Project Report

US 50 HOV Lanes I-5 to Watt Ave

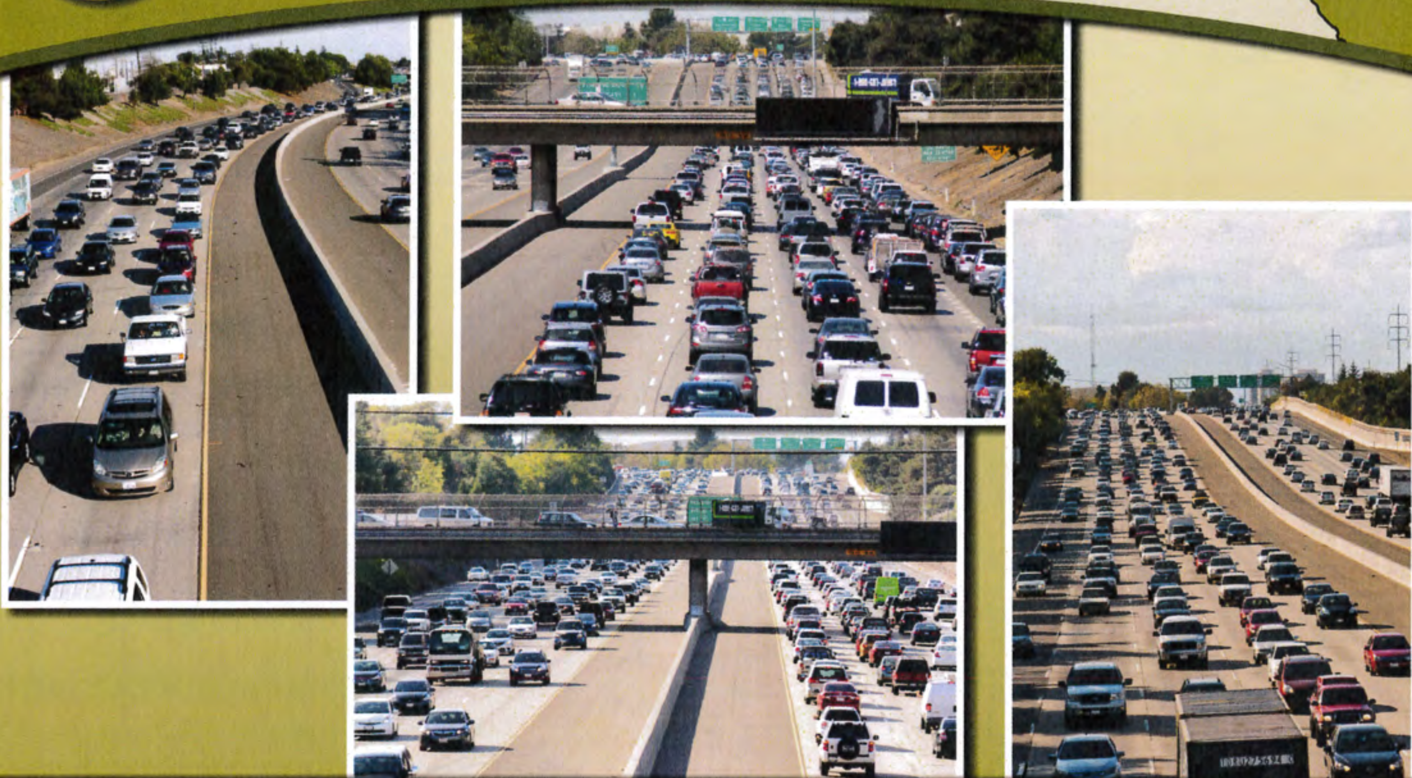
03-SAC-50 PM L0.2/R6.1

20.XX.400.100

PPNO 3301

03 1200 0216

03-3F360



PROJECT LOCATION

In Sacramento from I-5 to 0.8 mile east of Watt Avenue

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:

JOHN BALLANTYNE
Chief, North Region Right of Way

Approval Recommended:

NADARAJAH SUTHAHAR
Project Manager

Approved By:

5/31/17

RIHUI ZHANG — *Date*
Acting District Director

This Draft 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.

4/11/17

Michael B. Sullivan, P.E. Date
Registered Civil Engineer

REGISTERED PROFESSIONAL ENGINEER
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EXECUTIVE SUMMARY

The purpose of this project is to reduce congestion on United States Highway (US) 50. The preferred alternative proposes constructing an HOV lane in each direction in the City of Sacramento from the Sacramento River Viaduct (Interstate 5 I/C) in downtown Sacramento to the Watt Avenue Interchange (I/C). The project is needed due to the recurring congestion experienced during peak commute periods. The total current capital cost is $103 million.

The preferred alternative requires median widening of twelve structures (Sacramento River Viaduct requires one span only) and includes a 0.10 ft rubberized hot mix asphalt-open graded (RHMA-O) overlay to restripe the freeway since the new lane lines will not match the existing Portland Cement Concrete (PCC) pavement joints. All structures will receive a 0.10 ft polyester overlay except the Sacramento River Viaduct, Camellia City Viaduct, and the Brighton OH due to recently completed rehabilitation work. The Camellia City Viaduct and Brighton Overhead (OH) will require railroad involvement with Union Pacific Railroad (UPRR) and the Sacramento Regional Transit District (RT). UPRR & RT involvement were identified as the primary risk to project development.

The Noise Impact Study Report analyzed new sound walls for the project limits. Not all of the proposed sound walls are acoustically feasible and none of the proposed sound walls studied meet the reasonable allowance cost requirements set by the Federal Highway Administration (FHWA). While Section 6 of this document makes recommendations to construct sound walls, funding from state and/or local agencies will be the final determination to include sound walls as a “community enhancement”. Sound wall (SW) cost is included in the roadway construction cost estimate. There is no permanent right of way (R/W) acquisition required, however temporary construction easements will be required to construct the sound walls. There will be some R/W relinquishment and maintenance agreements required for the SW work.

Two build alternatives were analyzed and rejected during the Project Approval and Environmental Document (PA&ED) phase:

- ***Add mixed flow lanes*** which would have the same design features as HOV lanes except the additional lanes would be used as mixed flow vehicle lanes to add vehicle capacity. This alternative was rejected since it serves less travelers as shown in Table 4-1.

- ***Take-a-Lane*** would convert an existing mixed flow lane in each direction to a HOV lane. This alternative was rejected since it increased congestion.

Summary Table

Current Capital Outlay Construction Estimate (not funded)	$103,000,000 (Includes $8.5 million for SW construction)
Programming:	Construction unfunded, Right of Way and Project Development partially funded at present
Type of Facility:	Interstate Multi-Lane Freeway
Anticipated Environmental Clearance Document:	Initial Study with Negative Declaration/ Environmental Assessment with Finding of No Significant Impact
Year:	2018 (pending funding availability)
Construction Duration	460 Working Days
PM Limits:	03-Sac-50-L0.2/R6.1
Legal Description:	In Sacramento from I-5 to 0.8 mile east of Watt Avenue

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GLOSSARY OF TERMS

AADT	Average Annual Daily Traffic		PID	Project Initiation Document
acc/mvm	accidents per million vehicle miles		PM	Post Mile
ADL	Aerially Deposited Lead		PCC	Portland Cement Concrete
ADT	Average Daily Traffic		PP	Pumping Plant
AH	Ahead		PSR	Project Study Report
APS	Advance Planning Study		PS&E	Plans, specifications and estimate
BMP	Best Management Practice		RHMA	Rubberized Hot Mix Asphalt
BK	Back		RT	Sacramento Regional Transit District
CCTV	Closed Circuit Television		RTP	Regional Transportation Plan
CEQA	California Environmental Quality Act		R/W	Right of Way
CMS	Changeable Message Signs		SACOG	Sacramento Area Council of Governments
COZEEP	Construction Zone Enhanced Enforcement Patrol		SACSIM	Sacramento Activity-Based Travel Simulation Model
DI	Drainage Inlet		SB	Southbound
EB	eastbound		SCHMD	Sacramento County hazardous materials Division
EMS	Extinguishable Message Signs		SHELL	State Highway Extra Legal Load
FHWA	Federal Highway Administration		SIP	State Implementation Plan
FY	Fiscal Year		SMAQMD	Sacramento Metropolitan Air Quality Management District
HOV	High Occupancy Vehicle		SR	State Route
I/C	Interchange		STA	Sacramento Transportation Authority
ISA	Initial Site Assessment		Sta	Station
ITS	Intelligent Transportation Systems		STAA	Surface Transportation Assistance Act
K-rail	Temporary Concrete Railing		SW	Sound Wall
LOS	Level of Service		SWDR	Storm Water Data Report
MIS	Major Investment Study		SWPPP	Storm Water Pollution Prevention Plan
mph	miles per hour		TASAS	Traffic Accident Surveillance and Analysis System
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy		TMAs	Transportation Management Associations
NB	northbound		TMC	Transportation Management Center
NEPA	National Environmental Policy Act		TMP	Transportation Management Plan
NPDES	National Pollution Discharge Elimination System		UC	Undercrossing
OC	Overcrossing		UP	Underpass
OH	Overhead		UPRR	Union Pacific Rail Road
PA&ED	Project Approval and Environmental Document		VA	Value Analysis
pcplpm	passenger cars per lane per mile of roadway		WB	westbound

SECTION 1 - INTRODUCTION

The purpose of this project is to reduce congestion on United States Highway (US) 50. The preferred alternative proposes constructing an HOV lane in each direction in the City of Sacramento from the Sacramento River Viaduct (Interstate 5 I/C) in downtown Sacramento to the Watt Avenue Interchange (I/C) adding 7.8 miles to the existing 27.3 mile HOV network on US 50. The project is needed due to the recurring congestion experienced during peak commute periods. A project information summary table follows and a location map is included as Attachment A.

Table 1-1 Project Summary

Project Limits	Sac-50-PM L0.2/R6.1
Number of Rejected Alternatives	6 build alternatives and no build alternative
Current Capital Outlay Support Estimate (partially funded)	$38,500,000
Current Capital Outlay Construction Estimate (not funded)	$103,000 (Includes $8.5 million for SW construction)
Current Capital Outlay Right-of-Way Estimate (partially funded)	$6,000,000
Funding Source	$13.05 million by Sacramento Transportation Authority for project development is funded. $6.8 million for project development, $103 million for construction, and $6 million for R/W capital are unfunded at present.
Funding Year	Projected in 2018
Construction Duration	460 Working Days
Type of Facility	8-lane freeway
Number of Structures	12
Design Year	2040
Environmental Determination or Document	Initial Study with Negative Declaration/ Environmental Assessment with Finding of No Significant Impact
Legal Description	In Sacramento from I-5 to 0.8 mile east of Watt Avenue
Project Development Category	4A

The occupancy requirement for the proposed HOV lanes (preferred alternative) would be 2+ from the 6-10 AM and 3-7 PM peak periods. The lanes would be open to all vehicles during the off peak periods. A 0.10 ft RHMA-O overlay is included to restripe the freeway since the new lane lines will not match the existing Portland Cement concrete (PCC) pavement joints. The overlay will be tapered into the existing PCC pavement at each structure shown in Table 5-1 or replace slabs to maintain existing vertical clearances.

Median widening of twelve structures (Sacramento River Viaduct requires widening on one span only) on mainline with minimal roadway widening at structure approaches is required. The Camellia City Viaduct and Brighton OH will require railroad involvement with Union Pacific Railroad (UPRR) and the Sacramento Regional Transit District (RT). All structures will receive a 0.10 ft polyester overlay except the Sacramento River Viaduct, Camellia City Viaduct, and the Brighton OH due to recently completed rehabilitation work.

The Noise Impact Study Report analyzed new sound walls for the project limits. Not all of the proposed Sound walls are acoustically feasible and none of the proposed Sound walls studied meet the reasonable allowance cost requirements set by FHWA. While Section 6 of this document makes recommendations to construct sound walls, funding from state and/or local agencies will be the final determination to include this work with this project or future projects as a “community enhancement”. The sound wall (SW) estimates are included in the roadway construction cost estimate and detailed in Table 6.1.

There is no permanent right of way (R/W) acquisition required, however temporary construction easements will be required to construct the sound walls. There will be some R/W relinquishment and maintenance agreements required for the SW work.

This project is partially funded from the Sacramento Measure A Transportation Sales Tax Program for preliminary engineering, environmental clearance, right-of-way work, and engineering design. Caltrans District 3 continues efforts to secure Measure A funding from the Sacramento Transportation Authority (STA) for project delivery.

SECTION 2 - RECOMMENDATION

It is recommended that the project be approved using the preferred alternative and proceed to the design phase. The affected local agencies have been consulted with respect to the project and their views were considered when selecting the preferred alternative. The local agencies concur with the project as recommended.

SECTION 3 - BACKGROUND

3.1 Project Background

Operational improvements to the US 50 corridor were initially identified in the Sacramento Area Council of Governments’ (SACOG) *High Occupancy Vehicle Planning Study for the Sacramento Metro Area* (1990). The study recommended adding HOV lanes to US 50 between downtown Sacramento and Shingle Springs in El Dorado County. Since that time, numerous alternatives have been considered and rejected for reasons that varied from operational deficiencies, economic viability, and consistency to the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) multi-modal strategy. A chronology of this project's development follows:

1996 - SACOG updates the MTP to include HOV lanes within these project limits.

1997 - SACOG completed the *Major Investment Study (MIS) of the US 50 Corridor* that included these project limits.

1998 - A Project Study Report (PSR) was approved.

2001 - A Supplemental PSR was approved.

2002 - HOV lanes (11.8 miles) were constructed from El Dorado Hills Blvd in El Dorado County to Sunrise Blvd in Rancho Cordova.

2006 - SACOG’s MTP was updated and included HOV lanes on US 50.

2006 - Draft Project Report (DPR) was approved that included alternatives that were rejected due to funding. Alternative 10D in the DPR is the preferred alternative in this document.

2011 - HOV lanes (4.2 miles) were completed from El Dorado Hills Blvd in El Dorado County to Bass Lake Rd in El Dorado County.

2012 - SACOG’s MTP was updated and included HOV lanes on US 50 (also included in 2016 MTP update).

2012 - HOV lanes construction is completed from Sunrise Blvd in Rancho Cordova to Watt Ave adding 7.5 miles of HOV lanes to the US 50 corridor.

2013 - HOV lanes completed from Bass Lake Rd in El Dorado County to Cameron Park Dr in El Dorado County adding 3.8 miles to the HOV network.

3.2 Route History

US 50 (Lincoln Highway) is one of the country's last intact transcontinental highways, connecting West Sacramento with Ocean City, Maryland, a distance of 3,073 miles. US 50 through Sacramento was constructed in the mid/late 1920s along what is today Folsom Boulevard. Beginning in the mid-1960s, US 50 in Sacramento County was reconstructed as an 8-lane freeway along a new alignment. The new alignment joined the existing alignment east of Sunrise Boulevard in Sacramento County. The current US 50 post miles between State Route (SR) 99 and Sunrise Boulevard have an "R" prefix due to the realignment.

Prior to the mid-1970s, US 50 continued to San Francisco via Stockton, Tracy, and Oakland (roughly along what is today SR 99, I-5, I-205, and I-580). The current western terminus of US 50 is at I-80 in West Sacramento. The current US 50 post miles from the west Sacramento County line to SR 99 have an "L" prefix due to the lengthening of the route.

A project was completed in 2008 to upgrade the metal median barrier to concrete barrier. The project included the I-5/US 50 I/C to Watt Ave OC limits. The median at this location was also paved with a structural section to accommodate future HOV lanes and reduce maintenance.

3.3 Existing Facility

The existing facility is an 8-lane urban freeway with auxiliary lanes at various locations. The posted speed limit is 65 mph. The Oak Park I/C (PM L2.478/R0.0) provides freeway-to-freeway connections between US 50 and SR 99 to the south and SR 51/Bus 80 to the north (Capital City Freeway).

The WB direction "bottlenecks" where the four WB lanes reduce to three lanes at 26st Street in downtown Sacramento, before the connectors from NB SR 99 and SB SR 51. US 50 between I-5 and the Oak Park I/C (W-X section) experiences heavy congestion due to the weaving occurring between the ramps. The spring 2015 traffic report, prepared by a consultant for the Caltrans District 3 Traffic Operations unit in Sacramento, indicates that the westbound (WB) and eastbound (EB) AM and PM commute traffic is experiencing recurring congestion and operates at an average LOS D. Average vehicle speeds during the peak periods varied between 50 and 55 mph.

US 50 is also used as a recreational route between Sacramento/Bay Areas and Lake Tahoe. Consequently EB traffic volumes are usually greater on Friday evenings than during the Monday-Thursday commute period. Likewise, WB traffic volumes on Sunday afternoons and evenings are greater.

3.3.1 Existing Facility Adjacent to the Project Limits

West of the project limits, US 50 is an eight-lane freeway with fenced access control, and a paved 36 ft median with continuous concrete barrier. US 50 ends in West Sacramento connecting with I-80 for access to the San Francisco Bay Area.

East of the project limits, US 50 is a ten-lane freeway that includes HOV lanes in both directions into Sacramento and El Dorado Counties. Traffic in the HOV lanes is restricted to vehicles with two or more persons, and other qualifying vehicles, Monday through Friday between 6:00 AM to 10:00 AM, and 3:00 PM to 7:00 PM. During the remainder of the day the HOV lanes are open to mixed-flow traffic.

3.3.2 Existing Facility within the Project Limits

The future HOV lane's structural section is in place as shown in Figure 1. The existing facility is an 8-lane divided urban freeway with auxiliary lanes at various locations. The through lanes are concrete while the shoulders and auxiliary lanes are asphalt concrete. Lane widths are 12 ft except WB between 39th Street and the WB on-ramp to 59th Street where the WB auxiliary lane and No. 3 and 4 mixed flow lanes are 11 ft wide. Table 3-2 lists the structures within project limits.

The freeway is elevated through the section between the Sacramento River Viaduct to 26th street and 34th to 39th street. The freeway is also elevated to clear the railroad between 65th Street and Howe Avenue. The freeway is depressed through the Oak Park I/C and between 42nd and 61st streets. Through the remaining project limits, the freeway is at grade, with overcrossings at local streets and I/Cs.

Figure 1 - Future HOV Lane The asphalt concrete HOV lane structural section was constructed under the 2008 SHOPP project (EA-1E040). The existing shoulder will be converted from 17 ft to 8 ft. The existing # 1 & 2 lane widths will be reduced from 12 ft to 11 ft. The proposed HOV lane is also 11 ft.

Between downtown and Watt Ave, the median is a 36 ft asphalt concrete paved section with a continuous concrete barrier. The inside shoulders are 17 ft and the outside shoulders are 10 ft, except between 9th Street and Riverside Boulevard and EB between Occidental Drive and Watt Avenue, where the outside shoulder width is 8 ft. Between the I-5 I/C and Oak Park I/C (W-X section) there are up to six lanes in each direction, composed of PCC pavement.

There are existing ramp metering facilities on all of the on-ramps within the project limits, except for the freeway-to-freeway connections at the Oak Park I/C. Nine of the nineteen on-ramps have HOV bypass lanes. Table 5.4 includes additional on-ramp statistics.

There are several existing auxiliary lanes in the project limits. The American Association of State Highway and Transportation Officials (AASHTO) defines auxiliary lanes as the portion of the roadway adjoining the traveled way for speed change, turning, weaving, truck climbing, maneuvering of entering and leaving traffic, and other purposes supplementary of through-traffic movement. In the case of this project, auxiliary lanes relieve congestion caused by weaving between ramps. Attachment O provides more details for the existing locations and opportunity for new auxiliary lanes.

There are three pump plant locations within the project limits (see Table 3-1). The 2008 SHOPP project that constructed the paved median and concrete barrier in the HOV lanes project limits performed a hydraulics analysis within this project's limits. It was determined that no upgrades were required to the pump plants. Since there is no increase to impervious area at each of the pump watersheds, no upgrades are anticipated. Design has coordinated with maintenance to verify that there are no issues with the pump plants.

Table 3-1 Existing Pump Plants (PP)

Pump Plant Number	Pump Plant Name	Post Mile	Year Built
24-0231W	Oak Park Separation PP	R0.11	1967
24-0322W	45th St OC PP	R1.20	1971
24-03231W	59th St OC PP	R2.10	1971

Table 3-2 Existing Structures

Bridge Number	Bridge Name	Post Mile	Length (ft)	Width (ft)	Min Vertical Clearance (Railroad)	Year Built (Widen)
24-0004R/L	Sacramento River Viaduct	L0.20	6,346.2	65* R, 65*L	15 ft 10 in	1967
24-0243R/L	Southside Park Viaduct	L0.66	924.0	90* R, 90* L	15 ft 1 in	1967
24-0244R/L	9th St UC	L0.89	123.3	90* R, 90* L	16 ft 0 in	1967
24-0245R/L	10th St UC	L0.96	120.0	90* R, 90* L	15 ft 9 in	1967
24-0246R/L	Riverside Blvd UC	L1.06	139.7	90* R, 90* L	15 ft 5 in	1967
24-0247R/L	15th-16th St Separation	L1.36	529.0	80 R, 80 L	15 ft 1 in	1967
24-0248R/L	Camellia City Viaduct	L1.59	2,550.0	90* R, 95* L	(23 ft 7 in)	2014
24-0223R/L	26th St UC	L2.20	123.3	106* R, 68 L	14 ft 11 in	1967
24-0233F	S51-E50 Connector	L2.41	1,321.0	38	15 ft 3 in	1967
24-0234F	W50-S99 Connector	L2.34	709.4	34	14 ft 10 in	1967
24-0231R/L	Oak Park Separation	L2.47	924.2	70* R, 68* L	45 ft 0 in	1966
24-0235G	N99-W50 Connector	L2.40	1,321.0	38	34 ft 0 in	1967
24-0225G	E50-N51 Connector	L2.33	427.0	34	16 ft 9 in	1967
24-0229	Alhambra Blvd OC	R0.13	370.1	64	15 ft 1 in	1967
24-0228R/L	Elmhurst Viaduct	R0.38	1,111.3	68 R, 80* L	15 ft 1 in	1970
24-0313	39th St UC	R0.85	103.0	171*	15 ft 2 in	1970
24-0314	48th St OC	R1.41	252.0	52	15 ft 2 in	1970
24-0315	51st St OC	R1.63	237.0	52	15 ft 4 in	1971
24-0316	59th St OC	R2.01	439.8	34	15 ft 0 in	1971
24-0317	59th St OC	R2.13	252.0	76*	15 ft 2 in	1971
24-0318	65th St UC	R2.63	161.0	187*	15 ft 3 in	1971
24-0289R/L	Brighton OH	R2.88	699.9	78* R, 78 L	(24 ft 7 in)	1971
24-0288R/L	Folsom Blvd UC	R3.13	185.6	78 R, 85* L	19 ft 6 in	1971
24-0286R/L	Hornet Dr UC	R3.47	121.8	68 R, 98 L	15 ft 2 in	1971
24-0186	Howe Ave OC	R3.67	233.9	95	15 ft 3 in	1969
24-0294	Occidental OC	R4.54	201.8	52	15 ft 0 in	1971
24-0034	Watt Ave OC	R5.34	312.0	140	16 ft 3 in	2014

**width varies*

3.3.3 *Multi- Modal Facilities*

- *Bike and Pedestrian Facilities* – Due to available parallel routes in the area, bikes and pedestrians are not allowed on the freeway within the project limits. Local streets crossing the freeway connect bikes and pedestrians to several nearby bus and transit stops. This project however will facilitate the development of 65th Street Pedestrian and Bicycle Accessibility project by including the environmental work as part of this project while the design and construction will be performed by the City of Sacramento.
- *Buses* - Sacramento Regional Transit District commonly referred to as RT, operates about 26 bus routes within the project limits, including an express bus that uses US 50 between Hazel Avenue (10.5 miles east of Watt Avenue) and Stockton Boulevard. El Dorado Transit District operates express bus service between park and ride facilities in El Dorado County and downtown Sacramento. Adjacent to US 50, RT also operates the Gold Line light rail that connects 31 bus stops between Historic Folsom and Downtown. The service includes 10 morning

and 11 afternoon trips, mostly during the peak periods. RT's first bus rapid transit facility at the Watt Ave OC was also recently completed.

- *Other Transit Services* – RT operates four contracted shuttle services to provide commuter service and connectivity to light rail. RT also provides a complimentary paratransit service, all of which would benefit from HOV lanes. The California State University Sacramento operates the Hornet Express shuttle bus during school sessions along the corridor.
- *Light Rail* - RT operates three light rail lines (the Gold Line, the Blue Line, and the new Green Line) totaling 38.5 miles in length. The gold Line operates from the City of Folsom, paralleling US 50, terminating in Downtown Sacramento and crosses US 50 at two locations within the project limits. It crosses US 50 between 19th and 20th St, and east of 65th Street (Brighton OH). There are 20 light rail stations within a half-mile of US 50.
- *Park & Ride* - There are no existing state-owned park and ride facilities within the project limits. The nearest park and ride facility on US 50 is east of the project limits on NB Hazel Ave in Sacramento County. RT however, maintains park & ride lots at light rail stations (Gold Line), nine of which have park and ride facilities. See traffic report for additional information.
- *Railroad* - The Union Pacific Railroad crosses US 50 at two locations: between 19th and 20th Streets in downtown Sacramento (Camellia City Viaduct) and just east of 65th Street (Brighton OH).

3.4 Community Interaction

Throughout the development of this document an emphasis has been placed on keeping the community and local stakeholders informed of the scope and potential impacts of this project. As part of the MIS, SACOG conducted numerous open houses, public forums and presentations to groups. Those attending the meetings generally were opposed to HOV lanes, which they see as adding more capacity to the freeway and inducing urban sprawl. Other neighborhood associations were concerned about noise levels.

A public meeting was held on January 13th 2016. The public was generally receptive to the project since it would extend the existing HOV lanes to the downtown and the proposed sound walls would help with the existing freeway noise. Two public workshops were held on October 17th & 18th. The attendees included local elected officials and reporters. Assemblymember Kevin McCarty hosted an open house on November 17th at the Coloma Center due to the low public turn out previously encountered. This meeting was more successful with attendees from the adjacent neighborhoods. Attendees were receptive to the project however, were concerned that the SW scope would be included as a community enhancement with no identified funding.

City of Sacramento, Sacramento County, and the Transportation Management Associations (TMAs) in the area support this project. The TMAs, the Power Inn Business and Transportation Association, the Sacramento TMA, and the Folsom/Rancho/El Dorado TMA incentivize alternative transportation modes such as vanpooling, carpooling, bicycling, transit ridership, and walking. The renewal of Measure A, which identified US 50 HOV lanes to be funded from the sales tax, was overwhelmingly approved by Sacramento area voters in November 2004.

SECTION 4 – PURPOSE AND NEED

The purpose of this project is to reduce congestion on United States Highway (US) 50 in the City of Sacramento from the Sacramento River Viaduct (Interstate 5 I/C) in downtown Sacramento to the Watt Avenue Interchange (I/C). Additional objectives to this project are as follows:

- allow connectivity and consistency with the planned HOV system in the Sacramento Region
- enhance mobility and provide incentives for ridesharing during peak period travel
- achieve the goals of the current SACOG MTP/SCS by promoting ridesharing
- improve US 50 to meet the growing travel demand in the Sacramento Region
- provide an option for reliable peak period travel time
- use the highway facilities as efficiently as possible
- improve general traffic operations by reducing congestion and travel time
- improve bicycle and pedestrian access

4.1 Problem, Deficiencies, Justification

This project is needed because the US 50 corridor is experiencing recurring congestion during peak commute periods. The amount and duration of congestion is expected to increase in the future as suburban development continues in the eastern portions of Sacramento County and in El Dorado County. HOV lanes mitigate congestion because they move more people in fewer vehicles than a mix flow lane.

As part of the 2016 MTP/SCS, SACOG found that area HOV lanes convey more people during commute times than any of the adjacent mixed-flow lanes. HOV lanes carry 2-3 times the passenger volume as a comparable mixed-flow lane. As a result, studies have correlated HOV lanes to improvements in air quality due to vehicle emissions.

