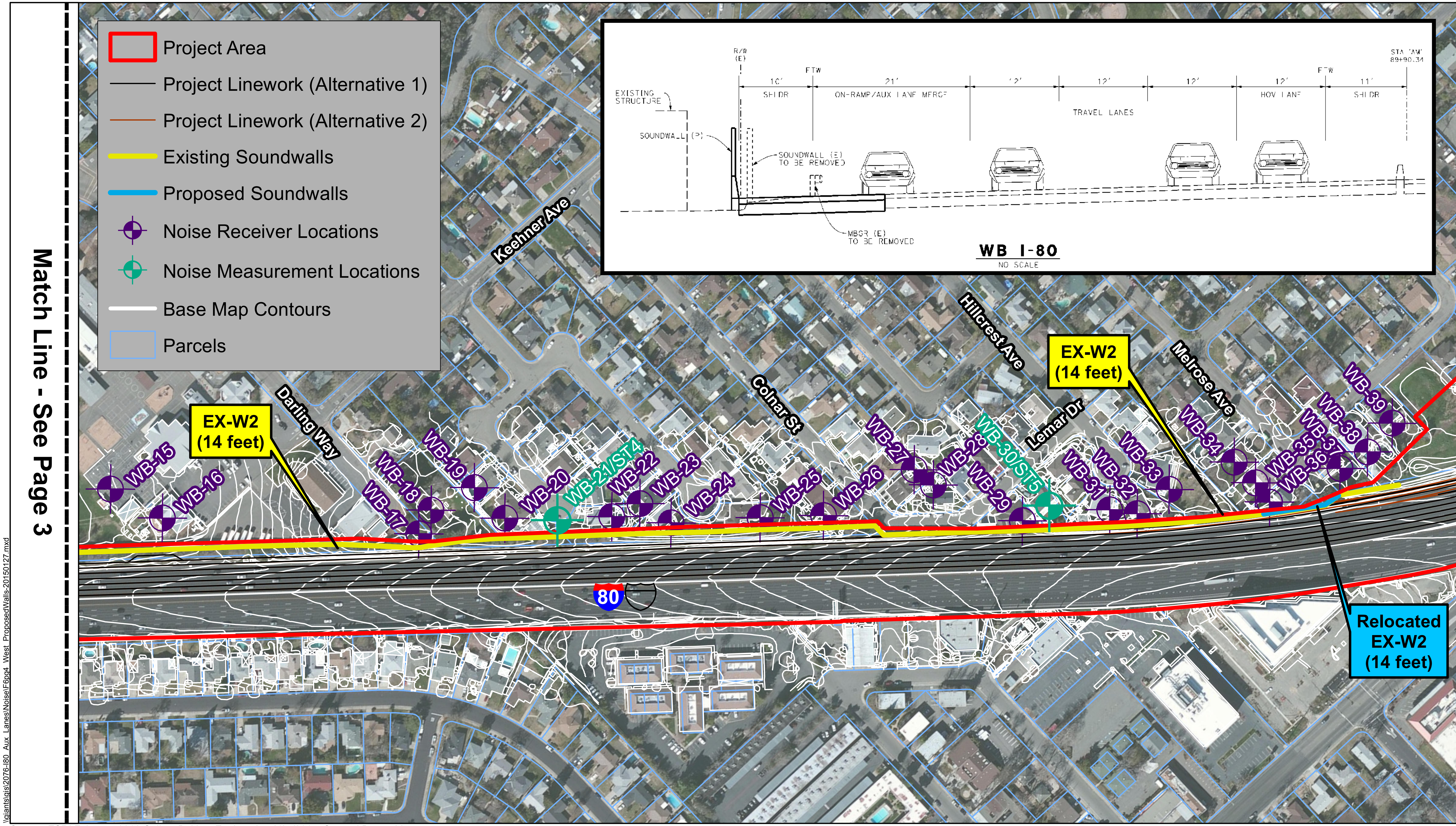


Figure 11
Page 2 of 4
Sound Barrier Locations
EA-03F230
I-80 Auxiliary Lanes Project (Eastbound)
Placer County, California



Source: ESRI February 2012 Online; Dokken Engineering 2/26/2015; Created By: zachl

Figure 11
Page 3 of 4
Sound Barrier Locations
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California



\\gis\2076-80_Aux_Lanes\Noise\F6pg4_West_ProposedWalls-20150127.mxd

Source: ESRI February 2012 Online; Dokken Engineering 2/25/2015; Created By: zachl

0 100 200 300 400 Feet

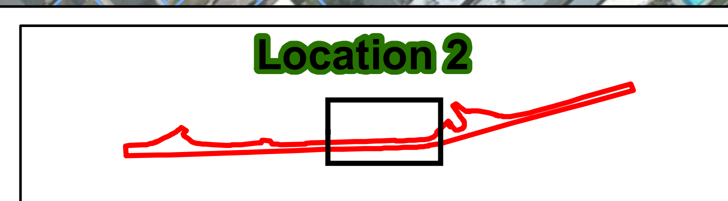


Figure 11
Page 4 of 4
Sound Barrier Locations
EA-03F230
I-80 Auxiliary Lanes Project (Westbound)
Placer County, California

Measures NOI-1 and NOI-2 relate to the implementation of these sound barriers. Other potential impacts due to noise as a result of the Build Alternatives will be minimized through the implementation of measure NOI-3 which will require the project to utilize rubberized asphalt or open grade pavement. These surfaces have been shown to reduce the noise volume from vehicles traveling between 7-10 dB which would reduce the two modeled locations to an acceptable exterior volume.

Based on the CEQA analysis considerations discussed in the Noise Study Report (2015), the proposed project would not have a significant impact on noise.

Construction Impacts

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Table 15 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance.

Table 15. Construction Equipment Noise

Equipment	**Maximum Noise Level (dBA at 50 feet)**
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration 1995

No adverse noise impacts from construction are anticipated due to measures NOI-4 and NOI-5. Construction would be conducted in accordance with Standard Specification 14-8.02, SSP14-8.02. Construction noise would be short-term, intermittent, and overshadowed by local traffic noise.

Certain activities, such as operation of noisy, construction-related equipment which would require lane shifting activities, are exempt from these requirement when public safety concerns would be present, including if the work is done during high traffic volumes.

Vibration

No adverse vibration impacts from either transportation or construction are anticipated as a result of the proposed project. No impacts due to transportation are anticipated as vehicles traveling on highway are supported on flexible suspension systems and pneumatic tires and are not an efficient source of ground vibration. Continuous traffic traveling on a smooth highway creates a fairly continuous but relatively low level of vibration (Caltrans 2004). Further, no adverse impacts during construction are anticipated as all structures are more than 100 feet from the pile driving vibration source.

AVOIDANCE, MINIMIZATION, AND/OR ABATEMENT MEASURES

The following avoidance, minimization, and/or mitigation measures are proposed.

NOI-1: The project will consider constructing sound barriers SW-W1 and SW-E1 to protect residents from increased noise volumes as a result of the proposed project, subject to final design.

NOI-2: To the maximum extent feasible, the sound barriers should be constructed prior to initiation of construction along I-80.

NOI-3: The project shall utilize rubberized asphalt or open grade pavement to reduce the noise volume from vehicles traveling between 7-10 dB.

NOI-4: To minimize the construction-generated noise, abatement measures from Standard Specification 14-8.02 “Noise Control” and SSP 14-8.02 must be followed:

- Do not exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m.
- Equip an internal combustion engine with the manufacturer recommended muffler.
- Do not operate an internal combustion engine on the job site without the appropriate muffler.

NOI-5: The following Standard Special Provision (SSP 14-8.02) will be edited specifically for this project during the PS&E phase. During this phase, certain activities, such as operation of noisy, construction-related equipment which would require lane shifting activities, are exempt from these requirement when public safety concerns would be present, including if the work is done during high traffic volumes. The Stand Special Provision to be edited during the PS&E phase is as follows:

Section 14-8.02. Use for work in a residential or urban area (1) at night or (2) if night or Sunday noise restrictions exist.

Choose either par. 1 or 2.

1. Edit to include (1) specific local noise ordinances that the project manager has agreed to comply with or (2) work needing noise level restrictions that differ from those specified in section 14. List exceptions in the table. Delete " except . . . table:" and the table if exceptions are not needed. Delete par. 2.

Do not exceed 86 dBA L_{max} at 50 feet from the job site activities from _____ p.m. to _____ a.m. except you may perform the following activities during the hours and for the days shown in the following table:

Noise Restriction Exceptions

Activity	Hours		Days	
	From	To	From	Through

2.11 POPULATION AND HOUSING

REGULATORY SETTING

CEQA also requires the analysis of a project's potential to induce growth. CEQA guidelines, Section 15126.2(d), require that environmental documents "…discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment…"

AFFECTED ENVIRONMENT

As discussed in Section 2.9 Land Use and Planning, Location 1 of the project area is zoned for residential single family, planned development residential, pre-zoned planned development residential, and planned development commercial. Location 2 of the project area is zoned for low density residential, medium density residential, open space, community commercial, and business professional.

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

Implementation of the proposed project would improve the carrying capacity and connectivity of the existing circulation system, but would have no direct effect on regional population growth and is not anticipated to increase the development of additional housing.

The project would not likely shift the location of future growth in the surrounding area. The interstate is already six to seven lanes total in Location 1 and nine lanes total in Location 2. The proposed project will be adding one lane and will decrease congestion during high traffic periods. As a result, implementation of the proposed project is not expected to shift the locations of planned growth in the surrounding area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No avoidance, minimization, and/or mitigation measures are proposed.

2.12 PUBLIC SERVICES

AFFECTED ENVIRONMENT

Public services serving the project area include the public schools, community services, llibrary, police, fire protection, landscape and lighting, water supply, wastewater and storm water, solid waste, and energy.

The Rocklin Fire Department, 3970 Rocklin Rd, approximately 0.75 miles west of the project area at Location 1, and Roseville Fire Station #3, 1300 Cirby Way, approximately 1 mile east of the proposed project area at Location 2 serves the area. The nearest public school is George Cirby Elementary School, 814 Darling Way, is adjacent to the project to the northwest. The nearest designated park at Location 1 is Woodside Park, 3290 Westwood Drive, which is closed for the season due to the drought, is located slightly north of the project area, and the nearest public park at Location 2 is Eastwood Park, 950 Madden Ln, which is located 0.25 east of the project area.

ENVIRONMENTAL CONSEQUENCES

The proposed project would not result in un-planned population increase; as the project accommodates existing and planned growth. The project would not create an un-planned increase in demand for fire or police services, schools, or recreation facilities.

There will be no change in access to I-80 as a result of the project. The project will not have substantial effects on emergency access, because emergency vehicles could travel on shoulders along the interstate using sirens during an emergency. The roadway widening work may require a temporary closure of existing lanes creating more congestion during construction. Appropriate signage would be provided including flag persons and California Highway Patrol vehicles as necessary. Response times are not anticipated to be affected during construction.

Implementation of the proposed project would improve the ability of medical and police services to serve the community. The proposed project would reduce congestion in the area, which would reduce response times for fire, medical, and police services. Therefore, implementation of the proposed project would not disrupt these public services.

Minor traffic control, as described in measure PS-1/TRA-1, would further minimize effects. Utility relocations may be required and would occur in consultation with the owners or operators of the affected utilities.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following measure is also found under Section 2.14 of this document:

PS-1/TRA-1: Temporary impacts to traffic flow as a result of construction activities would be minimized through construction phasing and signage and a traffic control plan.

2.13 RECREATION

AFFECTED ENVIRONMENT

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

As stated in Section 2.12, the nearest public park at Location 1 is Woodside Park, 3290 Westwood Drive, located slightly north of the project area, and the nearest public park at Location 2 is Eastwood Park, 950 Madden Ln, which is located 0.25 east of the project area. One half mile of the project is also zoned for “Parks and Open Space.”

ENVIRONMENTAL CONSEQUENCES

The proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Access to these local parks will not be impacted during construction. Other parks in the area are also accessible through local roads.

The proposed project does not include other recreational facilities, nor does it require the construction or expansion of other recreational facilities.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are proposed.

2.14 TRANSPORTATION/TRAFFIC

The following section has been taken from the Transportation Analysis Report (2015) in support of the IS/MND.

Affected Environment

Interstate 80 is a major east-west route that extends from the San Francisco Bay area through Sacramento to the Nevada State line and continues to the East Coast. Interstate 80 is designated as part of the National Network for large commercial vehicles and serves cross-country travel, recreational traffic to and from the Lake Tahoe region, as well as daily commuter traffic within the greater Sacramento urban area.

The traffic operation analysis results are expressed in a descriptive term known as level of service (LOS). LOS is a measure of traffic operating conditions, which varies from LOS A (indicating free-flow traffic conditions with little or no delay) to LOS F (representing oversaturated conditions where traffic flows exceed design capacity resulting in long queues and delays). The LOS is determined differently depending on the type of control at the intersection. Freeway, multilane highway, and urban street facility operations are also described in terms of LOS. The service level for a freeway section and multilane highway is based on vehicle density expressed as passenger/cars/lane/mile, and the service level for urban streets is based on average through-vehicle speed for each roadway segment, which is influenced both by the number of signals per mile and by the intersection control delay. LOS standards on Caltrans facilities are based on the Transportation Concept Report for each facility, or applied by jurisdiction.

The travel demand forecasts were developed using a validated sub-area model derived from the SACMET regional travel demand forecasting (TDF) model developed by SACOG.

<u>Construction Year Operational Analysis</u>

Overall network performance statistics for AM and PM peak period operations are summarized for each alternative in Tables 16 and 17 below, respectively.

Table 16. Comparison of Overall Network Performance –Construction Year AM Peak Period

Performance Measure	Existing Conditions	Construction Year Conditions		
		Alternative 1	Alternative 2	Alternative 3
Volume Served (% of total demand)	143,450 (100%)	171,240 (99%)	170,820 (99%)	169,930 (99%)
Vehicle Miles of Travel (VMT)	645,270	788,590	780,990	774,080
Person Miles of Travel	786,260	963,610	957,010	948,490
Vehicle Hours of Travel (VHT)	13,760	18,190	17,590	18,270
Vehicle Hours of Delay (VHD) (% of VHT)	2,670 (19%)	4,630 (26%)	4,150 (24%)	4,950 (27%)
Average Delay per Vehicle (min)	1.12	1.62	1.46	1.75
Person Hours of Delay	3,240	5,510	4,950	5,920
Average Speed	46.9	43.4	44.4	42.4
Average Speed for HOVs	47.0	45.4	46.3	44.3

Performance Measure		Existing Conditions	Construction Year Conditions		
			Alternative 1	Alternative 2	Alternative 3
Eastbound Travel Time: Auburn Blvd to Sierra College Blvd	SOV	6:41	6:38	6:39	6:39
	HOV	6:34	6:33	6:33	6:34
Westbound Travel Time: Sierra College Blvd to Antelope Rd	SOV	8:27	9:00	8:26	11:56
	HOV	8:18	8:27	8:16	9:08
Source: Fehr & Peers, 2015					

Table 17. Comparison of Overall Network Performance – Construction Year PM Peak Period

Performance Measure		Existing Conditions	Construction Year Conditions		
			Alternative 1	Alternative 2	Alternative 3
Volume Served (% of total demand)		198,170 (101%)	240,990 (100%)	239,920 (100%)	240,610 (100%)
Vehicle Miles of Travel (VMT)		730,100	920,520	909,680	913,210
Person Miles of Travel		880,180	1,131,610	1,121,460	1,124,110
Vehicle Hours of Travel (VHT)		16,850	24,190	23,570	24,680
Vehicle Hours of Delay (VHD) (% of VHT)		3,950 (23%)	7,930 (33%)	7,490 (32%)	8,550 (35%)
Average Delay per Vehicle (min)		1.20	1.97	1.87	2.13
Person Hours of Delay		4,670	9,550	9,030	10,250
Average Travel Speed		43.3	38.1	38.6	37.0
Average HOV Speed		44.7	39.9	40.4	39.1
Eastbound Travel Time: Auburn Blvd to Sierra College Blvd	SOV	6:35	6:49	6:57	10:20
	HOV	6:23	6:38	6:40	7:23
Westbound Travel Time: Sierra College Blvd to Antelope Rd	SOV	8:11	8:23	8:18	9:23
	HOV	8:01	8:13	8:10	8:31
Source: Fehr & Peers, 2015					

The Construction Year operations analysis results presented in Tables 15 and 16 are summarized below:

- The three project alternatives would serve about the same volume through the network during the peak periods.
- During both peak periods, Alternative 1 (Eastbound and Westbound Auxiliary Lanes) has the highest VMT, Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) has the lowest overall delay, and Alternative 3 (No Build) has the lowest average speed.
- Overall, Alternative 1 serves more vehicles, but Alternative 2 has lower delay.
- Westbound travel time is improved under the build alternatives compared to the no build alternative.

Design Year Operations Analysis

Overall network performance statistics for AM and PM peak period operations are summarized for each alternative in Tables 17 and 18 below, respectively.

Table 18. Comparison of Overall Network Performance – Design Year AM Peak Period

Performance Measure		Existing Conditions	Design Year Conditions		
			Alternative 1	Alternative 2	Alternative 3
Volume Served (% of total demand)		143,450 (100%)	207,310 (99%)	207,310 (99%)	207,180 (99%)
Vehicle Miles of Travel (VMT)		645,270	950,270	951,770	946,050
Person Miles of Travel		786,260	1,132,990	1,134,890	1,128,530
Vehicle Hours of Travel (VHT)		13,760	22,310	22,420	22,850
Vehicle Hours of Delay (VHD) (% of VHT)		2,670 (19%)	5,970 (27%)	6,060 (27%)	6,590 (29%)
Average Delay per Vehicle (min)		1.12	1.73	1.75	1.91
Person Hours of Delay		3,240	6,880	6,060	7,610
Average Speed		46.9	42.6	42.5	41.4
Average Speed for HOVs		47.0	45.3	45.0	44.1
Eastbound Travel Time: Auburn Blvd to Sierra College Blvd	SOV	6:41	6:40	6:41	6:40
	HOV	6:34	6:33	6:33	6:34
Westbound Travel Time: Sierra College Blvd to Antelope Rd	SOV	8:27	9:24	8:26	10:50
	HOV	8:18	8:41	8:18	9:03
Source: Fehr & Peers, 2015					

Table 19. Comparison of Overall Network Performance – Design Year PM Peak Period

Performance Measure		Existing Conditions	Design Year Conditions		
			Alternative 1	Alternative 2	Alternative 3
Volume Served (% of total demand)		198,170 (101%)	300,010 (99%)	299,980 (100%)	288,830 (95%)
Vehicle Miles of Travel (VMT)		730,100	1,162,670	1,164,810	1,104,780
Person Miles of Travel		880,180	1,397,690	1,398,750	1,331,560
Vehicle Hours of Travel (VHT)		16,850	33,700	31,680	41,750
Vehicle Hours of Delay (VHD) (% of VHT)		3,950 (23%)	13,270 (39%)	11,210 (35%)	22,320 (54%)
Average Delay per Vehicle (min)		1.20	2.65	2.24	4.64
Person Hours of Delay		4,670	15,350	13,050	25,850
Average Speed		43.3	34.5	36.8	26.5
Average Speed for HOVs		44.7	38.1	39.5	30.4
Eastbound Travel Time: Auburn Blvd to Sierra College Blvd	SOV	6:35	6:44	6:42	6:43
	HOV	6:23	6:37	6:37	6:37
Westbound Travel Time: Sierra College Blvd to Antelope Rd	SOV	8:11	13:27	8:24	17:11
	HOV	8:01	9:43	8:18	10:40
Source: Fehr & Peers, 2015					

The Design Year operations analysis results presented in Tables 17 and 18 are summarized below:

- Overall, the build alternatives (Alternative 1 and 2) improve network performance compared to the no build alternative (Alternative 3).
- The volume served in the network is about the same across alternatives during the AM peak period, but the PM peak period volume served is lower for Alternative 3 (No Build than for the build alternatives.

- Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) has higher VMT compared to Alternative 1 (Eastbound and Westbound Auxiliary Lanes). Alternative 2 also has lower network delay and lower travel times on westbound I-80.
- Travel time for westbound I-80 improves by more than 80 seconds during the AM peak hour and more than three and a half minutes during the PM peal hour with the build alternatives.
- Travel time for eastbound I-80 is about the same for all alternatives.

Accident History

Traffic collision data was compiled from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) for I-80 westbound from Douglas Boulevard to the Placer County line (post mile 0.1 to 2.2), and eastbound from SR 65 to Rocklin Road (post mile 4.1 – 6.0). The data shown are for the three-year period between October 1, 2009 and September 30, 2012. Within the study area, 218 collisions occurred in the three-year period. Table 19 summarizes collisions on I-80 by direction.

Table 20. Accident History

Direction	Total Accidents	Total Fatalities	Actual Collision Rate[1]			Average Collision Rate[1]		
			F	F&I	Total	F	F&I	Total
Westbound (PM 0.1-2.2)	125	0	0.000	0.23	0.67	0.004	0.29	0.92
Eastbound (PM 4.1-6.0)	93	1	**0.008**	0.24	0.78	0.004	0.27	0.87
Total	218	1	0.004	0.24	0.73	0.004	0.28	0.90

Notes: 1. The accident rate is accidents per million vehicle-miles.
"F" refers to the fatality rate, and "F&I" refers to the fatality and injury rate. Total number of accidents includes non-injury accidents, which are not listed separately. Bold and underline font indicates an actual rate that is greater than the average rate.
Source: Caltrans District 3 TASAS Table B, October 1, 2009 to September 30, 2012

The actual collision rate for fatalities was higher than statewide average for eastbound I-80. The one fatality was a side-swipe, multiple car accident which occurred near the Rocklin Road off-ramp. The remaining collision rates were lower than the statewide averages.

Table 20 categorizes the collisions by type. The most frequent collision type (56 percent) is a rear end collision, which is typical of congested conditions. The next most frequent collision types are side-swipe and hit object. The other collision types are collectively less than 5 percent of all collisions. The westbound direction has both a higher number of collisions and a higher number of rear end collisions.

Table 21. Mainline Collisions By Type

Direction	Head On	Side Swipe	Rear End	Broad-side	Hit Object	Over-turn	Auto-Ped	Other
Westbound	0	26	73	6	19	0	0	1
Eastbound	0	23	50	1	17	0	1	1
Total	0 (0%)	49 (22%)	123 (56%)	7 (3%)	36 (17%)	0 (0%)	1 (0.5%)	2 (1%)

Source: Caltrans District 3 TASAS - Table B, October 1, 2009 to September 31, 2012

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

The project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. The nearest airport is the McClellan Airfield, which is approximately 7 miles southwest. Design features would comply with City standards, or as appropriate, would be approved as non-standard features. The project would not increase hazards due to design features or incompatible uses. The project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

The project would have less than significant impact on emergency access. Response times are not anticipated to be affected during construction. In the long-term, it is anticipated that widening the road would better serve emergency vehicles by improving traffic capacity.

There would be no conflicts with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, and performance or safety of such facilities.

Operations Consequences

Environmental consequences discussed below includes a comparative analysis between Build Alternative 1, Build Alternative 2, and No-Build (Alternative 3). A summary is provided at the end of the section which summarizes the impacts for Build Alternative 1 and Build Alternative 2.

The addition of a through lane, or installation of auxiliary lanes, would all contribute to the reduction of traffic congestion on I-80. However, the level of improvement varies between the alternatives. Both Alternative 1 and Alternative 2 are expected to achieve the goal of reduced congestion and improved safety. Alternative 3, the No Build Alternative, would not improve the traffic operations. Table 21 below compares the project alternatives under design year conditions across a range of performance measures based on the project objectives. The performance measures are network-wide throughput and delay, study location deficiencies, and westbound I-80 travel time.

Table 22. Project Alternative Comparison Summary – Design Year Peak Period Conditions

Category	Alternative 1	Alternative 2	Alternative 3
Network Throughput (vehicles)	507,320	507,290	496,010
Network Delay (vehicle-hours)	19,240	17,270	28,910
Freeway Deficiencies	16	8	34
Intersection Deficiencies	21	18	23
Westbound I-80 AM Peak Hour Travel Time	9:24	8:26	10:50
Westbound I-80 PM Peak Hour Travel Time	13:27	8:24	17:11

Note: 1. The alternative with the better performance is listed in parentheses.
Source: Fehr & Peers, 2015

In Table 19, two performance measures for the overall network performance are provided: the sum of the AM and PM peak period throughput (volume served) and vehicle hours of delay. The two build alternatives (Alternatives 1 and 2) would have similar volume served and would serve more than 2 percent more traffic during the peak periods than the no build alternative (Alternative 3).

The build alternatives would also reduce the analysis locations operating at an unacceptable LOS. For freeway locations, Alternative 1 (Eastbound and Westbound Auxiliary Lanes) would have less than half the deficient locations as Alternative 3 (No Build). Alternative 2 would have even fewer deficient locations – less than one-fourth the locations as Alternative 3. Although the project improvements are located on the freeway network, intersection operations would improve due to the changes in travel patterns. As a result, Alternative 1 would have two fewer and Alternative 2 would have five fewer deficient intersections than Alternative 3.

The widening for westbound I-80 in the build alternatives will improve peak hour travel time compared to the no build alternative. Alternative 1 would have a westbound travel time savings of almost one and a half minutes during the AM peak hour and nearly four minutes during the PM peak hour. For Alternative 2, the travel time savings would be even larger: two and a half minutes for the AM peak hour and almost nine minutes during the PM peak hour.

In summary, the build alternatives would provide a significant improvement in freeway and intersection operations under design year conditions.

Table 23 compares the performance measures for the project alternatives under construction year conditions. For most performance measures, the build alternatives (Alternatives 1 and 2) have better performance than the no build alternative (Alternative 3). The one exception is for intersection deficiencies. The changing travel patterns result in two more deficient intersections under Alternative 1 and one more under Alternative 2.

Table 23. Project Alternative Comparison Summary – Construction Year Peak Period Conditions

Category	Alternative 1	Alternative 2	Alternative 3
Network Throughput (vehicles)	412,230	410,740	410,540
Network Delay (vehicle-hours)	12,560	11,640	13,500
Freeway Deficiencies	16	14	25
Intersection Deficiencies	14	13	12
Westbound I-80 AM Peak Hour Travel Time	9:00	8:26	11:56
Westbound I-80 PM Peak Hour Travel Time	8:13	8:10	8:31

Note: 1. The alternative with the better performance is listed in parentheses.
Source: Fehr & Peers, 2015

Build Alternative Comparison

Table 24 compares the build alternatives under design year conditions across a range of performance measures based on the project objectives. As listed in Section 1.3, the project objectives can be summarized as reducing congestion and improving safety.

Table 24. Build Alternative Comparison Summary – Design Year Peak Period Conditions

Category	Alternative 2	Difference[1]
Network Throughput (vehicles)	507,290	30 (1)
Network Delay (vehicle-hours)	17,270	-1,970 (2)
Freeway Impacts	5	1 (1)
Intersection Impacts	5	1 (1)
Westbound I-80 AM Peak Hour Travel Time	8:26	-0:58 (2)
Westbound I-80 PM Peak Hour Travel Time	8:24	-5:03 (2)

Note: 1. The alternative with the better performance is listed in parentheses.
Source: Fehr & Peers, 2015

In Table 22, two performance measures for the overall network performance are provided: the sum of the AM and PM peak period volume served (throughput) and vehicle hours of delay. The two build alternatives have similar volume served, with less than 0.1 percent difference, but the difference in delay is relatively large. Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) has the best network performance primarily due to the improved operation for westbound I-80 in Placer County.

The comparison table also lists the total number of design year AM and PM peak hour impacts for study freeway sections and intersections. Although the number of impacts is about the same, Alternative 1 (Eastbound and Westbound Auxiliary Lanes) has the fewest freeway and intersection impacts. Alternative 2 has more impacts primarily for westbound I-80 in Sacramento County. Westbound travel time from Sierra College Boulevard to Antelope Road is better for Alternative 2, with a one minute savings during the AM peak hour and about five minutes during the PM peak hour.

Table 25 compares the build alternatives under construction year conditions across a range of performance measures based on the project objectives. For the network wide delay and westbound travel time, Alternative 2 would have better performance than the Alternative 1. While both alternatives would have the same number of intersection impacts, Alternative 2 would have three more freeway impacts.

Table 25. Build Alternative Comparison Summary – Construction Year Peak Period Conditions

Category	Alternative 1	Alternative 2	Difference[1]
Network Throughput (vehicles)	412,230	410,740	1,490 (1)
Network Delay (vehicle-hours)	12,560	11,640	-920 (2)
Freeway Impacts	10	13	3 (1)
Intersection Impacts	6	6	0 (-)
Westbound I-80 AM Peak Hour Travel Time	9:00	8:26	-0:34 (2)
Westbound I-80 PM Peak Hour Travel Time	8:13	8:10	-0:03 (2)

Note: 1. The alternative with the better performance is listed in parentheses.
Source: Fehr & Peers, 2015

In summary, while both build alternatives would meet the project need and purpose, Alternative 2 would provide better westbound freeway operations in Placer County, lower westbound corridor travel time, and lower network-wide delay under both construction and design year conditions.

Environmental consequences summary below are associated with Build Alternative 1:

Build Alternative 1 would provide better westbound freeway operations in Placer County, lower westbound corridor travel time, and lower network-wide delay under both construction and design year conditions compared to the No-Build Alternative (Alternative 3). Alternative 1 has the fewest freeway and intersection impacts. While both alternatives would have the same number of intersection impacts, Alternative 2 would have three more freeway impacts.

Environmental consequences discussed below are associated with Build Alternative 2:

Build Alternative 2 would provide better westbound freeway operations in Placer County, lower westbound corridor travel time, and lower network-wide delay under both construction and design year conditions compared to Build Alternative 1 and the No-Build Alternative (Alternative 3). Westbound travel time from Sierra College Boulevard to Antelope Road is better for Alternative 2, with a one minute savings during the AM peak hour and about five minutes during the PM peak hour. While both alternatives would have the same number of intersection impacts, Alternative 2 would have three more freeway impacts. Lastly, Alternative 2 has the best network performance primarily due to the improved operation for westbound I-80 in Placer County.

Transportation Safety Comparison

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

The build alternatives will likely provide similar improvements to transportation safety. A key improvement will be provided by congestion reduction on the freeway. Rear-end collisions on the freeway are associated with congested conditions. As noted in the existing conditions section, rear-end collisions in the study area are highest on westbound I-80 during the congested AM and PM peak periods. Since the build alternatives will reduce congestion compared to Alternative 3 (No Build), the expected number of rear-end end collision would be reduced with the build alternatives.

Roadway design standards are used to provide consistent expectations for drivers, which helps improve transportation safety by reducing collision risks. When these standards are not met, collision risks may increase. The currently proposed design exceptions are located on the westbound on-ramps at Douglas Boulevard, the northbound to westbound on-ramp at Riverside Avenue, and the eastbound off-ramp to Rocklin Road. In each case, the proposed design will either maintain or improve an existing condition that does not meet suggested design guidelines.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

PS-1/TRA-1: Temporary impacts to traffic flow as a result of construction activities would be minimized through construction phasing and signage and a traffic control plan.

Regional Coordination for Transportation Improvements

In addition to PS-1/TRA-1 above, the *Transportation Analysis Report* assumed modifications to the existing transportation network according to improvement projects anticipated to be constructed by the construction (2020) and design (2040) years (refer to *Transportation Analysis Report*). These projects are based on the financially constrained project list contained in the 2035 MTP/SCS, but also consider projects the project development team agreed would likely be constructed by the design year (2040).
The rationale for adding projects to the MTP/SCS list was that the design year is five years beyond the 2035 horizon of the MTP/SCS. This creates a longer timeframe for revenue to accumulate. Further, the additional socioeconomic growth added to the model would also be contributing to transportation revenue to help pay for these improvements.

Based on results from the *Transportation Analysis Report,* it was determined that even with transportation improvements assumed through year 2040, the following specific locations in the project boundary may operate below acceptable thresholds and potential future improvements are identified below:

Eastbound I-80

- Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane) impacts from Douglas Boulevard to Eureka Road under construction year conditions can be mitigated by constructing an auxiliary lane, which is part of the planned I-80/SR 65 Interchange Improvements project.

- An alternate mitigation to the above widening options would be to operate the ramp meters on eastbound I-80 at a more restrictive rate under construction year conditions. With the more restrictive rates, longer ramp queues may cause secondary impacts to local streets.

<u>Westbound I-80</u>

- Impacts at the westbound Douglas Boulevard on-ramp for design year conditions under Alternative 1 (Eastbound and Westbound Auxiliary Lanes) can be mitigated by constructing Alternative 2 (Eastbound Auxiliary Lane and Westbound 5th Lane).
- Impacts from Antelope Road to Elkhorn Boulevard can be mitigated by providing a full auxiliary lane from the truck scales to Elkhorn Boulevard or adding a through lane at Elkhorn Boulevard.
- An alternate mitigation to the above widening options would be to operate the ramp meters on westbound I-80 and southbound SR 65 at a more restrictive rate. With the more restrictive rates, longer ramp queues may cause secondary impacts to local streets.

<u>Southbound SR 65</u>

- Impacts at the westbound Blue Oaks Boulevard on-ramp can be mitigated by widening SR 65 as proposed in the SR 65 Capacity and Operational Improvements project.
- An alternate mitigation to the above widening option would be to operate the ramp meters on southbound SR 65 at a more restrictive rate. With the more restrictive rates, longer ramp queues may cause secondary impacts to local streets.

<u>Intersections</u>

- Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps – This impact can be mitigated by widening the approaches to this deficient intersection.
- Stanford Ranch Road/Five Star Boulevard – The impact may be mitigated by converting the eastbound middle lane from a shared left-turn/through lane to a shared left-turn/through/right-turn lane.
- Galleria Boulevard/Roseville Parkway – The impact can likely be mitigated by modifying signal timing although this may have secondary impacts at adjacent intersections. Additional intersection widening or reconstruction would be needed to address the operational deficiency.
- Roseville Parkway/Creekside Ridge Drive – The impact is caused by queues from the Roseville Parkway intersection, so increasing capacity or modifying signal timing at that intersection would mitigate this impact.
- Douglas Boulevard/Sunrise Avenue – This impact may be mitigated by providing a second southbound right turn lane to increase capacity.
- Rocklin Road/I-80 Westbound Ramps – This construction year impact can be mitigated by constructing the planned I-80/Rocklin Road Interchange project.
- Rocklin Road/I-80 Eastbound Ramps – The construction year impact can be mitigated by constructing the planned I-80/Rocklin Road Interchange project. The design year impact may be mitigated by providing additional storage for the ramp meter on the westbound on-ramp to reduce queuing onto the local street.
- Rocklin Road/Aguilar Road – The construction year impact can be mitigated by constructing the planned I-80/Rocklin Road Interchange project. To address the design year impact, further widening or intersection reconstruction would be needed.

Some of the improvements identified above are already being considered as part of the SR 65 Widening (http://pctpa.net/projects/sr65widening/) and I-80/SR 65 Interchange Improvement Project (http://8065interchange.org/) projects. Other improvements identified above are preliminary and need further study, including inclusion in the Placer County Regional Transportation Plan and SACOG MTP/SCS, environmental clearance and public outreach, project approval from Caltrans and/or FHWA, project design, and potential right of way acquisition, before the improvements can be constructed and open to the traveling public. Depending on the project size and cost, infrastructure improvements on federal and state highways can take an average of 16 years. If a project is not controversial, fully funded, and within existing right of way, then typically those projects can be constructed within five to ten years.

The need for additional transportation improvements after year 2040 is based on growth in traffic demand from development over a wide area. Jurisdictions in Placer County currently have traffic impact fee programs both at the local jurisdiction and regional county levels. Traffic impact fees on new development are a potential source of funding for the above identified improvements. Placer County has a history of planning for both local and regional transportation improvements, including the South Placer Regional Transportation Authority (http://pctpa.net/sprta/). Caltrans, PCTPA, and local jurisdictions continuously update and add new projects that are identified to accommodate future population and employment growth. The specific intersection and roadway improvements identified above, which are all located on Caltrans facilities or within the City of Rocklin and City of Roseville, will be addressed as part of current ongoing projects, capital improvement program updates, and traffic impact fee updates.

2.15 UTILITIES AND SERVICE SYSTEMS

AFFECTED ENVIRONMENT

As described in Section 2.13, public services serving the project area include the following: Rocklin Fire Department, Roseville Fire Station #3, George Cirby Elementary School and Woodside and Eastside Park. Electric, gas, sewer, and storm drain utilities exist along I-80 and at the existing residential housing and retail businesses along the project.

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

The proposed project would not result in a population increase. The proposed project accommodates existing and planned growth in the area. As a result, the project would not create an increase in demand for fire or police services, schools, or recreation facilities. No mitigation is required for effects to public services.

No permanent impacts to public utilities are anticipated. As a project along the interstate, there would be no exceedances of wastewater treatment requirements and construction of new water or wastewater treatment facilities would not need to be expanded. The project would not generate substantial solid waste during operation. Solid waste may be generated during construction, however, the amount will not exceed landfill capacities.

The proposed project would comply with federal, state, and local statutes and regulations related to solid waste.

Utilities within the project footprint would be protected in place or accommodated. Coordination with utility owners would take place during final design of the project.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No avoidance, minimization, and/or mitigation measures are proposed.

2.16 MANDATORY FINDINGS OF SIGNIFICANCE

REGULATORY SETTING

The CEQA Checklist includes the following questions under Mandatory Findings of Significance:

Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Does the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

ENVIRONMENTAL CONSEQUENCES

Environmental consequences discussed below are associated with both Build Alternative 1 and Build Alternative 2, as each build alternative would result in identical impacts.

As discussed in Section 2.2, Air Quality, the project would have a less than significant impact with mitigation implemented. Avoidance and minimization measures would be implemented to reduce impacts to air quality. Further, the regional emissions modeling and analysis conducted by SACOG for the MTP/SCS considers all planned and programmed transportation projects included in the MTP and MTIP. The transportation projects listed have been analyzed and found not to contribute to a substantial impact on air quality. These include projects along the state highway system including the I-80/SR 65 Interchange Improvement Project and State Route 65 Widening Project. These projects, which are in conformance with the regional air quality plan and meet regional air pollutant budgets (based on air quality models and analyses), are not expected to result in a cumulative impact on air quality. Therefore, impacts of the proposed project on air quality are not expected to be cumulatively considerable.

As discussed in Section 2.3, Biological Resources, the project would have a less than significant impact with mitigation implemented. Avoidance measures and pre-construction surveys would

be conducted for special-status species. Additionally, the project will require mitigation for impacts to waters and sensitive species. Projects within the region were evaluated and found to not cumulatively contribute to biological impacts, including cumulative impacts to Cirby Creek. With these measures, cumulatively considerable impacts are not anticipated.
As discussed in Section 2.4, Cultural Resources, cultural studies concluded that the project would not impact historical resources or unique archaeological sites. Standard measures for inadvertent discovery would also avoid potential impacts. As no impacts are anticipated, no cumulative impacts are anticipated as a result of the proposed project.

Further, as discussed in Section 2.7, Hazards and Hazardous Resources, the project would have a less than significant impact with avoidance and minimization measures implemented. Avoidance measures would be implemented in the case of confirmation of hazardous materials prior to construction. No cumulative impacts to hazards and hazardous resources are anticipated.

The project would not have adverse effects on human beings, either directly or indirectly. The project is not anticipated to require relocation of housing. Impacts to aesthetics, air quality, geology and soils, greenhouse gas emissions, hydrology and water quality, land use and planning, noise, and transportation/traffic are all anticipated to be less than significant with avoidance and minimization incorporated.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

All proposed avoidance, minimization, and mitigation measures are listed below and can also be found under Appendix C: Mitigation Monitoring and Reporting Program:

VIS-1: Areas that have removed trees, shrubs and created soil disturbance due to construction activities will be re-established by applying a permanent erosion control and planting trees and shrubs where they are deemed appropriate. All finished slopes and graded areas shall be hydro seeded with a permanent seed mix composed of native plant species indigenous to the area.

VIS-2: All disturbed areas during each construction season shall utilize best management practices (BMPs) which will include temporary erosion control consisting of a native seed mix at the end of each construction season.

VIS-3: Aesthetic elements, such as implementation of additional retaining walls and soundwalls, shall conform to existing aesthetic elements along I-80. If additional aesthetic elements, such as aesthetic treatments and/or landscaping, are incorporated during Final Design, such features would be designed and implemented in coordination with the project proponent, arborists, and environmental planners.

VIS-4: Vegetation clearing must only occur within the delineated project boundaries. Where feasible, Environmental Sensitive Area (ESA) fencing will be established at the driplines of oak trees within or adjacent to construction. Where complete avoidance is not feasible, trees will be preferentially trimmed wherever possible. All tree trimming of a protected tree designated to be preserved must be supervised by the project biologist. Severe trimming likely to result in the decline and/or death of the tree must be mitigated as a full removal.

VIS-5: All disturbed areas including staging of vehicles and equipment will be restored to pre-construction contours and revegetated, either through hydroseeding or other means, with native species.

VIS-6: Construction lighting types, plans, and placement shall comply with Caltrans and local standards in order to minimize light and glare impacts on surrounding sensitive uses.

VIS-7: Implement dust suppression measures as applicable from PCAPCD's Rules 202 (Visible Emissions), 205 (Nuisance), and 228 (Fugitive Dust).

VIS-8: Reconstructed walls should match the most recent soundwall aesthetics of the surrounding region.

AQ-1: The construction contractor shall comply with Caltrans' Standard Specifications Section 14-9.03 Dust Control of Caltrans' Standard Specifications (2010).

AQ-2: The construction contractor shall comply with Section 7-1.02 Emissions Reduction and Section 18 Dust Palliative of Caltrans' Standard Specifications (2010).

AQ-3: The Wind Erosion Control BMP (WE-1) from Caltrans' Construction Site *Best Management Practices Manual* will be implemented as follows:

- Water shall be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses and nozzles that will ensure even distribution.
- All distribution equipment shall be equipped with a positive means of shutoff.
- Unless water is applied by means of pipelines, at least one mobile unit shall be available at all times to apply water or dust palliative to the project.
- If reclaimed water is used, the sources and discharge must meet California Department of Health Services water reclamation criteria and the Regional Water Quality Control Board requirements. Non-potable water shall not be conveyed in tanks or drain pipes that will be used to convey potable water and there shall be no connection between potable and non-potable supplies. Non-potable tanks, pipes and other conveyances shall be marked "NON-POTABLE WATER – DO NOT DRINK."
- Materials applied as temporary soil stabilizers and soil binders will also provide wind erosion control benefits.

BIO-1: Vegetation clearing must only occur within the delineated project boundaries. Where feasible, ESA fencing will be established at the driplines of oak trees within or adjacent to construction (see Figure 3: Project Features). Where complete avoidance is not feasible, trees will be preferentially trimmed wherever possible. All tree trimming of a protected tree, designated to be preserved, must be supervised by the project biologist. Severe trimming likely to result in the decline and/or death of the tree must be mitigated as a full removal.

BIO-2: All initial grading, cutting or filling within the dripline of a tree designated to be preserved must be supervised by the project biologist. The project biologist is responsible for maintaining protective fencing and ensuring the protected oak trees are not damaged by grading related activities. Damage likely to result in the decline and/or death of the tree must be mitigated as a full removal.

BIO-3: Mitigation for the removal of oak trees greater than or equal to 6 inches dbh must be compensated as follows:

- Within the City of Rocklin's jurisdiction, removed trees must be replaced at a ratio of 2:1 trees for native oaks and 5:1 trees for City of Rocklin designated heritage trees per with a dbh of 24 or greater as defined in the City of Rocklin Municipal Code Chapter 17.77 – Oak Tree Preservation.
- Within the City of Roseville's jurisdiction, removed trees must be mitigated by replacing a 15 gallon tree for every 1 inch dbh removed, a 24 inch box tree for every two inches dbh removed or a 36 inch box tree for every three inches dbh removed. The combined diameter of replacement trees must be equal or greater than the total tree dbh removed and 50 percent of the replacements must be native oaks. This condition also applies to all City of Roseville designated heritage oak trees, as defined in the Roseville Municipal Code Chapter 19.66 – Tree Preservation Ordinance.