The US 50 commute traffic affects the quality of life and livability of the neighborhoods adjacent to the corridor. Regional job growth has the potential to increase the number of commuters that travel through residential neighborhoods from freeway exits to employment sites. Since the freeway was constructed in the 1960s and 1970s, extensive development has occurred adjacent to the corridor contributing to the increased congestion. Increased congestion contributes to increased collisions, with the majority of collisions involving rear-ends and side swipe type crashes. Accident rates and types of collisions occurring are discussed in Section 4.3 - Traffic.

Furthermore, the benefits of a comprehensive HOV network cannot be realized until all segments are connected and fully functional. HOV lanes on US 50 would improve connectivity with the existing network and provide consistency with the existing US 50 HOV lane corridor. Attachment J includes a map showing the HOV plan and status for Sacramento County and the neighboring counties.

4.2 Regional and System Planning

This project was initiated by SACOG as part of a system-wide effort to improve traffic operations and air quality. Coordination between Caltrans, FHWA, SACOG, STA, the City of Sacramento, and Sacramento County is ongoing.

4.2.1 Identify Systems

US 50 is a primary transportation facility for Sacramento County as well as regional traffic between the San Francisco Bay area and the South Lake Tahoe area. US 50 within the project limits is part of the Interstate System, the National Highway System, the Freeway & Expressway System, the Interregional Road System, Primary Freight Network (PFN) from SR99 to 12.5 miles east of SR99, and the STAA & SHELL Route System. US 50 between I-5 and Business I-80 is also designated as I-305.

4.2.2 State Planning

Improvements proposed with this project are consistent with the current Transportation Concept Report that includes the addition of a HOV lane in each direction. Additional planned projects overlapping the project limits are as follows:

EA 03-0H080 is planned for future SHOPP for resurfacing, restoration, rehabilitation (3R). Combining EA 03-0H080 with the HOV lanes project would have a combined cost savings of $33 million. It would save the HOV Lanes project $27 million and the rehab project $6 million that includes capital support and construction cost.

EA 03-0H580 is programmed in the 2016 SHOPP to improve safety and traffic operations for the Hornet Dr EB off-ramp. Construction is scheduled for 2019. The Travel Demand Modeling & Traffic Microsimulation Analysis assumes this alternative is built by 2030.

EA 03-1F190 is programmed in the 2016 SHOPP to convert the existing WB auxiliary lane between the Howe Ave slip on-ramp and the 65th St slip off-ramp to an auxiliary lane between the Howe Ave loop on-ramp and the 65th St slip off-ramp. The Howe Ave slip on-ramp would then merge into the new auxiliary lane. This project is currently in project development and construction is scheduled for 2019.

EA 03-4F460 is programmed in the 2016 SHOPP to install a fiber optic communication system. The project limits are from the West Sacramento county line to 0.2 miles west of the Watt Ave OC. This project is currently in project development and construction is scheduled for 2018.

EA 03-1H050 is planned for the 2018 SHOPP to make roadside safety improvements from PM R0.59 to R3.12. Slope paving work from the 39th St UC to the 65th St OC slip off-ramp will require coordination with HOV lanes proposed SW work.

EA 03-2H130 is programmed in the 2018 SHOPP to add planting and upgrade irrigation. The project limits are in the City of Sacramento on Route 5, from Broadway to 0.12 miles south of R St POC (Br. No. 24-211).

An auxiliary lane on WB 50 from the Stockton Blvd off-ramp to the WB50-NB51 connector is planned for future SHOPP. This project would eliminate the mainline weaving issue before the connector. The Travel Demand Modeling & Traffic Microsimulation Analysis assumes this alternative is built by 2030. See Attachment P for additional details.

An alternative to an auxiliary lane at this location is a braided freeway connector ramp on WB 50 from the Stockton Blvd off-ramp to the NB route 51. This alternative is conceptual and not programmed for project development. This project would begin the connector at the off-ramp and span the Stockton Blvd loop on-ramp. It would eliminate the mainline weaving issue between the connector and loop on-ramp. The Travel Demand Modeling & Traffic Microsimulation Analysis assumes this alternative is built by 2030. See Attachment Q for additional details.

An auxiliary lane on EB 50 from 59th St off-ramp to the 65th St loop on-ramp is planned for future SHOPP. This project would mitigate congestion caused by California State University Sacramento commute traffic.

EA 03-0G790 is programmed in the 2016 SHOPP that includes treating the bridge decks with methacrylate resin. Five out of the nine bridges overlap this project that include the 9th St UC, 10th St UC, 26th St UC, Elmhurst Viaduct, 39th St UC, and Folsom Blvd UC that have polyester overlays proposed for the bridge decks to match mainline overlay profile. See Table 5-5 for the proposed bridge work included in the HOV lanes project scope.

An ITS project and a traveler information system are planned at various locations on US 50 and adjacent routes. The two separate projects include communication upgrades and travel time detection and notification respectively. Both projects are planned to be completed in 2020.

District 3 is currently preparing to hire a consultant to conduct a study that will identify, evaluate, and recommend a long range (20 year) managed lane network on the State Highway System in the Sacramento region. The study would include HOV toll lanes (HOT Lanes), express toll lanes, and reversible lanes.

4.2.3 Regional Planning

The project is consistent with SACOG's 2016 MTP/SCS. The MTP/SCS identified HOV lanes on US 50 as a means that express buses can provide higher frequency service. Sacramento County voters approved funding for HOV lanes, including those on US 50 in 2004 as part of the package of transportation improvements in the Measure A sales tax initiative.

This project is also consistent with the Integrated Corridor Management (ICM) Implementation Plan. Candidate improvement projects defined in this plan include:

- ✓ HOV lanes that are the purpose of this project
- ✓ ITS elements that will be evaluated for inclusion with this project
- ✓ Auxiliary lane evaluation/coordination as discussed in Section 5.1.1.15 and listed in Attachment O

The ICM implementation plan will develop a partnership based multi-modal strategy that integrates all transportation management elements along the US 50 corridor from the City of West Sacramento into El Dorado county. Led by Caltrans D3 Transportation Planning and Traffic Operations staff, the project development team includes SACOG, City of West Sacramento, City of Sacramento, Sacramento County, City of Rancho Cordova, City of Folsom, El Dorado County Transportation Commission, El Dorado County, Sacramento Regional Transit, and the Federal Highway Administration.

The Capital Southeast Connector expressway project is a 34-mile connector that will link I-5 and SR 99 south of Elk Grove to US 50 just east of El Dorado Hills. Construction may begin as early as 2018.

4.2.4 Local Planning

Sacramento adopted the Grid 3.0 plan in August 2016 that includes plans to alter the downtown roadway network. Among many of the substantial roadway changes are reducing 8th, 15th & 16th Streets from 3 lanes to 2 lanes. This work would facilitate the bridge widening if this work were accomplished before the HOV construction. See Attachment R for Grid 3.0 preferred roadway network maps.

The City of Sacramento is in the project development phase of the Ramona Avenue extension project. This project is scheduled for construction in 2017.

The Ramona Avenue project may be in direct conflict with a column (bent 8) for the proposed Brighton OH median widening work. Railroad coordination has begun in order to determine the minimum column-to-track clearance that will be acceptable to UPRR. If the 14 ft 6 in column-to-track clearance is accepted by UPRR then the conflict with Ramona Avenue will be eliminated. If UPRR requires the minimum 25-ft clearance, the current design for the Ramona Avenue roadway extension would require modification.

The 65th Streetscape project limits is planned for construction in 2018. City of Sacramento is the lead agency on this project. The limits include 65th St from Broadway to the Regional Transit light rail tracks.

The Sacramento Downtown/Riverfront Streetcar vehicle maintenance facility is planned at the Camellia City Viaduct between 19th St and the rail lines (one of two potential sites). The design team is currently coordinating with Caltrans since this project will be constructed before the HOV project. The primary obstacles for this project are coordinating future column placement for the bridge widening and vertical clearance between the proposed facility and the bridge soffit.

The proposed AT&T property redevelopment project, located adjacent to the EB Stockton Blvd on-ramp, would remove the existing 120,000-square foot (sf) vacant office building (formerly AT&T) and associated parking lot, and subdivide the property for construction of a mixed-use residential (214-unit, five story, multi-family housing complex and approximately 24 single-family homes) and commercial development. The project site consists of approximately 4.9 acres.

A transformative public art project called the Bright Underbelly project (70,000 sq ft mural) was completed at the Southside Park Viaduct between 6th and 7th streets in March 2016. This location hosts the largest farmers market in California. The existing viaduct soffit is painted along with the columns. The column paint would be “throw-away” since the columns will be seismic retrofitted with column steel casings. The column steel casings include paint for protection and can be painted to match the mural. The design team is in contact with the artist and the City of Sacramento regarding the preservation of this mural.

The Sacramento Rail yards is a 240 acre urban infill brownfield project. This site is situated on the north side of the proposed ESC site. There has been considerable development of roads, bridges, and public transportation around the site to date.

4.2.5 Transit Operator Planning

The proposed HOV lanes would benefit transit routes that would use US 50 in the project limits. HOV lanes would provide reduced travel time and improved travel time reliability due to reduced congestion. The Sacramento Regional Transit District has bus routes that use US 50 in the study area and an express bus during peak hour times on US 50 with no near term plans for expansion along this corridor. El Dorado Transit already benefits from the HOV lanes within its service area that provides service from Missouri Flat Transfer Center in El Dorado County to the Folsom Iron Point light rail Station.

4.3 Traffic

4.3.1 Current and Forecasted Traffic

Capacity is defined as the maximum volume of traffic a uniform segment of freeway can accommodate under prevailing conditions. If demand exceeds capacity, traffic density will increase and speeds will decrease until breakdown occurs, resulting in queuing and congestion. Much of this segment of US 50 has reached or exceeded its capacity and congestion is occurring in the AM and PM peak periods. Additionally, travel demand is forecasted to increase significantly by year 2040.

According to the 2014 Caltrans traffic count data, US 50 carries Annual Average Daily Traffic (AADT) ranging between approximately 171,000 to 251,000 vehicles and peak month Average Daily Traffic (ADT) of 177,000 to 268,000 vehicles through various segments in the project limits. According to 2014 Caltrans Truck traffic data, truck composition varies between 2.3% to 5.5% of the average daily traffic on US 50.

Wood Rodgers Inc. (traffic analysis consultant) obtained additional 2013 traffic volumes using a combination of machine/automated counters (including radar and video technology) as well as manual counters in the data collection process. The consultant then forecasted more detailed ADT volumes and other statistics. ADT volumes in the project limits for US 50 EB range from 90,300 to 149,800 vehicles. US 50 WB ADT volumes range from 85,800 to 135,900 vehicles. Tables 4-1 and 4.2 provide a summary of performance measures based on fall 2013 data also referred to as Base Year and projected 2040 year data for option 1 in the traffic report.

Table 4-1 Year 2040 4-hour Peak Period Network Summary

	Performance Measure	Existing (2013)	Alt. 1 Add HOV Lane	Alt. 2 Add Mixed Flow Lane	Alt. 3 Take-a-Lane	Alt. 4 No Build
AM	Vehicles Served (veh)	255,601	318,883	322,896	299,292	312,352
AM	Vehicle Miles of Travel (mi)	1,003,482	1,289,992	1,303,955	1,181,190	1,256,171
AM	Persons Served (per)	309,617	443,663	428,859	409,976	412,493
AM	Person Miles of Travel (per-mi)	1,215,548	1,767,679	1,731,867	1,618,017	1,658,902
AM	Average Travel Time (h)	24,736	50,819	52,664	44,926	44,046
AM	Average Travel Speed (mph)	42	29	29	30	32
AM	Vehicle Hours of Delay (h)	3,588	14,192	14,858	12,497	11,495
AM	Person Hours of Delay (per-h)	4,347	19,447	19,733	17,119	15,180
PM	Vehicles Served (veh)	305,890	371,637	367,623	345,043	360,625
PM	Vehicle Miles of Travel (mi)	1,055,036	1,332,571	1,328,837	1,190,204	1,270,674
PM	Persons Served (per)	381,602	516,560	487,288	470,160	476,465
PM	Person Miles of Travel (per-mi)	1,316,172	1,824,235	1,761,387	1,621,785	1,678,841
PM	Average Travel Time (h)	26,268	74,245	74,065	66,440	68,749
PM	Average Travel Speed (mph)	41	19	19	19	19
PM	Vehicle Hours of Delay (h)	4,135	26,254	26,119	23,973	24,363
PM	Person Hours of Delay (per-h)	5,159	35,941	34,620	32,666	32,189

Notes:
1. *Data shown in this table is compiled from Wood Rodgers Consulting US 50 Travel Demand Modeling & Traffic Micro-Simulation Analysis that include US 50 network and the contiguous parts of I-5, SR 99, SR 51.*
2. *The Vehicle Miles of Travel (VMT) for Alternative 1 is greater than Alternative 2 in the year 2040 PM peak period indicating that it is the most congested scenario and is operating at capacity. Alternative 2 was assumed to have the highest demand of all the alternatives as more vehicles enter the network under the mixed flow scenario than under the HOV Lanes scenario, which leads to increased bottlenecks during the peak period and can result in slightly less vehicles being served overall. Since the network is operating at capacity, the additional vehicle demand likely had a negative impact on vehicles served.*

4.3.2 Forecasted Traffic Analysis

The traffic data summarized in the previous table shows alternatives 1 and 2 increase vehicle capacity to reduce congestion and serve more persons (per-mi). The HOV lane alternative consistently serves more vehicles and persons than the No Build Alternative. While the data shows that adding an HOV lane encourages ridesharing, mobility on US 50 is improved under certain conditions since travel speeds and times do not always improve between the No Build and HOV alternative.

From the table below, the traffic data primarily shows improved mobility, travel times, and delays in the WB direction under PM peak conditions. Under year 2040 PM peak conditions, the HOV Lane Alternative increases WB US 50 speeds in the project area by approximately 5 mph over No Build while also serving 11% more vehicles and 18% more persons and providing lower densities.

While the Take-a-Lane Alternative shows higher speeds at some locations, the traffic model does not account for the delays experienced by vehicles not able to enter the network. This Alternative shows lower densities than the other alternatives at some locations while serving far fewer vehicles overall, indicating that vehicles are unable to enter the study area network due to the decreased overall capacity of US 50.

The proposed HOV Lane Alternative has a positive impact on WB US 50 speeds and travel times during the AM peak under year 2020 and year 2030 conditions, however this becomes less apparent under year 2040 conditions due to the large increase in vehicular demand and the overall problems this causes throughout the network.

Table 4-2 Year 2040 WB US 50 4-hour Peak Period Travel Times (Minutes)

Travel Time Route	AM				PM			
	No Project	Add HOV Lane	Add Mix Flow Lane	Take-a-Lane	No Project	Add HOV Lane	Add Mix Flow Lane	Take-a-Lane
WB US 50 at Watt Ave to NB I-5 at Richards Blvd	15.1	17.5	18.6	16.0	28.4	22.9	20.9	25.1
WB US 50 at Watt Ave to WB I-80 at West Sacramento	14.6	16.5	17.7	15.6	28.5	21.6	19.2	24.2
WB US 50 at Watt Ave to SB I-5 at Sutterville Rd	15.4	17.3	18.2	16.3	31.1	25.3	22.3	26.0
WB US 50 at Watt Ave to SB SR 99 at 12th Ave	11.9	14.1	15.1	12.2	24.8	18.0	15.7	22.9
WB US 50 at Watt Ave to NB US 51 at E St	13.0	16.5	17.8	13.1	23.8	19.8	17.0	21.1

The traffic data shows little to no change in EB US 50 speeds and travel times, most likely due to the bottlenecks and slowdowns on EB US 50 occurring downstream of the project area (between Watt Avenue and Sunrise Boulevard) that is largely unaffected by the proposed project.

Some benefits the Project does provide to EB US 50 are decreased densities and higher volumes served. While the project does improve mobility under certain conditions, it does not solve all of the traffic issues that will appear by 2040 on its own, and therefore some network measures of effectiveness, including speeds, do not always significantly improve.

In general, benefits not readily apparent are due to bottlenecks forming at many freeway connector ramps in downtown Sacramento, causing queuing and slowdowns on mainline US 50. Increasing the capacity of US 50 often results in the bottlenecks forming faster, as cars are able to reach the connectors faster but still have to wait to merge and enter the connectors/ramps.

Table 4-3 Year 2040 EB US 50 4-hour Peak Period Travel Times (Minutes)

Travel Time Route	AM				PM			
	No Project	Add HOV Lane	Add Mix Flow Lane	Take-a-Lane	No Project	Add HOV Lane	Add Mix Flow Lane	Take-a-Lane
SB I-5 at Richards Blvd to EB US 50 at Watt Ave	15.8	16.3	15.8	17.2	26.5	26.7	28.0	35.3
EB I-80 at West Sacramento to EB US 50 at Watt Ave	10.7	11.0	11.4	11.0	12.0	12.9	13.4	17.5
NB I-5 at Sutterville Rd to EB US 50 at Watt Ave	14.1	14.0	14.1	15.6	23.8	22.5	22.3	33.5
NB SR 99 at 12th Ave to EB US 50 at Watt Ave	10.7	10.7	9.9	14.6	13.0	14.1	15.0	24.2
SB US 51 at E St to EB US 50 at Watt Ave	9.4	9.4	9.4	9.8	10.2	10.4	11.3	16.9

4.3.3 Forecasted Traffic Summary

EB US 50 travel times are similar for all Alternatives due to increased demand, increased served vehicles, and congestion that occurs under future year conditions at ramps and connectors.

The summary of benefits from adding HOV lanes as compared to the No-Build alternative (under Year 2040 conditions) are:

- 17,500 more vehicles and 71,000 more persons served in the Sacramento Area during the peak periods.
- 1,000 more vehicles and 2,300 more persons served on US 50 during the PM peak hour (highest period of congestion during a typical day).
- An average reduction of travel times on WB US 50 of approximately 6 minutes per vehicle during the PM peak period.

The data presented in Section 4.3.2 are the results of analyzing traffic in all lanes. The traffic model does not forecast the travel times of the proposed HOV lanes independently from the adjacent mixed-flow lanes. District 3 Traffic Operations has however observed positive benefits of the existing HOV lanes facility from Watt Ave at the City of Sacramento limits to Cameron Park in Eldorado Co. Decreased travel times and increased reliability has resulted.

4.3.4 Collision Rates

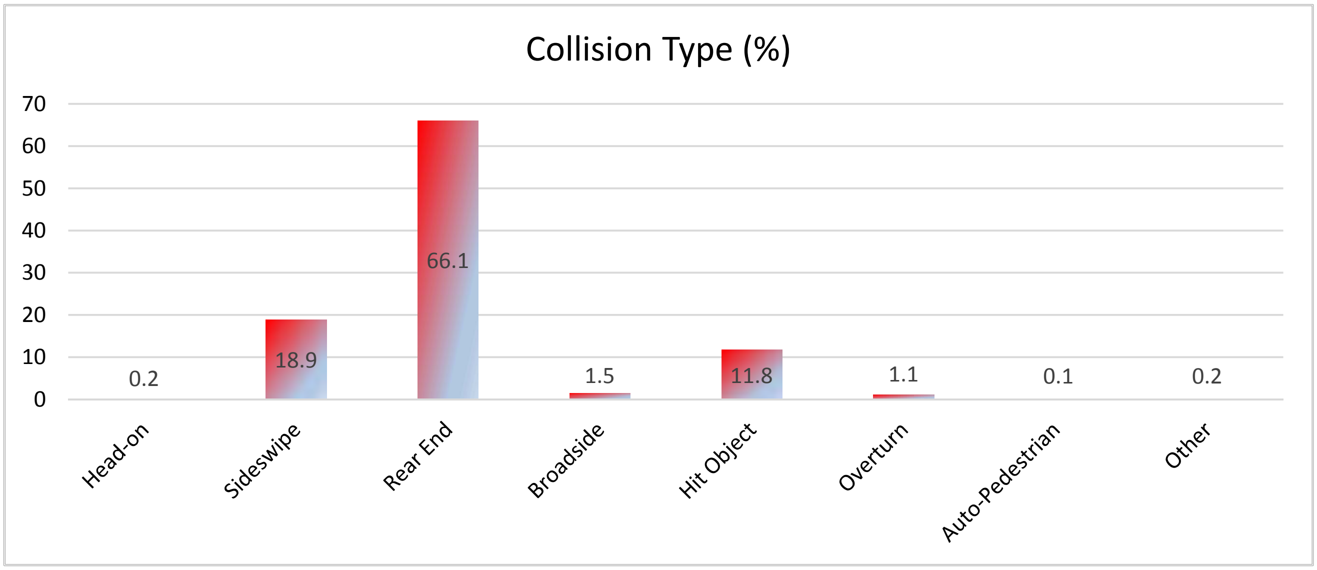
Collision rates were calculated for a three-year period from January 1, 2011 to December 31, 2013 and compared to the statewide average utilizing collision data from the Traffic Collision Surveillance and Analysis System (TASAS). The collision rates are shown in Table 4-4.

Table 4-4 Collision Rates

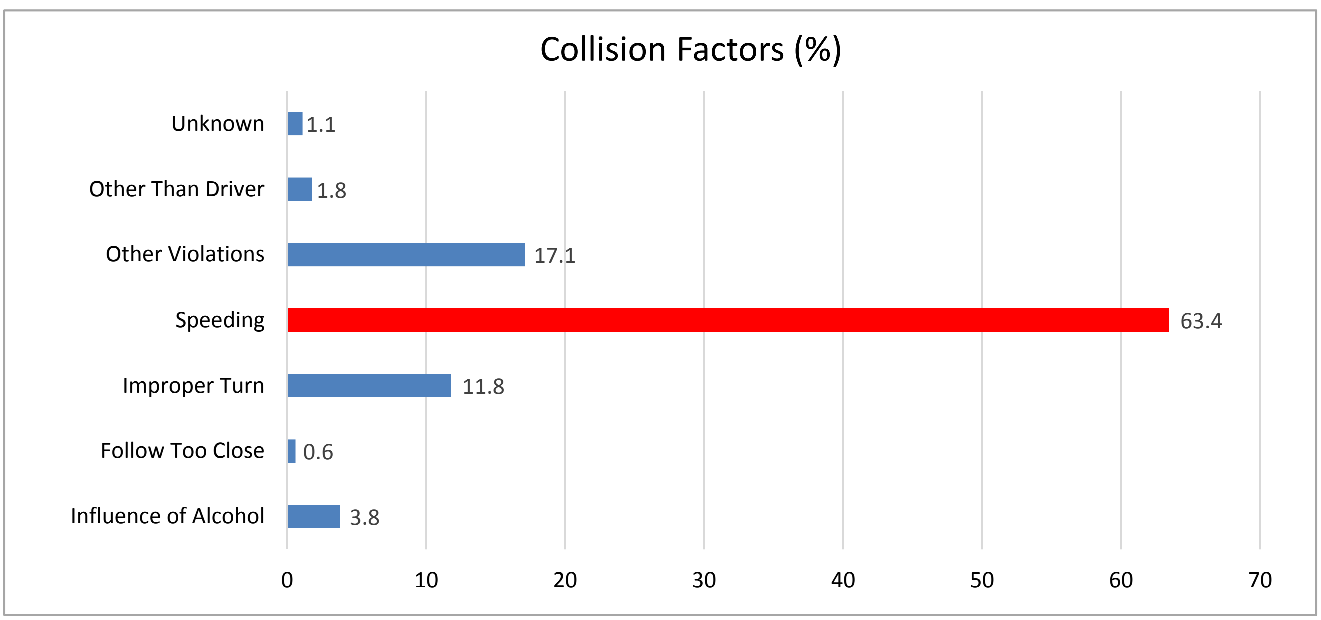
					Collision Rates (acc/mvm)					
	Number of Collisions				Actual			Statewide Average		
Freeway Segment	Total	Injury	Fatal+ Injury	Fatal	Fatal+ Injury	Fatal	Total	Fatal+ Injury	Fatal	Total
EB	651	225	228	3	0.24	0.003	0.70	0.27	0.004	0.89
WB	1008	290	291	1	0.31	0.001	1.08	0.27	0.004	0.90

Route Limits - Sac 50 L0.20/R5.3 - Post Mile Equations: L2.48 BK = R0.00 AH
acc/mvm = accidents per million vehicle miles

The fatal plus injury collision rate for the EB direction in the project limits is less than the statewide average collision rate for similar roadways and greater in the WB direction for the statewide average collision rate. The fatality rate was lower than statewide averages for both directions. The majority of collisions are WB. The majority of the corridor collisions occur between 7-8 AM and 3-6 PM, involve more than one vehicle, and are a rear end classification. This collision pattern is typical of that observed on highway segments with heavy traffic congestion and stop and go conditions. A breakdown of collision types is shown below.



The primary collision factor is speeding. There are no unusual roadway conditions reported and most collisions occur during daylight hours in clear weather conditions. There were four fatal collisions within the three-year period: One rear end, one a broadside, one hit object and the other a vehicle hit pedestrian. A summary of collision factors are graphed below.



The proposed improvements would increase capacity and reduce congestion and delays. As a result, a reduction in the congestion-type collisions and the overall collision rate would be expected. The Office of Traffic Safety and Investigations provided additional selective collision rate calculations for seven spot locations along the route. The results are shown below in Table 4-5.

Table 4-5 Collision Rates for Segment Analysis

Freeway Segment		Number of Accidents				Accident Rates (acc/mvm)					
						Actual			Statewide Average		
		Total	Injury	Fatal+ Injury	Fatal	Fatal+ Injury	Fatal	Total	Fatal+ Injury	Fatal	Total
I-5/US 50 connectors to 15th St ramps											
L0.8 to L1.1	EB	46	16	16	0	0.43	0.000	1.23	0.25	0.003	0.85
	WB	77	21	21	0	0.56	0.000	2.07	0.25	0.003	0.85
15th St ramps to 16th St ramps											
L1.10 to L1.5	EB	82	28	28	0	0.55	0.000	1.60	0.29	0.004	0.96
	WB	64	12	13	1	0.25	0.020	1.25	0.29	0.004	0.96
16th St ramps to US 50/99 connectors											
L1.50 to 1.99	EB	58	20	20	0	0.30	0.000	0.86	0.28	0.003	0.94
	WB	57	18	18	0	0.27	0.000	0.84	0.28	0.003	0.84
EB Stockton Blvd on-ramp to WB Stockton Blvd off-ramp											
R0.70 to R1.59	EB	58	20	20	0	0.20	0.000	0.57	0.28	0.004	0.90
	WB	145	52	52	0	0.51	0.000	1.43	0.28	0.004	0.90
WB Stockton Blvd off-ramp to 59th St ramps											
R1.60 To R2.19	EB	80	20	20	0	0.30	0.000	1.19	0.29	0.004	0.94
	WB	79	24	24	0	0.36	0.000	1.17	0.29	0.004	0.94
EB Hornet/Howe Dr off-ramp to Howe on/off ramps											
R3.50 To R3.79	EB	25	7	7	0	0.25	0.000	0.88	0.27	0.003	0.87
	WB	48	16	16	0	0.56	0.000	1.69	0.27	0.003	0.87
Watt Ave OC ramps											
R5.10 To R5.39	EB	22	8	8	0	0.28	0.000	0.77	0.26	0.004	0.83
	WB	40	9	9	0	0.31	0.000	1.39	0.26	0.004	0.83

The results of the spot location selective collision analysis shows that each of the segments analyzed have fatal+injury collision rates higher than the statewide average (highlighted in red). The highest collision rates occur primarily in the WB direction. The type of collisions occurring are rear-end classification that range 48.0% to 73.2% of the total collision classifications for each of the segments. The primary factor for the majority of collisions is speeding. The largest percentage of collisions also occur during daylight hours with no unusual roadway conditions reported.

In the last four years, four Caltrans maintenance workers were involved in collisions along the shoulder in the WB direction between the Stockton Blvd off ramp and the 59th St on-ramp. One of the four collisions was an injury collision.