BIO-4: Prior to the start of construction activities, the project limits in proximity to jurisdictional waters (wetlands, Cirby Creek and VRI) must be marked with high visibility ESA fencing or staking, where permanent barriers currently do not exist, to ensure construction will not further encroach into waters. Best Management Practices (BMPs) will be incorporated into the project design and project management to minimize impacts on the environment including reduction of sedimentation and release of pollutants (oil, fuel, etc.). Examples of minimization efforts include the use of silt fencing, temporary energy dissipation facilities, and wattles.

BIO-5: Erosion Control BMPs must be implemented during construction. To minimize the mobilization of sediment to adjacent water bodies, the following erosion control and sediment-control measures will be included in the construction specifications, based on standard Caltrans measures and standard dust-reduction measures.

- Soil exposure will be minimized by limiting the area of construction and disturbance and through the use of temporary BMPs, groundcover, and stabilization measures. These measures may include mulches, soil binders and erosion control blankets, silt fencing, fiber rolls, temporary berms, sediment de-silting basins, sediment traps, and check dams.
- Plastic mono-filament netting (erosion control matting) or similar material that could trap wildlife must not be used. Acceptable substitutes include, but are not limited to, jute, coconut coir matting or tackified hydroseeding compounds.
- Energy dissipaters and erosion control pads would be provided at the bottom of slope drains. Other flow conveyance control mechanisms may include earth dikes, swales, or ditches. Stream bank stabilization measures would also be implemented.
- Existing vegetation would be protected where feasible to reduce erosion and sedimentation. Vegetation would be preserved by installing temporary fencing, or other protection devices, around areas to be protected.
- Exposed soils would be covered by loose bulk materials or other materials to reduce erosion and runoff during rainfall events.
- Exposed soils would be stabilized, through watering or other measures, to prevent the movement of dust at the project site caused by wind and construction activities such as traffic and grading activities.

- All construction roadway areas would be properly protected to prevent excess erosion, sedimentation, and water pollution.
- The contractor must conduct periodic maintenance of erosion- and sediment control measures. All erosion control measures and storm water control measures must be properly maintained until the site has returned to a pre-construction state.
- All disturbed areas including staging of vehicles and equipment will be restored to pre-construction contours and revegetated, either through hydroseeding or other means, with native species.
- All construction materials must be hauled off-site after completion of construction.

BIO-6: To conform to water quality requirements, the Storm Water Pollution Prevention Plan (SWPPP) must include the following:

- Vehicle maintenance, staging and storing equipment, materials, fuels, lubricants, solvents, and other possible contaminants must be a minimum of 100 feet from riparian, wetlands or aquatic habitats. Any necessary equipment washing must occur where the water cannot flow into waterways, including Cirby Creek. The project proponent will prepare a spill prevention and clean-up plan. In the event of an emergency, maintenance would occur away from Cirby Creek;
- Construction equipment will not be operated in flowing water;
- Construction work must be conducted according to site-specific construction plans that minimize the potential for sediment input to Cirby Creek;
- Raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life must be prevented from contaminating the soil or entering Cirby Creek;
- All concrete curing activities must be conducted to minimize spray drift and prevent curing compounds from entering the waterway directly or indirectly.
- Equipment used in and around Cirby Creek must be in good working order and free of dripping or leaking engine fluids; and,
- Any surplus concrete rubble, asphalt, or other debris from construction must be taken to an approved disposal site.

BIO-7: Within jurisdictional waters, where feasible, the project will cut vegetation at ground level and avoid grubbing of roots to allow riparian vegetation to re-sprout following construction. Upon completion of construction activities, any barriers to surface water flow must be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

BIO-8: Permanent impacts to Cirby Creek (U.S., state and CDFW jurisdiction) and VRI (CDFW jurisdiction) will be mitigated by obtaining a Section 401 Water Quality Certification, Section 404 Nationwide Permit, and a Section 1602 Streambed Alteration Agreement, which will require appropriate mitigation. A 2:1 mitigation ratio is anticipated and will be mitigated through payment into the in-lieu fee program or at an on or off-site, agency approved location. Temporary impacts to Cirby Creek will be re-contoured to pre-construction conditions. For temporary impacts to VRI, the project is anticipated to, through permitting, mitigate at a 1:1 ratio with the installation of native hydroseed, native riparian plant materials, or a combination of both. Exact mitigation ratios and locations will be determined during the environmental permitting phase of the project.

BIO-9: Before any activities begin on the project, the project biologist will conduct environmental awareness training for all construction personnel. At a minimum, the training will include a description of sensitive species with potential to occur, including steelhead, their habitat, the project specific measures being implemented to conserve the species, and the boundaries within which the project may be accomplished.

BIO-10: The project biologist must be onsite during the installation of any stream diversion or initial dewatering efforts.

BIO-11: In-channel gravel and rock substrate removed during project construction must be set aside, rinsed, and placed in the newly extended concrete lined low water fish passage following the completion of in-channel construction. The substrate placed within the low water fish channel must allow for a minimum of 1 foot in depth for fish passage. The remaining substrate will be disposed at an approved site.

BIO-12: All in-channel construction including creek diversions, creek crossings, or any work in the channel bed must occur within the June 1 – October 15 work window.

BIO-13: Pile driving activities must occur within the June 1 – October 15 work window which coincides with the least likely occurrence of upstream migrating adults.

BIO-14: Project activities that may affect the flow of the creek through placement of fill, bridge construction, or diversion of the channel must comply with the *2001 NMFS Guidelines for Salmonid Passage at Stream Crossing*, where applicable. The guidelines include but are not limited to:

- A minimum water depth (12 inch for adults and 6 inch for juveniles) at the low fish passage;
- A maximum hydraulic drop of 12 inch for adults and 6 inch for juveniles;
- Avoidance of abrupt changes in water surface and velocities; and
- Structures shall be aligned with the stream, with no abrupt changes in flow direction upstream or downstream of the crossing.

BIO-15: Night work must not be conducted within the Cirby Creek channel or the adjacent banks to afford fish quiet, unobstructed passage during night time migratory hours.

BIO-16: All water pumping or withdrawal from the creek must comply with 1997 NMFS *Fish Screening Criteria for Anadromous Salmonids*, where applicable, to avoid entrainment of fish. The criteria include but are not limited to the following:

- Screen design must provide for uniform flow distribution over the surface of the screen;
- Screen material openings must not exceed 3/32 inches for fry (fish capable of feeding themselves) sized salmonids and must not exceed 1/4 inch for fingerling sized salmonids;
- Where physically practical, the screen must be constructed at the dewatering system entrance. The screen face should be generally parallel to river flow and aligned with the adjacent bankline; and

- The design approach velocity must not exceed 0.33 feet per second for fry sized salmonids or 0.8 feet per second for fingerling sized salmonids.

BIO-17: Permanent impacts to fall-run Chinook salmon EFH shaded riverine aquatic habitat is anticipated to be mitigated at a 3:1 ratio at an on or off-site agency approved location. Exact mitigation ratios and locations will be determined during the environmental permitting phase of the project.

BIO-18: All vegetation should be removed outside of the nesting season (February 15th – September 15th). If construction requires the removal of vegetation during the nesting season (February 15th – September 15th), a pre-construction nesting bird survey must be conducted within 7 days prior to vegetation removal. Within 2 weeks of the nesting bird survey, all vegetation cleared by the biologist must be removed by the contractor.

A minimum 100 foot no-disturbance buffer must be established around any active nest to limit the impacts of construction activities. The contractor must immediately stop work in the nesting area until the appropriate buffer is established and is prohibited from conducting work that could disturb the birds (as determined by the project biologist and in coordination with wildlife agencies) in the buffer area until the project biologist determines the young have fledged.

BIO-19: If sensitive species are encountered during the course of construction, construction will temporarily stop within the area of discovery. The project biologist will be contacted immediately for further guidance. Work will not resume in the area of discovery until the project biologist has cleared the area or the animal has passively left the construction area unharmed and unmolested.

BIO-20: All food-related trash must be disposed into closed containers and must be removed from the project area daily. Construction personnel must not feed or otherwise attract wildlife to the project area.

BIO-21: Plastic mono-filament netting (erosion control matting) or similar material that could trap wildlife must not be used. Acceptable substitutes include jute, coconut coir matting or tackified hydroseeding compounds.

BIO-22: Adequate flow will be maintained through the Action Area by diverting the active channel in Cirby Creek. A temporary water diversion will be installed using either 24-inch plastic pipe or K-rail lined with plastic and clean gravel. Regardless of the method used, the water diversion will be covered and protected from debris, contaminants, and sediment. The diversion structure will be removed upon project completion and flow conditions will be returned to a pre-project state.

BIO-23: Contractors must use biodegradable lubricants and hydraulic fluid in construction machinery. The use of petroleum alternatives can greatly reduce the risk of contaminants directly or indirectly entering the aquatic ecosystem.

BIO-24: Contractors must use hydro seeding mulches that contain low concentrations of fertilizer to minimize harmful runoff and excessive inorganic nutrient input into the aquatic ecosystem.

BIO-25: Signs must be posted in the Action Area about storm water pollution and runoff, advising citizens of the presence of listed fish species and to not discharge any chemicals, oils or other waste products near the stream.

CR-1: If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a qualified archaeologist can assess the significance of the find and develop a plan for documentation and removal of resources if necessary. Additional archaeological survey will be needed if project limits are extended beyond the present survey limits.

CR-2: Section 5097.94 of the Public Resources Code and Section 7050.5 of the California Health and Safety Code protect Native American burials, skeletal remains and grave goods, regardless of age and provide method and means for the appropriate handling of such remains. If human remains are encountered, work should halt in that vicinity and the county coroner should be notified immediately. At the same time, an archaeologist should be contacted to evaluate the situation. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within twenty-four hours of such identification. CEQA details steps to be taken if human burials are of Native American origin.

GEO-1: Project proponent and the contractor shall implement a SWPPP to include erosion control methods. This SWPPP shall be prepared for the Section 402 permit, *NPDES General Permit for Discharges of Storm Water Associated with Construction Activity*.

CC-1: The project would incorporate the use of energy-efficient lighting, such as LED traffic signals. LED bulbs cost $60 to $70 each, but last five to six years, compared to the one-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the project's CO_2 emissions.

CC-2: According to the Caltrans's Standard Specifications, the contractor must comply with all local Air Quality Management District rules, ordinances, and regulations for air quality restrictions.

HAZ-1: To avoid impacts from pavement striping during construction it is recommended that testing and removal requirements for yellow striping and pavement marking materials be performed in accordance with Caltrans Standard Special Provisions for REMOVE TRAFFIC STRIPE AND PAVEMENT MARKINGS.

HAZ-2: The Linda Creek Bridge bearing pad shims will require removal and proper disposal by a licensed and certified asbestos abatement contractor in conjunction with the planned bridge widening. In order to complete the necessary asbestos abatement/removal, a Placer County Air Pollution Control District (PCAPD) permit for the Linda Creek Bridge will be attained.

HAZ-3: The proposed project will require a Non-Standard Special Provision (NSSP) for excavation and handling of soils contaminated with aerially deposited lead. The NSSP should address CCR Title 8, Section 1532.1, Lead, which includes a Lead Compliance Plan and Lead Awareness training.

HAZ-4: Further sampling and analysis of soil will be initiated during PS&E to determine the extent of lead-contaminated soils. Soils containing hazardous levels of aerially deposited lead will be excavated and disposed of at a Class 1 Disposal Facility or a Class 2 Disposal Facility permitted by the Central Valley Regional Water Quality Control Board (CVRWQCB) before completion of the proposed project.

WQ-1: The following measures will be implemented to ensure best management practices:

- The area of construction and disturbance would be limited to as small an area as feasible to reduce erosion and sedimentation.
- Measures would be implemented during land-disturbing activities to reduce erosion and sedimentation. These measures may include mulches, soil binders and erosion control blankets, silt fencing, fiber rolls, temporary berms, sediment de-silting basins, sediment traps, and check dams.
- Existing vegetation would be protected where feasible to reduce erosion and sedimentation. Vegetation would be preserved by installing temporary fencing, or other protection devices, around areas to be protected.
- Exposed soils would be covered by loose bulk materials or other materials to reduce erosion and runoff during rainfall events.
- Exposed soils would be stabilized, through watering or other measures, to prevent the movement of dust at the project site caused by wind and construction activities such as traffic and grading activities.
- All construction roadway areas would be properly protected to prevent excess erosion, sedimentation, and water pollution.
- All vehicle and equipment maintenance procedures would be conducted off-site. In the event of an emergency, maintenance would occur away from Cirby Creek.
- All concrete curing activities would be conducted to minimize spray drift and prevent curing compounds from entering the waterway directly or indirectly.
- All construction materials, vehicles, stockpiles, and staging areas would be situated outside of the stream channel as feasible. All stockpiles would be covered, as feasible.
- Energy dissipaters and erosion control pads would be provided at the bottom of slope drains. Other flow conveyance control mechanisms may include earth dikes, swales, or ditches. Stream bank stabilization measures would also be implemented.
- All erosion control measures and storm water control measures would be properly maintained until the site has returned to a pre-construction state.
- All disturbed areas would be restored to pre-construction contours and revegetated, either through hydroseeding or other means, with native or approved non-invasive exotic species.
- All construction materials would be hauled off-site after completion of construction.

WQ-2: Any requirements for additional avoidance, minimization, and/or mitigation measures will be identified in the permits obtained from all required regulatory agencies.

WQ-3: The proposed project would require a National Pollution Discharge Elimination System (NPDES) General Construction Permit for Discharges of storm water associated with construction activities (Construction General Permit 2012-0006-DWQ). A Storm Water Pollution Prevention Plan (SWPPP) would also be developed and implemented as part of the Construction General Permit.

WQ-4: The construction contractor shall adhere to the SWRCB Order No. 2012-0006-DWQ NPDES Permit pursuant to Section 402 of the CWA. This permit authorizes storm water and authorized non-storm water discharges from construction activities. As part of this Permit requirement, a SWPPP shall be prepared prior to construction consistent with the requirements of the RWQCB. This SWPPP will incorporate all applicable BMPs to ensure that adequate measures are taken during construction to minimize impacts to water quality.

WQ-5: Post-construction storm water control requirements will be addressed in accordance with Caltrans' MS4 permit for areas within Caltrans right-of-way. Permanent treatment control BMPs will be evaluated based on effectiveness and feasibility and incorporated into the final design as applicable.

NOI-1: The project will consider constructing sound barriers SW-W1 and SW-E1 to protect residents from increased noise volumes as a result of the proposed project, subject to final design.

NOI-2: To the maximum extent feasible, the sound barriers should be constructed prior to initiation of construction along I-80.

NOI-3: The project shall utilize rubberized asphalt or open grade pavement to reduce the noise volume from vehicles traveling between 7-10 dB.

NOI-4: To minimize the construction-generated noise, abatement measures from Standard Specification 14-8.02 "Noise Control" and SSP 14-8.02 must be followed:

- Do not exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m.
- Equip an internal combustion engine with the manufacturer recommended muffler.
- Do not operate an internal combustion engine on the job site without the appropriate muffler.

NOI-5: The following Standard Special Provision (SSP 14-8.02) will be edited specifically for this project during the PS&E phase. During this phase, certain activities, such as operation of noisy, construction-related equipment which would require lane shifting activities, are exempt from these requirement when public safety concerns would be present, included if the work is done during high traffic volumes. The Stand Special Provision to be edited during the PS&E phase is as follows:

Section 14-8.02. Use for work in a residential or urban area (1) at night or (2) if night or Sunday noise restrictions exist.

Choose either par. 1 or 2.

1. Edit to include (1) specific local noise ordinances that the project manager has agreed to comply with or (2) work needing noise level restrictions that differ from those specified in section 14. List exceptions in the table. Delete " except . . . table:" and the table if exceptions are not needed. Delete par. 2.

Do not exceed 86 dBA L_{max} at 50 feet from the job site activities from _____ p.m. to _____ a.m. except you may perform the following activities during the hours and for the days shown in the following table:

Noise Restriction Exceptions

Activity	Hours		Days	
	From	To	From	Through

PS-1/TRA-1: Temporary impacts to traffic flow as a result of construction activities would be minimized through construction phasing and signage and a traffic control plan.

3.0 COMMENTS AND COORDINATION

This chapter summarizes Caltrans and PCTPA's efforts to identify, address and resolve project-related issues through early and continuing coordination. Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization and/or mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including PDT meetings, interagency coordination meetings, public meetings, and focused community workshops . This chapter summarizes the results of the efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

CONSULTATION AND COORDINATION WITH PUBLIC AGENCIES

Coordination with the following agencies was initiated for the I-80 Auxiliary Lane project:

U.S. Fish and Wildlife Service (USFWS)
California Department of Fish and Wildlife (CDFW)
Native American Heritage Commission (NAHC)

PUBLIC PARTICIPATION

A public hearing was held on October 22, 2014, at the PCTPA Board of Supervisors Chambers located at 175 Fulweiler Avenue, Auburn, CA 95603, where the project and considered alternatives were presented to the public.

Additionally, two focused community meetings were held on May 4 and May 7, 2015, in order to inform the public about the proposed I-80 Auxiliary Lane project and provide opportunity to answer any questions.

The focused community workshops were advertised to the public in a variety of mediums. Notices of the workshops were published in the Placer Herald, circulated in the City of Rocklin, on April 30, 2015, and published in the Roseville Press Tribute on May 1, 2015. Additionally, invitations for the workshops were mailed out to all property owners and tenants within 1,000 feet of the proposed project, which included both residents and businesses, and other organizations that may have interest in the I-80 Auxiliary Lanes project. Further, the focused community workshops were posted on the PCTPA website, and invitations were emailed to all individuals on the interested parties' mailing list for the proposed project.

The Location 1 meeting was held at the Rocklin City Council Chambers located at City of Rocklin City Hall, 3980 Rocklin Road, Rocklin, CA 95677 on May 7, 2015, between 5:30 PM and 7:00 PM. Project Alternatives Exhibits for both Location 1 and Location 2 were available for review, along with exhibits displaying the Project Status. A powerpoint presentation was used to answer questions from the attendees regarding project information.

The Location 2 meeting was held at the George Cirby Elementary School Multipurpose Room located at George Cirby Elementary School, 814 Darling Way, Roseville, CA 95678 on May 4, 2015, between 5:30 PM and 7:00 PM. Project Alternatives Exhibits for both

Location 1 and Location 2 were available for review, along with exhibits displaying the Project Status. A traffic simulation was shown on the projector which displayed a comparison of travel times between Alternative 2, the westbound through lane, and the No Build Alternative, for the 2020 AM peak hour travel times on Westbound I-80. Additionally, a powerpoint presentation was used to answer questions from the attendees regarding project information.

Comments received during these focused community meetings were incorporated in to the project's design and avoidance, minimization, and mitigation measures were feasible.

Pursuant to California Environmental Quality Act requirements, this Initial Study was circulated for 30 days for public review and comment from January 11, 2016, to February 11, 2016. During public circulation, a public meeting was held at the monthly PCTPA Board Meeting on January 27th, 2016, at 9:00 AM at the Placer County Community Development Resource Agency located at 3091 County Center Drive, Auburn, CA 95603. This public meeting included a presentation to the PCTPA Board regarding the proposed project and findings within the environmental document.

The comments received during the public circulation period are provided in Appendix E, which has been added to the environmental document. Additionally, responses to all public comments received during the public circulation period are provided in Appendix E.

An additional public meeting was held on April 27, 2016, for the PCTPA Board to identify a preferred alternative. After consideration of all environmental impacts associated with the studied alternatives, Caltrans with agreement from the PCTPA Board identified Alternative 2, which will add an eastbound auxiliary lane at Location 1 between SR 65 and Rocklin Road, and a fifth through lane (mixed flow) at Location 2 from 1,000 feet east of Douglas Boulevard to west of Riverside Avenue (where four through lanes currently exist) as the preferred Build Alternative. The responses to public comments were also reviewed, and the discussion was opened to the public for question and comment. No questions or comments were received from the public at this meeting.

4.0 LIST OF PREPARERS

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Angela Scudiere, Environmental Planner/Biologist. B.S., Biological Sciences; 6 years of biological studies experience. Contribution: Natural Environment Study and Biological Assessment.

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FEHR & PEERS

David Stanek, P.E. 15 years of experience in traffic engineering and operations analysis. Contribution: Transportation Analysis Report

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6.0 *LIST OF TECHNICAL STUDIES*

All technical studies will be available for review by request. These studies were used in preparation of the environmental document and provide supporting documentation in addition to the summary information contained within the environmental document.

Air Quality Report. 2015. Prepared by Dokken Engineering.

Biological Assessment. 2015. Prepared by Dokken Engineering.

Community Impact Assessment. 2015. Prepared by Dokken Engineering.

Historic Property Survey Report. 2015. Prepared by Dokken Engineering.

Initial Site Assessment. 2015. Prepared by Dokken Engineering.

Location Hydraulic Study. 2015. Prepared by Dokken Engineering.

Natural Environment Study. 2015. Prepared by Dokken Engineering.

Noise Abatement Decision Report. 2015. Prepared by Dokken Engineering.

Noise Study Report. 2015. Prepared by Dokken Engineering.

Transportation Analysis Report. 2015. Prepared by Fehr and Peers.

Visual Impact Assessment. 2015. Prepared by Dokken Engineering.

Water Quality Assessment Report. 2015. Prepared by Dokken Engineering.

Appendix A:
Non-Discrimination Policy Statement

DEPARTMENT OF TRANSPORTATION
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March 2013

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

MALCOLM DOUGHERTY
Director

Appendix B. CEQA Checklist

The impacts checklist below identifies physical, biological, social, and economic factors that might be affected by the proposed project. The California Environmental Quality Act impact levels include “potentially significant impact (PSI),” “less than significant impact with mitigation (LSIWM),” “less than significant impact (LSI),” and “no impact (NI).”

A brief explanation of each California Environmental Quality Act checklist determination that is other than “No Impact” is included in each relevant section within the environmental document.

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Less Than Significant Impact” as indicated by the checklist on the following pages.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐
e) Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resource Code 21074?	☐	☐	☐	☒
VI. GEOLOGY AND SOILS: Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

VII. GREENHOUSE GAS EMISSIONS: Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒
IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒
X. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b)Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

XI. MINERAL RESOURCES: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒
XII. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XIII. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIV. PUBLIC SERVICES: Would the project:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☐	☒
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒
XV. RECREATION: Would the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒
XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Appendix C:
Mitigation Monitoring and Reporting Program

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
VIS-1	Areas that have removed trees, shrubs and created soil disturbance due to construction activities will be re-established by applying a permanent erosion control and planting trees and shrubs where they are deemed appropriate. All finished slopes and graded areas shall be hydro seeded with a permanent seed mix composed of native plant species indigenous to the area.	Contractor	Post-Construction	
VIS-2	All disturbed areas during each construction season shall utilize best management practices (BMPs) which will include temporary erosion control consisting of a native seed mix at the end of each construction season.	Contractor	During Construction	
VIS-3	Aesthetic elements, such as implementation of additional retaining walls and soundwalls, shall conform to existing aesthetic elements along I-80. If additional aesthetic elements, such as aesthetic treatments and/or landscaping, are incorporated during Final Design, such features would be designed and implemented in coordination with the project proponent, arborists, and environmental planners.	Engineer	PS&E	
VIS-4	Vegetation clearing must only occur within the delineated project boundaries. Where feasible, Environmental Sensitive Area (ESA) fencing will be established at the driplines of oak trees within or adjacent to construction. Where complete avoidance is not feasible, trees will be preferentially trimmed wherever possible. All tree trimming of a protected tree designated to be preserved must be	Contractor	During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	supervised by the project biologist. Severe trimming likely to result in the decline and/or death of the tree must be mitigated as a full removal.			
VIS-5	All disturbed areas including staging of vehicles and equipment will be restored to pre-construction contours and revegetated, either through hydroseeding or other means, with native species.	Contractor	Post-Construction	
VIS-6	Construction lighting types, plans, and placement shall comply with Caltrans and local standards in order to minimize light and glare impacts on surrounding sensitive uses.	Engineer	PS&E	
VIS-7	Implement dust suppression measures as applicable from PCAPCD's Rules 202 (Visible Emissions), 205 (Nuisance), and 228 (Fugitive Dust).	Contractor	During Construction	
VIS-8	Reconstructed walls should match the most recent soundwall aesthetics of the surrounding region.	Engineer	Prior to Construction	
AQ-1	The construction contractor shall comply with Caltrans' Standard Specifications Section 14-9.03 Dust Control of Caltrans' Standard Specifications (2010).	Contractor	During Construction	
AQ-2	The construction contractor shall comply with Section 7-1.02 Emissions Reduction and Section 18 Dust Palliative of Caltrans' Standard Specifications (2010).	Contractor	During Construction	
AQ-3	The Wind Erosion Control BMP (WE-1) from Caltrans' Construction Site *Best Management Practices Manual* will be implemented as follows:	Contractor	During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	• Water shall be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses and nozzles that will ensure even distribution. • All distribution equipment shall be equipped with a positive means of shutoff. • Unless water is applied by means of pipelines, at least one mobile unit shall be available at all times to apply water or dust palliative to the project. • If reclaimed water is used, the sources and discharge must meet California Department of Health Services water reclamation criteria and the Regional Water Quality Control Board requirements. Non-potable water shall not be conveyed in tanks or drain pipes that will be used to convey potable water and there shall be no connection between potable and non-potable supplies. Non-potable tanks, pipes and other conveyances shall be marked "NON-POTABLE WATER – DO NOT DRINK." • Materials applied as temporary soil stabilizers and soil binders will also provide wind erosion control benefits.			
BIO-1	Vegetation clearing must only occur within the delineated project boundaries. Where feasible, ESA fencing will be established at the driplines of oak trees within or adjacent	Resident Engineer & Contractor	Prior to and During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	to construction (see Figure 3: Project Features). Where complete avoidance is not feasible, trees will be preferentially trimmed wherever possible. All tree trimming of a protected tree, designated to be preserved, must be supervised by the project biologist. Severe trimming likely to result in the decline and/or death of the tree must be mitigated as a full removal.			
BIO-2	All initial grading, cutting or filling within the dripline of a tree designated to be preserved must be supervised by the project biologist. The project biologist is responsible for maintaining protective fencing and ensuring the protected oak trees are not damaged by grading related activities. Damage likely to result in the decline and/or death of the tree must be mitigated as a full removal.	Contractor	During Construction	
BIO-3	Mitigation for the removal of oak trees greater than or equal to 6 inches dbh must be compensated as follows: • Within the City of Rocklin's jurisdiction, removed trees must be replaced at a ratio of 2:1 trees for native oaks and 5:1 trees for City of Rocklin designated heritage trees per with a dbh of 24 or greater as defined in the City of Rocklin Municipal Code Chapter 17.77 – Oak Tree Preservation. • Within the City of Roseville's jurisdiction, removed trees must be mitigated by replacing a 15 gallon tree for every 1 inch	Project Proponent	Prior to Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	dbh removed, a 24 inch box tree for every two inches dbh removed or a 36 inch box tree for every three inches dbh removed. The combined diameter of replacement trees must be equal or greater than the total tree dbh removed and 50 percent of the replacements must be native oaks. This condition also applies to all City of Roseville designated heritage oak trees, as defined in the Roseville Municipal Code Chapter 19.66 – Tree Preservation Ordinance.			
BIO-4	Prior to the start of construction activities, the project limits in proximity to jurisdictional waters (wetlands, Cirby Creek and VRI) must be marked with high visibility ESA fencing or staking, where permanent barriers currently do not exist, to ensure construction will not further encroach into waters. Best Management Practices (BMPs) will be incorporated into the project design and project management to minimize impacts on the environment including reduction of sedimentation and release of pollutants (oil, fuel, etc.). Examples of minimization efforts include the use of silt fencing, temporary energy dissipation facilities, and wattles.	Contractor	Prior to Construction	
BIO-5	Erosion Control BMPs must be implemented during construction. To minimize the mobilization of sediment to adjacent water bodies, the following erosion control and sediment-control measures will be included in the construction specifications, based on	Contractor	During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	standard Caltrans measures and standard dust-reduction measures. • Soil exposure will be minimized by limiting the area of construction and disturbance and through the use of temporary BMPs, groundcover, and stabilization measures. These measures may include mulches, soil binders and erosion control blankets, silt fencing, fiber rolls, temporary berms, sediment de-silting basins, sediment traps, and check dams; • Plastic mono-filament netting (erosion control matting) or similar material that could trap wildlife must not be used. Acceptable substitutes include, but are not limited to, jute, coconut coir matting or tackified hydroseeding compounds. Energy dissipaters and erosion control pads would be provided at the bottom of slope drains. Other flow conveyance control mechanisms may include earth dikes, swales, or ditches. Stream bank stabilization measures would also be implemented • Existing vegetation would be protected where feasible to reduce erosion and sedimentation. Vegetation would be preserved by installing temporary fencing, or other protection devices, around areas to be protected.			

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	• Exposed soils would be covered by loose bulk materials or other materials to reduce erosion and runoff during rainfall events. • Exposed soils would be stabilized, through watering or other measures, to prevent the movement of dust at the project site caused by wind and construction activities such as traffic and grading activities. • All construction roadway areas would be properly protected to prevent excess erosion, sedimentation, and water pollution. • The contractor must conduct periodic maintenance of erosion- and sediment control measures. All erosion control measures and storm water control measures must be properly maintained until the site has returned to a pre-construction state. • All disturbed areas including staging of vehicles and equipment will be restored to pre-construction contours and revegetated, either through hydroseeding or other means, with native species. • All construction materials must be hauled off-site after completion of construction.			
BIO-6	To conform to water quality requirements, the Storm Water Pollution Prevention Plan (SWPPP) must include the following:	Contractor	During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	• Vehicle maintenance, staging and storing equipment, materials, fuels, lubricants, solvents, and other possible contaminants must be a minimum of 100 feet from riparian, wetlands or aquatic habitats. Any necessary equipment washing must occur where the water cannot flow into waterways, including Cirby Creek. The project proponent will prepare a spill prevention and clean-up plan. In the event of an emergency, maintenance would occur away from Cirby Creek; • Construction equipment will not be operated in flowing water; • Construction work must be conducted according to site-specific construction plans that minimize the potential for sediment input to Cirby Creek; Raw cement, concrete or concrete washings, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to aquatic life must be prevented from contaminating the soil or entering Cirby Creek; • All concrete curing activities must be conducted to minimize spray drift and prevent curing compounds from entering the waterway directly or indirectly. • Equipment used in and around Cirby Creek must be in good working order and free of dripping or leaking engine fluids;			

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	and, • Any surplus concrete rubble, asphalt, or other debris from construction must be taken to an approved disposal site.			
BIO-7	Within jurisdictional waters, where feasible, the project will cut vegetation at ground level and avoid grubbing of roots to allow riparian vegetation to re-sprout following construction. Upon completion of construction activities, any barriers to surface water flow must be removed in a manner that would allow flow to resume with the least disturbance to the substrate.	Contractor	During Construction	
BIO-8	Permanent impacts to Cirby Creek (U.S., state and CDFW jurisdiction) and VRI (CDFW jurisdiction) will be mitigated by obtaining a Section 401 Water Quality Certification, Section 404 Nationwide Permit, and a Section 1602 Streambed Alteration Agreement, which will require appropriate mitigation. A 2:1 mitigation ratio is anticipated and will be mitigated through payment into the in-lieu fee program or at an on or off-site, agency approved location. Temporary impacts to Cirby Creek will be re-contoured to pre-construction conditions. For temporary impacts to VRI, the project is anticipated to, through permitting, mitigate at a 1:1 ratio with the installation of native hydroseed, native riparian plant materials, or a combination of both. Exact mitigation ratios and locations will be determined during the environmental permitting phase of the project.	Project Proponent	Prior to Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
BIO-9	Before any activities begin on the project, the project biologist will conduct environmental awareness training for all construction personnel. At a minimum, the training will include a description of sensitive species with potential to occur, including steelhead, their habitat, the project specific measures being implemented to conserve the species, and the boundaries within which the project may be accomplished.	Resident Engineer & Contractor	Prior to Construction	
BIO-10	The project biologist must be onsite during the installation of any stream diversion or initial dewatering efforts.	Resident Engineer	During Construction	
BIO-11	In-channel gravel and rock substrate removed during project construction must be set aside, rinsed, and placed in the newly extended concrete lined low water fish passage following the completion of in-channel construction. The substrate placed within the low water fish channel must allow for a minimum of 1 foot in depth for fish passage. The remaining substrate will be disposed at an approved site.	Contractor	During Construction	
BIO-12	All in-channel construction including creek diversions, creek crossings, or any work in the channel bed must occur within the June 1 – October 15 work window.	Contractor	During Construction	
BIO-13	Pile driving activities must occur within the June 1 – October 15 work window which coincides with the least likely occurrence of upstream migrating adults.	Contractor	During Construction	
BIO-14	Project activities that may affect the flow of the creek through placement of fill, bridge	Contractor	During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	construction, or diversion of the channel must comply with the *2001 NMFS Guidelines for Salmonid Passage at Stream Crossing*, where applicable. The guidelines include but are not limited to: • A minimum water depth (12 inch for adults and 6 inch for juveniles) at the low fish passage; • A maximum hydraulic drop of 12 inch for adults and 6 inch for juveniles; • Avoidance of abrupt changes in water surface and velocities; and • Structures shall be aligned with the stream, with no abrupt changes in flow direction upstream or downstream of the crossing.			
BIO-15	Night work must not be conducted within the Cirby Creek channel or the adjacent banks to afford fish quiet, unobstructed passage during night time migratory hours.	Contractor	During Construction	
BIO-16	All water pumping or withdrawal from the creek must comply with 1997 NMFS *Fish Screening Criteria for Anadromous Salmonids*, where applicable, to avoid entrainment of fish. The criteria include but are not limited to the following: • Screen design must provide for uniform flow distribution over the surface of the screen; • Screen material openings must not exceed 3/32 inches for fry (fish capable	Contractor	During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	of feeding themselves) sized salmonids and must not exceed 1/4 inch for fingerling sized salmonids; • Where physically practical, the screen must be constructed at the dewatering system entrance. The screen face should be generally parallel to river flow and aligned with the adjacent bankline; and • The design approach velocity must not exceed 0.33 feet per second for fry sized salmonids or 0.8 feet per second for fingerling sized salmonids.			
BIO-17	Permanent impacts to fall-run Chinook salmon EFH shaded riverine aquatic habitat is anticipated to be mitigated at a 3:1 ratio at an on or off-site agency approved location. Exact mitigation ratios and locations will be determined during the environmental permitting phase of the project.	Project Proponent	Prior to Construction	
BIO-18	All vegetation should be removed outside of the nesting season (February 15th – September 15th). If construction requires the removal of vegetation during the nesting season (February 15th – September 15th), a pre-construction nesting bird survey must be conducted within 7 days prior to vegetation removal. Within 2 weeks of the nesting bird survey, all vegetation cleared by the biologist must be removed by the contractor. A minimum 100 foot no-disturbance buffer must be established around any active nest to limit the impacts of construction activities. The	Contractor	During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	contractor must immediately stop work in the nesting area until the appropriate buffer is established and is prohibited from conducting work that could disturb the birds (as determined by the project biologist and in coordination with wildlife agencies) in the buffer area until the project biologist determines the young have fledged.			
BIO-19	If sensitive species are encountered during the course of construction, construction will temporarily stop within the area of discovery. The project biologist will be contacted immediately for further guidance. Work will not resume in the area of discovery until the project biologist has cleared the area or the animal has passively left the construction area unharmed and unmolested.			
BIO-20	All food-related trash must be disposed into closed containers and must be removed from the project area daily. Construction personnel must not feed or otherwise attract wildlife to the project area.	Contractor	During Construction	
BIO-21	Plastic mono-filament netting (erosion control matting) or similar material that could trap wildlife must not be used. Acceptable substitutes include jute, coconut coir matting or tackified hydroseeding compounds.	Contractor	During Construction	
BIO-22	Adequate flow will be maintained through the Action Area by diverting the active channel in Cirby Creek. A temporary water diversion will be installed using either 24-inch plastic pipe or K-rail lined with plastic and clean gravel. Regardless of the method used, the water	Contractor	During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	diversion will be covered and protected from debris, contaminants, and sediment. The diversion structure will be removed upon project completion and flow conditions will be returned to a pre-project state.			
BIO-23	Contractors must use biodegradable lubricants and hydraulic fluid in construction machinery. The use of petroleum alternatives can greatly reduce the risk of contaminants directly or indirectly entering the aquatic ecosystem.	Contractor	During Construction	
BIO-24	Contractors must use hydro seeding mulches that contain low concentrations of fertilizer to minimize harmful runoff and excessive inorganic nutrient input into the aquatic ecosystem.	Contractor	During Construction	
BIO-25	Signs must be posted in the Action Area about storm water pollution and runoff, advising citizens of the presence of listed fish species and to not discharge any chemicals, oils or other waste products near the stream.	Project Proponent	Prior to Construction	
CR-1	If previously unidentified cultural materials are unearthed during construction, work shall be halted in that area until a qualified archaeologist can assess the significance of the find and develop a plan for documentation and removal of resources if necessary. Additional archaeological survey will be needed if project limits are extended beyond the present survey limits.	Resident Engineer & Contractor	During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
CR-2	Section 5097.94 of the Public Resources Code and Section 7050.5 of the California Health and Safety Code protect Native American burials, skeletal remains and grave goods, regardless of age and provide method and means for the appropriate handling of such remains. If human remains are encountered, work should halt in that vicinity and the county coroner should be notified immediately. At the same time, an archaeologist should be contacted to evaluate the situation. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within twenty-four hours of such identification. CEQA details steps to be taken if human burials are of Native American origin.	Resident Engineer & Contractor	During Construction	
GEO-1	Project proponent and the contractor shall implement a SWPPP to include erosion control methods. This SWPPP shall be prepared for the Section 402 permit, *NPDES General Permit for Discharges of Storm Water Associated with Construction Activity*.	Resident Engineer & Contractor	Prior to Construction	
CC-1	The project would incorporate the use of energy-efficient lighting, such as LED traffic signals. LED bulbs cost \$60 to \$70 each, but last five to six years, compared to the one-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the project's CO_2 emissions.	Engineer and Contractor	PS&E & During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
CC-2	According to the Caltrans’s Standard Specifications, the contractor must comply with all local Air Quality Management District rules, ordinances, and regulations for air quality restrictions.	Contractor	During Construction	
HAZ-1	To avoid impacts from pavement striping during construction it is recommended that testing and removal requirements for yellow striping and pavement marking materials be performed in accordance with Caltrans Standard Special Provisions for REMOVE TRAFFIC STRIPE AND PAVEMENT MARKINGS.	Contractor	During Construction	
HAZ-2	The Linda Creek Bridge bearing pad shims will require removal and proper disposal by a licensed and certified asbestos abatement contractor in conjunction with the planned bridge widening. In order to complete the necessary asbestos abatement/removal, a Placer County Air Pollution Control District (PCAPD) permit for the Linda Creek Bridge will be attained.	Contractor	During Construction	
HAZ-3	The proposed project will require a Non-Standard Special Provision (NSSP) for excavation and handling of soils contaminated with aerially deposited lead. The NSSP should address CCR Title 8, Section 1532.1, Lead, which includes a Lead Compliance Plan and Lead Awareness training.	Contractor	During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
HAZ-4	Further sampling and analysis of soil will be initiated during PS&E to determine the extent of lead-contaminated soils. Soils containing hazardous levels of aerially deposited lead will be excavated and disposed of at a Class 1 Disposal Facility or a Class 2 Disposal Facility permitted by the Central Valley Regional Water Quality Control Board (CVRWQCB) before completion of the proposed project.	Engineer	PS&E	
WQ-1	The following measures will be implemented to ensure best management practices: • The area of construction and disturbance would be limited to as small an area as feasible to reduce erosion and sedimentation. • Measures would be implemented during land-disturbing activities to reduce erosion and sedimentation. These measures may include mulches, soil binders and erosion control blankets, silt fencing, fiber rolls, temporary berms, sediment de-silting basins, sediment traps, and check dams. • Existing vegetation would be protected where feasible to reduce erosion and sedimentation. Vegetation would be preserved by installing temporary fencing, or other protection devices, around areas to be protected. • Exposed soils would be covered by loose bulk materials or other materials to	Contractor	During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	reduce erosion and runoff during rainfall events. • Exposed soils would be stabilized, through watering or other measures, to prevent the movement of dust at the project site caused by wind and construction activities such as traffic and grading activities. • All construction roadway areas would be properly protected to prevent excess erosion, sedimentation, and water pollution. • All vehicle and equipment maintenance procedures would be conducted off-site. In the event of an emergency, maintenance would occur away from Cirby Creek. • All concrete curing activities would be conducted to minimize spray drift and prevent curing compounds from entering the waterway directly or indirectly. • All construction materials, vehicles, stockpiles, and staging areas would be situated outside of the stream channel as feasible. All stockpiles would be covered, as feasible. • Energy dissipaters and erosion control pads would be provided at the bottom of slope drains. Other flow conveyance control mechanisms may include earth dikes, swales, or ditches. Stream bank stabilization measures would also be implemented.			

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	• All erosion control measures and storm water control measures would be properly maintained until the site has returned to a pre-construction state. • All disturbed areas would be restored to pre-construction contours and revegetated, either through hydroseeding or other means, with native or approved non-invasive exotic species. • All construction materials would be hauled off-site after completion of construction.			
WQ-2	Any requirements for additional avoidance, minimization, and/or mitigation measures will be identified in the permits obtained from all required regulatory agencies.	Project Proponent	PS&E	
WQ-3	The proposed project would require a National Pollution Discharge Elimination System (NPDES) General Construction Permit for Discharges of storm water associated with construction activities (Construction General Permit 2012-0006-DWQ). A Storm Water Pollution Prevention Plan (SWPPP) would also be developed and implemented as part of the Construction General Permit.	Contractor	Prior to Construction	
WQ-4	The construction contractor shall adhere to the SWRCB Order No. 2012-0006-DWQ NPDES Permit pursuant to Section 402 of the CWA. This permit authorizes storm water and authorized non-storm water discharges from construction activities. As part of this Permit requirement, a SWPPP shall be prepared	Contractor	During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	prior to construction consistent with the requirements of the RWQCB. This SWPPP will incorporate all applicable BMPs to ensure that adequate measures are taken during construction to minimize impacts to water quality.			
WQ-5	Post-construction storm water control requirements will be addressed in accordance with Caltrans' MS4 permit for areas within Caltrans right-of-way. Permanent treatment control BMPs will be evaluated based on effectiveness and feasibility and incorporated into the final design as applicable.	Contractor	Post-Construction	
NOI-1	The project will consider constructing sound barriers SW-W1 and SW-E1 to protect residents from increased noise volumes as a result of the proposed project, subject to final design.	Contractor	During Construction	
NOI-2	To the maximum extent feasible, the sound barriers should be constructed prior to initiation of construction along I-80.	Contractor	During Construction	
NOI-3	The project shall utilize rubberized asphalt or open grade pavement to reduce the noise volume from vehicles traveling between 7-10 dB.	Engineer	PS&E	
NOI-4	To minimize the construction-generated noise, abatement measures from Standard Specification 14-8.02 "Noise Control" and SSP 14-8.02 must be followed: • Do not exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m. • Equip an internal combustion engine with	Contractor	During Construction	

No.	Description of Commitment	Responsible Party/Monitor	Timing/Phase	Verification of Compliance
	the manufacturer recommended muffler. • Do not operate an internal combustion engine on the job site without the appropriate muffler.			
NOI-5	The following Standard Special Provision (SSP 14-8.02) will be edited specifically for this project during the PS&E phase. During this phase, certain activities, such as operation of noisy, construction-related equipment which would require lane shifting activities, are exempt from these requirement when public safety concerns would be present, included if the work is done during high traffic volumes. The Stand Special Provision to be edited during the PS&E phase is as follows: **Section 14-8.02. Use for work in a residential or urban area (1) at night or (2) if night or Sunday noise restrictions exist.** **Choose either par. 1 or 2.** *1. Edit to include (1) specific local noise ordinances that the project manager has agreed to comply with or (2) work needing noise level restrictions that differ from those specified in section 14. List exceptions in the table. Delete " except . . . table:" and the table if exceptions are not needed. Delete par. 2.* Do not exceed 86 dBA L_{max} at 50 feet from the job site activities from _____ p.m. to	Contractor	During Construction	

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<tr><td></td><td>_____ a.m. except you may perform the following activities during the hours and for the days shown in the following table:

Noise Restriction Exceptions
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<tr><th rowspan="2">Activity</th><th colspan="2">Hours</th><th colspan="2">Days</th></tr>
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<tr><td>PS-1/TRA-1</td><td>Temporary impacts to traffic flow as a result of construction activities would be minimized through construction phasing and signage and a traffic control plan.</td><td>Contractor</td><td>Prior to & During Construction</td><td></td></tr>
</table>

Appendix D:
NMFS Letter of Concurrence

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
650 Capitol Mall, Suite 5-100
Sacramento, California 95814-4700

NOV 13 2015

Refer to NMFS No: WCR-2015-3688

Ms. Suzanne Melim
Environmental Management
North Region, District 3, Caltrans
703 B St
Marysville, CA 95901

Re: Endangered Species Act Section 7(a)(2) Concurrence Letter, Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response and Fish and Wildlife Coordination Act Recommendation for the Placer I-80 Auxiliary Lanes Project

Dear Ms. Melim:

On October 2, 2015, NOAA's National Marine Fisheries Service (NMFS) received your request for a written concurrence that the California Department of Transportation (Caltrans) determination that the proposed Interstate 80 (I-80) Auxiliary Lanes Modification Project (Proposed Action) is Not Likely to Adversely Affect (NLAA) species listed as threatened or endangered or critical habitats designated under the Endangered Species Act (ESA). This response to your request was prepared by NMFS pursuant to section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402, and agency guidance for preparation of letters of concurrence.