SECTION 5 - ALTERNATIVES

An Initial Study with Negative Declaration]/Environmental Assessment with Finding of No Significant Impact has been prepared as part of the US 50 HOV Lane Project to satisfy the requirements of both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The alternatives under consideration have been analyzed at an equal level of detail and include a No-Build Alternative. As studies progressed, alternatives have been rejected or refined to avoid, minimize, or mitigate environmental impacts to the greatest extent possible.

The District 3 Office of Freeway Operations prepared a task order for the Traffic Report documenting capacity and congestion issues relating to the proposed addition of HOV lanes to US 50 for all alternatives (Traffic Report bound separately). An analysis of the freeway operations was also completed using SACOG's Activity-Based Travel Simulation Model (SACSIM).

5.1 Preferred Alternative

5.1.1 HOV Lanes

An HOV lane in both directions would connect with the existing HOV lanes at the Watt Ave I/C and extend west to the Sacramento River Viaduct (I-5 I/C). The EB HOV lane would begin at the Sacramento River Viaduct. The HOV lane will have a 2+ occupancy requirement. A preliminary analysis projected that congestion on the US 50 corridor through the year 2030 will not be great enough to support a 3+ occupancy requirement.

The WB HOV lane would terminate at the Sacramento River Viaduct by transitioning into the existing number 1 mixed flow lane. Tapers of 115:1 will be used for the transition and would begin before the 50/I-5 connector gore. The outside lane through the transition would drop at a 50:1 taper from the beginning of the 50/I-5 connector gore through the last span of the Sacramento River Viaduct (between bent 43 & 44) requiring additional structure widening of one span only.

HOV lanes allow vehicles carrying the required minimum number of people posted at entrance signs to travel in the HOV lane during posted operational hours. Certain plug-in-hybrid, alternative fuel and clean-air vehicles, motorcycles, mass transit, and para-transit are exempted from the occupancy requirement. Outside of posted hours, all vehicles may use the HOV lanes.

The results of the traffic study indicated that the HOV alternative performed well compared to the rejected alternatives studied. It served high demand and accommodated high volumes. The traffic model indicated that preferred alternative performed the best overall in the 2020 and 2030 design years. The year 2020 4-hour peak period travel time analysis resulted in about 6 minutes of travel time savings for both directions in the AM peak and about 0-1 minutes in the PM peak. The traffic study further indicated that the US 50 project corridor has the highest vehicle/persons served, the highest speeds, and the lowest densities under alternatives 1 and 2. Alternative 2 serves the most vehicles, but alternative 1 serves the most persons.

5.1.1.1 Proposed Freeway Engineering Features

The existing paved 36 ft median between the Sacramento River Viaduct and Watt Avenue I/C has capacity to add HOV lanes with minor deviations from design standards. The proposed median shoulder width would be 8 ft, the HOV lane width would be 11 ft, and the width of the number 1 and 2 mixed flow lanes would be restriped for 11 ft (see Attachment B for typical cross sections).

An overlay including a wearing course thickness of 0.10 ft RHMA-O is proposed over the entire traveled way. The overlay is intended to hide the old traffic stripes since the new lane configuration will not match the existing longitudinal PCC pavement joints. Additional benefits for RHMA-O are improved surface friction and reduced spray during wet weather.

The overlay is not intended to extend the life of the PCC pavement, but to enhance safety and will have a high maintenance cost associated. Typical Sections and Layout Sheets are included as Attachments B & C. The RHMA-O overlay could be eliminated to save costs, however specialized striping of the existing PCC lanes is needed. The Division of Materials and Traffic Safety will continue to evaluate during the final design phase. Alternatives to the RHMA-O overlay for re-striping are as follows:

- ***Combine with project EA 0H080*** – Construct new PCC joint lines to match proposed striping by paving 11 ft PCC lanes. All lane lines would match the PCC pavement joint lines except the outside HOV lane stripe would be offset 2 ft from the PCC joint line. The HOV HMA structural section could be widened in order for lane line to match the PCC joint line. ***Saves $27.3 million***
- ***High Contrast Striping*** – New lane configuration can incorporate contrast bordered traffic tape such as 3M Series 380 or Briteline Deltaline XRP traffic tape. 6" wide stripes and non-reflective pavement markers could increase visibility. ***Saves $3.9 million***
- ***Black Polyester Overlay –*** Typically applied to bridge decks without black color agent, the black polyester overlay would provide the same striping contrast as the RHMA-O overlay, but have a longer service life than RHMA-O overlay. ***Adds $11.3 million***

A recent pavement condition survey performed by District 3 Maintenance Engineering conveyed that there is severe cracking and faulting in the no. 3 & 4 lanes (both directions). There is a project in the State Highway Operation and Protection Program – Resurfacing, Restoration, and Rehabilitation (SHOPP 3R) planned in the 2018 SHOPP cycle to address these issues pending the outcome of funding and scope of this project. Some concrete slab replacement, crack sealing, and grinding the existing concrete pavement will be required before the overlay is placed. The estimate includes $11.5 million for this work. The last phase of HOV lanes constructed included dowel bar retrofit work for the transverse PCC joints only. This work was sponsored by Headquarters Pavement Program. Results and recommendations from that work will be evaluated for this project as part of a pavement rehabilitation strategy.

A combined drainage report and floodplain evaluation was performed in January 2007 that included the limits of this project. There are no direct storm water outfalls to water bodies. All of the highway drainage discharges into local systems and is conveyed to the American River, north of the project limits. The existing local systems are at or near capacity. There is no significant increase to impervious drainage areas. All significant drainage work was installed during the 2008 SHOPP project that constructed the paved median and concrete barrier.

Minor drainage will be included with the structure widening and to existing drainage facilities where sound walls are proposed along the edge of pavement. The proposed drainage design has been coordinated with various local jurisdictions.

Edge drains were placed next to the PCC pavement in the early 1970s. These are no longer functioning and are not being maintained. They will not be perpetuated in areas where proposed SW work along the edge of pavement is proposed.

There are several sign structures requiring relocation (see Attachment C for locations) and selected roadside signs along the edge of pavement at proposed SW locations will be replaced. New signs will be added, as appropriate, including HOV lane signage.

5.1.1.2 Nonstandard Mandatory and Advisory Design Features

Nonstandard features are included with the proposed improvements. The existing WB Stockton on-ramp to the NB 51 connector ramp weaving section is 1,000 ft. The Highway Design Manual states “Section 504.7 Weaving Sections- The minimum weaving length, measured as shown on Figures 504.2A and 504.2B shall be 2,000 ft in urban areas”.

This exception is requested for alternatives 1-3 since the geometrics for the weaving section do not change. The weaving section includes the auxiliary lane and the proposed number 4 & 5 lanes. Meeting current design standards could include one of the following solutions:

- Close the WB Stockton on-ramp.
- Construct an auxiliary lane from the WB Stockton Blvd off-ramp to the WB50-NB51 connector and convert the Stockton Blvd loop on-ramp weave to a merge (See Attachment P).
- Construct a braided ramp beginning at the WB Stockton Blvd off-ramp conforming to the WB50-NB51 connector (See Attachment Q).

There are point constrictions that reduce shoulder width at several locations due to overhead sign structures. The sign pedestals vary in diameter 4.5 ft to 5 ft and encroach into the usable median shoulder. HDM Index 309.1(3)(a) states, “The minimum horizontal clearance to all objects, such as bridge rails and safety shaped concrete barriers, as well as sand-filled barrels, metal beam guardrail, etc., on all freeway and expressway facilities, including auxiliary lanes, ramps, and collector-distributor roads, shall be equal to the standard shoulder width of the highway facility as stated in Table 302.1. A minimum clearance of 4 feet shall be provided where the standard shoulder width is less than 4 feet…” Table 302.1 indicates the minimum horizontal clearance would be 10 ft. The point constrictions would be 4.8 ft.

This exception is requested since providing minimum horizontal clearance would require replacing seven two-post truss signs to span the freeway a minimum of 200 ft. Additionally, there is one OH sign structure that would require replacement with a two-post truss sign. Four of the signs are located on bridges and require additional structural analysis on the bridge for feasibility. This project perpetuates the existing 8 ft inside shoulder as documented in the December 1997 design exceptions fact sheet. There is currently no evidence that the existing point constrictions contribute to collisions. An alternative to placing overhead sign structures over a standard 10 ft inside shoulder is reconstructing the mainline to current standards including widening 12 bridges.

The following overcrossings have vertical clearance ranging from 15.17 ft to 16.25 ft that do not meet current design standards. Design exceptions were approved in December 1997 for vertical clearance and are proposed to remain in place. The proposed overlay would terminate at each structure to maintain existing vertical clearance as shown in the following Table 5-1.

Table 5-1 Exceptions to Mandatory Design Standards - Bridge Vertical Clearance

Bridge Number	Post Mile	Bridge Name	Existing Clearance (ft)	Existing Difference From Current Standard (ft)
24-0229	R0.13	Alhambra Blvd OC *	15.58	-0.92
24-0314	R1.41	48th St OC *	15.25	-1.25
24-0315	R1.63	51st St OC *	15.33	-1.17
24-0316S	R2.01	59th St Ramp OC	15.25	-1.25
24-0317	R2.13	59th St OC *	15.17	-1.33
24-0186	R3.67	Howe Ave OC *	15.25	-1.25
24-0294	R4.54	Occidental Dr OC *	15.17	-1.33
24-0034	R5.34	Watt Ave OC	16.25	-0.25

Notes: *Profile grade changes are calculated using standard 16.5 ft vertical clearance for new construction under the Highway Design Manual Section 309.2(1)(a) standards.*
** Structures are also listed in the District 3 Goods Movement Study as high priority level for bridge clearance since they do not readily facilitate short detour routes for high load permits. See Section 7.9 for additional information.*

Other existing features that do not meet current design standards are proposed to remain in place. Design exceptions for some of the features were approved during development of the PSR in 1997. Additional exceptions to design standards were approved in January 2007 during PA&ED for the HOV project from Sunrise Blvd to Downtown (later truncated at Watt Ave).

Table 5-2 Exceptions to Mandatory Design Standards

	Nonstandard Feature	Proposed (P) or Existing to Remain (E)	PID	PA&ED
Mandatory Design Standards	Ramp Meter Policy	P		X
	Lane Width	E	X	X
	Shoulder Width	E	X	X
	Stopping Sight Distance	E	X	X
	Max Grade	E	X	
	Median Width	E	X	
	Horizontal Clearance	E/P	X	X
	Vertical Clearance	E	X	
	Cross Slope	E		X

Table 5-3 Exceptions to Advisory Design Standards

	Nonstandard Feature	Proposed (P) or Existing to Remain (E)	PID	PA&ED
Advisory Design Standards	Single Lane Ramp	E	X	
	Decision Sight Distance	E		X
	Minimum Grade	E		X
	Vertical Curve Length	E		X
	Superelevation Transition	E		X
	Embankment Slopes	E		X
	Uniform Catch	E		X
	Clear Recovery Zone	E		X
	Ramp Lane Drop tapers	E		X

The proposed exception to design standards for ramp meter policy was identified when the updated on-ramp traffic counts became available. The Ramp Metering Design Manual states that all on-ramps should have an HOV bypass lane. Nine of the sixteen on-ramps in the project limits do not meet this standard. All of the ramps in the project limits are metered. Table 5-4 below provides a summary of the ramp statistics.

Table 5-4 On-Ramp Statistics (Fall 2013 Traffic Counts)

Location	Existing Configuration	Standard Configuration	AM Peak Hour (7:30 to 8:30)	PM Peak Hour (4:30 to 5:30)
15th St WB slip ramp	2-lanes	2+1	623	1,016
10th St EB slip ramp	2-lanes	1+1	714	852
16th St EB slip ramp	2-lanes	1+1	584	880
26th St EB slip ramp	1-lane	1+1	452	678
Stockton EB slip ramp	2-lanes	1+1	412	642
Stockton WB loop ramp	1-lane	1+1	439	770
59th Street WB slip ramp [3]	1+1	1+1	666	558
65th Street EB loop ramp	1+1	1+1	427	511
65th Street EB slip ramp	1+1	1+1	725	641
65th Street WB loop ramp	1-lane	1+1	280	174
65th Street WB slip ramp	1-lane	1+1	279	203
Hornet Drive WB slip ramp [3]	1+1	1+1	353	701
Howe Avenue EB loop ramp	2-lanes	1+1	434	811
Howe Avenue EB slip ramp	1+1	1+1	455	432
Howe Avenue WB loop ramp	1+1	1+1	557	441
Howe Avenue WB slip ramp [3]	1+1	1+1	856	823

Notes: 1. 1+1 and 2+1 designations refer to 1-mixed flow lane with 1 HOV bypass lane and 2-mixed flow lanes with 1 HOV bypass lane respectively.
2. Caltrans ramp meter policy states that ramps with mixed flow volumes between 900 and 1,800 vph shall be 2+1.
3. Ramp does not meet HDM Figure 504.3B for CHP enforcement area and MVP.

5.1.1.3 Ramp Metering and other Intelligent Transportation Systems (ITS)

All on-ramps within the projects limits have operational ramp meters. While nine of the sixteen on-ramps do not provide an HOV bypass lane, it is not proposed to include HOV bypass lanes on these ramps due to limited funding and other geometric constraints. HOV bypass lanes will be evaluated for future projects to improve operations as funding becomes available.

ITS components are included to better monitor traffic conditions and report real-time information to vehicles in the corridor. These components would include additional fiber optic cable, CCTV, EMSs and CMSs. Vacant conduit is proposed to support future communication systems as ITS evolves.

The ICM Implementation Plan underway between Caltrans and local agencies would facilitate the integration of existing and new ITS devices and systems between different agencies. The plan includes US 50 from West Sacramento in Yolo County to Cameron Park in El Dorado County that overlaps this project. ITS element are integral to ICM.

A fiber optic communication system is programmed in the 2016 SHOPP within the project limits under EA 03-4F460. The current system is leased and consist of both wireless and DSL services. Performance and maintenance requirements would be improved. Project cost is estimated at $6.8 million. A Rehabilitation project 03-0H080 is also planned that would impact all ITS elements within the PCC lanes on mainline. Coordination with these projects and the development of ITS scope is on-going.

5.1.1.4 Utility Involvement

There are several existing utilities within the project limits in direct conflict with the bridge and SW work. It is anticipated that any required relocations can be accommodated within the limits of environmental clearance. The final "Determination of Liability" will occur on a case-by-case basis as the relocation plans are finalized. Identified utility conflicts are listed in the table below.

Table 5-5 Utility Conflicts

Utility Owner	Utility Type	"A1" Stationing		Length of Conflict (ft)	Conflict
Caltrans	36" sewer	81+80	86+14	434	Conflicts with Proposed Bridge columns
City of Sacramento	21" sewer	102+30	106+00	370	Conflicts with Proposed Bridge columns
City of Sacramento	24" cast iron water line	163+85	164+04	17	Conflicts with Elmhurst Viaduct Bent 5
Quest & AT&T	underground fiber optic	170+10		*	Conflicts with Elmhurst Viaduct Bent 11
Verizon	underground fiber optic	213+00		*	Conflicts with "SW13" CIDH pile foundation
AT&T	underground fiber optic	215+18	215+88	70	Conflicts with "SW14" CIDH pile foundation
City of Sacramento	12" water line	232+92		*	Conflicts with "SW15" CIDH pile foundation
City of Sacramento	6" water line	235+02		*	Conflicts with "SW15" CIDH pile foundation
City of Sacramento	6" water line	238+67		*	Conflicts with "SW15" CIDH pile foundation
City of Sacramento	12" water line	243+80		*	Conflicts with "SW15" CIDH pile foundation
AT&T	underground fiber optic	262+00		*	Conflicts with "SW16" CIDH pile foundation
SMUD	overhead electric	297+47		*	Conflicts with Brighton OH widening

* *The utility crosses transverse to proposed work area.*

5.1.1.5 Railroad & Light Rail Involvement

The Union Pacific Railroad and Sacramento Regional Transit District light rail crosses US 50 at the Camellia City Viaduct between 19th St and 20th St and at the Brighton OH just east of 65th St. Railroad involvement is required for the bridge widening. Construction under Camellia City Viaduct requires flagging and the construction of a column on the east side of UPRR tracks will occur behind a crash wall. The Brighton OH spans two active mainline tracks, one active spur line used 1-2 times weekly for storage, and two abandoned spur lines (see Attachment C Sheet L-19). Negotiations are underway to relocate the spur lines in order to construct columns at optimum span lengths. No new crossings are being proposed.

The Sacramento Regional Transit District operates light rail in the corridor, generally paralleling Folsom Boulevard. The light rail is elevated as it crosses under US 50 at the Brighton OH. The system of overhead wires that supply electricity to light rail is referred to as a messenger wire and is attached directly to the soffit of this structure. The messenger wire requires relocation since the new structure depth will be greater than the existing depth and conflicts with messenger line. Cal OSHA clearance requirements also restrict workers in the vicinity of the active messenger line's existing alignment during construction.

Figure 2 – RT Light Rail Conflict The RT messenger line is connected to soffit of Brighton OH Br. No. 24-0289R.

5.1.1.6 Park and Ride Facilities

No park and ride facilities are proposed. There are several park and ride facilities east of the project limits. There have been no requests from local jurisdictions to add park and ride lots to the project. Generally park and ride facilities are most effective for long commutes, greater than 10 miles.

5.1.1.7 Highway Planting

New and replacement plantings are planned such as vines on proposed sound walls along the R/W. The single row of irrigated vines at some of the proposed SW locations will discourage graffiti and will be planted as part of this HOV Lane project.

A revegetation plan would be required for the trees and miscellaneous landscaping along the R/W that would be removed for construction access to build sound walls. A one-year plant establishment would be used for the SW plantings and revegetation when construction is complete. Existing irrigation crossovers in the median will be reconnected. Attachment M includes a Landscape Architectural Assessment Sheet.

Figure 3 – R/W Conditions A 6 ft metal SW on 8 ft berm exists at the proposed “SW11” and “SW12” alignments. Note that the gap between Caltrans the access control fence is candidate for relinquishment, landscaping opportunity, or other public benefit such as a dog park.

5.1.1.8 Erosion Control

Erosion control will be used for temporarily disturbed areas and permanent slopes. The total disturbed area is 6.5 acres. Other temporary Best Management Practices (BMPs) will be incorporated to minimize the potential for sediment entering adjacent water bodies.

5.1.1.9 Noise Barriers

There are existing state-built SW within the project limits as well as several private walls on residential properties along the R/W. Caltrans recognizes the strong desire for noise mitigation and is working actively with local agencies/groups to respond to the noise concerns. Not all of the proposed SW are acoustically feasible and none of the proposed SW studied meet the reasonable allowance cost requirements set by FHWA. While Section 6 of this document makes recommendations to construct SW, funding from state and/or local agencies will be the final determination to construct SW.

Other factors such as existing SW replacement, public perception, and ultimate build requirements are also considered. Attachment C depicts all proposed SW locations and Section 6.1 provides a detailed discussion of the SW scope.

Figure 4 - Existing SW- "SW16" overlaps a 6 ft x 1,062 ft experimental SW composed of shotcrete on chain link fence. This is one example of existing barriers that is proposed to be replaced to match the overall proposed SW aesthetics and service life.

5.1.1.10 Non-Motorized and Pedestrian Features

Non-motorized vehicles and pedestrians are not permitted on the freeway within the project limits. Access across the freeway is provided at several local street overcrossings and undercrossings.

5.1.1.11 Roadway Rehabilitation and Upgrading

A Project Scope Summary Report (EA 03-0H080) identifies a pavement rehabilitation project within the same limits as the HOV project. A recent pavement condition survey inventory documents severe slab cracking and faulting in the no. 3 and 4 lanes in both directions and minor slab cracking in the no. 1 and 2 lanes in both directions. The pavement condition would need to be addressed if the RHMA-O overlay is included to minimize future reflective cracking. The RHMA-O overlay may also be omitted as discussed in Section 5.1.1.1. Coordination with the 3R pavement rehabilitation project EA 03-0H080 will be on-going to determine the final rehabilitation strategy and schedule. The existing asphalt concrete pavement for the auxiliary lanes and shoulders are in good condition.

5.1.1.12 Overhead Sign Trusses

There are five overhead sign structures that require relocating due to the median widening and/or SW work. The overhead sign structures are composed of four sign bridge type and one single post type.

5.1.1.13 Structure Rehabilitation and Upgrading

Three structures will include column steel casings as part of seismic retrofit (see Table 5-6 on next page). The existing structure deck protection is generally in fair to poor condition throughout the project limits. The Brighton OH and the Camellia City Viaduct have had deck rehabilitations since this project was initiated. A 0.1 ft concrete polyester overlay is proposed to extend the service life of the bridge decks and match the new overlay profile. General plans with cost estimates have been updated for proposed structure widening (see Attachment D).

Table 5-6 Proposed Structure Work

Bridge Number	Bridge Name	Post Mile	Proposed Work
24-0004 R/L	Sacramento River Viaduct	L0.20	Widen Median (one span only)
24-0243R/L	Southside Park Viaduct	L0.66	Widen Median, Seismic retrofit, Polyester Overlay, Approach Slabs
24-0244R/L	9th St UC	L0.89	Widen Median, Polyester Overlay, Approach Slabs
24-0245R/L	10th St UC	L0.96	Widen Median, Polyester Overlay, Approach Slabs
24-0246R/L	Riverside Blvd UC	L1.06	Widen Median, Polyester Overlay, Approach Slabs
24-0247R/L	15th-16th St Separation	L1.36	Widen Median, Seismic retrofit, Polyester Overlay, Approach Slabs
24-0248R/L	Camellia City Viaduct	L1.59	Widen Median
24-0223R/L	26th St UC	L2.20	Widen Median, Polyester Overlay, Approach Slabs
24-228R/L	Elmhurst Viaduct	R0.38	Widen Median, Seismic retrofit, Approach Slabs, Polyester Overlay
24-0313	39th St UC	R0.85	Place SW on South Side, Polyester Overlay
24-0318	65th St UC	R2.63	Polyester Overlay
24-0289R/L	Brighton OH	R2.88	Widen Median, Approach Slabs
24-0288R/L	Folsom Blvd UC	R3.13	Widen Median, Approach Slabs, Polyester Overlay
24-0286R/L	Hornet Dr UC	R3.47	Widen Median, Approach Slabs, Polyester Overlay

5.1.1.14 Right of Way Data

A R/W Data Sheet has been prepared for the proposed improvements included as Attachment G. Temporary construction easements (TCE) are required for most of the SW construction and grading along the state R/W. There are 26 properties identified requiring TCEs to build sound walls. Four of these properties will not require construction access to occupied portion of the property since a utility easement along the R/W provides a buffer. The remaining TCEs and a right of entry from UPRR will be required to construct columns for the bridge widening.

It is proposed that existing Caltrans R/W fence and private property fencing/walls will be permanently removed to eliminate "double" fencing and in some cases "triple" fencing if sound walls were otherwise constructed adjacent to existing fencing.

The project estimate includes $810,000 to relocate UPRR spur lines for the Brighton OH widening. This strategy eliminates the need for variances (horizontal clearance to track) for the proposed columns west of the elevated RT tracks. Optimum column placement can also be achieved with this strategy.

5.1.1.15 Westbound Auxiliary Lane Extension (Beneficial Alternative)

The traffic report and value analysis team recommended extending the WB auxiliary lane between the 59th St OC and the Stockton Blvd off-ramp to the WB50-NB51 connector ramp. This alterative is not required to construct functional HOV lanes and not included with any one of the aforementioned alternatives, but would improve operations. The traffic model predicted under the year 2040 HOV conditions a 1.8 mph speed increase, 12 pcphpl density decrease, and a 2.3 minute travel time savings.

This alternative would require additional geometrics study and mandatory design exceptions for weaving and merging for on-ramp geometrics. Required widening of this structure to the outside (WB direction) cannot be performed by conventional practices by adding columns in-line with existing bents. There is a direct conflict with column placement at 34th St. and T St. An advanced planning study is required to analyze this alternative further. See Attachment P for additional details.

5.1.1.16 Hornet Drive Ramp Improvement (Beneficial Alternative)

The traffic report and value analysis team also recommended widening the off-ramp and adding a signalized intersection at the Hornet Drive off-ramp in the EB direction. Traffic queues onto mainline during peak commute times due to the proximity of Sacramento State College. This alterative is not required to construct functional HOV lanes and not included with any one of the aforementioned alternatives, but would improve operations. This project is funded and project development is ongoing. Construction is scheduled for 2019. See Attachment C sheet L-21 for location.

5.2 Rejected Alternatives

The following three alternatives were analyzed and rejected due to poor performance according to the traffic model.

5.2.1 Mixed Flow Lanes

Mixed flow lanes would have the same design features except the additional lanes are used as mixed flow vehicle lanes to add vehicle capacity. While the construction of the mixed flow lanes would alleviate congestion, the SACOG MTP/SCS identifies HOV lanes as having both superior air quality and mobility benefits. FHWA also requires that HOV lane projects evaluate adding a mixed flow lane in each direction instead of HOV lanes.

The HOV System Planning Study for the Sacramento Metropolitan Area concluded that HOV lanes of two or more passengers per vehicle provided a better solution to traffic congestion and air pollution than mixed flow lanes. The traffic model verifies that conclusion and demonstrates HOV lanes would serve more people than adding mixed flow lanes in design years 2030 and 2040. In summary this alternative's benefits include reduced congestion, however it conflicts with the Caltrans HOV network plan, and is inconsistent with the SACOG MTP/SCS.

5.2.2 Take-a-Lane

This alternative would convert an existing mixed flow lane in each direction to an HOV lane by re-striping and signing to prohibit non-HOV traffic during peak periods. This alternative was evaluated in the Traffic Report. It was determined that this alternative would significantly reduce mixed flow vehicle capacity. The traffic model further concluded that the take a lane alternative was the poorest performer of all the build alternatives modeled. It resulted in the highest levels of congestion and the lowest average speeds. In summary, this alternative was considered since benefits included meeting SACOG's MTP/SCS goals and has lowest construction costs, but was rejected for operational reasons.

5.2.3 No Build

The No-Build alternative proposes no modifications to US 50 other than routine maintenance and rehabilitation, and future programmed projects. This alternative would not meet the Purpose and Need for the project, does not address mobility, nor does it provide commuters an incentive for using carpools and buses during peak periods. HOVs and all other vehicles exempted from the occupancy requirement will experience the same delays as the mixed flow traffic.

The traffic model indicates that the No-Build alternative results in a continual increase in congestion and progressive decline in the traffic volume when compared to the build alternatives. This increased congestion results in increased travel times for commuters.

5.3 Considered Alternatives (Alternatives to Contiguous HOV Lanes)

Several alternatives to contiguous HOV lanes have been considered and rejected during the project development history.

5.3.1 Barrier-Separated or Buffer-Separated HOV Lanes

Barrier-separated and buffer-separated HOV lanes were analyzed and rejected since they require extensive outside widening. Ingress/egress points to HOV lanes would be problematic along the corridor due to existing ramp and interchange spacing.

5.3.2 Reversible HOV Lanes

Reversible flow is an operational mode where the HOV lanes operate in one direction during the AM peak period and change to the opposite direction during the PM peak period. According to Caltrans HOV guidelines (California Department of Transportation 2016), a reversible barrier-separated HOV facility should be considered when the existing and forecasted peak period directional traffic split is 35% or less in one direction during the design life of the project.

Reversible flow operation should only be used on barrier-separated HOV facilities with limited ingress/egress to the HOV lanes. This alternative was not considered since there is no directional split on this facility, other operational reasons, the capital cost would be nearly equal to contiguous HOV lanes, and there would be an approximate $700 million annual maintenance and operations cost.

5.3.3 Managed Lanes

Express Toll Lanes and HOV toll lanes were considered and rejected (e.g FasTrak that is used in the San Francisco and Los Angeles Bay Areas). A preliminary analysis projected that congestion on the US 50 corridor through the year 2030 will not be great enough to support these alternatives.

5.3.4 Transit Alternative

This alternative constructs a lane for the dedicated use of Transit. Although this alternative would meet some of the project objectives, such an alternative would not be consistent with the goals of SACOG's current MTP/SCS. The proposed project is part of a larger network of existing and planned HOV lanes in the Sacramento region. A map of existing HOV lanes is available at www.dot.ca.gov/hq/traffops/systemops/ hov/HOV_Map_0609.pdf. A list of planned HOV lane projects in the area are included in the MTP/SCS on the SACOG website (www.sacog.org/general-information/2016-mtcpsc). The MTP/SCS 2035 acknowledges the need for highway expansion to keep pace with the region's growing population and increasingly congested roadway system, noting:

> *With more than a million empty seats in autos, but fewer than 10,000 empty seats in buses every morning and afternoon, carpools clearly have a place in the picture. Regardless, a large increase in the amount of travel by 2035 means that, even if transit use could be increased tenfold and bicycle/walk trips tripled, the region still would face a large increase in travel by auto. At least in some places the road system must be expanded too, and if planned comprehensively, road expansions can improve bicycle and bus circulation (SACOG 2008a).*

The MTP/SCS 2035, and the preferred blueprint on which it is based, focuses upon providing a balance of transportation investments in order to offer alternatives for travelers. The Traffic Report shows, the proposed project is expected to improve travel time for high occupancy vehicles and all other exempted vehicles from the occupancy requirement. Additionally it is expected to have a positive increase in commuter transit usage. Previous HOV lane projects have shown a positive correspondence between carpooling and bus ridership after implementation (Caltrans 2008). Information on HOV lanes can be found at www.dot.ca.gov/hq/traffops /systemops/hov/hov_sys /index.html.

The Transit Only Alternative was considered because of the regional air quality benefits. It was rejected because the microsimulation traffic model showed it could not compete with other alternatives (even in a low growth scenario) and does not meet the purpose and need of this project.

SECTION 6 - CONSIDERATIONS REQUIRING DISCUSSION

6.1 Noise Abatement Decision Report

This section incorporates the Noise Abatement Decision Report (NADR) which:

- Is an evaluation of the reasonableness and feasibility of incorporating noise abatement measures into this project;
- Constitutes the decision on noise abatement measures to be incorporated into the environmental document; and
- Is required for Caltrans to meet the conditions of Title 23 Code of Federal Regulations, Part 772 in accordance with the FHWA noise standards.

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 environmental document is published. The SW alignments shown in Attachment C are subject to change due to funding, geometric constraints, and safety factors such as non-standard sight distance.

The NADR does not address noise barriers or other noise-reducing treatments required as mitigation for significant adverse environmental effects identified under CEQA. For additional noise assessment requirements discussion, reference Caltrans District 3 April 2015, US 50 HOV Lanes Project, Noise Impact Study Report (NSR).

Additional factors that affect the final decision regarding noise abatement is the fact that not all of the proposed Sound walls are acoustically feasible and none of the proposed Sound walls studied meet the reasonable allowance cost requirements set by FHWA. While this section makes recommendations to construct SW, funding from state and/or local agencies will be the final determination to include this work with this project or future projects as a “community enhancement”. The SW estimate shown in Table 6.1 is included in the roadway construction estimate.

6.1.1 Results of Noise Impact Study Report

The NSR for this project was originally prepared on September 2006 and updated in April 2015. The study identified several locations and wall heights ranging from 6 feet to 16 feet where sound walls would meet FHWA abatement criteria that includes acoustic feasibility and reasonable allowance cost. Wall heights that did not meet attenuation requirements did not receive a reasonable cost allowance and are not considered feasible.

However, at some existing SW locations it is proposed to replace the barriers to be consistent with the proposed SW aesthetics and service life. Table 6.1 provides a summary of the economic effectiveness of each SW based on predicted noise reduction and the number of benefited receptors. The NSR summarizes the reasonable cost allowance for each height of each SW. See Attachment N that summarizes the reasonable cost allowances for all SW (barriers). The sound walls are proposed to be masonry block that meet Caltrans standard specifications.

6.1.2 Factors in the Noise Abatement Decision

The Noise Abatement Decision is based on achieving a 7db reduction in noise levels. There are other various factors including field investigations, land use evaluations, and impact analysis that focus on locations with defined outdoor activity areas. Cost estimates were developed for recommended SW heights identified in the NSR (Table 6-1) and compared to the reasonable allowance cost data for the corresponding SW height to determine feasibility. The cost analysis included factors such as:

- foundation types
- clearing & grubbing
- fence and wall removal
- temporary fencing
- temporary construction easements
- drainage modifications
- utility research and conflict mapping
- landscaping and irrigation replacement

Table 6-1 Sound Wall Summary

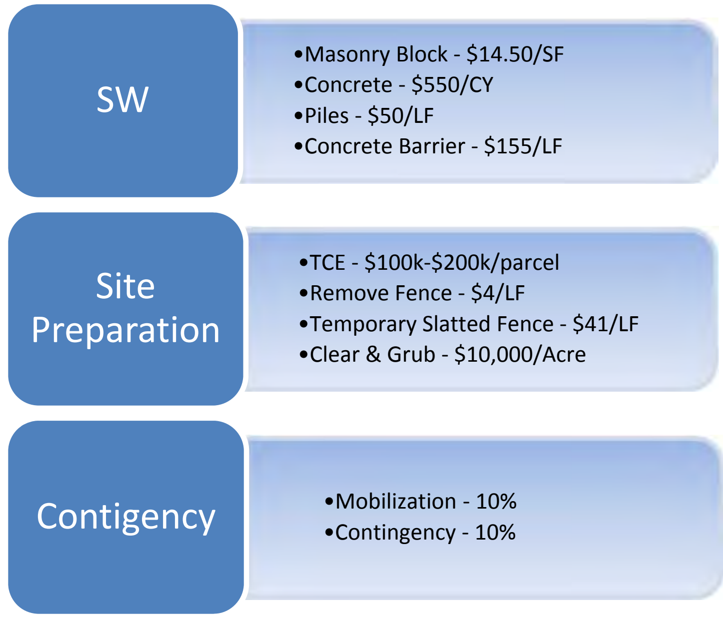
NSR SW Designation	Project SW Designation	Description	H (ft)	L (ft)	Total Reasonable Allowance	Estimated Construction Cost	Proposed
SW-WB-1	"SW1"	WB 7th St. to 13th St.	8	2,464	$9,655,000	$19,125,000	
	"SW2"	WB 13th St. to 16th St.	8	1,112			
	"SW3"	WB 16th St. to 18th St.	8	936			
	"SW4"	WB 18th St. to 26th St.	8	4,276			
SW-WB-2	"SW5A"	WB 50-51 Connector	10	1,090	$1,775,000	$2,098,000	✓
	"SW5B"	WB on Elmhurst Viaduct	10	347			
SW-EB-1	"SW6"	EB 9th St. to 13th St.	8	1,710	$6,105,000	$18,048,000	
	"SW7"	EB 13th St. to 16th St.	8	1,066			
	"SW8"	EB 16th St. to 18th St.	8	872			
	"SW9"	EB 18th St. to EB50-SB99 connector	8	4,418			
SW-EB-2	"SW10A"	NB99-EB50 connector-Elmhurst Viaduct	10	1,242	$3,763,000	$8,791,000	
	"SW10B"	EB Elmhurst Viaduct to Stockton Blvd	10	1,860			
SW-EB-2A	"SW11A"	EB Stockton on-ramp to 39th St	10	1,223	$355,000	$987,000	✓
	"SW11B"	39th St Undercrossing	8	135			✓
SW-EB-3 (Existing Barrier I)	"SW11C"	39th St to 41st St	10	1002	$0	$1,375,000	✓
	"SW12"	EB 41st St to 45th St	10	1302			✓
SW-EB-4	"SW13"	EB 45th St to 48th St	14	978	$142,000	$1,138,000	✓
SW-EB-5	"SW14"	EB 48th St to 51st St	8	1,153	$497,000	$1,322,000	✓
SW-EB-6	"SW15"	EB 51st St to 59th St	8-10	2,563	$1,491,000	$3,161,000	✓
SW-EB-7A	"SW16"	EB 59th St to 62nd St	12	1,574	$284,000	$781,000	✓
SW-EB-7B	"SW16"	EB 62nd St to 65th St	10	1,058	$0	$490,000	✓
			Total	32,381	24,067,000	$57,316,000	

Notes:
1. *Total Reasonable Allowance = 0 designates SW that are not acoustically feasible by reducing noise levels 7dB.*
2. *The project SW designation column is required for distinguishing between SW on structure or original ground and unique final design configuration since the NSR provides general location of SW.*
3. *Barrier I exists from the east side of the 39th St UC to approximately 43rd St.*
4. *"SW1" through "SW4" and "SW5B" through "SW9" are not recommended nor included in the scope and are shown in Table 6-1 to be consistent with NSR and other scoping documents.*

6.1.3 Non-acoustical Factors Relating to Feasibility

Sound walls "SW12" through "SW16" are proposed along the right-of-way line to avoid conflicts with future projects. Sound walls "SW11A" through "SW11C" are proposed along the freeway edge of pavement on a concrete barrier and aligned to provide the minimum sight distance allowance pursuant to Caltrans highway design standards.

There are no unusual maintenance or safety issues identified during the field review and observations. Sound walls along the R/W would include connecting the adjacent property side yard fences to the new sound walls. This strategy was included on the last completed phase of the HOV lanes (EA 441611) and the Watt Ave. I/C project (EA 371201) recently completed. Access to the freeway face of the walls is considered adequate from the State side of the R/W. Reviews of utility impacts by SW construction are considered minor with no significant design requirement or inordinate cost of relocation. There are no observed aerial utility conflicts and underground utility crossings can be spanned with piles and pile cap/beam.



Masonry block SW are proposed for "SW11A" through "SW16" locations. Spread footings are the most economical design however, a cast-in-drilled hole (CIDH) concrete pile foundation is required due to the soil conditions. The top 5 ft of soil is loose and composed of sand and cobbles requiring over excavation if spread footings were otherwise used. The CIDH foundation can also be constructed closer to the R/W. The unit prices shown above for the SW estimate are included as a lump sum item for the project cost estimate in Attachment E.

6.1.4 Recommendations and Decision

It is recommended to construct "SW5A" and "SW11A" through "SW16" sound walls in the project limits as shown in Attachment C. Estimated construction cost is $8.5 million. This recommendation is based on FHWA noise standards for abatement, continuity with corridor, service life, and public perception. All recommended SW heights and costs are included in the previous Table 6-1. It is noted that none of the SW meet the reasonable allowance cost criteria. The construction cost exceeds this criteria due to the materials, labor, site preparation, and temporary construction easement (R/W) costs.

It is not recommended to construct the remaining SW analyzed in the NSR due to the cost that are in excess of the federal reasonable cost criteria. The total construction costs saved is $47,741,000. Sound walls "SW1" – "SW9" are acoustically feasible and do not meet the reasonable allowance cost criteria due to the fact the alignments overlap bridges and retaining walls requiring extensive structure modifications. Relocating overhead sign structures are also included in the construction costs.

While sound walls "SW11B", "SW11C", "SW12", and "SW16" are not acoustically feasible, they are however, beneficial to public perception, aesthetic continuity within the corridor, and future traffic and population growth. These walls are aligned outside of the mainline to preclude future "tear out".

Two existing state-built sound walls overlap the proposed "SW12" and "SW16" alignments and are constructed of a 6 ft x 1,190 ft corrugated metal panel design and a 6 ft x 1,062 ft shotcrete chain link fence. It should be noted that increasing the height for these walls would not significantly reduce noise levels. However, the walls are aging and would need replacing before the proposed sound walls reached their respective end of service life. Conforming to the existing walls is not practical in order to match design and aesthetics.

Although not considered as noise abatement, a RHMA-O wearing course is proposed and part of the scope of work for all traffic lanes within the project limits. Research studies show that the RHMA-O overlay reduces objectionable tire-pavement interaction noise when compared to traditional pavement types (e.g. concrete pavement or dense graded asphalt). The overlay would be omitted if the pavement rehabilitation project were combined with this project.

6.2 Hazardous Waste

An Initial Site Assessment (ISA) was completed in June 2015 and is included as Attachment S. Based on this review, the potential for hazardous waste exists with respect to the following;

6.2.1 Aerially Deposited Lead (ADL) Contaminated Soil

ADL contaminated soil may exist within and near Caltrans R/W due to the historical use of leaded gasoline, leaded airline fuels, and waste incineration. Since soil disturbance and relinquishment to the contractor will occur, an ADL site investigation is required and will be performed during the PS&E phase. If hazardous waste material is found, it will be disposed of in accordance with applicable Federal and State regulations as well as Caltrans protocols.

6.2.2 Ground Water and Soil Contamination

Groundwater and soil contamination may exist where new foundations for the bridge widening will occur at the Elmhurst Viaduct and the Brighton Overhead. A site investigation is required to determine if hazardous soils and groundwater exists and will be performed during the PS&E phase.

6.2.3 Asbestos

Since bridge expansion joint materials and rail shims will be removed during construction, a bridge asbestos survey is required to determine if asbestos is present.

6.2.4 Treated Wood Waste

Hazardous chemicals are known to exist in the wood posts associated with metal beam guardrail. Wood posts that are removed during construction will be disposed of in accordance with Standard Special Provision 14-11.14 (Treated Wood Waste).

6.2.5 Yellow Color Traffic Stripe Waste

The potential for hazardous waste levels of lead and chromium in the yellow color traffic stripes may exist. Traffic stripes removed and included with grindings shall be removed and disposed of in accordance with Standard Special Provision 14-11.12 (Remove Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue) which requires a Lead Compliance Plan (LCP). Non-hazardous levels of lead are known to exist in the white traffic striping. These grindings shall be removed and disposed of in accordance with the same specification.

6.3 Value Analysis (VA)

The National Highway System Designation Act of 1995, Title 23 United States Code, Section 106 requires state departments of transportation to carry out a VA study for all projects on the National Highway System (NHS) costing $50 million or more. The objective of the VA study was to identify value-improving alternatives to the baseline project scope that will reduce cost and time and maintain or improve performance of the project. A VA study was sponsored by Caltrans District 3 and facilitated by Value Management Strategies, Inc. August 25-29, 2014. The VA Study Summary Report is available for more details regarding the team members, process, key findings, and alternatives developed by the team.

6.3.1 Results of the Value Analysis

The VA team developed 8 alternatives. Table 6-2 on the following page summarizes the potential cost, change and performance change. Note that the alternatives if incorporated into this project do not change the HOV lanes project schedule.

Table 6-2 VA Study Alternative Summary

Alternative No. and Description	Initial Cost Savings	Change in Performance
1.0 Convert WB HOV lane to MF lane between 59th St. on-ramp and Stockton Blvd.	**$0**	**+8%**
The benefit is improved mainline traffic flow since motorists can shift lanes before the congested Oak Park I/C.		
2.0 Eliminate SW on the Elmhurst Viaduct and NB99-EB50 connector ramp	**$1,200,000**	**No change**
The benefit is construction cost savings. An APS is pending the feasibility of constructing a SW on structures.		
3.0 Do not reconstruct the existing walls at 65th St. & 59th St.	**$1,200,000**	**-2%**
The benefit is saved construction costs. The two existing and experimental walls are aging state-built wall that overlap the proposed "SW12" and "SW16" alignments that are constructed of a 6 ft x 1,190 ft corrugated metal panel design and a 6 ft x 1,062 ft shotcrete chain link fence.		
4.0 Use precast panels for SW in lieu of CMU construction	**$2,020,000**	**-2%**
The benefit is construction cost and time savings		
5.0 Add an auxiliary lane between WB Stockton Blvd off-ramp and on-ramp with required widening of Elmhurst Viaduct	**$(2,500,000)**	**-2%**
The benefit is construction cost and time savings. An APS is required for feasibility of widening.		
6.1 Realign the EB off-ramp to Hornet Dr., add a lane, and construct a signalized "T" intersection	**$(390,000)**	**+8%**
The benefit is more vehicle storage on the ramp, improved traffic flow, reduced backup on the mainline and reduced conflicts with vehicles traveling to Howe Avenue/Power Inn Road. There will also be less conflict with northbound (NB) Hornet Drive traffic.		
6.2 Realign the EB off-ramp to Hornet Dr. and construct a signalized "T" intersection	**$(280,000)**	**+4%**
The benefit is improved traffic flow, reduced backup on the mainline and reduced conflicts with vehicles traveling to Howe Avenue/Power Inn Road. There will also be less conflict with NB Hornet Drive traffic.		
7.0 Add a 300 ft free right-turn pocket from Hornet Drive to EB College Town Dr.	**$(1,500,000)**	**+3%**
The benefit of this alternative is to provide separate lanes for left and right-turn movements, which reduces queues on Hornet Drive and provides improved access to College Town Drive. The drawbacks are property acquisition of from an adjacent bank. This work would have to be performed by the City of Sacramento.		

Note: A number in parentheses represents a cost increase.

6.3.2 Other Considerations

The VA team identified the following complementary strategies outside the scope of this project for consideration by the PDT.

- **MP-1** If this project is significantly delayed, combine the future 3R (resurfacing, restoration, and rehabilitation) project into this contract.
- **AL-6** Construct a collector-distributor road from the Stockton Blvd. off-ramp to the 26th St. off-ramp (approximately 1.0 miles).
- **AL-8** Crack and seat mainline and overlay with 0.65 ft of HMA and 0.1 ft RHMA-O.
- **AL-7** Use continuously reinforced concrete pavement (CRCP) in lieu of HMA.
- **B0-10** Negotiate RR spur line removal for upgrade to parallel spur line to construct Brighton OH bent #4 at an optimal location.

6.3.3 *Recommendations with Caltrans Concurrence*

On 10/10/14 Value Management Strategies, Inc. presented several alternatives for management to consider incorporating into this project. Four alternatives were rejected. Additional detail regarding the alternatives are included as Attachment L.

Three alternatives were conditionally accepted and have since been addressed as follows:

- 4.0 includes using pre-cast panel sound walls in lieu of concrete masonry block walls was presented at the public meetings during the draft environmental document public circulation.
- 5.0 adds an auxiliary lane between the WB off-ramp to Stockton Blvd and the on-ramp from Stockton Blvd with structure widening. This alternative could not be added to the scope of the HOV project due to the environmental document schedule and will be evaluated at a later date.
- 6.1 realigns the EB off-ramp to Hornet Dr and adds a second lane into a 90 degree signalized "T" intersection. This alternative could not be added to the scope of the HOV project due to the environmental document schedule and has been programmed under EA 03-0H580.

6.4 Resource Conservation

The scope of this project is to reduce recurring congestion by efficiently using the highway facility and providing an incentive for commuters to use buses, carpools or van pools for peak period travel. The improvements in operational efficiency allow the most effective use of limited resources.

Although the proposed improvements will require a significant amount of energy and materials to be built, the operational improvements are expected to reduce the amount of energy needed in the future over the no-build alternative. ADL laden soil excavated from along the shoulders or median of existing US 50 has the potential to be encapsulated within the proposed roadway embankments. Asphalt concrete grindings will be recycled as aggregate and shoulder backing, and rubberized asphalt concrete will be used in the proposed structural section.

6.5 Storm Water Management Plan

The Caltrans Storm Water management Plan requires this project to comply with Caltrans' statewide National Pollution Discharge Elimination System (NPDES) permit. Approved treatment Best Management Practices (BMP) shall be considered as a part of this project, per the July 2010 revision of the Storm Planning and Design Guidelines. The Central Valley Regional Water Quality Control Board has jurisdiction within the projects limits. This project is within the City of Sacramento Municipal Separate Storm Sewer System (MS4) permit area.

A Storm Water Pollution Prevention Plan (SWPPP) shall be submitted by the contractor and reviewed and approved by Caltrans Construction. A Storm Water Data Report (SWDR) will be compiled in the "1" phase of project development. Approximately 5 acres of existing ground cover will be disturbed primarily from SW construction. An additional 1.5 acres of impermeable surface will be added with this project.

If the 03-0H080 Rehabilitation project is combined with the HOV lanes project, adherence to the July 2013 Caltrans MS4 permit would be required. The HOV lanes falls under the prior permit since the project initiation document was in approved in 1998 as part of the HOV network development on US 50. The PCC rehabilitation would also be included in the threshold for BMP treatment. Treatment BMPs would include redirecting runoff in very limited space and possibly mitigating offsite.

6.6 Right of Way Issues

While the proposed improvements will be constructed within the existing R/W, TCEs are required for SW construction and grading. Relocation assistance for private properties that are affected by construction activities will be provided accordingly. In addition to mitigating construction impacts, temporary slatted chain link fencing will be provided approximately 10 ft inside of the rear property line to provide privacy and security during construction of SW. A "Right of Entry" is required with Union Pacific Railroad for the Camellia City Viaduct and Brighton OH median widening. A R/W Data Sheet has been prepared for the proposed improvements included as Attachment G.

6.6.1 *Airspace Lease Areas*

Fourteen parking lot entrances will require modification since the new columns will bisect the driveways. The new driveway widths would be 20 ft. Relocating the driveways will also be investigated where openings between the existing columns is 26 ft. The driveways would also be upgraded for ADA compliance. The airspace leases will be vacated during construction.

Table 6-3 Lease Areas

Location	Tenant	Impact
6th – 8th St.	DGS parking and future tenant parking. Farmer's Market on Sundays only.	Relocate parking and farmer's market during construction (e.g. under the 15th-16th St Separation)
15th – 16th St.	Downtown Mini Storage	Terminate Lease (Lease expires in July 2019)
18th – 20th St.	Vacant – Sacramento Regional Transit District is proposing a streetcar maintenance facility	None – this project is coordinated with the streetcar project
20th - 22nd St.	Sacramento Antiques Faire. Most of property is vacant with daily use available.	Construction impacts will require temporary relocation of Antiques Faire during construction.
22nd – 23rd St.	Buzz Oats parking	Relocate parking during construction
22nd – 24th St.	DMV parking	Relocate parking during construction
34th St. – Stockton Blvd	Caltrans Headquarters Equipment Shop	Construction impacts will require relocation of some equipment and coordination with planned warehouse.

6.7 Environmental Issues

The Initial Study with Negative Declaration/Environmental Assessment with Finding of No Significant Impact (environmental document) has been prepared in accordance with Caltrans' environmental procedures, as well as State and Federal environmental regulations. Environmental issues identified in the environmental document include avoidance of bats and migratory birds, aesthetics, and noise. The environmental document has been included as Attachment F.

Caltrans included the 65th Streetscape project limits in the HOV project's environmental study limits. This strategy facilitates the objective of improving bicycle and pedestrian access on 65th St. City of Sacramento is the lead agency on this project. The limits include 65th Street from Broadway to the Regional Transit light rail tracks. The 65th Street project is planned for construction in 2017. No improvements will be included as part of this project since the 65th Streetscape project will be constructed before the HOV lanes project that is also not currently funded for construction.

There are no wetlands within the project limits. Portions of the project are within the flood plain. The proposed improvements will not significantly increase the impervious area and increase storm water runoff. Storm drain improvements are proposed to detain peak flows on-site. A storm water pollution prevention plan (SWPPP) will be developed and implemented by the contractor.

6.8 Air Quality Conformity

This project conforms to regional air quality standards. Alternatives 1 and 3 are fully compatible with the design concept and scope described in the current Regional Transportation Plan (RTP) as well as the current Federal Regional Transportation Improvement Program (FRTIP), which the Sacramento Metropolitan Air Quality Management District (SMAQMD) and SACOG have determined to conform to the State Implementation Plan (SIP) for air quality. An analysis and disclosure of emissions can be found in the Air Quality Technical Study.

6.9 Low Mobility Populations & Title VI Considerations

Paratransit services operate in the project limits and would be exempted from the occupancy requirement for HOV lane use. Paratransit service is for people with disabilities who cannot use the "fix route" bus or rail service. Other provisions for low mobility and minority groups that will be incorporated into the project would include constructing sound walls at locations that don't meet Federal eligibility requirements.

SECTION 7 - OTHER CONSIDERATIONS

7.1 Public Hearing Process

The PDT hosted two public workshops on October 17th & 18th at the Caltrans office located at 1727 30th Street in Sacramento and Isador Elementary School in Sacramento. The PDT presented several displays with the roadway work overview, SW renderings, and a traffic model. There were no comments received at the workshops, however comments were received by mail and email near the October 28th Draft DED review deadline. The commenters asked for an extension on the comment period for which Caltrans extended the comment period to November 7th.

Since there was low public attendance at the prior public workshops, Assemblymember Kevin McCarty hosted a public workshop with the Caltrans PDT in attendance on November 17th at the Coloma Center. Local residents attended vocalizing interests primarily with constructing SW through the Elmhurst neighborhood and the funding status. There was a strong interest in constructing SW prior the HOV lanes project. The PDT recognized these concerns by responding that the contract language will have order of work clauses that will require the SW work to commence concurrent to the bridge widening work and that the SW work must be completed prior to the roadway rehabilitation and overlay work. It was also stated that the SW work would also be included in the project as a "community enhancement" pending funding.

7.2 Route Matters

There are no freeway agreements included with this project. There are no new connections or route adoptions required with this project.

7.3 Permits

It is anticipated that the only regulatory permit required will be a National Pollutant Discharge Elimination System (NPDES) permit from the California Water Resources Control Board.

Encroachment permits will be required from the City of Sacramento for temporary use of city streets for staging for SW construction and bridge widening.

7.4 Cooperative Agreements

A Cooperative Agreement or Financial Agreement is required to encumber the Measure A funds for the construction if funded by Measure A. A Cooperative Agreement with City of Sacramento will be required for to reimburse the cost of traffic detours on local streets during construction. Some of the additional funding sources to fully fund the project may require Cooperative Agreements.

7.5 Other Agreements

A railroad agreement will be required for work within the railroad R/W. The work includes decking the median of the existing Camellia City Viaduct and the Brighton OH.

A maintenance agreement for sound walls is required. Coordination with the City of Sacramento will be required for graffiti control where sound walls are proposed along the R/W and S St. in the vicinity of the Elmhurst neighborhood and T St. near the 65th St. UC.

7.6 Involvement with Navigable Waterways

There are no navigable waterways within the project limits.

7.7 Transportation Management Plan (TMP)

A TMP datasheet has been prepared to address detours, ramp closures, and traffic staging during construction of the project that included no daytime lane closures. The TMP will include lane closure charts, public information campaign, traveler information strategies, and incident & demand management. A TMP Data Sheet is included as Attachment H.

Traveler information strategies will include:

- Portable Changeable Message Signs
- Special Construction Signs
- Traveler Information Systems that includes the Caltrans Highway Information Network and internet
- Highway Advisory Radio (HAR)
- Radar Speed Signs

Incident management strategies will include:

- Construction Zone Enhanced Enforcement Patrol (COZEEP)
- Freeway Service Patrol (e.g. tow truck service patrol)
- Traffic Surveillance Stations that include loops and Closed Circuit Television Cameras

Demand management strategies will include:

- Ridesharing marketing
- Transit and light-rail incentives

The Transportation Management Center (TMC) will monitor traffic conditions during construction using existing closed circuit television and real time traffic monitoring stations. A traffic control inspector will make random inspections to monitor traffic conditions.

The contract documents will require the contractor to prepare contingency plans to address emergency detours, emergency notifications, and late closure reopening. Incentives /Disincentives clauses and delay damage clauses will likely be included in the contract documents.

7.8 Traffic Handling

No daytime lane closures on mainline are proposed. A traffic control system for lane closure (T10) can be used for most of the proposed work on mainline that includes pavement rehabilitation work and the RHMA-O overlay. The existing number of lanes will be maintained, and shoulders will be provided throughout construction. Temporary shoulder widths will be maximized where possible and vary from a minimum of 2 ft to 10 ft. Temporary concrete railing (K-rail) and gawk screen will be used for traffic and worker safety.

On mainline, the proposed structure widening can be accomplished by reducing the inside shoulder from 8 ft to 2 ft. The three inside lanes will be reduced from 12 ft to 11 ft in order maintain the existing number of lanes. SW construction proposed for the edge of pavement will be done behind k-rail. The outside shoulder will be reduced to 2 ft.