NMFS recognizes that Caltrans has entered into a Memorandum of Understanding (NEPA Assignment) with the Federal Highway Administration (FHWA) effective October 1, 2012. It is understood that Caltrans will assume FHWA's responsibility to consult under the ESA pertaining to the review of proposed highway projects.

NMFS also reviewed the Proposed Action for potential effects on essential fish habitat (EFH) designated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), including conservation measures and any determination you made regarding the potential effects of the action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. EFH is characterized by a suite of Habitat Areas of Particular Concern (HAPCs) which are defined based on the following considerations (1) the importance of the ecological function provided by the habitat (2) the extent to which the habitat is sensitive to human-induced environmental degradation (3) whether, and to what extent, development activities are, or will be stressing the habitat type and (4) the rarity of the habitat type.

HAPCs for Pacific Coast salmon that occur in the Action Area include (1) Complex channels and floodplain habitats (2) Thermal refugia and (3) Spawning habitat. In this case, NMFS concluded the action would not adversely affect EFH. Thus, consultation under the MSA is not required for this action.

Because the Proposed Action will modify a stream or other body of water, NMFS also provides recommendations and comments for the purpose of conserving fish and wildlife resources under the Fish and Wildlife Coordination Act (FWCA) (16 U.S.C. 662(a)).

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The concurrence letter will be available through NMFS' Public Consultation Tracking System https://pcts.nmfs.noaa.gov/pcts-web/homepage.pcts. A complete record of this consultation is on file at the NMFS California Central Valley Area Office.

Proposed Action and Action Area

Proposed Action:

A highway expansion project has been proposed by the Placer County Transportation Planning Agency in cooperation with Caltrans, Placer County, City of Rocklin and City of Roseville on the existing I-80 between Rocklin Road and Riverside Ave in Placer County, CA. Widening and modifications will be made to portions of both Eastbound and Westbound lanes to enhance traffic capacity and two proposed project alternatives exist for the Westbound portion. Both alternatives involve widening Linda Creek bridge, a continuous three span, cast-in-place, reinforced concrete T-Beam Bridge which crosses Cirby Creek. The portion of Cirby Creek below the bridge contains a concrete fish passage structure that will be widened to the new width of the bridge. Construction activities that may impact Cirby Creek will be completed in one construction season between the dates of July 1st and October 15th, 2018. Water diversion, bridge expansion and project completion stages in the Project Area are all expected to be completed in 5 months or less.

Stage 1: Diversion

Stage 1 of the bridge expansion project is estimated to take one week and will involve diverting water while maintaining fish passage through the Action Area. One of two possible methods will be used to do this. The first method involves installation of 24-inch plastic pipes to convey water though a closed system while maintaining fish passage. The second method involves installation of K-rail, plastic sheeting, and clean gravel to divert water to the center of the channel. The diversion would be covered with steel or concrete beams and timber decking. Gravel or clean native fill would be placed for equipment movement.

Stage 2: Bridge Expansion

Stage 2 of the project involves expanding the existing bridge and is expected to take three months to complete. Dewatering will be required during excavation of the pier footings as water seepage may occur due to particle size of native substrate. A portion of the existing concrete fish passage structure will be removed for excavation of two new pier footings. Construction of these new footings will occur approximately 30 feet from the live channel. Pier footings will be supported by 12 10-inch diameter H-piles. 4-6 piles will be installed per day using impact-hammering; approximately 250 strikes per pile. Pile driving will occur outside of the wetted channel. Concurrent construction of bridge abutments will occur outside of the active channel. 10-inch diameter H-piles will be installed approximately 80 feet from the wetted channel. 5 piles will be installed per day using impact hammering; approximately 250 strikes per pile. Following dewatering and pier and abutment installation, falsework will be constructed to support widening of the cast-in-place concrete T-beam Bridge. Falsework will extend over the temporary channel diversion but no falsework supports will be placed in the live channel.

Stage 3: Completion

Stage 3 of the project involves removal of falsework, installation of scour protection and removal of the temporary water diversion. This stage will require one month to complete. Scour protection will include extension of the concrete fish passage structure to match the width of the expanded bridge. The temporary water diversion will be relocated to perform this installation. Upon completion of the installation, the diversion will be removed and water will be naturally conveyed through the Action Area.

Project Area and Action Area:

The proposed Project Area is located at Lat 38.730808 N Long - 121.283653 in Township 10 North, Range 6 East, section 11 of the Citrus Heights U.S. Geological Survey (USGS) 7.5-minute quadrangle. The Project Area is limited to the section of Cirby Creek below the existing Linda Creek Bridge and a 12.5 foot expanded section beneath the westbound portion of the bridge. The Action Area includes approximately 0.11 acres of Cirby Creek that was included in the Biological Study Area for this project as well as a 200-foot section of the creek downstream of the Project Area that may be affected by sedimentation and turbidity. The Action Area includes the spatial extent to which construction-related effects including increased turbidity and sedimentation have the potential to occur. As impact hammering will occur outside of the wetted channel, the acoustic impact area cannot be quantified.

No interrelated or interdependent activities were identified.

Minimization and Avoidance Measures:

The following avoidance and minimization efforts are to be implemented to avoid potential adverse effects to listed fish species in the Action Area:

Measures to Protect Listed Fish Species: Sedimentation and Turbidity

Several measures will be implemented to minimize sedimentation and turbidity in the Action Area. Temporary BMPs, groundcover and soil stabilization measures will be used to protect water that is conveyed through the active channel. These measures may include mulches, soil binders, erosion control blankets, silt fencing, fiber rolls, temporary berms, sediment de-silting basins, sediment traps and catch dams. In place of plastic mono-filament netting, jute, coconut coir matting or tackified hydroseeding compounds may be used. During dewatering activities, turbidity curtains, settling tanks, or other methods will be used to prevent sediment incursion into the live channel. If a holding facility is utilized, at a minimum it would consist of on-site frac tanks to remove suspended sediments and settable solids. Turbidity and pH will be monitored in accordance with Clean Water Act and Regional Water Board regulations. Energy dissipaters and erosion control pads will be provided at the bottom of slope drains. Earth dikes, swales or ditches may be used to control water flow conveyance. Exposed soils will be covered by loose bulk materials to reduce erosion and runoff during rain events. Soils that are exposed will be stabilized by watering to minimize dust or other mobilization that may occur due to construction activities. All construction roadways will be properly protected to prevent excess erosion and sedimentation. Periodic maintenance of erosion control measures, sediment control measures, and storm water control measures will be conducted throughout construction. Proper functioning of these will be maintained until the Project Area returns to a pre-project state. All construction materials will be removed upon completion of the project. In-channel gravel and rock removed during construction will be set aside, rinsed and placed in the newly extended fish passage structure upon completion of the project. Substrate placed in the low water fish channel must allow for a minimum of 1 foot in depth per NMFS fish passage requirements (NMFS 2001). Any remaining substrate will be disposed of at an approved dump site.

Measures to Protect Listed Fish Species: Contaminants and Pollution

Various measures will be implemented to minimize contaminant and pollution incursion in the Action Area. Vehicle maintenance, equipment staging, and storage of hazardous materials and equipment will occur at a minimum of 100 feet from any riparian, wetland or aquatic habitat. A spill prevention plan will be prepared for the project and in the event of an emergency, any maintenance would occur outside of the Project Area. Construction equipment will not be operated in flowing water and all equipment used will be properly maintained, in good working order and free of leaks or drips. Concrete curing activities will be conducted so as to minimize spray drift to prevent direct or indirect incursion of curing compounds. Raw cement, concrete or concrete washings, asphalt, paint, coating materials, oil, petroleum products and any other hazardous substances will be prevented from directly or indirectly entering riparian, aquatic or wetland habitats. Any surplus concrete rubble, asphalt, or other construction debris will be removed from the Action Area and taken to an approved disposal site.

Measures to Protect Listed Fish Species: Construction Planning

Avoidance and minimization measures will be put in place in construction planning for this project. Prior to commencement of construction activities, project boundaries in proximity to wetlands, Cirby Creek channel or valley foothill riparian habitat will be marked with

Environmentally Sensitive Area (ESA) tape or staking to prevent encroachment by personnel or equipment. Additionally, prior to construction, the project biologist will conduct environmental awareness training for all construction personnel. At a minimum, the training would include a description of sensitive areas, critical habitat for steelhead, project boundaries and specific avoidance and minimization measures that will be implemented to protect listed fish species. The project biologist will be onsite during the installation of the water diversion and will be present for any initial dewatering efforts. All in-channel construction including creek diversions, creek crossings, or any work in the channel bed must occur within the July 1 – October 15 work window. Pile driving will occur during the least-likely time for upstream migrating adults to be present in the Action Area within the July 1 – October 15 work window.

Measures to Protect Listed Fish Species: Flow Conditions

Adequate flow will be maintained through the Action Area by diverting the active channel in Cirby Creek. A temporary water diversion will be installed using either 24-inch plastic pipe or K-rail lined with plastic and clean gravel. Regardless of the method used, the water diversion will be covered and protected from debris, contaminants, and sediment. The diversion structure will be removed upon project completion and flow conditions will be returned to a pre-project state.

Action Agency's Effects Determination

Caltrans has determined that the Proposed Action may affect, but will NLAA federally threatened California Central Valley steelhead (CCV steelhead; *Oncorhynchus mykiss*). This determination is based on best available species life history information as well as information provided by NMFS, Placer County and Sacramento County.

Status of Species and Critical Habitat in the Action Area

The following federally listed species distinct population segments (DPS) occur in the Action Area and have the potential to be affected by the Proposed Action (Table 1):

Table 1. ESA Listing History

Species	**DPS**	**Original Final F.R. Listing**	**Current Final Listing Status**
Steelhead (*O. mykiss*)	California Central Valley DPS	3/19/1998 63/FR/13347 Threatened	1/5/2006 71/FR/834 Threatened

Critical habitat for CCV steelhead does not occur in the Action Area.

Consultation History

- On October 2, 2015, the NMFS West Coast Region – California Central Valley Area Office received a consultation initiation request letter and Biological Assessment for the proposed bridge auxiliary lane expansion project in Placer County on I-80 over Cirby Creek.

- On October 29, 2015, NMFS initiated informal consultation.

ENDANGERED SPECIES ACT

Effects of the Action

Under the ESA, "effects of the action" means the direct and indirect effects of an action on the listed species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action (50 CFR 402.02). The applicable standard to find that a Proposed Action is not likely to adversely affect listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur.

Potential Effects of the Project to ESA Listed Fish

Increased Turbidity, Sedimentation and Pollution:

Increased turbidity and sedimentation in stream habitats can have several detrimental effects to steelhead including gill fouling; increased susceptibility to predation; loss of habitat for aquatic macro invertebrates and sediment cover of incubating eggs, reducing oxygen supply. Potential sources of sediment and dust that will be present in the Action Area include construction equipment, installation of water diversion materials, disturbed substrate and sediment erosion due to construction-related activities. BMPs for soil stabilization, sediment retention and control will be implemented to minimize the effects of sedimentation and turbidity. Measures will be taken to remove any suspended sediments such as the use of on-site frac tanks, sediment curtains or settling tanks. Also, diverted water that is conveyed through the project area will be covered to prevent sediment incursion. Any increases in turbidity or influxes of sediment will occur during the scheduled in-water work period and are expected to be transient in nature. Upon completion of the project, hydro seeding and/or replanting will stabilize disturbed soils in the Project Area and soil stabilization will be maintained until the Project Area returns to pre-project conditions. Due to the implementation of these avoidance and minimization techniques, the potential for direct or indirect adverse effects to listed species from turbidity and sedimentation will be insignificant as they will not reach the scale where fish are harmed.

Construction equipment and automobile traffic will be present in the action area and metals may collect on the roadway from brake linings and tires (Paul and Meyer 2001). These materials have been shown to alter juvenile salmonid behavior through disruptions to various physiological mechanisms including sensory disruption, endocrine disruption, neurological dysfunction and metabolic disruption (Scott and Sloman 2004). In addition, newly poured asphalt and oil-based products used in combustion engines are known to contain Polycyclic Aromatic Hydrocarbons (PAHs) which have been known to bio-accumulate in fish and have carcinogenic, mutagenic and cytotoxic effects (Johnson et al 2002). These sources of pollution may potentially have direct or indirect adverse effects on CCV steelhead in Cirby Creek. Through proper adherence to the SWPPP that is to be prepared for this project as well as use of BMPs for equipment use, storage and maintenance, the potential for adverse contaminant and pollution-related effects to federally listed fish in the Action Area will be insignificant as they will not reach the scale where fish are harmed.

Acoustic-Related Impacts

Pile driving activities can pose a direct risk to fish through barotrauma and/or behavioral alterations. Piles that are driven into substrate within a wetted channel propagate sound through the water which can damage a fish's swim bladder by causing sudden rapid changes in pressure. Sensory cells may also be damaged by noise generated during pile driving activities. Behavioral changes have also been shown to occur as a result of pile driving. This is of particular concern for juvenile fish as there are innate behaviors that are essential to their maturation and survival such as feeding, sheltering and migratory patterns. Failure to exhibit these behaviors can result in increased competition for food and habitat, reduced growth and increased predation due to disorientation. Pile driving activities conducted during the scheduled work window will be conducted outside of the wetted channel and water will be diverted away from pile driving sites. Therefore, there will be no in-water pile driving associated with this project. Through implementation of these avoidance measures, adverse acoustic-related effects to federally listed fish will be discountable as they are extremely unlikely to occur.

Additional Construction-Related Effects

There is a possibility that fish may be crushed by falling debris, tools, falsework material or misplaced/unstable rocks from RSP installation. The risk exists in all three project phases. If the first dewatering method is implemented, the possibility exists for fish to become entrained in the pipes due to accumulated debris. If the second dewatering method is implemented, the possibility exists for incursion of debris through covering materials. Upon completion of the project, water diversion materials will be removed and the wetted channel will be restored to its natural pre-construction state. Furthermore, water that is diverted and conveyed through the Project Area will be covered, preventing incursion of debris as best as possible. Installation of dewatering materials will be in compliance with NMFS guidelines, minimizing harmful effects to fish and ensuring adequate physical conditions for fish passage. The project biologist will inform construction crews of the avoidance and minimization measures that will be in place and will be present for water diversion installation and initial dewatering activities. Through the use of BMPs and through avoidance and minimization efforts, the potential for adverse effects resulting from falling debris will be insignificant as they will not reach the scale where fish are injured or killed.

Flow Conditions in the Action Area:

Maintaining adequate flow is essential for salmonids migrating or rearing in a stream habitat. Inadequate flow conditions as a result of stream habitat disturbance can disrupt migration, resulting in reduced survival in salmonid species (Bjornn and Reiser 1991). NMFS fish passage guidelines will be adhered to in the design and implementation of water diversion through the

Action Area, reducing impacts to stream habitat (NMFS 2001). Upon project completion, all materials used to divert flow through Cirby Creek will be removed and the active channel will be restored to its pre-project condition. Through the use of these minimization techniques, the potential for adverse effects to CCV steelhead as a result of water diversion will be insignificant as they will not reach the scale where fish are harmed.

Conclusion

Based on this analysis, NMFS concurs with Caltrans that the Proposed Action is not likely to adversely affect CCV steelhead (71 FR 834).

Reinitiation of Consultation

Reinitiation of consultation is not required at this time. It shall be requested by Caltrans or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter; or if (3) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16). Reinitiation triggers specific to this project include but are not limited to: any proposed in-stream work conducted outside of the scheduled in-stream work period from June 1st to October 15th, failure to implement BMPs as referenced herein, substantial additional removal of riparian vegetation (greater than an additional net 0.05 acres removed) and any additional stream bed alteration not included or described in the Biological Assessment prepared for this project. This concludes the ESA portion of this consultation.

FISH AND WILDLIFE COORDINATION ACT

The purpose of the FWCA is to ensure that wildlife conservation receives equal consideration, and is coordinated with other aspects of water resources development (16 U.S.C. 661). The FWCA establishes a consultation requirement for Federal departments and agencies that undertake any action that proposes to modify any stream or other body of water for any purpose, including navigation and drainage (16 U.S.C. 662(a)). Consistent with this consultation requirement, NMFS provides recommendations and comments to Federal action agencies for the purpose of conserving fish and wildlife resources. The FWCA allows the opportunity to offer recommendations for the conservation of species and habitats beyond those currently managed under the ESA.

The following recommendations apply to the Proposed Action:

(1) Caltrans should recommend to contractors to use biodegradable lubricants and hydraulic fluid in construction machinery. The use of petroleum alternatives can greatly reduce the risk of contaminants directly or indirectly entering the aquatic ecosystem.

(2) Caltrans should recommend that contractors use hydro seeding mulches that contain low concentrations of fertilizer to minimize harmful runoff and excessive inorganic nutrient input into the aquatic ecosystem.

NMFS requests that Caltrans provide a response to this FWCA recommendation. We make this request in order to foster greater communication with action agencies and to monitor the effectiveness of our letters. This concludes the FWCA portion of this consultation.

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of threatened and endangered species. Contributions to conservation programs are discretionary agency activities that help to minimize or avoid adverse effects to listed species or critical habitat and provide opportunities to implement recovery plans and/or gather more information about listed species. Caltrans also has the same responsibilities, and informal consultation offers action agencies an opportunity to address their conservation responsibilities under section 7(a)(1). NMFS recommends the following conservation measure to help Caltrans fulfill requirements set forth in section 7(a)(1):

(1) Caltrans should recommend to project applicants to post signs in the Action Area about storm water pollution and runoff, advising citizens of the presence of listed fish species and to not discharge any chemicals, oils or other waste products near the stream. This is critical for protecting aquatic biota from exposure to harmful pollutants.

(2) Caltrans should continue to work cooperatively with other state and federal agencies, private landowners, governments, and local watershed groups to identify opportunities for cooperative analysis and funding to support salmonid habitat restoration objectives in accordance with the NMFS Recovery plan for the evolutionarily significant units of Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon and the distinct population segment of California Central Valley steelhead (NMFS 2014).

Please direct questions regarding this letter to LTJG Sean Luis in NMFS' WCR CCVAO at (916) 930-3724 or via email at Sean.M.Luis@noaa.gov.

Sincerely,

for William W. Stelle, Jr.
Regional Administrator

CC: California Central Valley Office – File Copy
ARN File: 151422-WCR2015-SA00181

Literature Cited

Bjornn, T. and D.W. Reiser. 1991. Habitat requirements of salmonids in streams. *American Fisheries Society Special Publication* 19: 83-138
California Department of Transportation. 2015. Biological Assessment for the Placer I-80 Auxiliary Lanes Project. September 15, 2015. 71 pp.

Johnson, L.L., T.K. Collier, J.E. Stein. 2002. An analysis in support of sediment quality thresholds for polycyclic aromatic hydrocarbons (PAHs) to protect estuarine fish. Aquatic Conservation: Marine and Freshwater Ecosystems 12: 517-538

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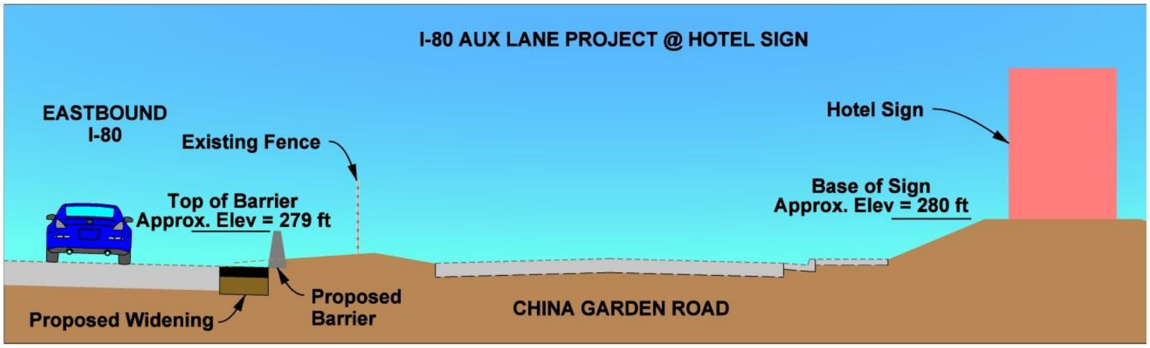
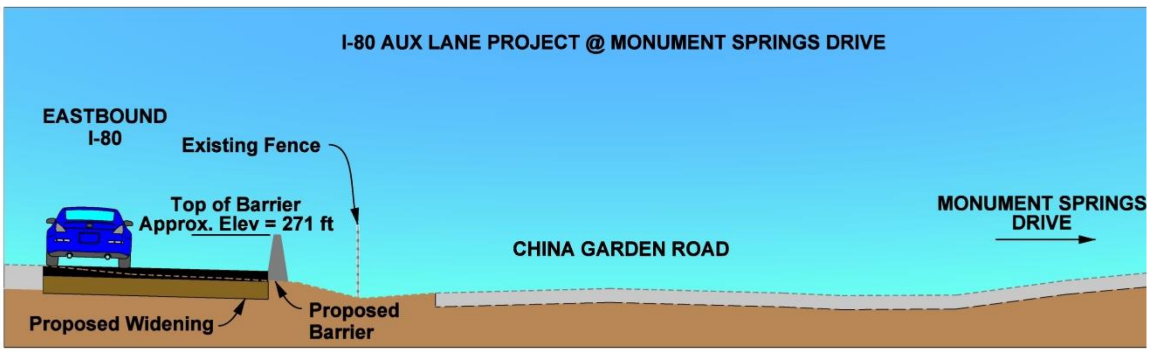
Appendix E Response to Public Comments

This appendix contains the comments received during the public circulation and comment period from January 11, 2016 to February 11, 2016. A response from the lead agency follows each comment presented.