Widening 12 structures requires traffic control devices on local streets to shield the falsework supports. All of the existing traffic lanes will be maintained as well as an accessible pedestrian route on at least one side of the local street. Bicycle lanes will be included with each travel direction. Sidewalk width and parking will be temporarily restricted.

Three locations will require the contractor to construct falsework between 18 in and 24 in to meet the minimum required 15 ft temporary vertical clearance. In order to minimize the traffic openings on the local streets with three traffic lanes, the traffic stream will be split to accommodate a falsework bent mid span. 11 ft traffic lanes, 4 ft minimum bike lanes, and a minimum of one direction for pedestrian travel will be provided for temporary traffic control.

7.9 Accommodation of Oversize Loads

The District 3 Goods Movement Study was compiled in 2015 to address freight needs and support federal efforts outlined in the Moving Ahead for Progress in the 21st Century Act (Map 21). Freight movement is one of the seven goals for Map 21. US 50 is designated as a Primary Freight Network. The study identified between four and five percent of all reported permit loads began or ended their trip in the Sacramento Area.

In a list of 116 priority locations in District 3 to improve goods movement, six locations reside in this project's proposed work limits as shown in Table 5-1. There are a total of eight existing structures that provide vertical clearance ranging from 0.25 ft to 1.3 ft that is less than current design standards. All of the existing railroad tracks have standard vertical clearance.

The overcrossings from the Alhambra Blvd OC to the Occidental Dr OC have a history of high load hits. The damage is minor to moderate scrapes and spalls. The high load hit locations at each structure vary at a single lane in one direction to all lanes in both directions.

During early project development, raising the existing overcrossings to current standards was investigated and not deemed feasible or outside scope of work. Now that a rehabilitation project is planned that overlaps the project limits, the work has been further analyzed and determined feasible by raising structures or modifying mainline profile grade to correct vertical clearances ranging from 0.92 ft to 1.33 ft. The additional cost to raise structures is $14 million compared to $16 million by lowering profile grade. An advance planning study to raise structures would be required to refine this estimate and determine working days. Removing and replacing concrete barrier, drainage systems, coordinating utility conflicts, and exposing bridge column foundations are major factors in this analysis.

7.10 Graffiti Control

Graffiti along mainline US 50 continues to be an issue as in most other urban areas. Caltrans maintenance crews are resourced for graffiti abatement by responding to complaints on a case-by-case basis. Caltrans does not have an active abatement program and abates graffiti as public complaints get logged with the Caltrans public affairs office or brought to the attention of the Roadside Maintenance Office. The City of Sacramento has a graffiti abatement program and would be responsible for the maintenance of SW along the R/W adjacent to city property for the city property side.

This project proposes a substantial amount sound walls that have the potential to attract graffiti activity. Caltrans standard SW construction is a split faced masonry block. Rougher surfaced, darker colors, and vegetation may provide protection from sound walls being vandalized by graffiti. The proposed sound walls will include planting vines and installing irrigation where appropriate.

SW locations with high visibility could be constructed with graffiti-resistant glazed concrete masonry units. This design while more expensive, could be used on a case by case basis to reduce the maintenance costs of the SW. Alternatives to graffiti abatement along the state R/W are coordination with adjacent home associations and creating "Adopt a SW" or "Adopt a spot" groups. Community engagement with Caltrans's Transportation Art Program may also provide alternatives for other community enhancements.

7.11 Life Cycle Cost Analysis

The existing inside shoulder which will be converted to an HOV lane was built in 2008 requiring no further analysis for the HOV structural section. A rehabilitation project is planned under a separate project EA 0H080 that overlaps the project limits. Per Caltrans policy, a life cycle cost analysis will be conducted with consultation from District Materials Engineer to choose the most feasible structural section design.

SECTION 8 - PROGRAMMING

8.1 Programming and Schedule

The project development is funded by Sacramento Measure A Transportation Sales Tax Program for $13.3 million for the preliminary engineering, environmental studies (PA&ED), design (partially funded), and right-of-way (partially funded) work. Currently, the construction portion of the project is unfunded. The estimated total project cost to be used for programming is shown in Table 8-1 on the following page. The support to capital ratio is 35%. This ratio is a result of the construction support estimate that is above the norm due to long contract period estimated at this time. Also contributing to this ratio is the right of way work required in the form of TCE for SW work and UPRR involvement, utility verification, and pothole work. Ground survey acquisition and coordination with other projects are other factors. These estimates will be refined as design work progresses. The programming sheet that includes the project schedule is included as Attachment I.

Table 8-1 Total Project Development Costs

20.XX.400.100 Project Cost Component	Estimated Cost by Fiscal Year in Thousands of Dollars ($1,000)								
	Prior Yrs	2016/17	2017/18	2018/19	2019/20	2020/21	Future	Total	Programmed Amount
PA&ED Support	5779	141						5920	5900
PS&E Support	5745	2120	3040	185				11090	7250
Right-of-Way Support	68	272	901	323	333	341	542	2780	1000
Construction Support				4065	5907	6051	2667	18690	
Right-of-Way			6000					6000	100
Construction			103000					103000	
Total	11592	2533	112941	4573	6240	6392	3209	147480	14250

8.2 Funding

The Sacramento Transportation Authority, as managers of the Measure A Program, has committed an amount not to exceed $13.3 million for the project development. The Sacramento Measure A Transportation Sales Tax Program is expected to fund this project with savings from other projects such as the I-5 HOV project.

SECTION 9 – RISK

The primary risks during the design and construction phase of this project will be coordination with UPRR and RT Light Rail. Caltrans currently has no construction and maintenance agreement in place with UPRR. There is however, an agreement in place for project development activities. Early coordination has begun with UPRR during project development. The column (bent 8) at the Brighton OH is proposed to have a 14 ft - 6 in horizontal clearance (UPRR requires 25 ft) from a spur line to avoid impacts to the local funded Ramona Ave extension project. The local project is scheduled for construction in 2017.

Unknown underground (UG) utilities continue be some of the largest risk factors with projects in railroad property. The bridge column foundations located in UPRR R/W will have a high probability of conflicting with unknown UG utilities since utility permits are issued from UPRR and not Caltrans permit offices. Based on this premise, the PDT agreed to add 10% contingency at P&E for utility positive location/relocation work during construction. Design will plan on compiling the justification memo to HQ prior to P&E for the additional contingency.

Coordination with RT will be crucial to relocate the messenger lines before the structure widening at the Brighton OH begins. Other risks include unforeseen buried man-made objects in the railroad properties that can be mitigated with a “pothole” contract to positively locate or work around during construction. See Attachment K Risk Register.

SECTION 10 - REVIEWS

District and Headquarters personnel reviewed the project during the development of the proposed features for each alternative. They concur with the proposed improvements. The following individuals were involved in the reviews:

- Toni Dabiri, District 3 Freeway Operations Engineer
- Tim Sobelman, Geometric Reviewer
- Mike Feakes, Project Development Coordinator

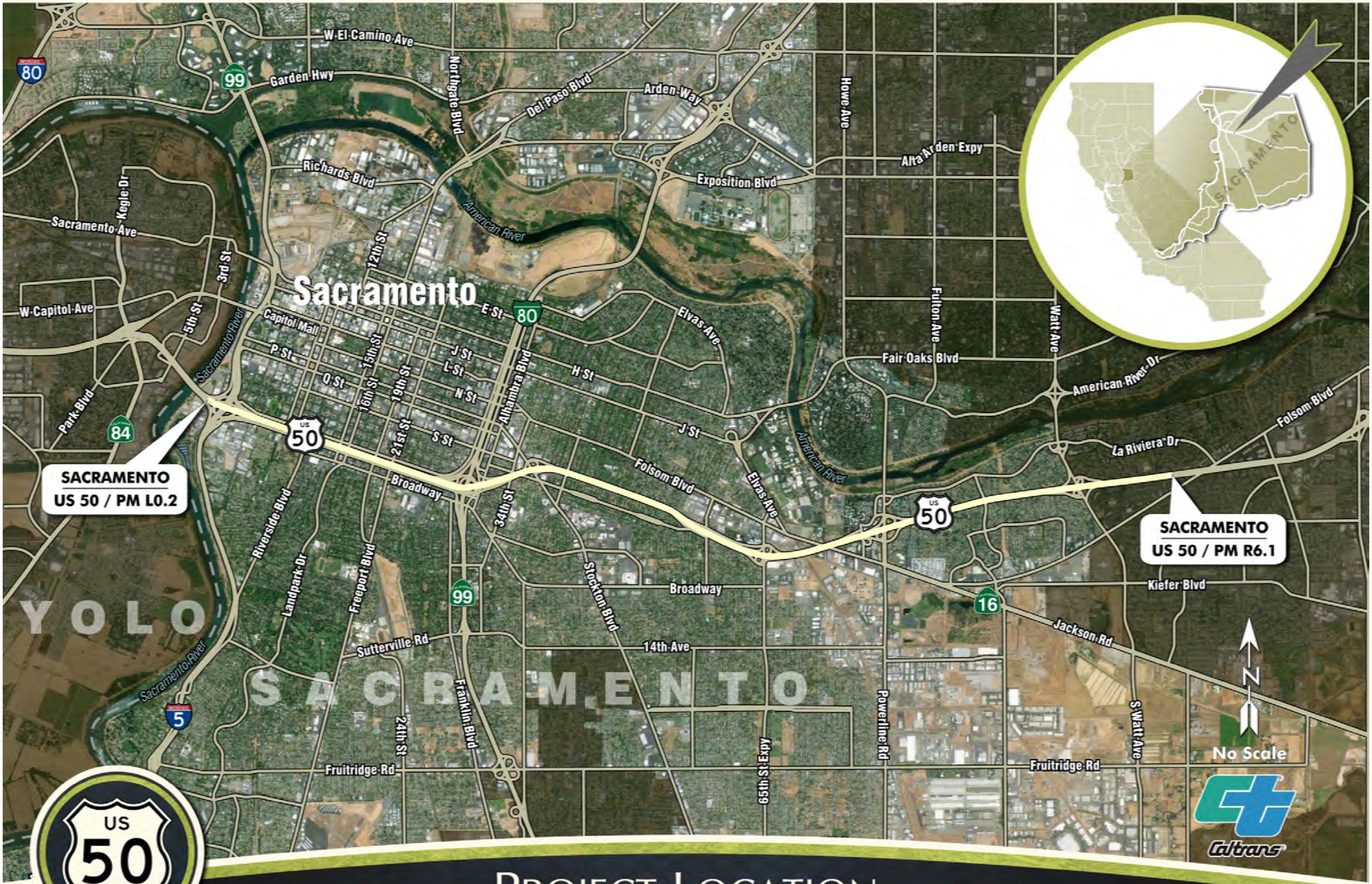
SECTION 11 - PROJECT PERSONNEL

Project Manager	Nadarajah Suthahar	(530) 741-5408
Design Branch Chief	John Martin	(530) 225-3476
Design Project Engineer	Michael Sullivan	(530) 225-2916
DES Project Engineer	Michael Cullen	(916) 227-8296
DES Project Engineer	Larry Wu	(916) 227-8635
Environmental Branch Chief	Kendall Schinke	(916) 274-0610
Environmental Coordinator	Ken Lastufka	(916) 274-0586
Freeway Operations Chief	Bojana Guitierrez	(916) 859-7940
Freeway Operations Engineer	Nelson Xiao	(916) 859-7958
Senior Right of Way Agent	Jennifer Wisniewski	(530) 741-4410
Right of Way Coordinator	Wendy Ratajczak	(530) 741-5136
Railroad Coordinator	Edwardo Estrada	(530) 741-7146
Safety and Constructability Review	Kevin Espinoza	(530) 741-5499
Sacramento Public Works Dept.	Cecilyn Foote	(916) 808-6843

SECTION 12 - ATTACHMENTS

Attachment A	Location Map
Attachment B	Typical Cross Sections
Attachment C	Layout Sheets
Attachment D	Advanced Planning Study (Structures) & Cost Estimates
Attachment E	Cost Estimate
Attachment F	Environmental Determination Document
Attachment G	Right of Way Data Sheet
Attachment H	TMP Data Sheet
Attachment I	Programming Sheet
Attachment J	HOV Network Map
Attachment K	Risk Register
Attachment L	Value Analysis Implementation Memo
Attachment M	Landscape Architectural Assessment Sheet
Attachment N	Summary of SW Reasonableness Allowances (Table 7-42 from NSR)
Attachment O	Auxiliary Lane Statistics Table
Attachment P	Stockton WB Auxiliary Lane
Attachment Q	Stockton WB Braided Ramp
Attachment R	Sacramento Grid 3.0 Roadway Network Maps
Attachment S	Initial Site Assessment

CALIFORNIA DEPARTMENT OF TRANSPORTATION • DISTRICT 3



PROJECT LOCATION

US 50 HOV LANES I-5 TO WATT AVE • 03-3F3604 • 0312000216

Attachment A

NOTES:

1. DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.

ABBREVIATIONS:

OGFC	RUBBERIZED HOT MIX ASPHALT-OPEN GRADED (OPEN GRADED FRICTION COURSE)
BBA	BEGIN BRIDGE APPROACH SLAB
EBA	END BRIDGE APPROACH SLAB

DESIGN DESIGNATION

ADT (2013)	285,735	D	59%
ADT (2020)	300,949	T	4.4%
DHV	18,012	V	70 mph

PAVEMENT CLIMATE REGION: INLAND VALLEY

EXISTING STRUCTURAL SECTIONS

E-1
STA "A1" 126+92 TO 152+90
EXIST
0.67' PCC
0.33' CTB CL B
1.00' AS

STA "A1" 152+90 TO 455+00
EXIST
0.65' PCC
0.45' CTB CL A
0.50' AS

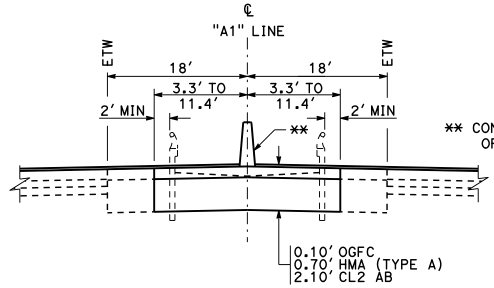
E-2
STA "A1" 126+92 TO 152+90
EXIST
0.75' PCC
0.50' CTB CL A
0.75' AS

STA "A1" 152+90 TO 455+00
EXIST
0.70' PCC
0.45' CTB CL A
0.50' AS

E-3
EXIST
0.10' RAC (TYPE O)
0.70' AC
2.10' AB

E-4
EXIST
0.35' AC
0.90' CTB CL A
0.75' AS

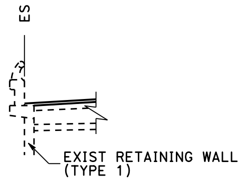
E-5
EXIST
0.25 TO 0.35' AC
0.75 TO 0.90' AB
0.75' AS



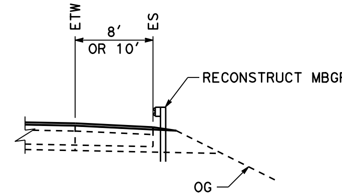
** CONCRETE BARRIER (TYPE 60)
OR CONCRETE BARRIER (TYPE 60C)

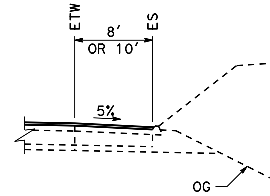
STA "A1" 42+06.17 EBA TO 42+64.00
STA "A1" 43+87.97 TO 44+16.30 BBA
STA "A1" 54+00.34 EBA TO 54+30.67
STA "A1" 55+88.79 TO 56+19.12 BBA
STA "A1" 58+02.38 EBA TO 58+32.71
STA "A1" 59+90.12 TO 60+20.45 BBA
STA "A1" 62+03.70 EBA TO 62+34.03
STA "A1" 64+91.14 TO 65+22.48 BBA
STA "A1" 67+42.06 EBA TO 67+72.39

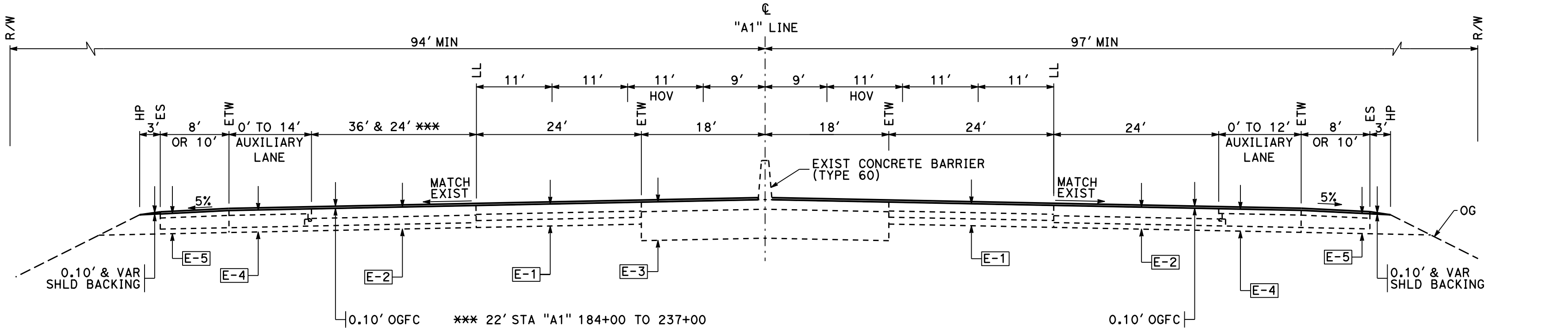
STA "A1" 80+78.45 TO 81+08.78 BBA
STA "A1" 86+97.78 EBA TO 87+28.11
STA "A1" 92+79.92 TO 93+10.25 BBA
STA "A1" 119+20.25 EBA TO 119+50.58
STA "A1" 125+07+98 TO 125+38.31 BBA
STA "A1" 127+21.56 EBA TO 127+51.89
STA "A1" 159+28.95 TO 159+94.84 BBA
STA "A1" 171+86.62 EBA TO 172+54.52
STA "A1" 291+52.14 TO 292+23.58 BBA



STA "A1" 41+76.17 EB TO 44+46.30 BB
STA "A1" 53+70.34 EB TO 56+49.12 BB
STA "A1" 57+72.38 EB TO 60+50.45 BB
STA "A1" 61+73.70 EB TO 65+62.43 BB
STA "A1" 67+02.39 EB TO 81+38.78 BB
STA "A1" 86+67.78 EB TO 93+40.25 BB
STA "A1" 118+90.25 EB TO 125+68.31 BB







*** 22' STA "A1" 184+00 TO 237+00

STA "A1" 325+42.62 EBA TO 423+29.24 WB

STA "A1" 325+42.62 EBA TO 447+05.00 EB

STA "A1" 42+06.17 EBA TO 44+16.30 BBA
STA "A1" 54+00.34 EBA TO 56+19.12 BBA
STA "A1" 58+02.38 EBA TO 60+20.45 BBA
STA "A1" 62+03.70 EBA TO 65+22.48 BBA
STA "A1" 67+42.06 EBA TO 81+08.78 BBA
STA "A1" 86+97.78 EBA TO 93+10.25 BBA

STA "A1" 119+20.25 EBA TO 125+38.31 BBA
STA "A1" 127+21.56 EBA TO 159+94.84 BBA
STA "A1" 171+86.62 EBA TO 185+11.36 BBA
STA "A1" 186+74.36 EBA TO 278+99.11 BBA
STA "A1" 281+20.82 EBA TO 292+23.58 BBA
STA "A1" 299+81.02 EBA TO 305+42.40 BBA
STA "A1" 308+47.07 EBA TO 323+57.26 BBA

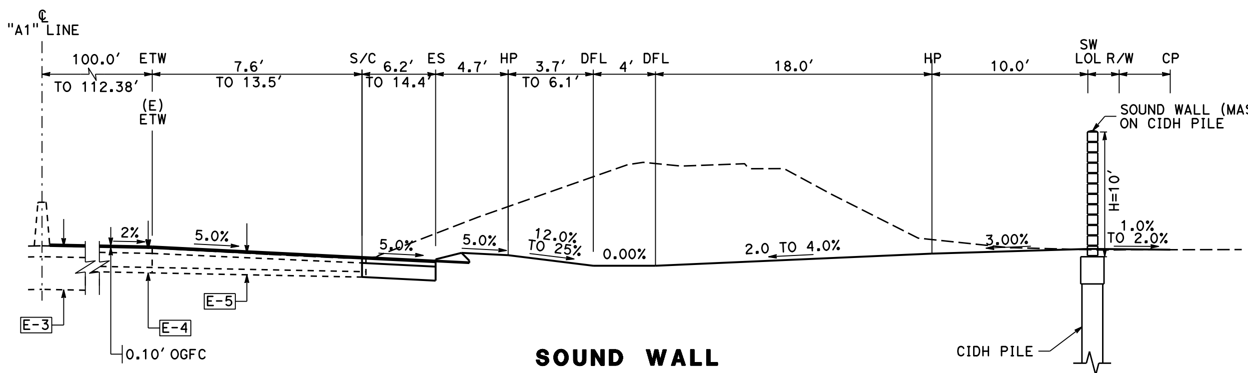
ROUTE 50

TYPICAL CROSS SECTIONS

NO SCALE

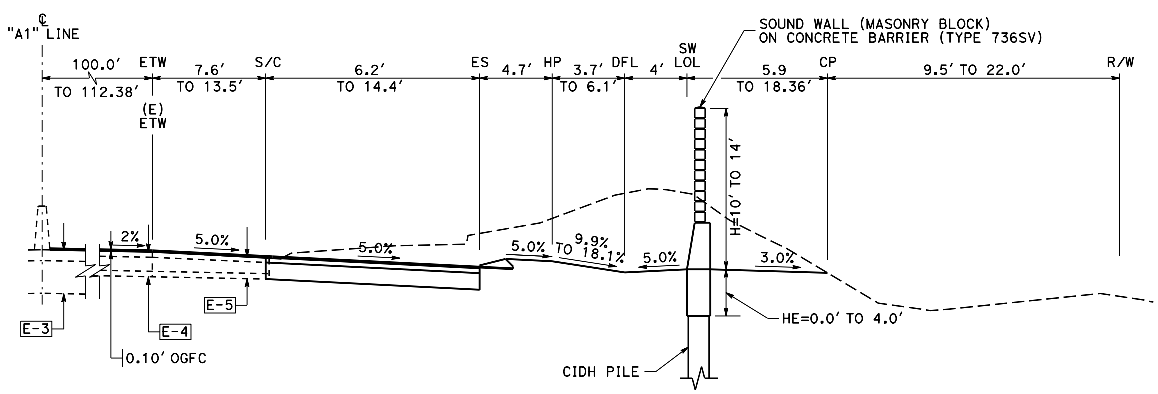
X-1

Attachment B



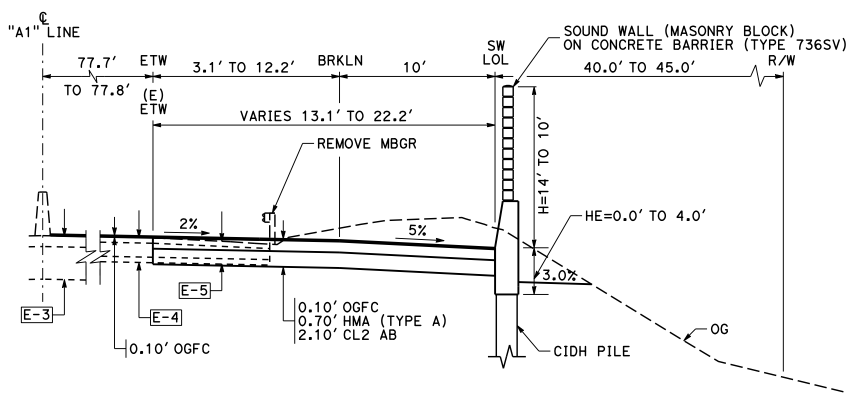
SOUND WALL

STA "A1" 196+00.00 TO 198+50.65



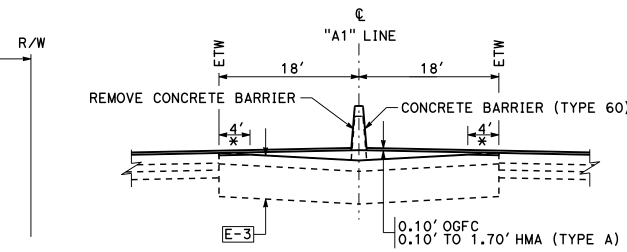
SOUND WALL

STA "A1" 194+94.65 TO 196+00.00



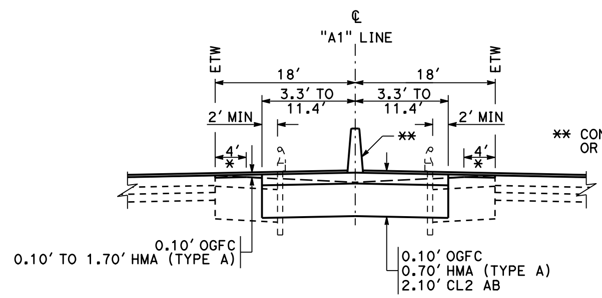
SOUND WALL

STA "A1" 186+60.85 TO 194+94.65



* LIMITS OF COLD PLANE AC PAVEMENT

STA "A1" 300+49.47 TO 301+40.00
STA "A1" 304.50.00 TO 305+03.66
STA "A1" 308+86.14 TO 309+50.00
STA "A1" 322+30.00 TO 322+85.04
STA "A1" 326+15.14 TO 326+70.00



** CONCRETE BARRIER (TYPE 60) OR CONCRETE BARRIER (TYPE 60C)

STA "A1" 299+81.02 EBA TO 300+49.47
STA "A1" 305+03.66 TO 305+42.40 BBA
STA "A1" 308+47.07 EBA TO 308+86.14
STA "A1" 322+85.04 TO 323+57.26 BBA
STA "A1" 325+42.62 EBA TO 326+15.14

TYPICAL CROSS SECTIONS

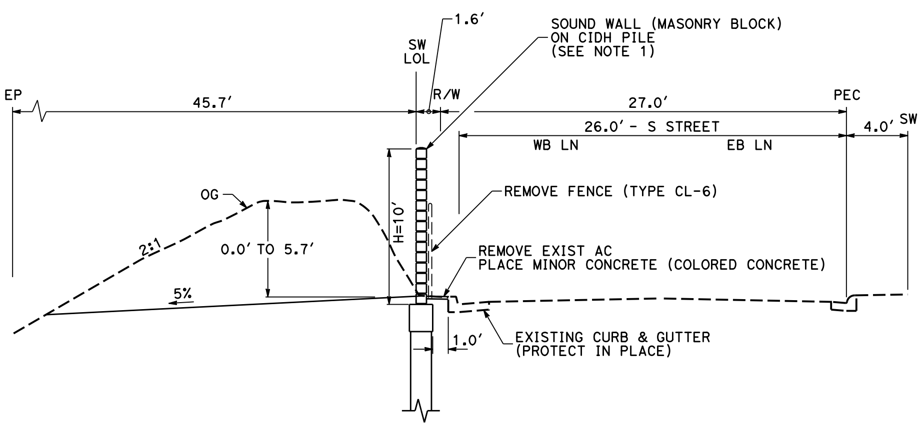
NO SCALE

X-2

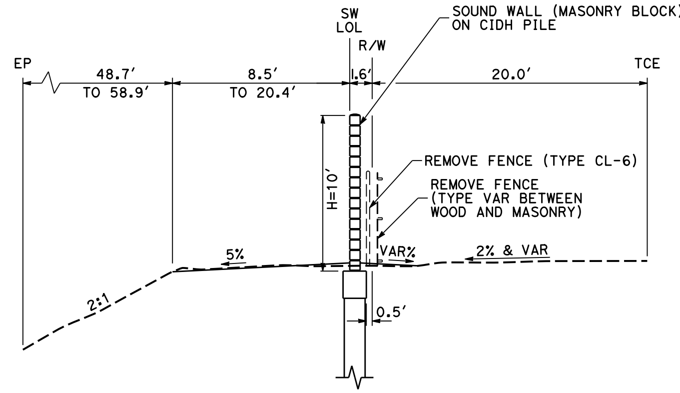
Attachment B

NOTES:

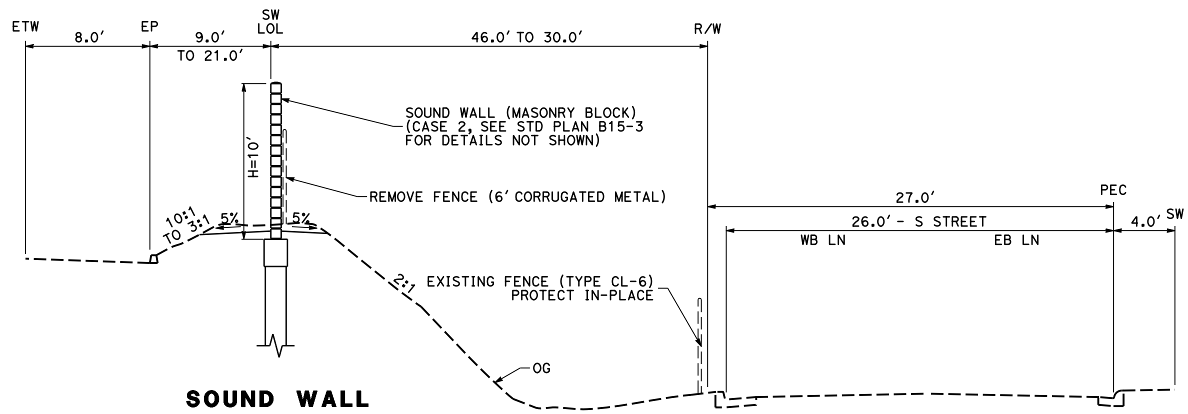
1. NO ON-STREET PARKING ORDNANCE EXIST ON S STREET.



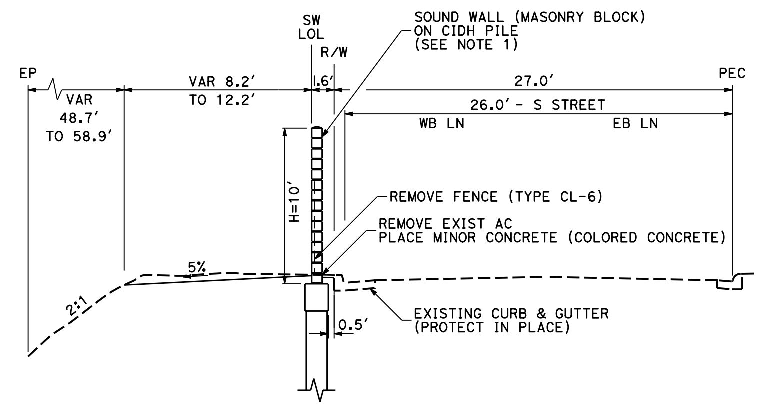
SOUND WALL
S STREET
PILE FOUNDATION DESIGN
STA "A1" 198+62.65 TO 201+89.70



SOUND WALL
SPREAD FOOTING
STA "A1" 201+89.70 TO 205+35.80
STA "A1" 208+01.70 TO 214+14.02
STA "A1" 215+19.55 TO 217+84.80
STA "A1" 223+56.80 TO 226+35.55
STA "A1" 227+40.37 TO 230+30.96
STA "A1" 233+24.52 TO 244+98.80



SOUND WALL
STA "A1" 194+94.65 TO 198+62.65



SOUND WALL
S STREET
SPREAD FOOTING DESIGN
STA "A1" 205+35.80 TO 208+01.70
STA "A1" 217+84.80 TO 223+56.80
STA "A1" 230+30.96 TO 233+24.52

TYPICAL CROSS SECTIONS

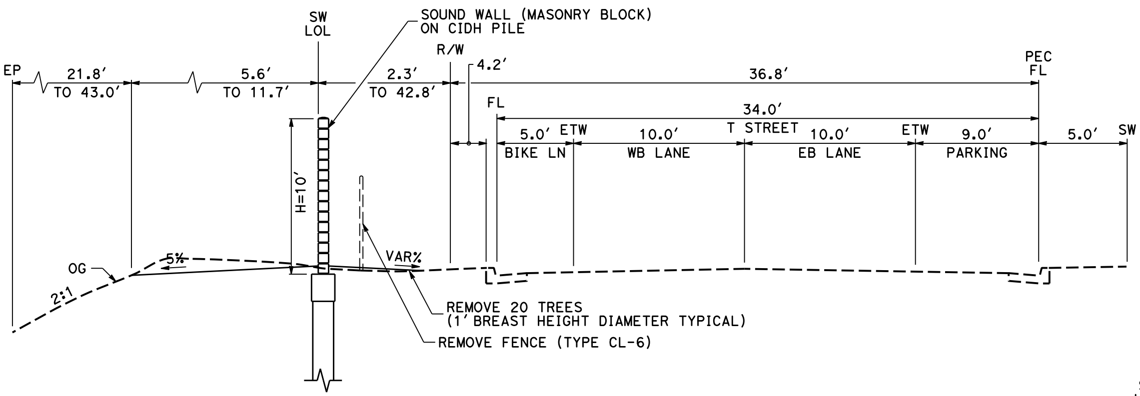
NO SCALE

X-3

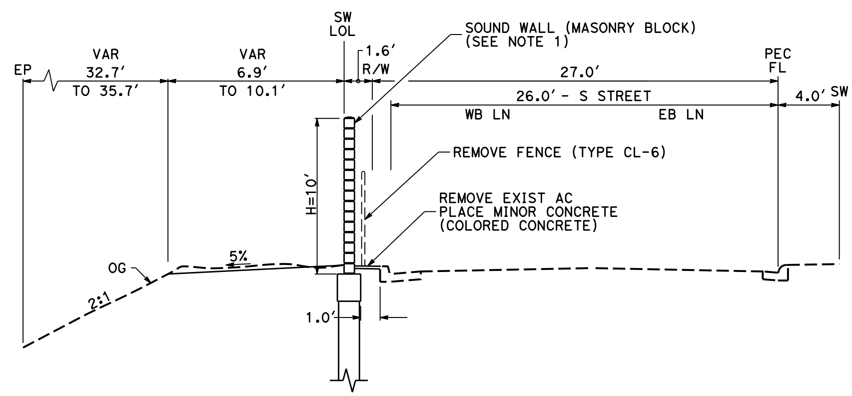
Attachment B

<u>NOTES:</u>

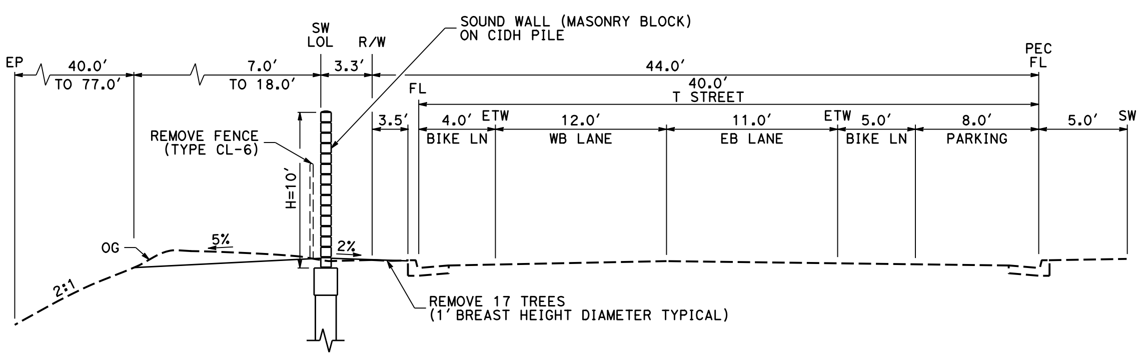
1. NO ON-STREET PARKING ORDNANCE EXIST ON S STREET.
2. NO ON-STREET PARKING ORDNANCE EXIST FOR WB LANE ON T STREET.
3. MAINTAIN BUS STOP AND TRANSIT OPERATIONS. ON T STREET.



SOUND WALL
STA "A1" 254+33.00 TO 266+21.67



SOUND WALL
STA "A1" 230+42.20 TO 233+17.00



SOUND WALL
STA "A1" 244+98.80 TO 252+95.02

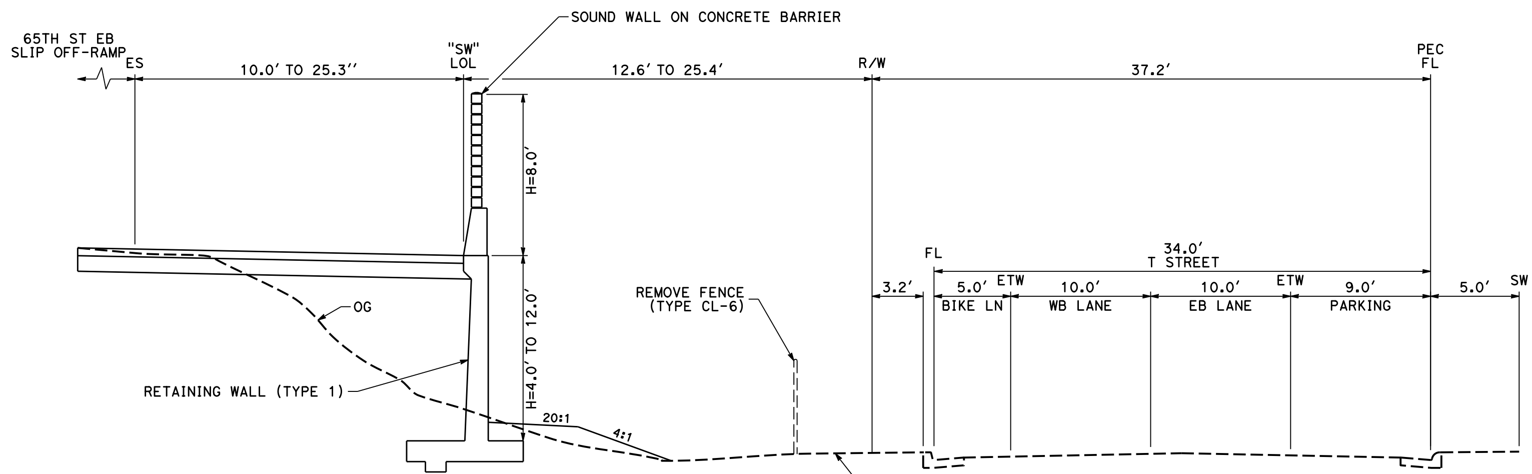
TYPICAL CROSS SECTIONS
NO SCALE

X-4

Attachment B

NOTES:

1. NO ON-STREET PARKING ORDNANCE EXIST FOR WB LANE DIRECTION.
2. MAINTAIN BUS STOP AND TRANSIT OPERATIONS.



SOUND WALL

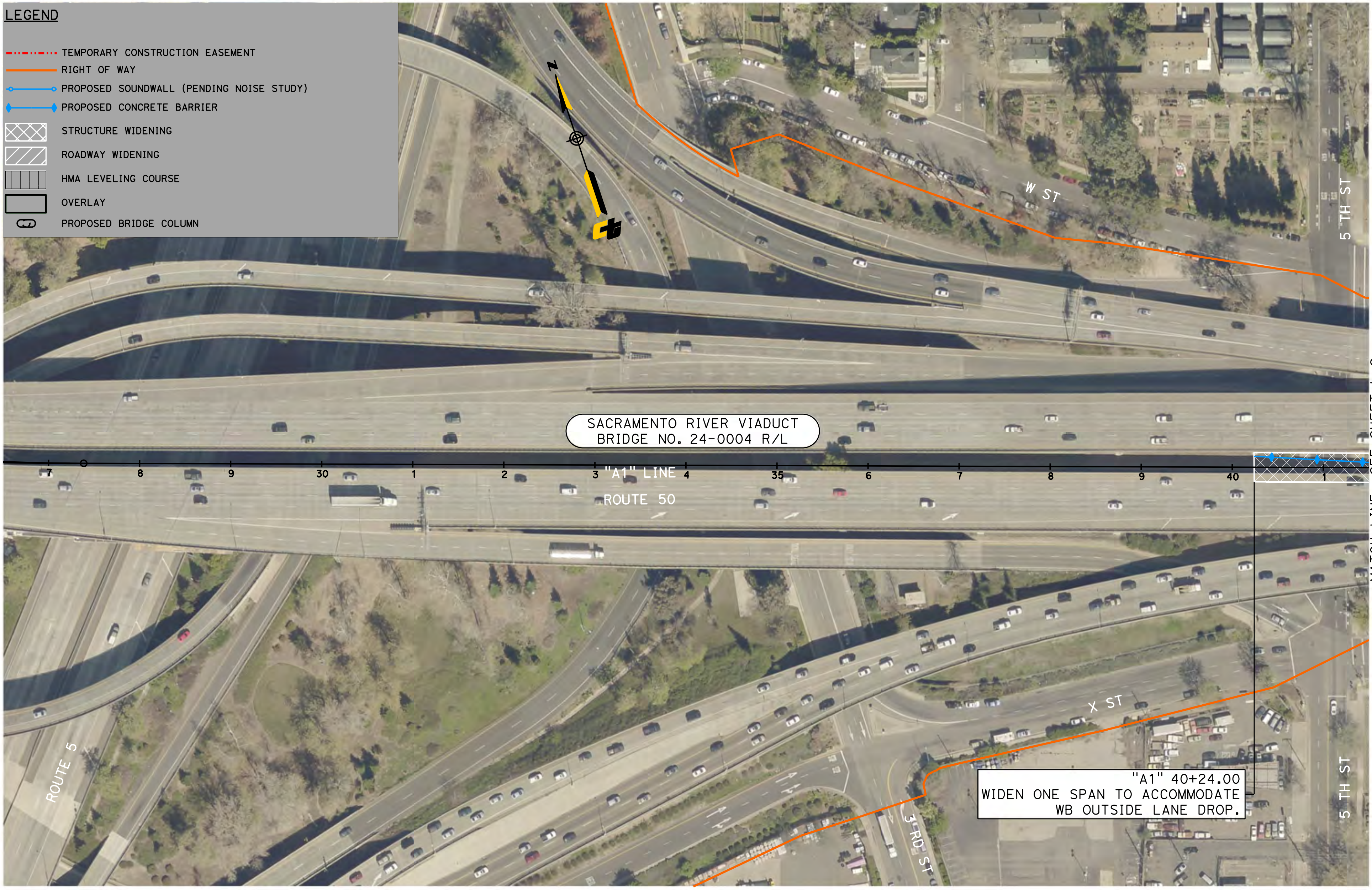
STA "A1" 270+96.63 TO 278+90.10

TYPICAL CROSS SECTIONS

NO SCALE

X-5

Attachment B

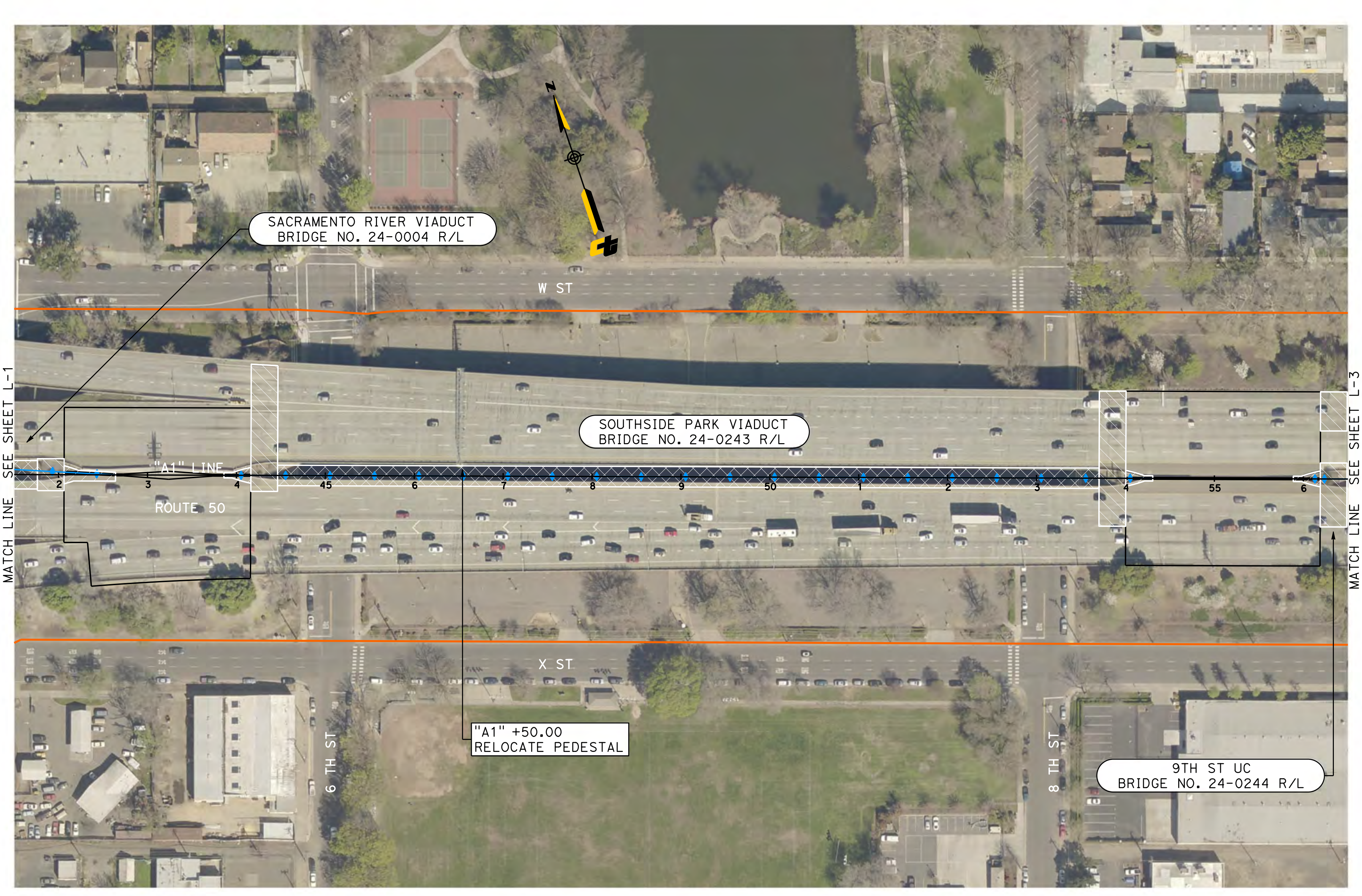


NOTE:
PROPOSED SOUND WALL ALIGNMENTS SHOWN IN THE FOLLOWING LAYOUT SHEETS ARE IDENTIFIED FOR ABATEMENT FROM THE NOISE IMPACT REPORT COMPILED IN APRIL 2015. AS THIS PROJECT PROCEEDS TO FINAL DESIGN PHASE, SOUND WALL ALIGNMENTS MAY CHANGE OR BE OMITTED PENDING GEOMETRIC CONSTRAINTS AND FUNDING.