Table of Contents

Comment	
A	**Joyce Bauer (Received January 11, 2016 via email)** **From:** Joyce Bauer [mailto:joyce-[redacted] **Sent:** Monday, January 11, 2016 2:11 PM **To:** [redacted] **Subject:** Re: I-80 Auxiliary Lanes Public Notice: IS/MND Release, Jan. 27 Public Hearing It seems like there are more large trucks on Hwy 65 lately. Any explanation for this? Thanks, Joyce Bauer Sent from my iPad
	Response to Comment A: Thank you for your comment. There may be several reasons for a change in truck traffic on Highway 65, including the current interchange under construction at Whitney Ranch Parkway in Rocklin; however, additional truck traffic along Highway 65 is not associated with the proposed I-80 Auxiliary Lanes Project.
B	**Lindsay Welchoff (Received January 13, 2016 via email)** From: Lindsey Welch off [mailto:[redacted] Sent: Wednesday, January 13, 2016 7:44 PM To: Shepard, Angela@DOT Subject: I-80 Auxiliary Lanes Project Hello Angela! I just received the Public Notice in the mail with regard to the I-80 Auxiliary Lanes Project. As a resident of the neighborhood directly north of I-80 in Rocklin I find myself getting stuck in insane traffic to exit at Taylor during the evening. Much of the clog is caused by vehicles entering 80 East who are trapped by cars already lined up in the slow lane to get off on 65. This makes merging into the exit only Taylor almost impossible at times. I really really hope the proposal takes into account this issue. Thank you, Lindsey Welchoff
	Response to Comment B: Thank you for your comment. The proposed project is only proposing changes on I-80 eastbound between SR 65

Comment	
	and Rocklin Road and I-80 westbound between Douglas Boulevard and Riverside Avenue. Placer County Transportation Planning Agency (PCTPA), the City of Roseville, and the City of Rocklin have a number of other proposed projects that aim to further reduce congestion along I-80, including the I-80/SR 65 Interchange Improvements Project. Additional information about these projects can be found on the PCTPA website at http://pctpa.net/.
C	**Hemang Trivedi (Received January 14, 2016 via email)** **From:** Hemang Trivedi [mailto:[redacted] **Sent:** Thursday, January 14, 2016 12:06 PM **To:** Angela.Shepard@dot.ca.gov; Luke McNeel-Caird <lmcneel-caird@pctpa.net> **Subject:** Fwd: I-80 Auxiliary Lanes Public Notice: IS/MND Release, Jan. 27 Public Hearing Hello! I am representing Rocklin Park Hotel located at 5450 China Garden Rd, Rocklin,CA We saw plan for I-80 A-lane addition. We wish to know; 1. What is height of Retaining wall in front of our property? 2. If you can provide rendering showing view of our property from I80 after retaining wall is built. In our business visibility is very important. Therefore this request. Thank you. Hemang Trivedi [redacted]
	Response to Comment C: Thank you for your comment. The proposed barrier will be approximately 3 feet tall and will not obstruct views of the Rocklin Park Hotel. Please find the requested rendering below, which shows the relative heights of the retaining wall and barrier after they are constructed to accommodate the proposed auxiliary lane. The proposed project will maintain similar visibility for your business.

Comment	
	 
D	**Jasdeep Chima (Received January 28, 2016 via email)** **From:** Jasdeep Chima [mailto:j_[redacted] **Sent:** Thursday, January 28, 2016 7:38 PM **To:** Angela.Shepard@dot.ca.gov; Luke McNeel-Caird <lmcneel-caird@pctpa.net> **Subject:** I-80 Expansion Dear Ms. Angela Shepard and Mr. Luke McNeel-Caird, I am writing to you today in regards to the I-80 freeway expansion. In particular the addition of another lane in the east bound direction of I-80 before the Rocklin Rd exit. I am a resident of Monument Springs Drive in Rocklin. Currently our house is close to the freeway and it is LOUD. I know that you have had engineers come out and check the noise level. However, these engineers do not live here. Please, if necessary, have them come out to our house and see how loud the freeway actually is. This noise becomes increasing louder at night and when it is windy. My fear is that the addition of another lane will increase the noise level. I have been a resident of this neighborhood for the past 2.5 years, I believe that our daily experiences with this noise should have more effect on this decision.
D1	
D2	Secondly, I am concerned about the displacement of the wildlife in this area. There are birds, turkeys, rabbits, coyotes, and rattlesnakes that depend on Secret Ravine as its water source. Adding another lane so close to their water source can be damaging

Comment	
D3	to them. Every time a home gets built in this area, the animals get displaced. We are slowly pushing them out of their own habitat. Please leave the beautiful nature that surrounds us, alone. I, along with several of my neighbors, do not want this expansion to occur. We want to you to abandon the project. I don't feel that traffic in that area gets so congested that we need to add another lane. I also don't appreciate the fact that our own tax dollars are being used to fund parts of this project. I can think of several places that money could be used instead. Fixing some of the damaged roads in Rocklin, improving parks, or improving schools. We chose to live in this town because we felt it was a great place to raise a family. Please take our concerns seriously!! Sincerely, Jasdeep Chima
	Response to Comment D: Thank you for your comment. **Response D1:** The noise levels at your home along Monument Springs Drive (near Calverhall Way) are not anticipated to noticeably change with the proposed project. A Noise Study Report was done for the project which identified current and future noise levels and compared them to abatement criteria. Current FHWA guidance on traffic noise analysis and abatement states that traffic noise is not usually a serious problem for people who live more than 500 feet from heavily traveled freeways. The closest home along Monument Springs Drive (near Calverhall Way) is over 1,000 feet away from I-80, and over 1,500 feet away from the proposed auxiliary lane, which starts at the existing lane drop after the SR 65 merge. Noise levels along Monument Springs Drive (near Calverhall Way) are not anticipated to noticeably increase as a result of the proposed project. Please refer to Section 2.10 within the environmental document for additional information. **Response D2:** The proposed eastbound auxiliary lane begins where the second lane drop on mainline I-80 currently exists, and is predominately widened between the existing paved China Garden Road and I-80. All of the widening within proximity of Secret Ravine will occur within the existing Caltrans right-of-way chain link fence that currently exists, and no impacts to Secret Ravine are anticipated as a result of the proposed project. Further, the existing habitat between mainline I-80 and China Garden Road consists of sparse Blue Oak Woodlands; however, this area is very disturbed and is predominately made up of ruderal vegetation, which does not contain optimal habitat for wildlife. Construction will temporarily disturb these areas; however, the few trees required to be removed within Caltrans right of way will be replaced at a minimum 2:1 ratio per Mitigation Measure BIO-3. The environmental document contains measures to avoid and minimize impacts to wildlife species within the area, no displacement of wildlife is anticipated as a result of the proposed project. **Response D3:** The eastbound auxiliary lane between SR 65 and Rocklin Road is needed due to safety issues along I-80 eastbound with two lane merges occurring

Comment	
	within a short distance of 2,000 feet just east of SR 65 and traffic congestion occurring at the Rocklin Road off-ramp. The proposed project aims to improve the operations by eliminating one of the lane merges and by increasing the number of lanes at the Rocklin off-ramp. With these improvements, the safety and operation of eastbound I-80 is anticipated to be enhanced. The current environmental phase is funded through both the federal High Priority Projects (HPP) and National Corridor Infrastructure Improvement Program (NCIIP). The federal funding programs allocate money to specific transportation projects. These transportation funds are limited to certain types of projects and cannot be used for schools or parks. The Placer County Transportation Planning Agency is currently pursuing funding for design and construction of the proposed project and more information can be found on the agency website at http://pctpa.net/.
E	**Dustin Erwin (Received February 1, 2016 via email)** **From:** Dustin Erwin [mailto:[redacted] **Sent:** Monday, February 01, 2016 9:27 AM **To:** Luke McNeel-Caird <lmcneel-caird@pctpa.net> **Subject:** Environmental Impact of I-80/Hwy 65 Expansion Mr. McNeel-Caird, My name is Dustin Erwin and I am a resident and homeowner in the Rocklin Highlands neighborhood, which will be directly impacted by the proposed Freeway expansion. My question for you is has an full environmental impact report been conducted on this project (including noise pollution)? It is my understanding that environmental impact and noise pollution portions of the proposal have not been released. Will this info be released? If so, when? If not, why? I am very concerned that this project will increase the amount of noise (short and long term), and have a significant and negative impact on the character and home values in our neighborhood. Please advise what is being done to address the very real concern of noise pollution. It's my understanding that an extension of the sound wall is not part of the proposal. What is the reason for this? Concerned Citizen, Dustin Erwin DLE

Comment	
	Response to Comment E: Thank you for your comment. Caltrans and PCTPA, as the project proponents, prepared an environmental document and a number of supporting technical studies to evaluate potential impacts to the human, physical, and biological environment. Within this document, and the supporting Noise Study Report technical study, the short and long term noise impacts associated with the proposed project have been evaluated. This study did find noise impacts associated with the proposed project for homes along China Garden Road, and will be mitigated for with the extension of the existing soundwall; however, no additional noise impacts were identified along eastbound I-80 between SR 65 & Rocklin Road, including along Monument Springs Drive (near Calverhall Way). The noise levels at your home along Monument Springs Drive (near Calverhall Way) are not anticipated to noticeably change with the proposed project. A Noise Study Report was done for the project which identified current and future noise levels and compared them to abatement criteria. Current FHWA guidance on traffic noise analysis and abatement states that traffic noise is not usually a serious problem for people who live more than 500 feet from heavily traveled freeways. The closest home along Monument Springs Drive (near Calverhall Way) is over 1,000 feet away from I-80, and over 1,500 feet away from the proposed auxiliary lane, which starts at the existing lane drop after the SR 65 merge. Noise levels along Monument Springs Drive (near Calverhall Way) are not anticipated to noticeably increase as a result of the proposed project. Please refer to Section 2.10 within the environmental document for additional information.
F **F1**	**Alan Glowacki (Received February 1, 2016 via email)** **From:** Alan Glowacki (aglowack) [mailto:[redacted] **Sent:** Monday, February 01, 2016 1:14 PM **To:** Luke McNeel-Caird; Angela.Shepard@dot.ca.gov **Subject:** Re: I-80 expansion between Route 65 and Rocklin Rd Luke, Thanks for sending this over but I am still very concerned that there was no noise abatement looked at for the area around the I-65 exit onto I-80. The noise level in that area is probably above an acceptable level and adding more lanes in the area is bound to increase the level. Thanks, Alan

Comment	
F1 F2	**From:** Alan Glowacki (aglowack) [mailto:[redacted] **Sent:** Monday, February 01, 2016 10:45 AM **To:** Angela.Shepard@dot.ca.gov; Luke McNeel-Caird <lmcneel-caird@pctpa.net> **Subject:** Re: I-80 expansion between Route 65 and Rocklin Rd Expanding on my previous email: I am writing to express my concerns with the I-80 expansion project. I am Rocklin Highlands resident and have concerns with the following issues of the expansion. 1. The direct noise impact: currently there is no sound wall in place and the freeway noise is very loud in our area. Expanding the freeway will only increase the freeway noise during and after construction. 2. Negative impact on housing values: additional freeway noise will have a direct impact on housing values for the areas residents. 3. Negative impact on natural areas: expanding the freeway will have a negative impact on the nature area between the Highlands homes and I-80. I have reviewed the expansion plan and see no documents outlining the noise impact in the area. I did see plans for some retaining walls but no plan of a sound wall in the area near the I-65 on ramp. Based on the plan for expansion, lack of complete transparancy and the negative affects to surrounding area I choose option three – no build. As a new resident of Rocklin I hope that the communities concerns will be seriously considered before moving forward with a plan that could have negative impact on our cities residents. Please feel free to reach out to me directly with any questions are new information. Thank You, Alan Glowacki [redacted]
	Response to Comment F: Thank you for your comment. **Response F1:** The project proponents prepared an environmental document and a number of supporting technical studies to evaluate potential impacts to the human, physical, and biological environment. Within this document, and supporting Noise Study Report technical study, the short and long term noise impacts associated with the proposed project have been evaluated. This study did find noise impacts associated with the proposed project for homes along China Garden Road, and will be mitigated for with the extension of the existing soundwall; however, no additional noise impacts were identified along eastbound I-80, including along Monument Springs Drive (near Calverhall Way). The noise levels at your home along Monument Springs Drive (near Calverhall Way) are not anticipated to noticeably change with the proposed project. A Noise Study

<table>
<tr><th>Comment</th><th></th></tr>
<tr><td></td><td>Report was done for the project which identified current and future noise levels and compared them to abatement criteria. Current FHWA guidance on traffic noise analysis and abatement states that traffic noise is not usually a serious problem for people who live more than 500 feet from heavily traveled freeways. The closest home along Monument Springs Drive (near Calverhall Way) is over 1,000 feet away from I-80, and over 1,500 feet away from the proposed auxiliary lane, which starts at the existing lane drop after the SR 65 merge. Noise levels along Monument Springs Drive (near Calverhall Way) are not anticipated to noticeably increase as a result of the proposed project. Please refer to Section 2.10 within the environmental document for additional information.

Response F2: We understand your concerns regarding this project and the potential for it to change the existing character of your neighborhood. Property values are assessed based on a huge number of variables. Exact changes to individual property values cannot be assessed, but many project features have been designed to improve features in the region, including traffic circulation.</td></tr>
<tr><td>G

G1

G2</td><td>**Joelene Strouse (Received February 1, 2016 via mail)**

Joelene Strouse
[redacted]
February 1, 2016

CA St. Dept. of Transporation

Attention Angela Shepard

RE: I-80 West bound Douglas Blvd. & Roseville Ave.

Back in Sept. 2014 I received a letter from Placer County Transporation Planning Agency, wanting permission to enter my property in Oct. & Nov. 2014. I sent the permission forms back and no person or persons have called or come. They said they went some where else. My house is the closest to the freeway and I have two sound walls behind my house One the state put in and one I put in. The noise has got so great and it shook a small Curios cabinet off the wall. The other day I opend the door for dog and while waiting for him the door shook. I though we were haveing an earth quake. No only the freeway.

The construction is so dirty who is going to wash my windows, wash my house and drive way. I have a very large driveway. During this time it looks like someone dumped truck loads of dirt on me. I know who cares!!!

I don't think the study on this was done proper.

Joelene Strouse

Joelene Strouse
[redacted]</td></tr>
</table>

Comment	
	Response to Comment G Thank you for your comment. **Response G1:** The noise levels at your home along Jo Ann Lane are not anticipated to noticeably change with the proposed project. Existing and predicted future noise volumes for your home were modeled in the Traffic Noise Model that was prepared for the proposed project, which did not find that the noise levels exceeded the noise abatement criteria as the existing soundwalls are currently attenuating the sound. The anticipated noise levels at your home as a result of the proposed project do not warrant additional noise abatement. **Response G2:** The project's identified construction mitigation measures have been documented in the environmental document and the Environmental Commitment Record for the proposed project, which will ensure these measures are diligently implemented during construction. These measures are to be implemented to ensure impacts to your home are avoided and minimized during construction.
H **H1** **H2**	**Tanya Hall (Received February 3, 2016 via email)** **From:** Tanya Hall [mailto:[redacted] **Sent:** Wednesday, February 03, 2016 9:32 PM **To:** Luke McNeel-Caird <lmcneel-caird@pctpa.net>; Angela.Shepard@dot.ca.gov **Subject:** FW: I-80 Expansion Dear Ms. Angela Shepard and Mr. Luke McNeel-Caird, I am writing to you today in regards to the I-80 freeway expansion. Specifically, the addition of another lane in the east bound direction of I-80 before the Rocklin Rd exit. I am a resident of Calverhall Drive in Rocklin and appalled that within the fact that there was no consideration for the noise in my area of Monument Springs as we sit above the freeway . Our house sits up on the hill behind Miners ravine and is close to the freeway and it is LOUD. I know that you have had engineers come out and check the noise level. However, these engineers do not live here. Please, if necessary, have them come out to our house and see how loud the freeway actually is. This noise becomes increasing louder at night and when it is windy. My fear is that the addition of another lane will increase the noise level. I have been a resident of this neighborhood for the past years, I believe that our daily experiences with this noise should have more effect on this decision. I chose to move to this neighborhood which clearly is one of the higher end on the fact that there was the beautiful ravine and walking trails, exquisite housing and upscale neighbors, limited neighborhood traffic and the views. Little did we realize when we

Comment	
	purchased this place that the freeway expansion was even a consideration, as I believe some deceptive marketing occurred as well as falsified information as I review your timeline in the PPT presentation. We were told that Miners Ravine, across from our home was not to be disturbed, which clearly is not the case. The idea of the freeway being expanded just beneath our neighborhood 300 yards from my home is disturbing at best and I am not certain how anyone can state that there would be limited to no environmental impact knowing that we already have coyotes and bobcats, snakes roaming our neighborhood since we have displaced them already. During the busy freeway times, the noise from the freeway is deafening and louder than the TV in my living room and I can't go outside and speak to my kid two houses away without yelling at her because the traffic is so loud Why was there no consideration for an expansion wall in the direction above since the noise travels and definitely goes outward .This will indeed have an effect on the values of our homes especially during the construction phase as prospective buyers would experience the noise firsthand.
H3	Secondly, I am concerned about the displacement of the wildlife in this area. There are birds, turkeys, rabbits, coyotes, and rattlesnakes that depend on Secret Ravine as its water source. Adding another lane so close to their water source can be damaging to them. Every time a home gets built in this area, the animals get displaced. We are slowly pushing them out of their own habitat. Please leave the beautiful nature that surrounds us, alone.
H4	I am quite certain since it appears your groups are now applying for a revised Mitigated Negative Declaration which will in turn make the approval process much quicker by stating there is no outstanding environmental or other reasons this should not be approved. This is the same group of people that were pushing to approve the mental facility across the street from one of our High Schools. I personally take issue with their lack of proper judgment and believe we are dealing with uneducated community decision makers that most certainly will have an effect on not just temporary noise but long term additional freeway noise. The expansion of a sound wall towards our neighborhood was not even in the proposal.
H5	I, along with several of my neighbors, do not want this expansion to occur. We want to you to abandon the project. I don't feel that traffic in that area gets so congested that we need to add another lane. I clearly don't appreciate the fact that our own tax dollars are being used to fund parts of this project. I can think of several places that money could be used instead. Fixing damaged roads in Rocklin, improving parks, or improving schools. We chose to live in this town because we felt it was a great place to raise a family. Please take our concerns seriously!!
	Tanya Hall | [redacted]

Comment	
	Response to Comment H: Thank you for your comment. **Response H1:** The noise levels at your home along Calverhall Way are not anticipated to noticeably change with the proposed project. A Noise Study Report was done for the project which identified current and future noise levels and compared them to abatement criteria. Current FHWA guidance on traffic noise analysis and abatement states that traffic noise is not usually a serious problem for people who live more than 500 feet from heavily traveled freeways. The closest home along Calverhall Way is over 1,000 feet away from I-80, and over 1,500 feet away from the proposed auxiliary lane, which starts at the existing lane drop after the SR 65 merge. Noise levels along Calverhall Way are not anticipated to noticeably increase as a result of the proposed project. Please refer to Section 2.10 within the environmental document for additional information. **Response H2:** We understand your concerns regarding this project and the potential for it to change the existing character of your neighborhood. Property values are assessed based on a huge number of variables. Exact changes to individual property values cannot be assessed, but many project features have been designed to improve features in the region, including traffic circulation. **Response H3:** The proposed eastbound auxiliary lane begins where the second lane drop on mainline I-80 currently exists, and is predominately widened between the existing paved China Garden Road and I-80. All of the widening within proximity of Secret Ravine will occur within the existing Caltrans right-of-way chain link fence that currently exists, and no impacts to Secret Ravine are anticipated as a result of the proposed project. Further, the existing habitat between mainline I-80 and China Garden Road consists of sparse Blue Oak Woodlands; however, this area is very disturbed and is predominately made up of ruderal vegetation, which does not contain optimal habitat for wildlife. Construction will temporarily disturb these areas; however, the few trees required to be removed within Caltrans right of way will be replaced at a minimum 2:1 ratio per Mitigation Measure BIO-3. The environmental document contains measures to avoid and minimize impacts to wildlife species within the area, no displacement of wildlife is anticipated as a result of the proposed project. **Response H4:** PCTPA is the project proponent, which is the regional transportation planning agency for Placer County, and only handles the planning for transportation projects. The project proponents prepared an environmental document and a number of supporting technical studies to evaluate potential impacts to the human, physical, and biological environment. Thorough evaluation of all potential impacts lead to the environmental document proposing a number of avoidance, minimization, and mitigation measures to reduce the identified impacts to a less than significant level. Additionally, the purpose of the environmental document is to solicit comments from the community regarding the project so the PCTPA Board can make an informed recommendation to Caltrans whether or not to pursue the project. Your comments will be considered in the PCTPA Board's recommendation, and by Caltrans, in their decision regarding adoption of the environmental document and whether or not to move forward with the design process.