LAYOUT
NO SCALE

L-1

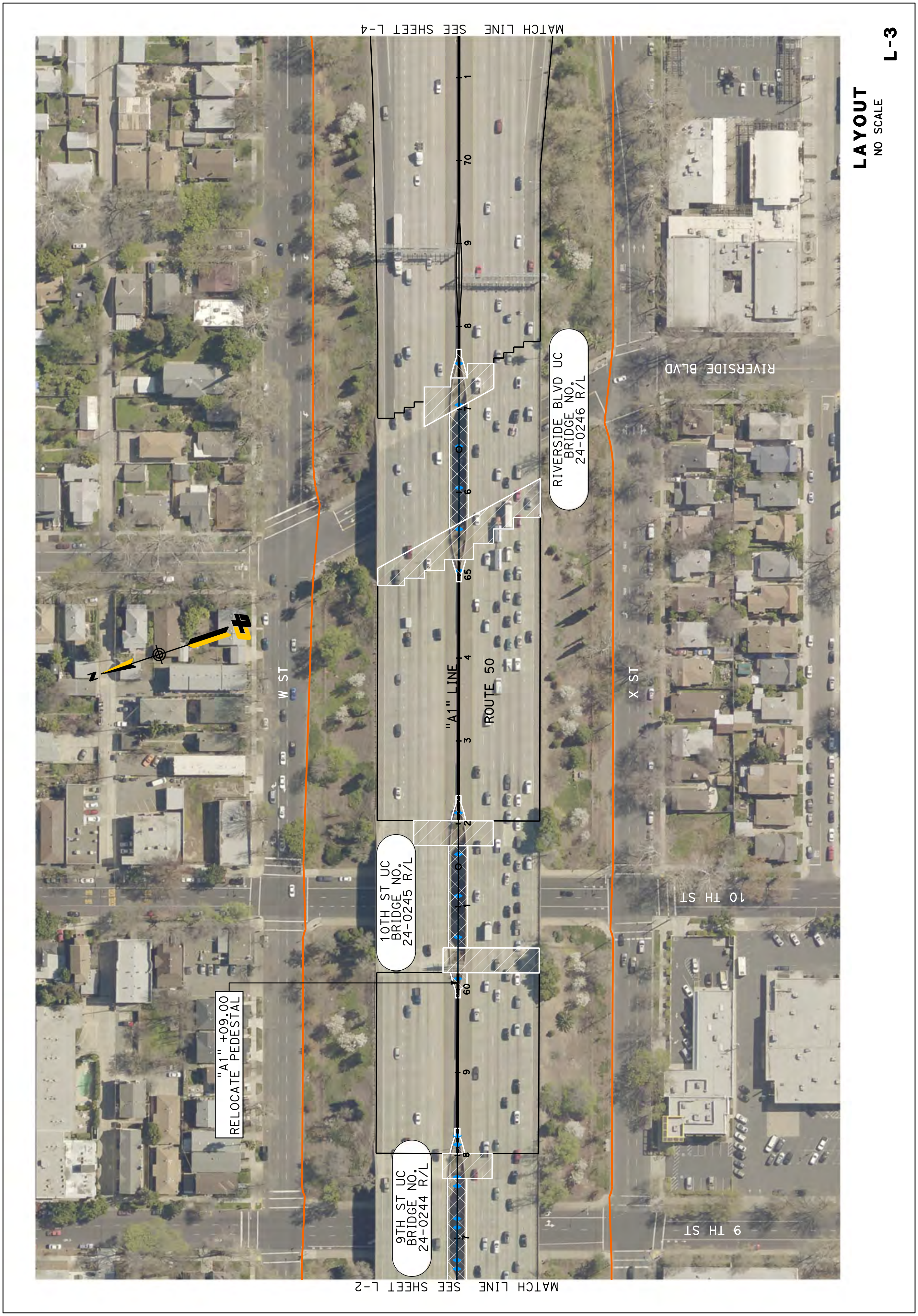
Attachment C



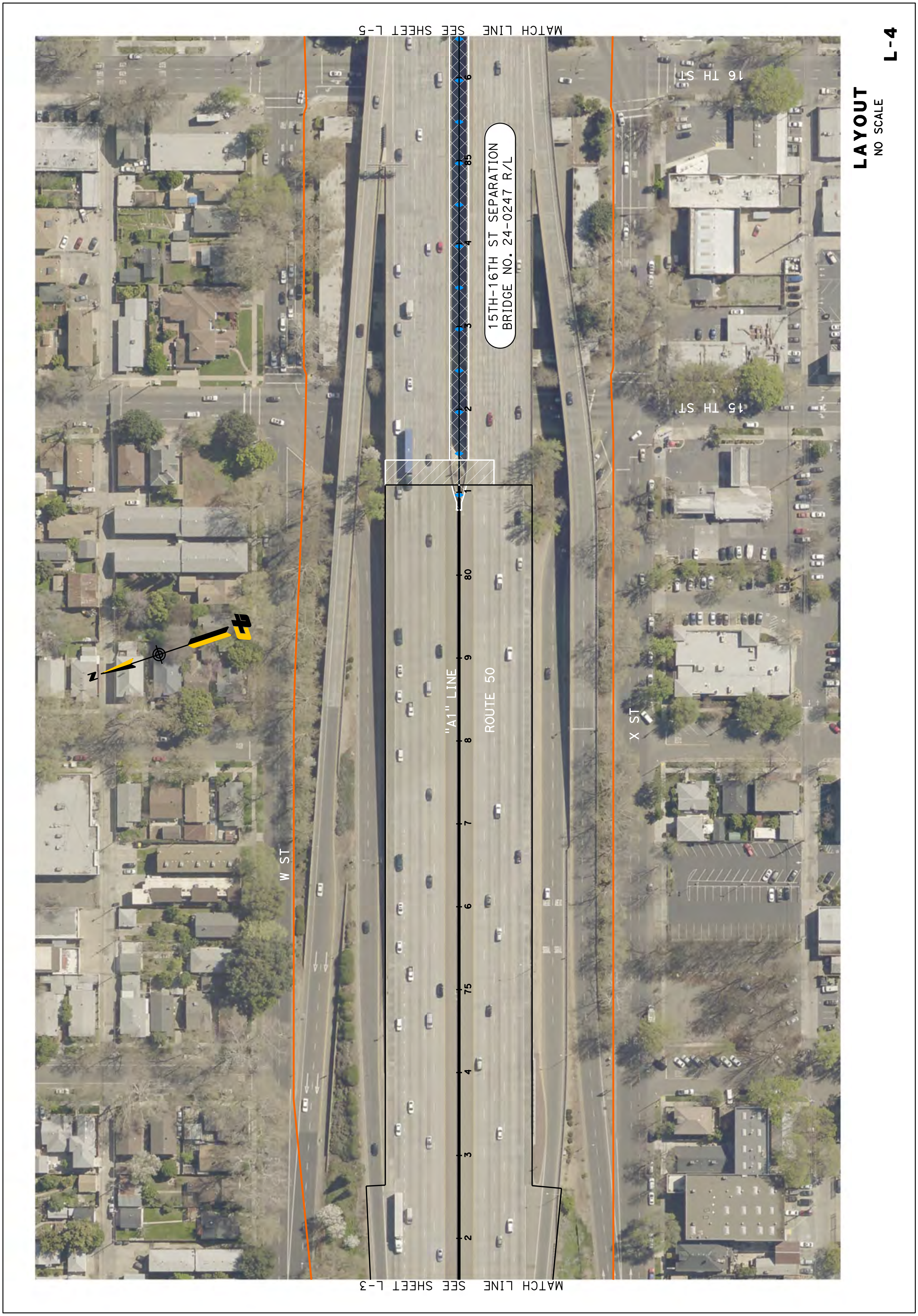
LAYOUT
NO SCALE

L-2

Attachment C



Attachment C

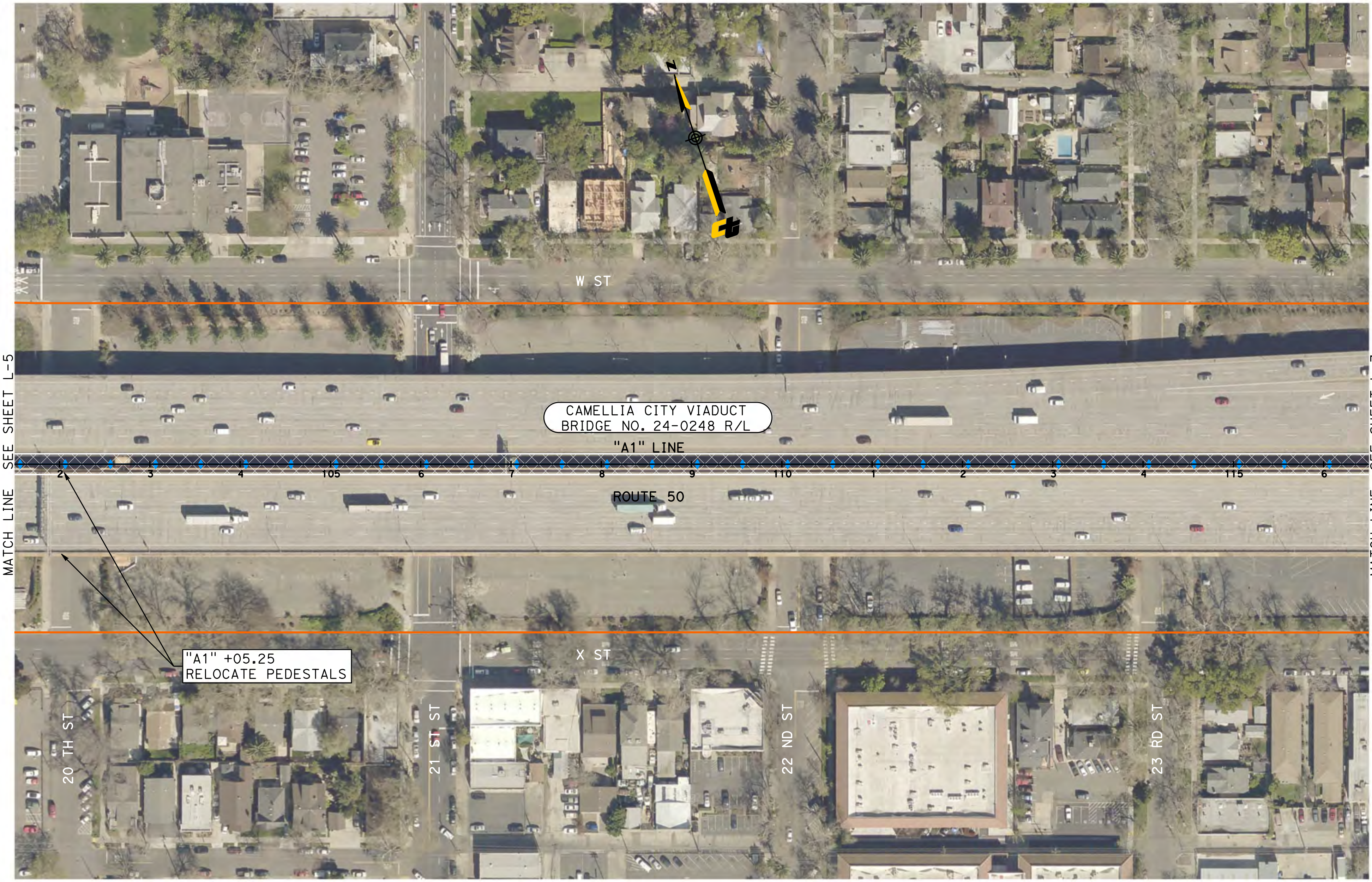


Attachment C

LAYOUT
NO SCALE

L-5

Attachment C

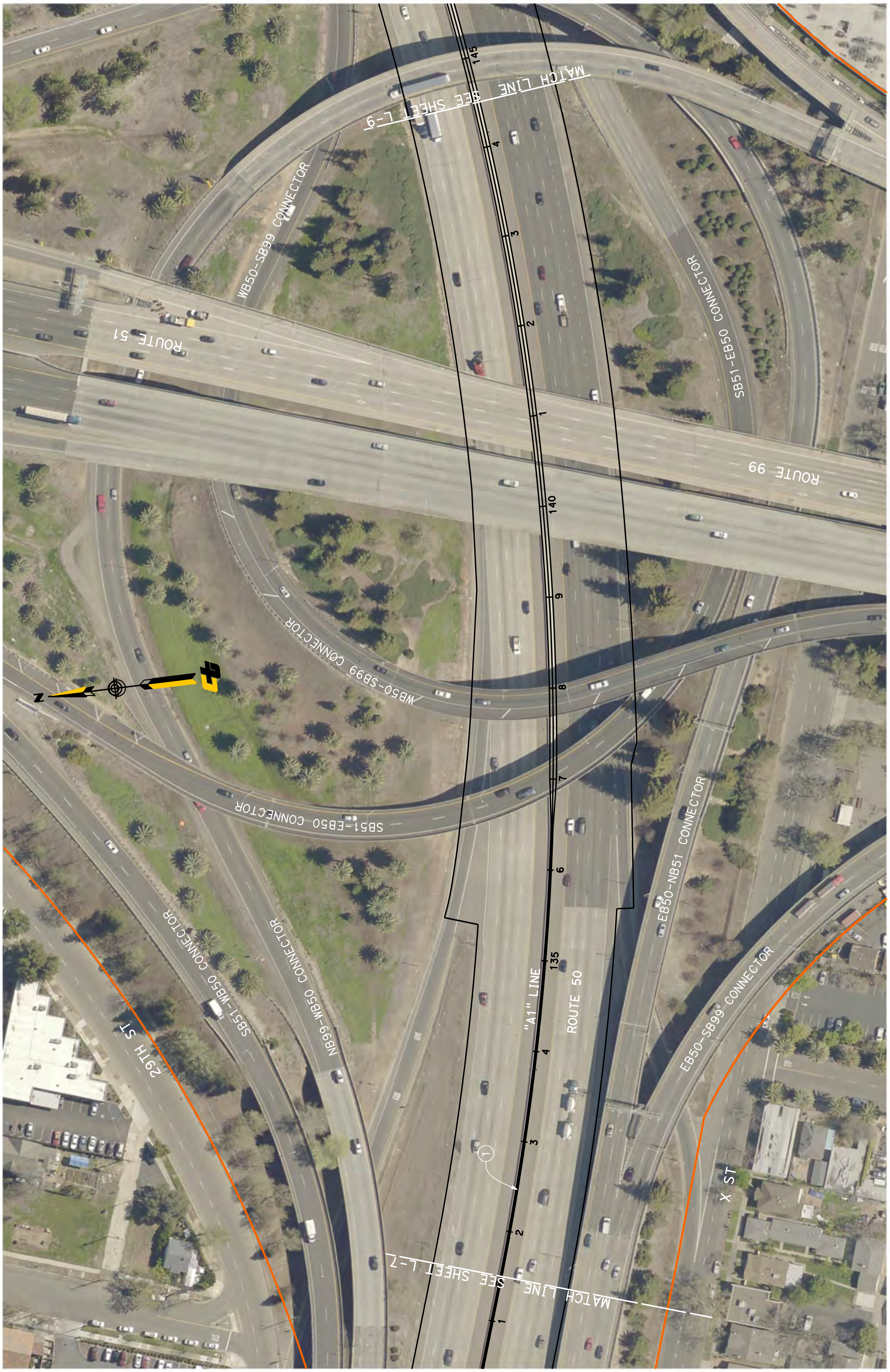


LAYOUT
NO SCALE

L-6

Attachment C

Attachment C



CURVE DATA

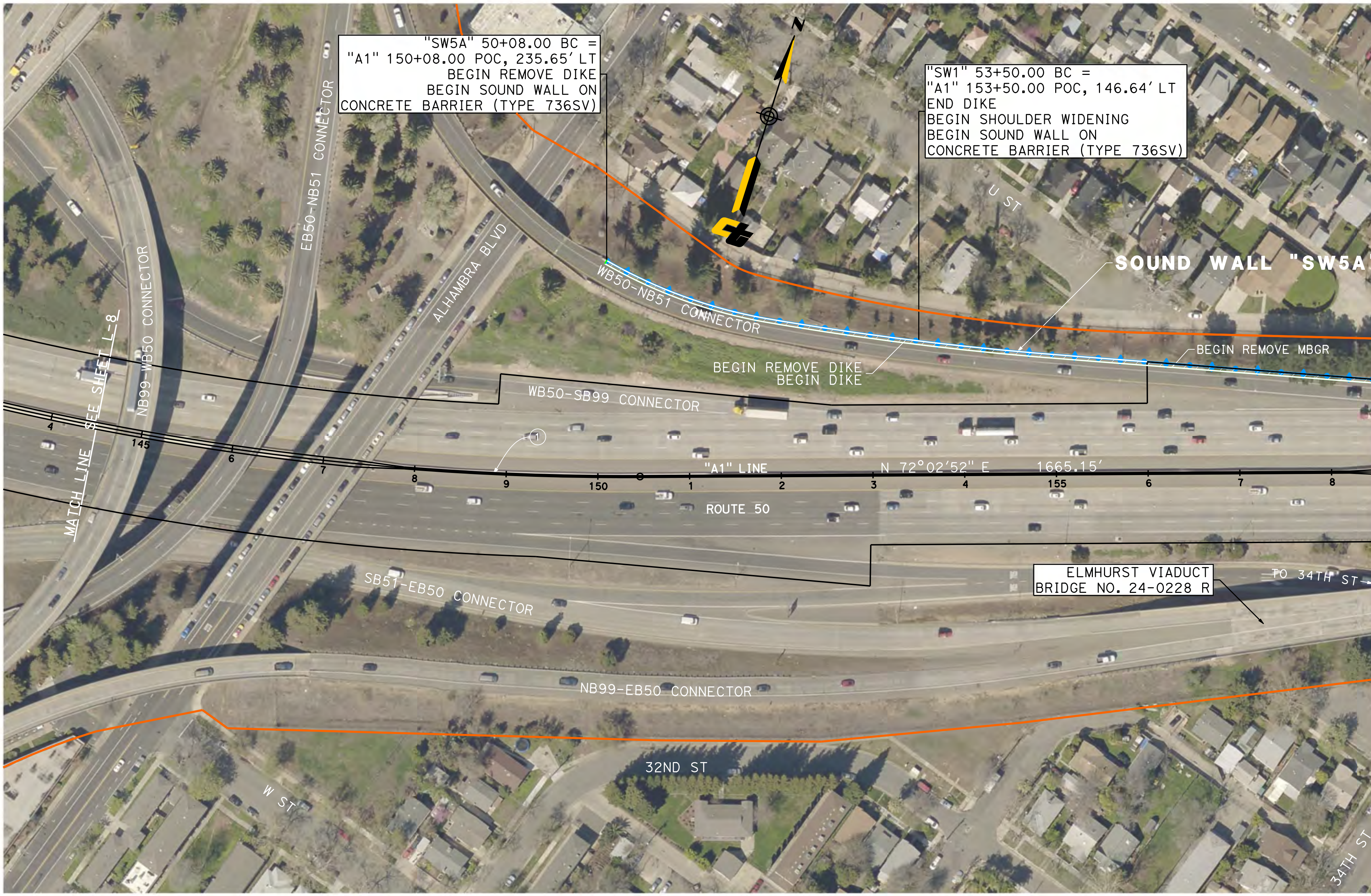
No.	R	Δ	T	L
1	3000'	36°22'10"	985.46'	1904.30'

LAYOUT

NO SCALE

L-8

Attachment C



CURVE DATA

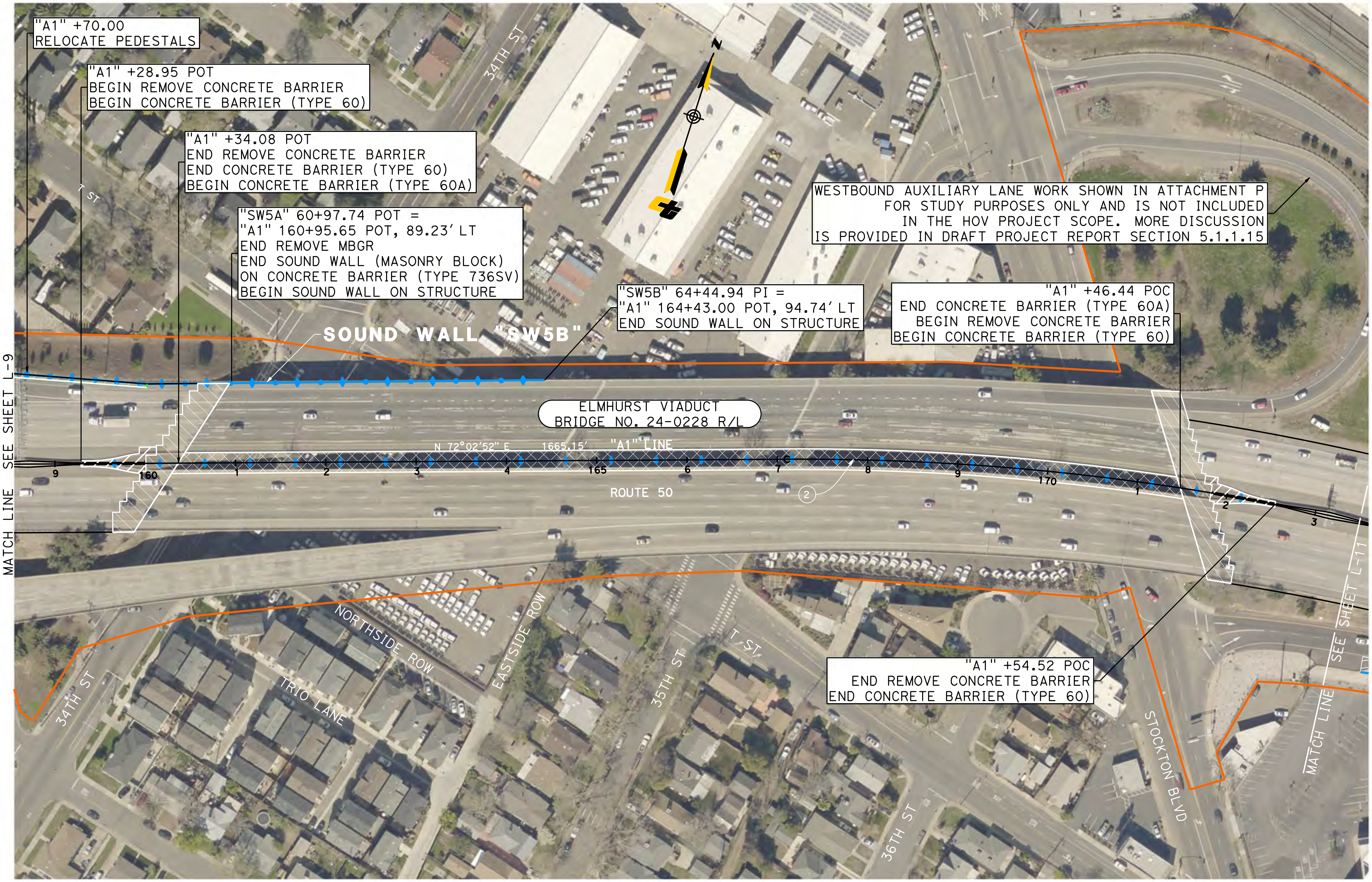
No. ⊕	R	Δ	T	L
1	3000'	36°22'10"	985.46'	1904.30'

NOTE:
SOUND WALLS SHOWN ON THIS SHEET DO NOT MEET THE REASONABLE ALLOWANCE COST DATA FOR CONSTRUCTION FEASIBLILITY.

LAYOUT
NO SCALE

L-9

Attachment C



CURVE DATA

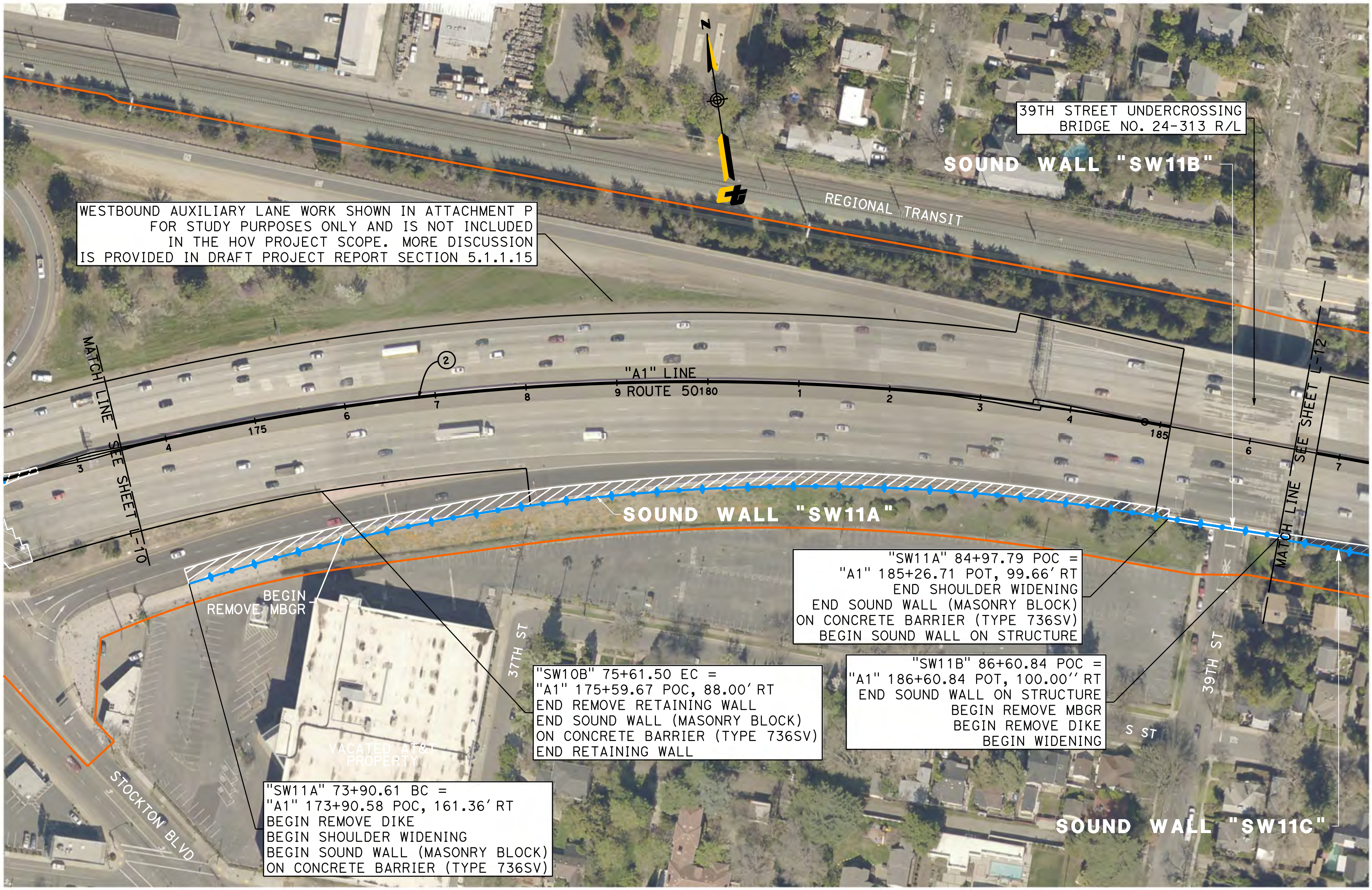
No.	R	Δ	T	L
2	2750'	36°54'29"	917.68'	1771.46'

NOTE:
SOUND WALLS SHOWN ON THIS SHEET DO NOT MEET THE REASONABLE ALLOWANCE COST DATA FOR CONSTRUCTION FEASIBLILITY.

LAYOUT
NO SCALE

L-10

Attachment C



CURVE DATA

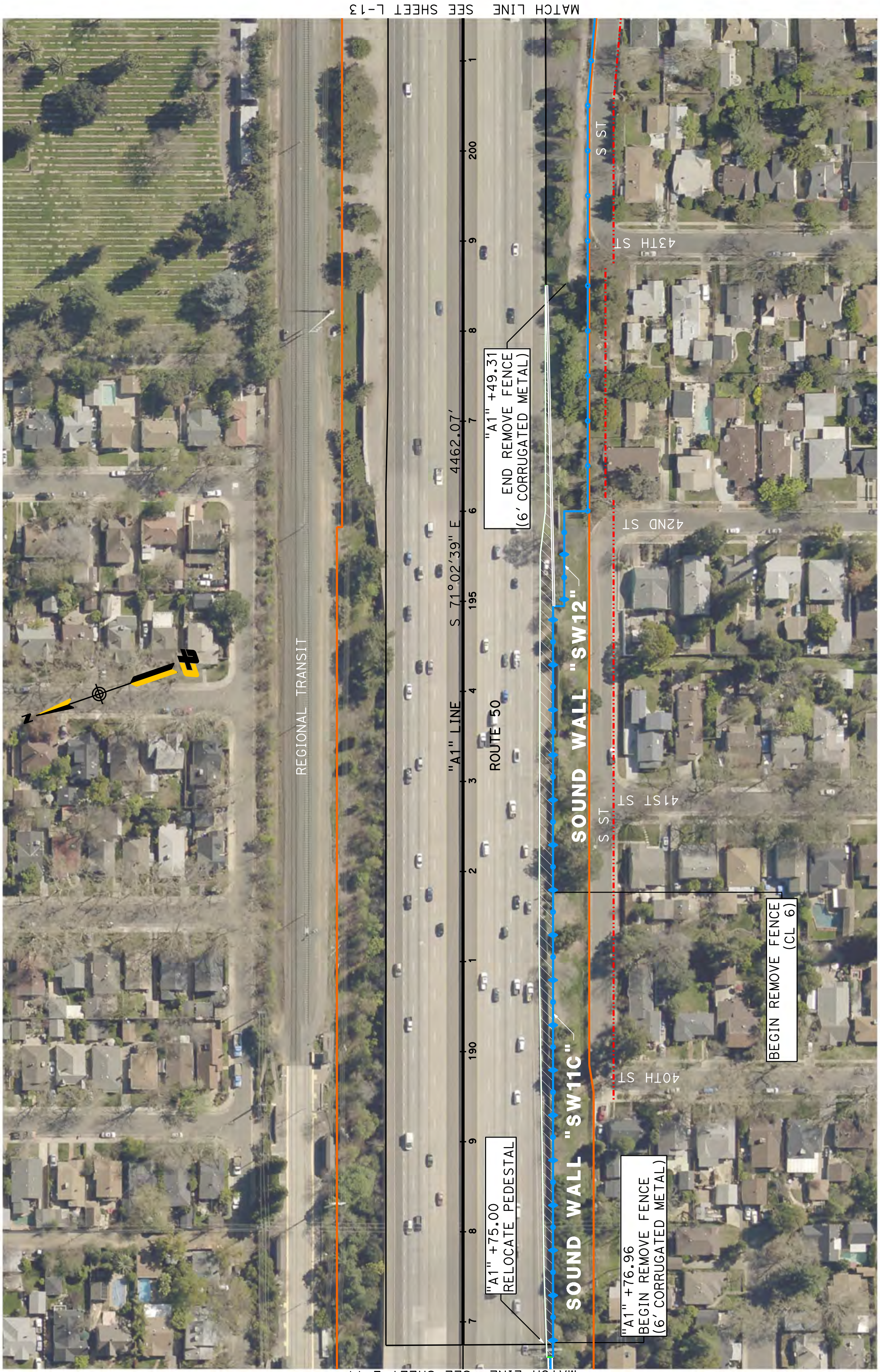
No. ⊕	R	Δ	T	L
2	2750'	36°54'29"	917.68'	1771.46'

NOTE:
SOUND WALLS SHOWN ON THIS SHEET DO NOT MEET THE REASONABLE ALLOWANCE COST DATA FOR CONSTRUCTION FEASIBLILITY.

LAYOUT
NO SCALE

L-11

Attachment C

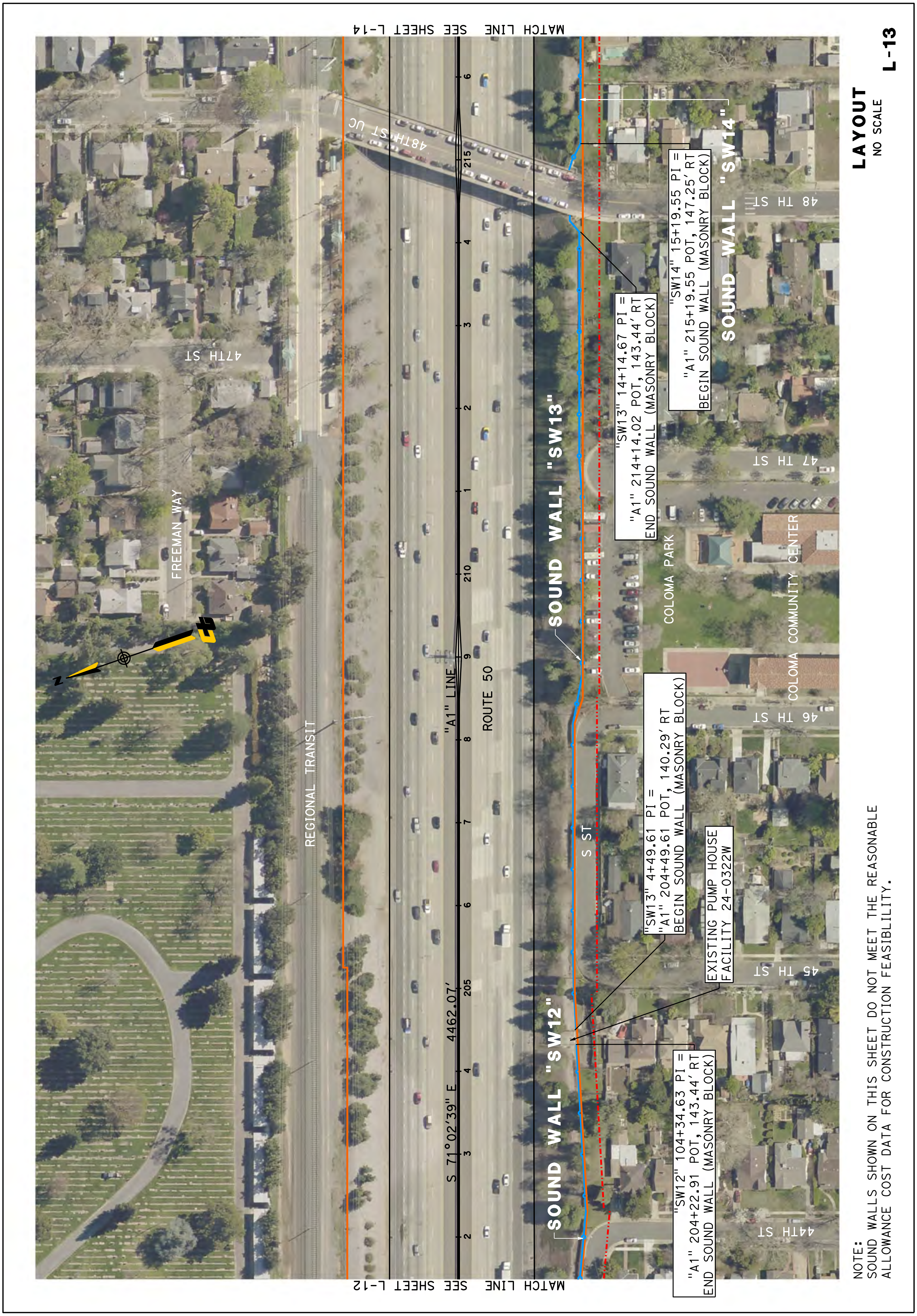


NOTE:
SOUND WALLS SHOWN ON THIS SHEET DO NOT MEET THE REASONABLE ALLOWANCE COST DATA FOR CONSTRUCTION FEASIBLILITY.