Comment	
	Response H5: The eastbound auxiliary lane between SR 65 and Rocklin Road is needed due to safety issues along I-80 eastbound with two lane merges occurring within a short distance of 2,000 feet just east of SR 65 and traffic congestion occurring at the Rocklin Road off-ramp which can result in higher than average rear end and side swipe accidents. The proposed project aims to improve the operations by eliminating one of the lane merges and by increasing the number of lanes at the Rocklin off-ramp. With these improvements, the safety and operation of eastbound I-80 is anticipated to be enhanced. The current environmental phase is funded through both the federal High Priority Projects (HPP) and National Corridor Infrastructure Improvement Program (NCIIP). The federal funding programs allocate money to specific transportation projects. These transportation funds are limited to certain types of projects and cannot be used for schools or parks. The Placer County Transportation Planning Agency is currently pursuing funding for design and construction of the proposed project and more information can be found on the agency website at http://pctpa.net/.
	Jana Buccola (Received February 5, 2016 via email) From: [redacted] [mailto: [redacted] On Behalf Of Jana Buccola Sent: Friday, February 05, 2016 7:53 PM To: Angela.Shepard@dot.ca.gov; Luke McNeel-Caird <lmcneel-caird@pctpa.net> Subject: I-80 Expansion Project Dear Ms. Angela Shepard and Mr. Luke McNeel-Caird, I am writing to you today in regards to the I-80 freeway expansion. In particular the addition of another lane in the east bound direction of I-80 before the Rocklin Rd exit. I am a resident of Monument Springs Drive in Rocklin, and am concerned about this project.
I1	The freeway noise at our house is very loud! It is so loud that we have to wear ear plugs at night to not hear it from our bedroom. It is my understanding that you have had engineers come out to measure the sound. The freeway noise levels change with different weather patterns and times of day. It is hard to believe that the expansion of the freeway would NOT increase the noise level at our house. Additionally, it is a concern that no consideration was made to add sound barriers to the portion of the freeway behind our neighborhood.
I2	We live by a nature preserve area and have had deer, squirrels, and coyotes in our backyard. I am also concerned about the freeway expansion taking away more of their habitat forcing them to live more and more in our backyards.
I3	I, along with many of my neighbors, do not want this project to move forward. Please take time to consider our feedback and do more research before moving forward with this project.

Comment	
	Thank you, Jana Buccola
	Response to Comment I: Thank you for your comment. **Response I1:** The noise levels at your home along Monument Springs Drive (near Calverhall Way) are not anticipated to noticeably change with the proposed project. A Noise Study Report was done for the project which identified current and future noise levels and compared them to abatement criteria. Current FHWA guidance on traffic noise analysis and abatement states that traffic noise is not usually a serious problem for people who live more than 500 feet from heavily traveled freeways. The closest home along Monument Springs Drive (near Calverhall Way) is over 1,000 feet away from I-80, and over 1,500 feet away from the proposed auxiliary lane, which starts at the existing lane drop after the SR 65 merge. Noise levels along Monument Springs Drive (near Calverhall Way) are not anticipated to noticeably increase as a result of the proposed project. Please refer to Section 2.10 within the environmental document for additional information. **Response I2:** The proposed eastbound auxiliary lane begins where the second lane drop on mainline I-80 currently exists, and is predominately widened between the existing paved China Garden Road and I-80. All of the widening within proximity of Secret Ravine will occur within the existing Caltrans right-of-way chain link fence that currently exists, and no impacts to Secret Ravine are anticipated as a result of the proposed project. Further, the existing habitat between mainline I-80 and China Garden Road consists of sparse Blue Oak Woodlands; however, this area is very disturbed and is predominately made up of ruderal vegetation, which does not contain optimal habitat for wildlife. Construction will temporarily disturb these areas; however, the few trees required to be removed within Caltrans right of way will be replaced at a minimum 2:1 ratio per Mitigation Measure BIO-3. The environmental document contains measures to avoid and minimize impacts to wildlife species within the area, no displacement of wildlife is anticipated as a result of the proposed project. **Response I3:** The auxiliary lane between SR 65 and Rocklin Road is needed due to safety issues along I-80 eastbound with two lane merges occurring within a short distance of 2,000 feet just east of SR 65 and traffic congestion occurring at the Rocklin Road off-ramp. The proposed project aims to solve these issues by eliminating one of the lane merges and by increasing the number of lanes at the Rocklin off-ramp. With these improvements, the safety and operation of eastbound I-80 is anticipated to be enhanced. The project is largely funded through the federal transportation High Priority Projects program; and local transportation funds. The federal High Priority Projects program allocates money to specific transportation projects. These transportation funds are limited to certain types of projects and cannot be used for schools or parks. Local transportation funds are prioritized through a budget process which includes a public process. To find out more about local road projects and budgets you can refer to the Placer County Transportation Planning Agency website at http://pctpa.net/.

Comment	
J	**John Chase (Received February 9 and 11, 2016 via email)** **From:** John Chase [mailto:[redacted] **Sent:** Monday, January 11, 2016 11:56 AM **To:** administrator@pctpa.net **Subject:** Re: I-80 Auxiliary Lanes Public Notice: IS/MND Release, Jan. 27 Public Hearing
J1	I have questions regarding the height of the soundwalls on the section of 1-80 between HWY 65 and Rocklin Rd. To whom can I address these questions? Thanks very much. John Chase [redacted] [redacted] From: **John Chase** <[redacted] Date: Tue, Feb 9, 2016 at 6:17 PM Subject: Location 1: Eastbound I-80 improvements at Rocklin To: Angela.Shepard@dot.ca.gov, Yve Stone-Chase <john_[redacted] Angela,
J2	I was just informed that the planned soundwall improvements for the eastbound 1-80 freeway will not extend any further north/east than the existing sound wall at Rustic Hills Development on China Garden Rd. Years ago CalTrans performed a sound level reading north of the exsting soundwall, but we were told the housing density wasn't enough to warrant a wall extension. That density has changed significantly. (map attached) The development on Greenbrae is all new since the CalTrans readings were done. This development is more dense and as close, if not closer, to the freeway than the homes in the area adjacent the new southern soundwall extension. Because the area in pink (on map) is below the freeway, sound travels unimpeded to the area of new development on Greenbrae, as well as to the homes on Keller Court. On cold days it's exceptionally loud, as it is while I'm typing this. What we are requesting would be a short extension of the existing wall to bridge the low area of the frontage area, and nothing more. If I need to provide anything else I'd be glad to. This would provide a marked improvemen to time spent outdoors (and indoors as well) in this area. Thanks you for your consideration. John Chase

Comment	
	5750 Keller Court Rocklin 95677 (916) [redacted]  PUTTING HEADS TOGETHER **John Chase** :: [redacted]
	Response to Comment J: Thank you for your comment. **Response J1:** The proposed soundwall heights along eastbound I-80 are 16 feet, which is needed to attenuate the increase sound levels as a result of the proposed project. This soundwall height will match the existing soundwall along China Garden Road.

Comment	
	Response J2: The noise levels along Greenbrae Drive are not anticipated to noticeably change with the proposed project. Current FHWA guidance on traffic noise analysis and abatement states that traffic noise is not usually a serious problem for people who live more than 500 feet from heavily traveled freeways. The closest home along Greenbrae Drive is over 1,000 feet away from the proposed auxiliary lane. Noise levels along Greenbrae Drive are not anticipated to noticeably increase as a result of the proposed project. Please refer to Section 2.10 within the environmental document for additional information. Additionally, the homes on Keller Court were studied as part of the Noise Study Report, and the existing and predicted future sound volumes were not found to exceed the noise abatement criteria. These results are summarized in the environmental document. No noise abatement is proposed for the homes along Keller Court, as the existing earthen berm attenuates the sound to a volume lower than the noise abatement criteria. Since the predicted future noise levels did not exceed the abatement criteria, further analysis to determine if a wall meets the reasonable and feasible criteria was not conducted.

K **Daniel and Laurie Perrot (Received February 9, 2016 via mail)**

[redacted]

February 9, 2016

Angela Shepard
Caltrans
703 B Street
Marysville, CA 95901

Dear Ms. Shepard:

K1 We are writing to comment on the I-80 Auxiliary Lanes Project, specifically the proposal to add an auxiliary lane on eastbound I-80 between State Route 65 and Rocklin Road. We use the frontage road (China Garden Road) on a daily basis to reach our home on Keller Court. We have been concerned for many years about the safety hazard eastbound traffic on the freeway poses for motor vehicles traveling westbound on China Garden Road, from the crest of the small hill that lies east of the Rocklin Park Hotel to the base of the small hill just east of Keller Court. A flimsy wire fence separates the freeway traffic from the frontage road traffic. The existing wire fence does not provide a sufficient barrier should a car or truck veer off the freeway onto this on this section of China Garden Road. Our daughters narrowly missed being in a serious auto accident when this happened in 2005. Further, drivers' ability to see when traveling westbound on China Garden Road in darkness is severely hampered by the headlights of the oncoming freeway traffic. These safety hazards should be addressed as part of this Project.

K2 As longtime residents in this area (27 years), we have noticed increasingly greater levels of traffic noise from Interstate 80. We strongly encourage the inclusion of a sound barrier in this Project. It could have the dual function of addressing the public safety hazards noted above and mitigating the distress to residents from the high noise levels caused by freeway traffic (which is clearly expected to continue to increase over time).

We respectfully request that the involved agencies include actions to make China Garden Road safer and mitigate freeway traffic noise as part of this Project. Thank you for providing this opportunity to comment on the Project.

Sincerely,

Daniel Perrot   Laurie Perrot

	Response to Comment K: Thank you for your comment. **Response K1:** The proposed eastbound auxiliary lane will be designed to all safety standards pursuant to Caltrans, FHWA, PCTPA, and the City of Rocklin. Additionally, a Caltrans standard Type 60 concrete barrier is proposed to be constructed between I-80 and China Garden Road to help prevent any accidents from occurring due to vehicles crossing from I-80 to China Garden Road. **Response K2:** The homes on Keller Court were studied as part of the Noise Study Report, and the existing and predicted future sound volumes were not found to exceed the noise abatement criteria. These results are summarized in the environmental document. No noise abatement is proposed for the homes along Keller Court, as the existing earthen berm attenuates the sound to a volume lower than the noise abatement criteria. Since the predicted future noise levels did not exceed the abatement criteria, further analysis to determine if a wall meets the reasonable and feasible criteria was not conducted.
L	**Candice Stephenson (Received February 10, 2016 via email)** **From:** candice stephenson [mailto:[redacted] **Sent:** Wednesday, February 10, 2016 2:45 PM **To:** angela.shepard@dot.ca.gov **Cc:** Luke McNeel-Caird <lmcneel-caird@pctpa.net> **Subject:** I-80 auxiliary lane project Angela, I am following up with you re: phone conversation we had several weeks ago about my concern with the I-80 Auxiliary Lane project, between Douglas Blvd. and Riverside. Due to the drainage problem that has existed for several years from a previous I-80 project, I am requesting another look at the problem and hopefully a cure. As I told you previously, I have made multiple requests to Cal Trans to alleviate the drainage from I-80 that goes directly onto my properties. I have spoken with Mauricio Serrano and Don Ward to name a few. I was told by Don Ward on 4/5/2011, that he would have a camera scope the drain under the freeway, however I never heard back from him. On 11/11/2011, several workers came and poured cement and told my property manager that the drain was being abandoned. I left messages for Don Ward, but never got return call. Certainly seems the time is perfect to make the necessary drain changes while other work is being done. The attached photos show a little of the residual water after a light rainfall. During heavy rainfall all of my properties are a lake. With the puddles that are there now, the mosquitoes are plentiful and that concerns me. I would like to arrange an onsite meeting with the project manager for the auxiliary lane project if you could arrange that. I am available 2/19 any time if that would work. He/she can call me for date and time. Tomorrow is the deadline for voicing concerns, so I hope this email meets the

	requirement for that. If not, please let me know by phone or email so that I can make necessary changes. Thank you, Candice Stephenson cell [redacted] home [redacted]  

Response to Comment L:

Thank you for your comment.

Your concern has been documented in the Final Environmental Document as part of the Appendix E: Response to Public Comments and will be made available to the design engineers. The purpose and need of the project is to enhance through traffic capacity and flow on I-80. The project is needed because the freeway is experiencing operational problems caused by high peak period traffic volumes. The project goal is to maintain existing storm water flows and patterns and to not make the after condition worse than the before condition. This issue will be noted in the final project report so that Caltrans Design will be aware and will address it during design.

M	**Florizel Mason (Received February 18, 2016 via email)** **From:** Florizel Mason [mailto:[redacted] **Sent:** Thursday, February 18, 2016 10:23 PM **To:** angela.shepard@dot.ca.gov; Luke McNeel-Caird <lmcneel-caird@pctpa.net> **Subject:** Please HALT the I-80 Expansion Dear Angela and Luke, We are residents of Rocklin and we are extremely concerned with the proposed expansion of I-80. We just purchased and moved to our new home on Calverhall Way, which is one of the closest streets to I-80. The following are our concerns:
M1	1) Currently, freeway noise is heard from inside our home even with the double paned windows. With the addition of another lane, the freeway noise will be so excessive causing noise pollution that can cause adverse health effects. Effects of Noise Pollution has been well studied and can cause (not limited to) the following: Health issues, sleeping disorders, and cardiovascular issues. As stated in many medical journals such as Southern Medical Journal (2007) Noise Pollution can cause chronic disturbed sleep causing decrements in performance, mood changes, and other long-term effects on health and well-being. Noise during sleep causes increased blood pressure, increase heart rate, increased pulse amplitude, vasoconstriction, changes in respiration, cardiac arrhythmias, and increased body movement. This results in fatigue, increased stress, depressed mood and well-being, decreased performance, decreased alertness leading to accidents, injuries and death. Long-term psychosocial effects have also been related to nocturnal noise. Increasing evidence supports that noise pollution has both temporary and permanent effects on humans and other mammals both in the endocrine and autonomic nervous systems. These negative effects have also been seen in children. In addition, noise pollution affects children's cognitive and language development as well as reading achievement. Cognitive impairment in children has been proven when near highways and airports with noise pollution. As stated in the above article, "[Noise Pollution] can impair the ability to enjoy one's property and leisure time and increases the frequency of antisocial behavior. Noise adversely affects general health and well-being in the same way as chronic stress."
M2	2) Visually, the freeway would be seen from our home which was not there before. When we called the city to gain a better understanding of any future building prior to us purchasing our current home, they only mentioned the possibility of future homes as the property is owned by Elliot Homes. There was no mention of freeway expansion.
M3	3) The Open Space that currently sits between our home and the freeway is a natural habitat for many wild life animals, including turkeys, bunnies, deer, coyotes, and birds. This is one of the reasons we decided to settle in this Rocklin home and raise our family. Expanding the freeway will only harm this natural habitat. As stated on

M4 M5 M6	Conserve-Energy-Future, "wildlife faces far more problems than humans from noise pollution since they are more dependent on sound... since their survival depends on it." Animals can become disoriented, easy prey, inefficient at hunting, disturbing the balance of the eco-system, and have difficulty reproducing as they are unable to hear mating calls. I have several questions for you: 1) Who is interested in this freeway expansion? And Why? 2) With whom and where can we voice our concerns? 3) What additional steps need to be taken to prevent this from happening? Please forward to the individuals who are responsible for reviewing this expansion. Please inform me of the names so I can reach out to them personally. Thank you for taking the time to hear our concerns. Extremely Concerned Rocklin Residents, Florizel & Dave Mason Cell: [redacted]
	Response to Comment M: Thank you for your comment. **Response M1:** The noise levels at your home along Calverhall Way are not anticipated to noticeably change with the proposed project. A Noise Study Report was done for the project which identified current and future noise levels and compared them to abatement criteria. Current FHWA guidance on traffic noise analysis and abatement states that traffic noise is not usually a serious problem for people who live more than 500 feet from heavily traveled freeways. The closest home along Calverhall Way is over 1,000 feet away from I-80, and over 1,500 feet away from the proposed auxiliary lane, which starts at the existing lane drop after the SR 65 merge. Noise levels along Calverhall Way are not anticipated to noticeably increase as a result of the proposed project. Please refer to Section 2.10 within the environmental document for additional information. **Response M2:** The proposed eastbound auxiliary lane will not create new visual impacts for homes along Calverhall Way. The closest home along Calverhall Way is over 1,000 feet away from I-80, and over 1,500 feet away from the proposed auxiliary lane, which starts at the existing lane drop after the SR 65 merge. All improvements along this section will be constructed within the existing Caltrans right of way. A dense riparian corridor and blue oak woodlands block views of the highway from Calverhall Way, and will continue to provide shielding of views from the highway after the proposed project is constructed. **Response M3:** The proposed eastbound auxiliary lane begins where the second lane drop on mainline I-80 currently exists, and is predominately widened between the existing paved China Garden Road and I-80. All of the widening within proximity of Secret Ravine will occur within the existing Caltrans right-of-way chain link fence that currently exists, and no impacts to Secret Ravine are anticipated as a result of the

	proposed project. Further, the existing habitat between mainline I-80 and China Garden Road consists of sparse Blue Oak Woodlands; however, this area is very disturbed and is predominately made up of ruderal vegetation, which does not contain optimal habitat for wildlife. Construction will temporarily disturb these areas; however, the few trees required to be removed within Caltrans right of way will be replaced at a minimum 2:1 ratio per Mitigation Measure BIO-3. The environmental document contains measures to avoid and minimize impacts to wildlife species within the area, no displacement of wildlife is anticipated as a result of the proposed project. **Response M4:** The environmental phase of the project was initiated by the Placer County Transportation Planning Agency (PCTPA) in partnership with Caltrans, Federal Highway Administration, City of Rocklin, City of Roseville, and Placer County. The project is being proposed due to safety issues along I-80 eastbound with two lane merges occurring within a short distance of 2,000 feet just east of SR 65 and traffic congestion occurring at the Rocklin Road off-ramp. The proposed project aims to solve these issues by eliminating one of the lane merges and by increasing the number of lanes at the Rocklin off-ramp. With these improvements, the safety and operation of eastbound I-80 is anticipated to be enhanced. **Response M5:** Your comments and concerns, along with the responses that are prepared, will become part of the public record and considered in determining to either move forward with the project or not move forward. The decision to either move forward or not move forward with the project will be part of an upcoming Placer County Transportation Planning Agency (PCTPA) public meeting in the next couple months, which a notice will be sent to you once the date is set. Further concerns can be voiced to Caltrans, PCTPA, and the City of Rocklin regarding the proposed project. **Response M6:** Your comments and concerns will be considered by Caltrans, PCTPA, City of Rocklin and City of Roseville in the final decision of the project.

N	**State Clearinghouse (Received February 10, 2016 via mail)**

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

February 10, 2016

Angela Shepard
California Department of Transportation, District 3
703 B Street
Marysville, CA 95901

Subject: Placer I-80 Auxilary Lanes Project
SCH#: 2016012021

Dear Angela Shepard:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on February 9, 2016, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Response:

Thank you for your comment.

The State Clearinghouse letter acknowledges that Caltrans has complied with review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. The Regional Water Quality Control Board provided comments on the document through the State Clearinghouse, which can be found under Comment P.

O	**NOAA Fisheries West Coast Region (Received January 15, 2016 via email)** **From:** Sean Luis - NOAA Federal [mailto:[redacted] **Sent:** Friday, January 15, 2016 2:13 PM **To:** Shepard, Angela@DOT **Cc:** lmcneel-caird@pctpa.net **Subject:** I-80 Auxiliary Lanes Project Hi Angela, I received a Public Notice in the mail regarding your intent to adopt a Mitigated Negative Declaration and information about the initial study for the I-80 Auxiliary Lanes project. I was the NMFS project lead for an informal Endangered Species Act section 7 consultation for this project last year. I just wanted to confirm whether or not there have been significant changes made to the Biological Assessment that was generated by Caltrans for this project. If there have been changes, they may trigger the need for Caltrans to re-initiate section 7 consultation. I just wanted to check in and make sure that the design alternatives that are referenced in the Public Notice fall within the scope of the proposed action that NMFS approved in our letter of concurrence. Feel free to contact me via phone or email. Best Regards, -- LTJG Sean Luis NOAA Fisheries West Coast Region U.S. Department of Commerce 650 Capitol Mall suite 5-100 Sacramento, CA 95814 office - [redacted] cell - [redacted] http://www.westcoast.fisheries.noaa.gov/index.html
	Response to Comment O: Thank you for your comment. The project description and proposed work described within the Biological Assessment has not changed since the initiation of Section 7 Consultation. The NES was updated to include additional information already contained within the BA, as well as some additional verbiage regarding the infeasibility of reducing the flow velocities to less than 3 feet per second. No changes to the BA were requested or necessary. At this time, it is not necessary to reinitiate Section 7 Consultation.

P — **Regional Water Quality Control Board (Received February 5, 2016 via mail)**

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

Clear 2/9/16

3 February 2016

Governor's Office of Planning & Research

FEB 05 2016

STATE CLEARINGHOUSE

Angela Shepard
Caltrans
703 B Street
Marysville, CA 95901

CERTIFIED MAIL
91 7199 9991 7035 8364 3403

COMMENTS TO REQUEST FOR REVIEW FOR THE MITIGATED NEGATIVE DECLARATION, PLACER I-80 AUXILIARY LANES PROJECT, SCH# 2016012021, PLACER COUNTY

Pursuant to the State Clearinghouse's 11 January 2016 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Mitigated Negative Declaration* for the Placer I-80 Auxiliary Lanes Project, located in Placer County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues.

For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/.

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Policy is available on page IV-15.01 at:
http://www.waterboards.ca.gov/centralvalleywater_issues/basin_plans/sacsjr.pdf

In part it states:

> *Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.*
>
> *This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.*

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan

(SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]
The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit
Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit
If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification
If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Waste Discharge Requirements – Discharges to Waters of the State
If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Dewatering Permit
If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Risk General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Risk Waiver) R5-2013-0145. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Risk General Order and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Risk Waiver and the application process, visit the Central Valley Water Board website at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2013-0145_res.pdf

Regulatory Compliance for Commercially Irrigated Agriculture
If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program. There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/app_approval/index.shtml; or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.

2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100**. Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently $1,084 + $6.70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water* (Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

	Placer I-80 Auxiliary Lanes Project - 6 - 3 February 2016 Placer County For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf If you have questions regarding these comments, please contact me at (916) 464-4644 or Stephanie.Tadlock@waterboards.ca.gov. Stephanie Tadlock Stephanie Tadlock Environmental Scientist cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento
	Response to Comment P: Thank you for your comment. Per Section 1.7 of the Environmental Document, the project will obtain a Construction Storm Water General Permit, a Clean Water Act Section 404 Permit, and a Clean Water Act Section 401 Permit - Water Quality Certification to comply with all necessary permits and discharge requirements. The project does not anticipate obtaining any other permits or complying with any other discharge requirements as regulated by the Regional Water Quality Control Board.

Q	City of Rocklin (Received February 11, 2016 via mail)
	ROCKLIN CALIFORNIA February 11, 2016 Angela Shepard Caltrans District 3 703 B Street Marysville, CA 95901 SUBJECT: Interstate 80 (I-80) Auxiliary Lanes Project Initial Study/Mitigated Negative Declaration (IS/MND) Dear Angela: Thank you for the opportunity to review the Interstate 80 (I-80) Auxiliary Lanes Project IS/MND. Based on the project description provided in the IS/MND, the project proposes to improve eastbound I-80 between State Route 65 and Rocklin Road with the addition of an auxiliary lane (on-ramp to off-ramp), and westbound I-80 between Douglas Boulevard and Riverside Avenue with the addition of either an auxiliary lane or an additional through lane. The proposed project would enhance through traffic capacity, reduce existing congestion and operational problems, and improve safety on I-80. The City of Rocklin has completed its review and would like to offer the following comments:
Q1	1. The City supports the project and the continuing efforts of Caltrans to improve traffic and circulation conditions on Interstate 80 and State Route 65 in and around Rocklin.
Q2	2. Aesthetics/Noise – the City supports the addition of a new sound wall along I-80 through the southeasterly extension of the existing sound wall along China Garden Road because it would provide additional noise attenuation from I-80 freeway noise beyond what exists now for Rocklin residents south of the freeway. However, because that location serves as a "gateway" to the City of Rocklin, we are advocating for an enhanced design/style that is attractive yet blends in with the other sound walls along I-80 in Rocklin. Given that the existing sound walls along I-80 in Rocklin are already slightly different in design and look, consideration should be given to using similar materials (split-face block) for the new wall, and then paint the existing and new sound walls in an artistic, attractive and similar style. The City also suggests the incorporation of landscaping (including, but not limited to oak mitigation trees and/or vines) to help soften the look of a 16-foot tall sound wall. The IS/MND identifies a mitigation measure (VIS-3) that notes that aesthetic elements, such as sound walls, shall conform to existing aesthetic elements along I-80, and if additional aesthetic elements such as aesthetic treatments and/or landscaping are incorporated during the Final Design, such features would be designed and implemented in coordination with the project proponent, arborists, and environmental planners. The City respectfully requests that such coordination also include representation from the City of Rocklin.
Q3	3. Biological Resources – the IS/MND acknowledges that some tree removal will have to occur to accommodate the proposed improvements, including impacts to Blue Oak Woodland and isolated native oak trees. However, it is not clear how many oak trees within the City of Rocklin are anticipated to be impacted and therefore difficult to determine the magnitude of the impact. The IS/MND identifies a mitigation measure (BIO-3) that will require mitigation for the removal of oak trees greater than or equal to 6 inches dbh consistent with the City of Rocklin's Oak Tree Preservation mitigation requirements, which the City supports. The IS/MND CITY OF ROCKLIN Public Services Department 4081 Alvis Ct. Rocklin, CA 95677 | rocklin.ca.us P. 916.625.5500 | F. 916.625.5501 | TTY. 916.632.4013

notes that the mitigation efforts will occur at an on or off-site agency approved location; the City strongly encourages that the mitigation location be on-site, in part to help offset aesthetic impacts associated with the new sound wall to be located in Rocklin, as discussed above in 2. Aesthetics/Noise.

If there are any questions regarding these comments, please contact me at (916) 625-5162.

Sincerely,

David Mohlenbrok
Environmental Services Manager

cc: Rick Horst, City Manager
City Councilmembers
Marc Mondell, Economic and Community Development Director
Laura Webster, Office of Long-Range Planning Director
Bret Finning, Planning Services Manager

Response to Comment Q:

Thank you for your comment.

Response Q1: The City of Rocklin's support for the project has been noted.

Response Q2: The project development team will continue to coordinate with the City of Rocklin during project design, including discussions on consistency with other soundwalls and the cost associated with enhanced soundwalls.

Response Q3: It is noted that within the City of Rocklin, on-site mitigation for impacts to oak trees is preferred over off-site mitigation. Should on-site mitigation not be reasonable, nearby off-site mitigation will be considered to reduce the potential impacts of tree removal.

R | **City of Roseville (Received February 11, 2016 via mail)**

City Manager
311 Vernon Street
Roseville, California 95678-2649

February 11, 2016

Angela Shepard, Associate Environmental Coordinator
Caltrans, District 3 Environmental Management
703 B Street,
Marysville, CA 95901

Via: *Email and Regular Mail* *angela.shepard@dot.ca.gov*

Subject: I-80 Auxiliary Lanes Project IS/MND – City of Roseville Comments

Dear Ms. Shepard:

Thank you for the opportunity to provide comment on the subject project draft Initial Study/Mitigated Negative Declaration (IS/MND). The City of Roseville supports Caltrans' and PCTPA's efforts to implement this important regional transportation improvement project. City concerns are primarily related to Location 2 temporary construction impacts, design coordination relating to existing City utilities and planned bike trails, and flood control.

Temporary Construction Impacts

R1

The project requires construction near existing City residences. While it's understood that this is an unavoidable aspect of project implementation, a few City residents that reside in close proximity (including owner/residents at 407 Lemar Drive and 737 Jo Anne Lane) have expressed concerns related to construction noise, dust and air quality. The City supports implementation of IS/MND construction mitigation measures designed to minimize construction effects on adjacent residents, and requests that Caltrans diligently implement these measures during project construction.

Design Coordination – Utilities and Class 1 Bike Trails

R2

Any work proposed over City water and/or sewer mains or involving City owned electric facilities requires coordination with the City of Roseville Environmental Utilities and/or Electric Departments. The City requires 48 hrs. advance notice prior to construction. City water and sewer mains are to be protected in place. No heavy equipment or vibratory equipment shall be allowed over mains larger than 12". For questions concerning water or sewer utilities contact Dave Samuelson, Associate Engineer, Roseville Environmental Utilities Department (916-774-5669). For questions concerning Roseville Electric infrastructure contact Rick Corral, Electric Engineering Technical Supervisor (916-774-5616).

R3

The City's Dry Creek Greenway Trail is planned to cross I-80 at Cirby Creek where I-80 bridge widening is also proposed. Staff from the City and I-80 Auxiliary Lane project

R4

Angela Shepard, Associate Environmental Coordinator — *February 11, 2016*
I-80 Auxiliary Lanes Project IS/MND Comments — *Page 2 of 2*

design team have met to coordinate improvements proposed at this location to avoid potential conflicts. The City requests that this coordination continue through final design to ensure these projects can be efficiently and effectively implemented. The City contact for this is Mike Dour, Alternative Transportation Analyst, Alternative Transportation Division, Roseville Public Works (916-746-1304).

Flood Control

The project includes widening the I-80 bridge over Cirby Creek, including a 15 foot extension of the existing concrete lined channel located beneath the bridge. The existing concrete channel flow line and creek cross section are critical aspects of City flood control infrastructure. To ensure the proposed project does not cause unintended impacts to City flood control facilities, the City requests that final design of the concrete lined channel, and any proposed grading of the creek cross section beneath the I-80 bridge, be closely coordinated with the City. The City contact for this is Carl Walker, Senior Engineer, Flood Plain Management Division, Roseville Public Works (916-746-1349).

Thank you for consideration of the City's comments.

Sincerely,

Mark Morse
Environmental Coordinator

Response to Comment R:

Thank you for your comment.

Response R1: The City of Roseville's support for the project's identified construction mitigation measures has been noted and the Environmental Commitment Record for the proposed project will ensure these measures are diligently implemented during construction.

Response R2: The City of Roseville's requirements for work over City owned water and/or sewer mains, as well as City owned electrical facilities has been noted. Any proposed work within proximity of these facilities will coordinate with the City of Roseville Environmental Utilities or Electrical Departments.

Response R3: Caltrans and PCTPA will continue to coordinate with the City of Roseville staff regarding the Dry Creek Greenway Trail to minimize conflicts between the two projects.

Response R4: Caltrans and PCTPA will continue to coordinate with the City of Roseville staff regarding the extension of the concrete lining in Cirby Creek under the Linda Creek Bridge to ensure the project will not cause any unintended impacts to the City's flood control facilities.

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Shingle Springs Rancheria (Received February 16, 2016 via mail)

SHINGLE SPRINGS RANCHERIA
P.O. BOX 1340; SHINGLE SPRINGS, CA 95682
(530) 676-8010; FAX (530) 676-3582

February 16, 2016

Caltrans
Attn: Angela Shepard
703 B Street
Marysville, CA 95901

RE: I-80 Auxiliary lanes project

Dear Angela Shepard

Thank you for your letter dated January 11, 2016 in regard to the I-80 Auxiliary lanes project in Placer County. Based on the information provided, the Shingle Springs Band of Miwok Indians is not aware of any known cultural resources on this site. However, SSR would like to have continued consultation through updates, as the project progresses this will foster a greater communication between the Tribe and your agency.

SSR would also like to request any and all completed record searches and or surveys that were done in or around the project area up to and including environmental, archaeological and cultural reports.

If during the progress of the project new information or human remains are found we would like to be able to go over our process with you that we currently have in place to protect such important and sacred artifacts (especially near rivers and streams).

Please contact the following individuals if such finds are made:

Kara Perry, Administrative Assistant (530) 488-4049 kperry@ssband.org

And copy all communications to:
Cynthia Franco, Administrative Assistant, cfranco@ssband.org

Thank you for providing us with this notice and opportunity to comment.

Sincerely,

Daniel Fonseca
Cultural Resource Director
Tribal Historic Preservation Officer (THPO)
Most Likely Descendent (MLD)

</td></tr>
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Response to Comment S:

Thank you for your comment.

All project related environmental, archaeological, and cultural reports were provided to the Shingle Springs Rancheria on April 6, 2016. The contact information provided in

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	the event of any cultural artifacts or human remains are discovered through project development or construction has been noted.
T	**United Auburn Indian Community of the Auburn Rancheria (Received March 28, 2016 via mail)**

MIWOK MAIDU United Auburn Indian Community of the Auburn Rancheria

Gene Whitehouse, Chairman — John L. Williams, Vice Chairman — Danny Rey, Secretary — Jason Camp, Treasurer — Calvin Moman, Council Member

Rec'd 4/4

February 8, 2016

Angela Shepard
Caltrans, District 3
703 B Street
Marysville, CA 95901

Subject: Public Notice to Adopt a Mitigated Negative Declaration, Availability of the Initial Study, and the Opportunity for a Public Hearing for the I-80 Auxiliary Lanes Project

Dear Angela Shepard,

Thank you for requesting information regarding the above referenced project. The United Auburn Indian Community (UAIC) of the Auburn Rancheria is comprised of Miwok and Southern Maidu (Nisenan) people whose tribal lands are within Placer County and whose service area includes El Dorado, Nevada, Placer, Sacramento, Sutter, and Yuba counties. The UAIC is concerned about development within its aboriginal territory that has potential to impact the lifeways, cultural sites, and landscapes that may be of sacred or ceremonial significance. We appreciate the opportunity to comment on this and other projects in your jurisdiction.

In order to ascertain whether the project could affect cultural resources that may be of importance to the UAIC, we would like to receive copies of any archaeological reports that are completed for the project, including California Historical Resources Information System records search results and summaries. We also request copies of future environmental documents for the proposed project so that we have the opportunity to consult on potential impacts and proposed mitigation measures related to cultural and natural resources. The information gathered from the project documentation will provide us with a better understanding of the natural and cultural resources on site and is invaluable for consultation purposes. UAIC is aware of several significant historical resources and tribal cultural resources in your project area that qualify as eligible properties for listing to the local, state and federal registers.

We would like to make a few general points for consideration in developing the scope and content of this project:

- The UAIC recommends that site -specific projects within the program level project permit and compliance documentation include a full EIR analysis;
- All environmental documentation should be designed to incorporate known cultural sites into conservation easements, open space or other protected areas;
- UAIC's preference is to avoid all resources and protect them in place. The UAIC is interested in conservation easements for culturally significant prehistoric sites;
- The UAIC would like the opportunity to provide Tribal monitors projects if excavation and data recovery are required, or in cases where ground disturbance is proposed at or near sensitive cultural resources. It is recommended that a tribal monitor be present during any ground disturbing activities;
- The UAIC is interested in appropriate and dignified treatment of human remains and cultural items from prehistoric sites where such things as digging, excavation and data recovery has been performed. UAIC's preference is reburial directly on-site as close as possible to the area of discovery;

Tribal Office 10720 Indian Hill Road Auburn, CA 95603 (530) 883-2390 FAX (530) 883-2380

MIWOK United Auburn Indian Community
MAIDU of the Auburn Rancheria

- Development of a Memorandum of Agreement for any direct adverse effects to historical resources including a burial, cultural resources treatment and tribal monitoring plans.
- UAIC recommends that Native American design elements be incorporated into the final bridge and project designs.

The UAIC's preservation committee would like to set up a meeting to continue consultation on the proposed project. The UAIC's preservation committee has identified cultural resources in and around your project area, and requests a site visit to confirm locations. Thank you again for taking these matters into consideration, and for involving the UAIC early in the planning process. We look forward to reviewing the documents requested above and consulting on your project. Please contact Marcos Guerrero, Cultural Resources Manager, at (530) 883-2364 or by email at mguerrero@auburnrancheria.com if you have any questions.

Sincerely,

Gene Whitehouse,
Chairman

CC: Marcos Guerrero, CRM

Tribal Office 10720 Indian Hill Road Auburn, CA 95603 (530) 883-2390 FAX (530) 883-2380

Response to Comment T:

Thank you for your comment.

Consultation with the United Auburn Indian Community (UAIC) was initiated in

	September 2014 under Section 106 of the National Historic Preservation Act. Through consultation with UAIC, a site visit and documentation regarding potential cultural resources within the project area was requested. The record search results obtained from the North Central Information Center were provided to the UAIC on February 13, 2015, in anticipation of a site visit. The site visit was conducted on February 18, 2015, with Marcos Guerrero, RPA, of the UAIC and Caltrans archaeologist William Larson. No known prehistoric cultural sites within the project area were identified within the record search or during subsequent archaeological field surveys. Further, the cultural documents have been provided to the tribe as of April 6, 2016, which did not identify any potential for impact to known cultural resources. Additionally, measures have been included within the cultural documents and environmental document to address potential discovery of previously unidentified cultural materials and human remains. No known sensitive cultural resources are anticipated to be disturbed as a result of the proposed project. If cultural resources are identified during project development or during construction, the UAIC will be contacted in order to provide the opportunity for a tribal monitor to be present during disturbance.

Attachment M

PROJECT STUDY REPORT-PROJECT DEVELOPMENT SUPPORT (PSR-PDS)

To

Request Programming for Capital Support (Project Approval and Environmental Document Phase)

On Route 80

Between Route 65

And Rocklin Rd. Interchange

APPROVAL RECOMMENDED:

PROJECT SPONSOR, Accepts Risks Identified in this PSR-PDS and Attached Risk Register

Samuel Jordan

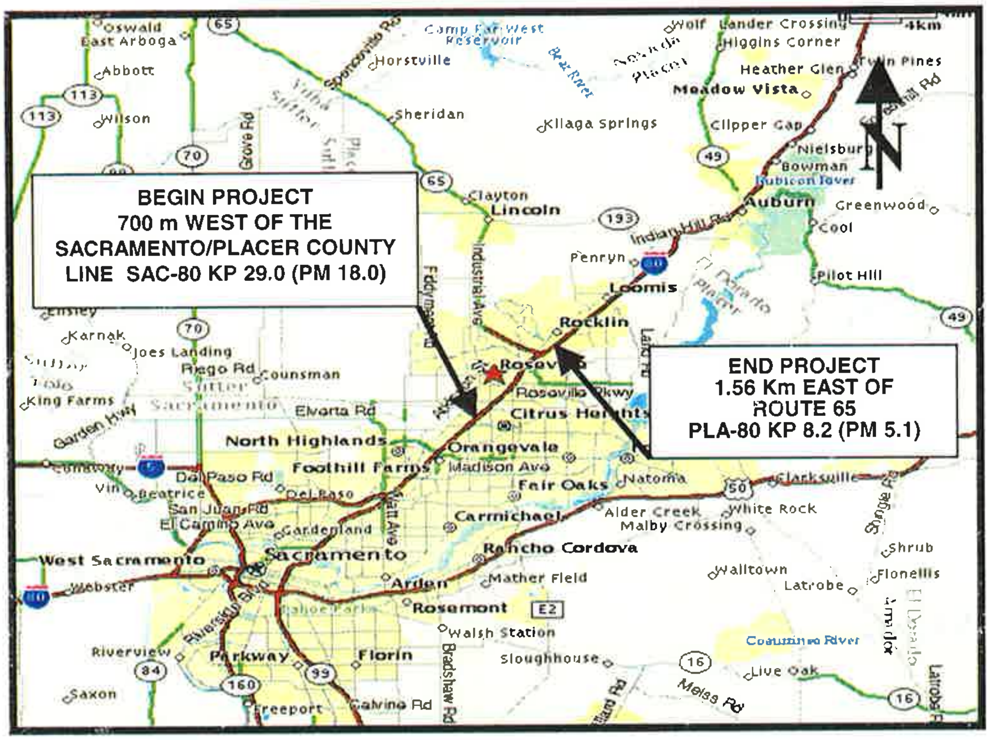
SAMUEL JORDAN, *PROJECT MANAGER*

APPROVED: Jody Jones 5/28/12

JODY JONES, *DISTRICT DIRECTOR* *DATE*

PROJECT STUDY REPORT
(PROJECT DEVELOPMENT SUPPORT)

FOR THE PROPOSED CAPACITY IMPROVEMENT PROJECT



ON INTERSTATE ROUTE 80

IN AND NEAR SACRAMENTO AND PLACER COUNTIES
FROM 700 m WEST OF THE SACRAMENTO/PLACER COUNTY LINE
TO 1.56 Km EAST OF THE ROUTE 65 CONNECTOR IN PLACER COUNTY

APPROVAL RECOMMENDED:

FOR **KARL L. DREHER**
PROJECT MANAGER

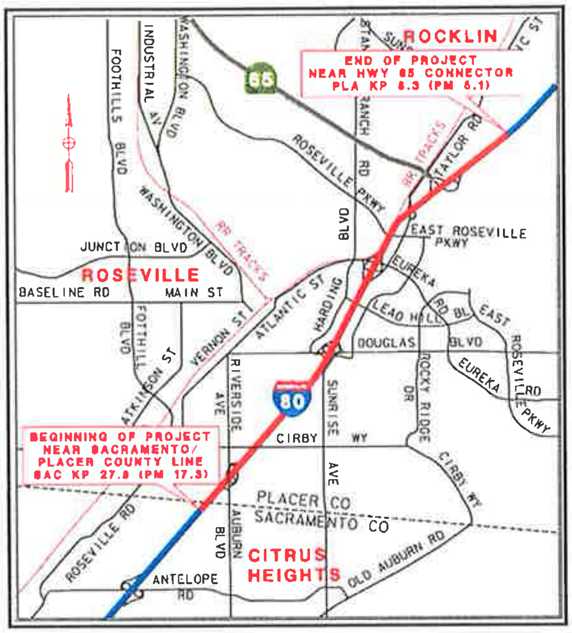
APPROVED:

for **IRENE T. ITAMURA**
DISTRICT 3 DIRECTOR

12/4/00
DATE

PROJECT REPORT

FOR THE PROPOSED FREEWAY IMPROVEMENT PROJECT



ON INTERSTATE ROUTE 80

IN AND NEAR SACRAMENTO AND PLACER COUNTIES
FROM 1.1 KM WEST OF THE SACRAMENTO/PLACER COUNTY LINE
TO 1.56 Km EAST OF THE ROUTE 65 CONNECTOR IN PLACER COUNTY
EA 03-265-367800, STIP

I have reviewed the right of way information contained in this Project Report and the R/W Data Sheet attached hereto, and find the data to be complete, current, and accurate:

Gary R. Horn

GARY R. HORN
CHIEF – NORTH REGION DIVISION OF RIGHT OF WAY

APPROVAL RECOMMENDED:

Karl L. Dreher

KARL L. DREHER
PROJECT MANAGER

APPROVED:

Jody E. Lonergan | 6/30/03

JODY E. LONERGAN | **DATE**
DISTRICT 3 DIRECTOR

Attachment N

Fact Sheet
Exceptions to Caltrans Design Standards

Prepared by:

REGISTERED CIVIL ENGINEER
Nathan Donnelly, P.E.
Dokken Engineering

REGISTERED PROFESSIONAL ENGINEER
Nathan Donnelly
No. C64459
Exp. 06/30/17
CIVIL
STATE OF CALIFORNIA

Submitted by:

Scott W. Mann, P.E. *DESIGN ENGINEER*	7/14/16 *DATE*	(530) 741-5181 *TELEPHONE*

Recommended for Approval by:

Rodney Murphy, P.E, *PROJECT MANAGER*	7/18/16 *DATE*	(530) 741-4533 *TELEPHONE*

District Approval by:

Laurie Lammert, P.E. *CHIEF, Office of Design South*	7/15/16 *DATE*	(530) 741-5372 *TELEPHONE*

HQ DOD Exceptions Approved by:

Timothy B. Sobelman, P.E. *PROJECT DELIVERY COORDINATOR, Division of Design*	7/14/16 *DATE*