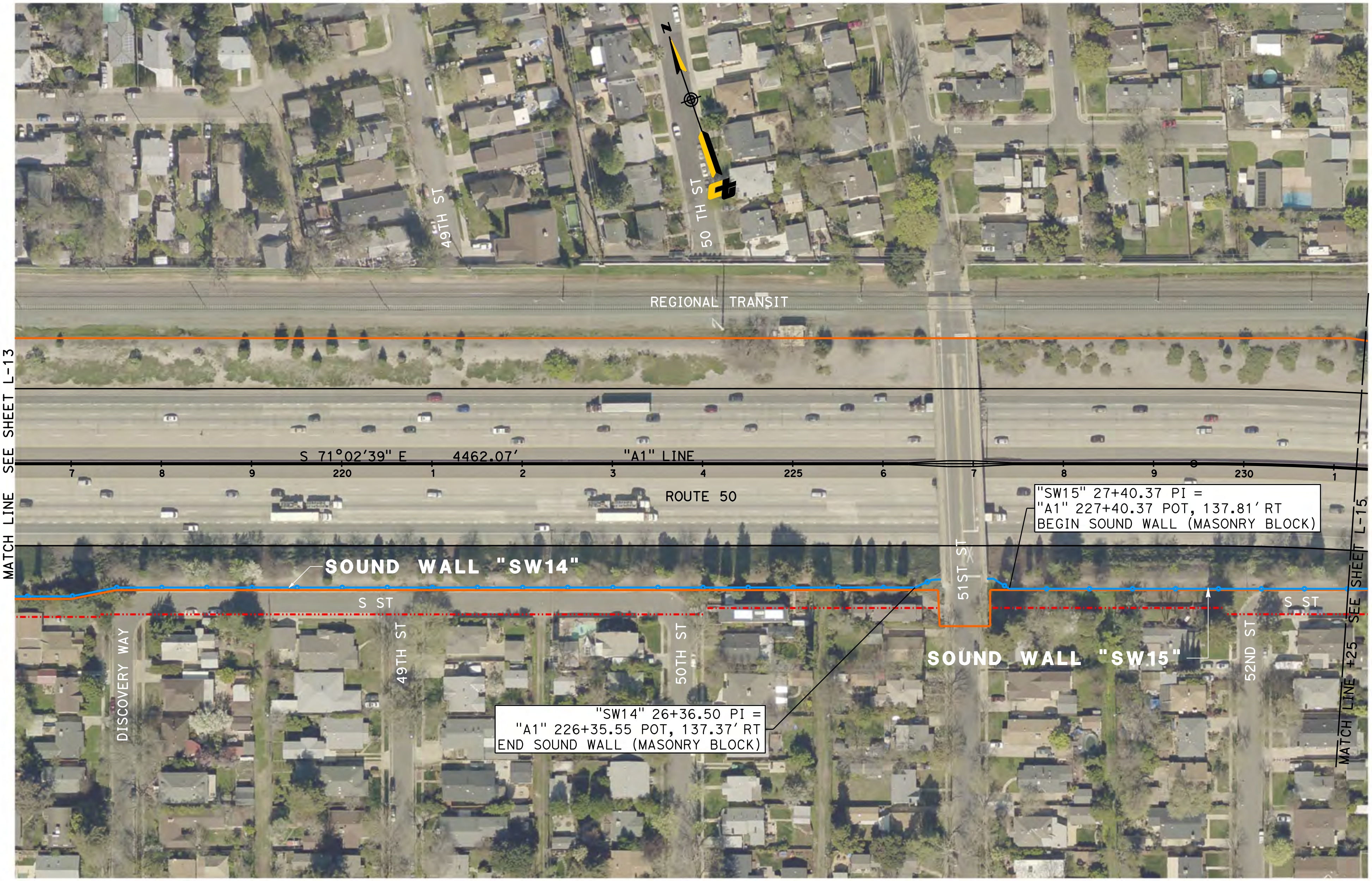
LAYOUT
NO SCALE

L-12

Attachment C



Attachment C



NOTE:
SOUND WALLS SHOWN ON THIS SHEET DO NOT MEET THE REASONABLE ALLOWANCE COST DATA FOR CONSTRUCTION FEASIBLILITY.

LAYOUT
NO SCALE

L-14

Attachment C

CURVE DATA

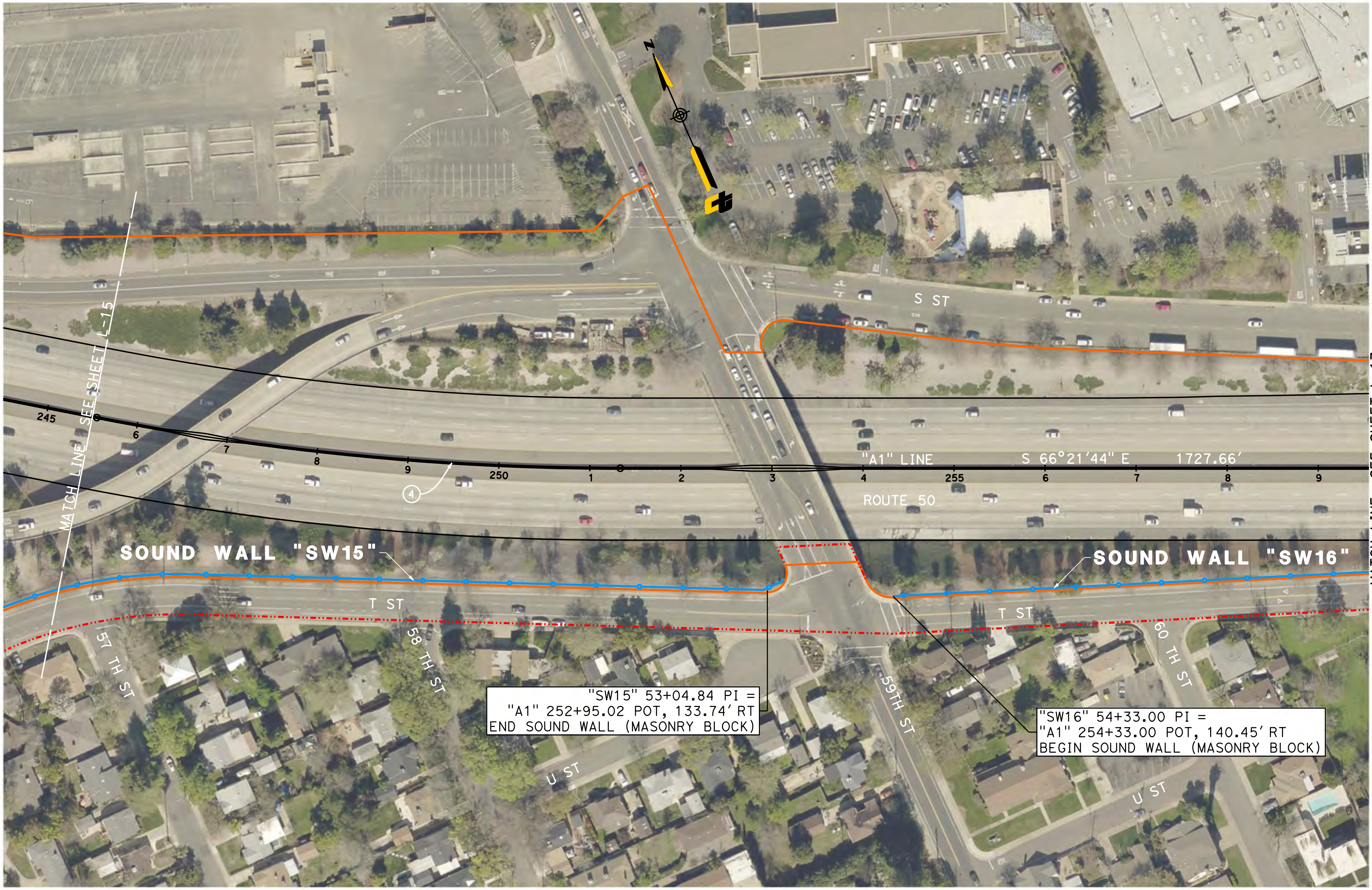
No. ⊕	R	Δ	T	L
3	3000'	15°43'46"	414.40'	823.59'

NOTE:
SOUND WALLS SHOWN ON THIS SHEET DO NOT MEET THE REASONABLE ALLOWANCE COST DATA FOR CONSTRUCTION FEASIBLILITY.

LAYOUT
NO SCALE

L-15

Attachment C



CURVE DATA

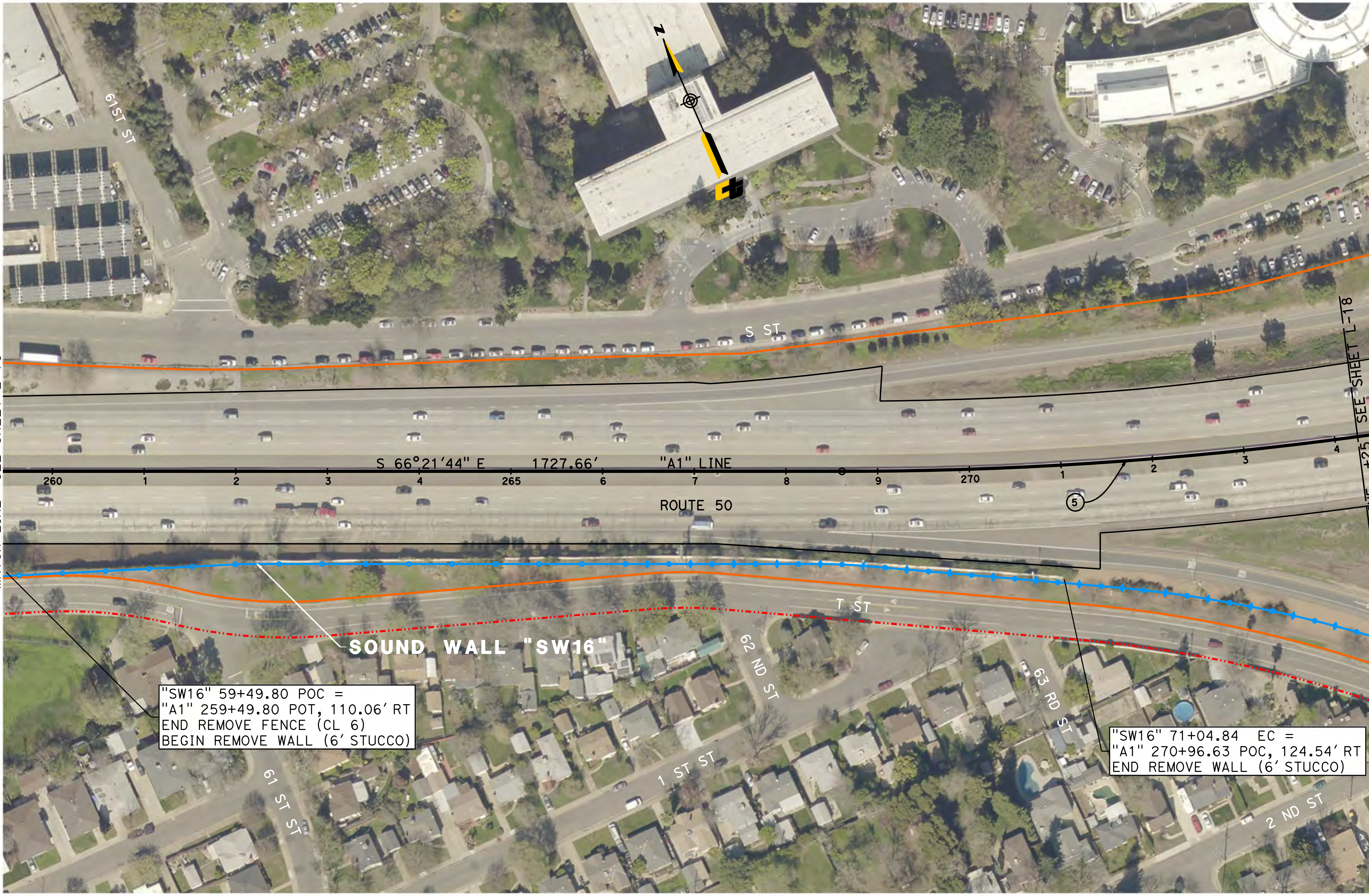
No. ⊕	R	Δ	T	L
4	3000'	11°02'51"	290.12'	578.44'

NOTE:
SOUND WALLS SHOWN ON THIS SHEET DO NOT MEET THE REASONABLE ALLOWANCE COST DATA FOR CONSTRUCTION FEASIBLILITY.

LAYOUT
NO SCALE

L-16

Attachment C



CURVE DATA

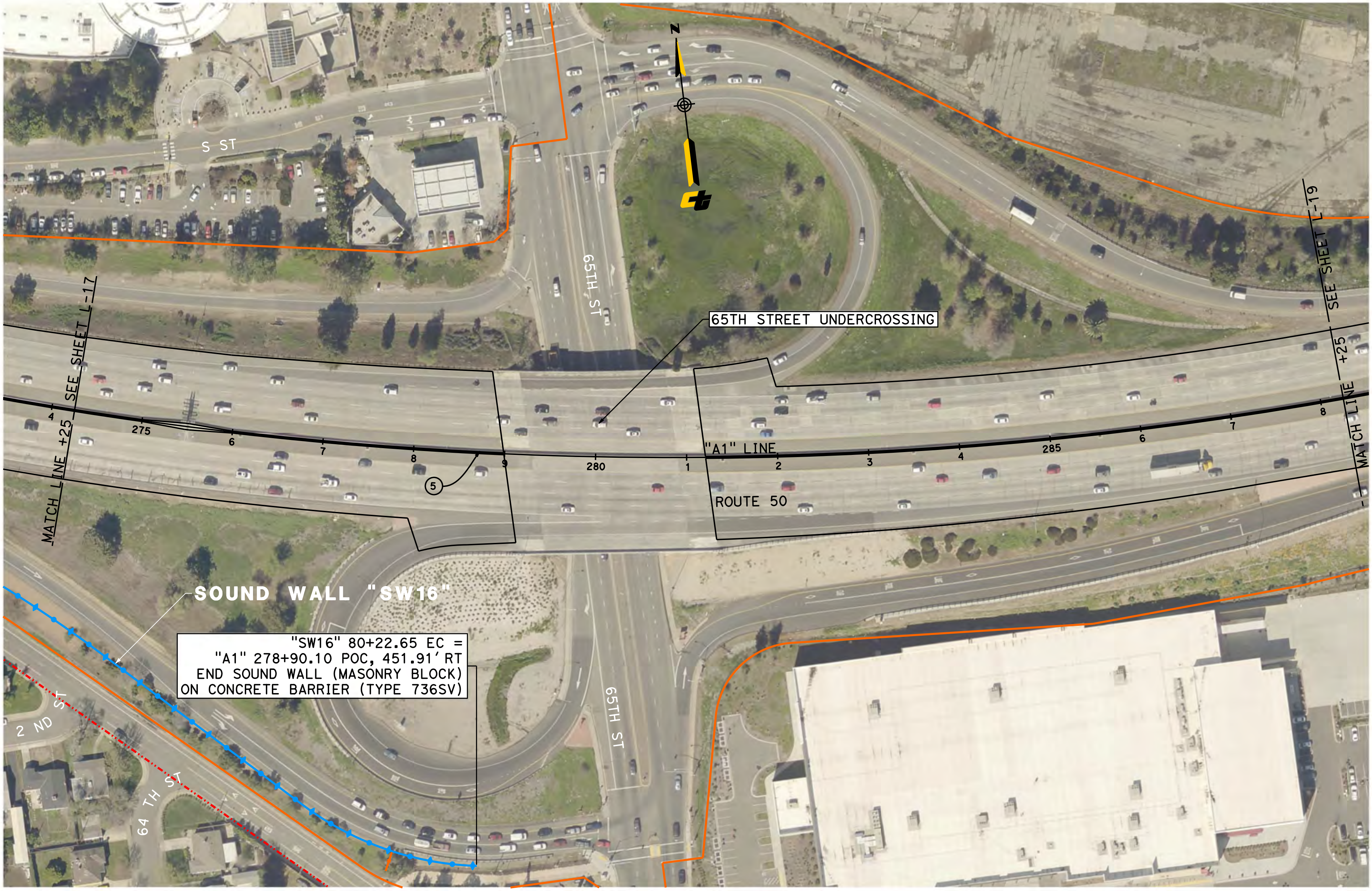
No. ⊕	R	Δ	T	L
5	4200'	40°03'14"	1530.91'	2936.10'

NOTE:
SOUND WALLS SHOWN ON THIS SHEET DO NOT MEET THE REASONABLE ALLOWANCE COST DATA FOR CONSTRUCTION FEASIBLILITY.

LAYOUT
NO SCALE

L-17

Attachment C



CURVE DATA

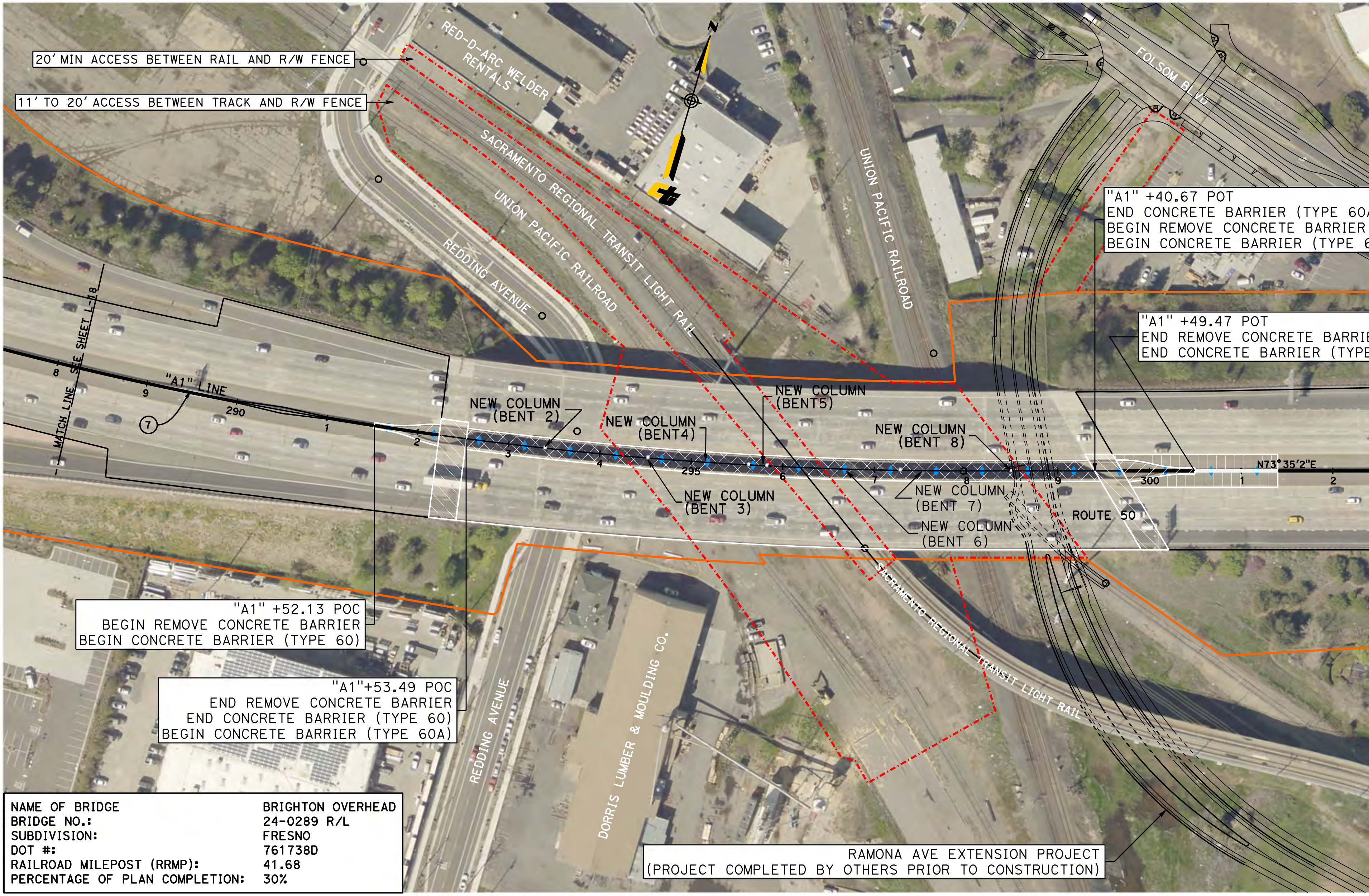
No. ⊕	R	Δ	T	L
5	4200′	40°03′14″	1530.91′	2936.10′

NOTE:
SOUND WALLS SHOWN ON THIS SHEET DO NOT MEET THE REASONABLE ALLOWANCE COST DATA FOR CONSTRUCTION FEASIBLILITY.

LAYOUT
NO SCALE

L-18

Attachment C



NAME OF BRIDGE	BRIGHTON OVERHEAD
BRIDGE NO.:	24-0289 R/L
SUBDIVISION:	FRESNO
DOT #:	761738D
RAILROAD MILEPOST (RRMP):	41.68
PERCENTAGE OF PLAN COMPLETION:	30%

CURVE DATA

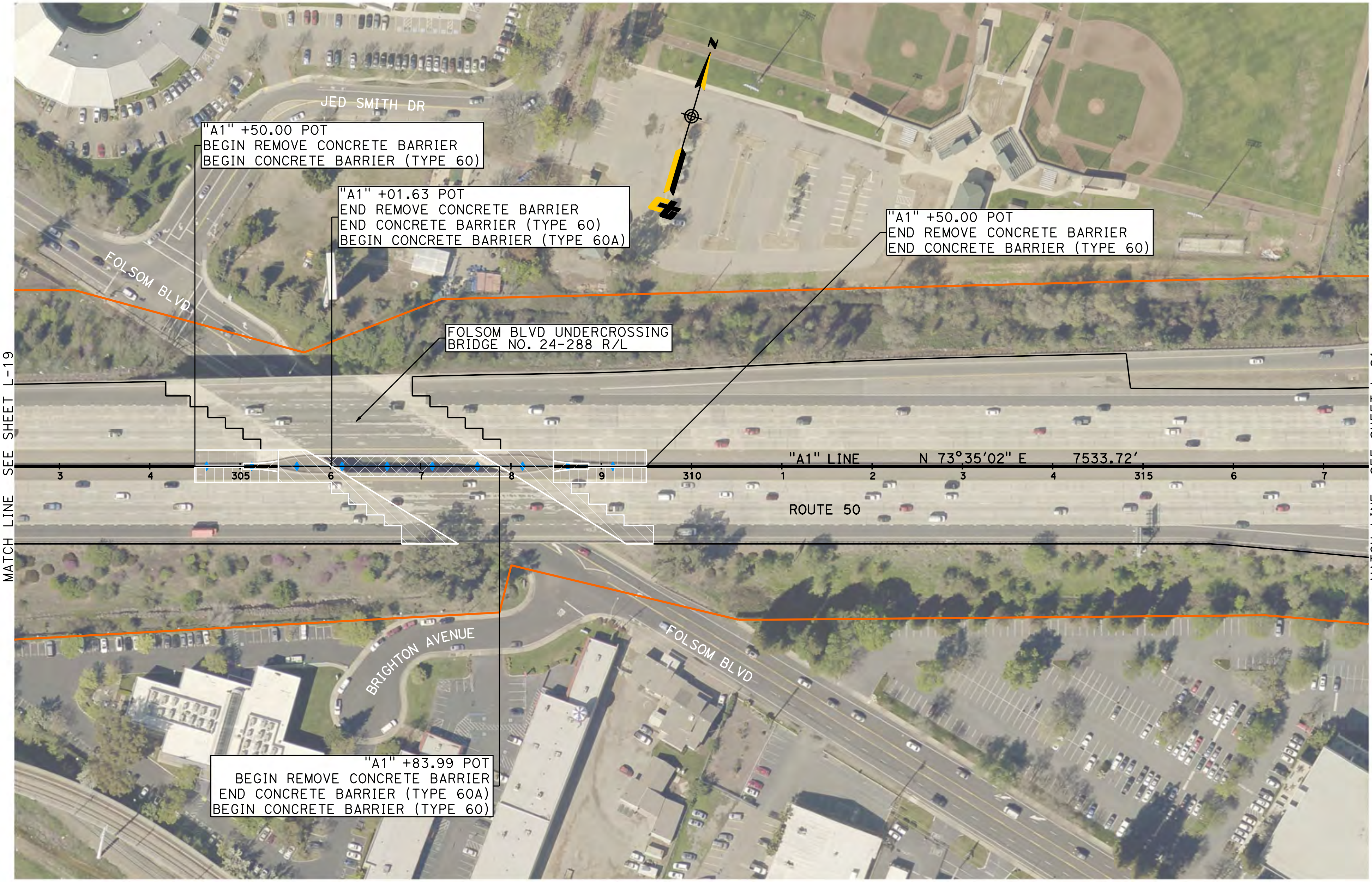
No. ⊕	R	Δ	T	L
5	4200'	40°03'14"	1530.91'	2936.10'

LAYOUT

NO SCALE

L-19

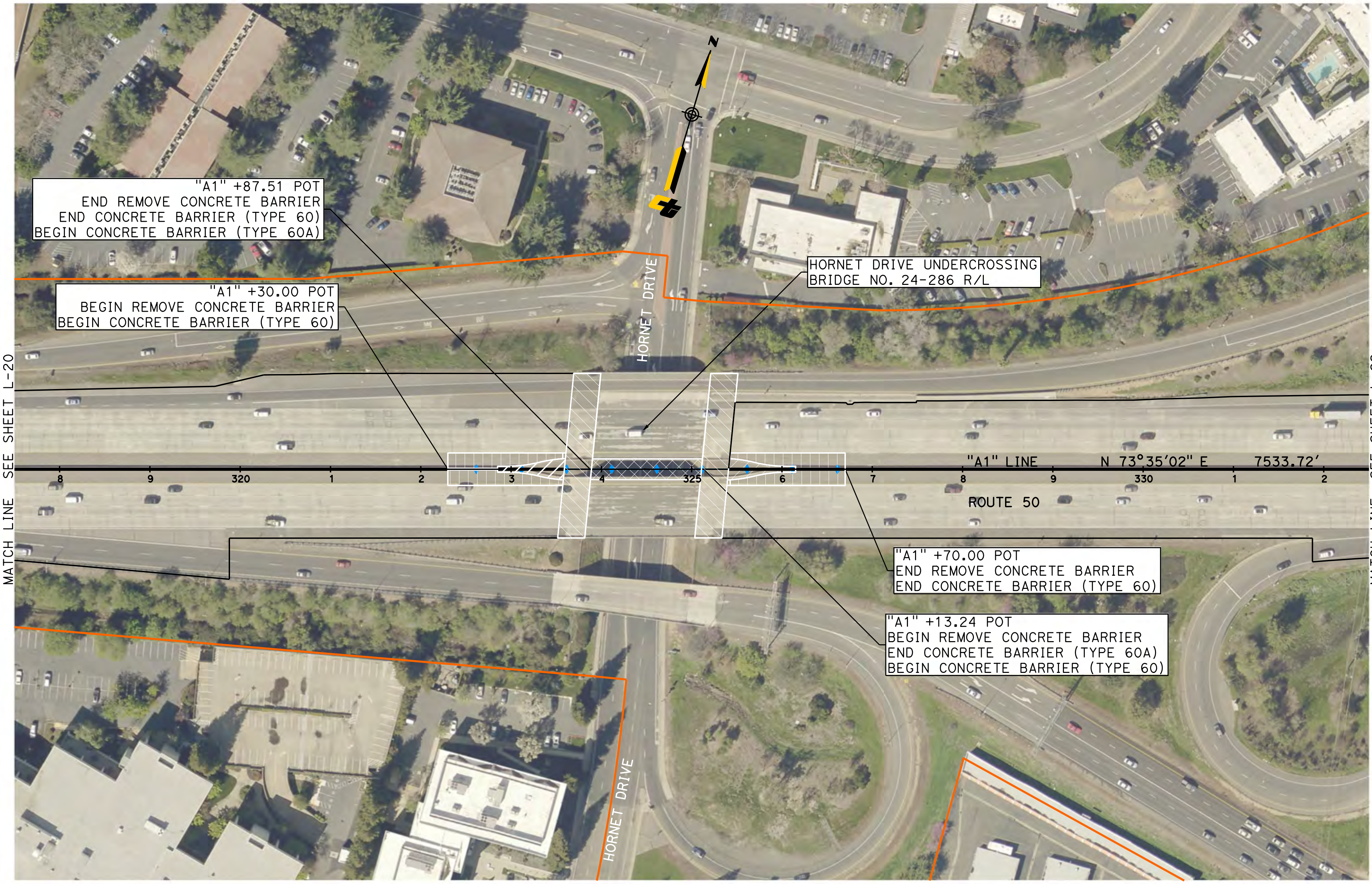
Attachment C



LAYOUT
NO SCALE

L-20

Attachment C

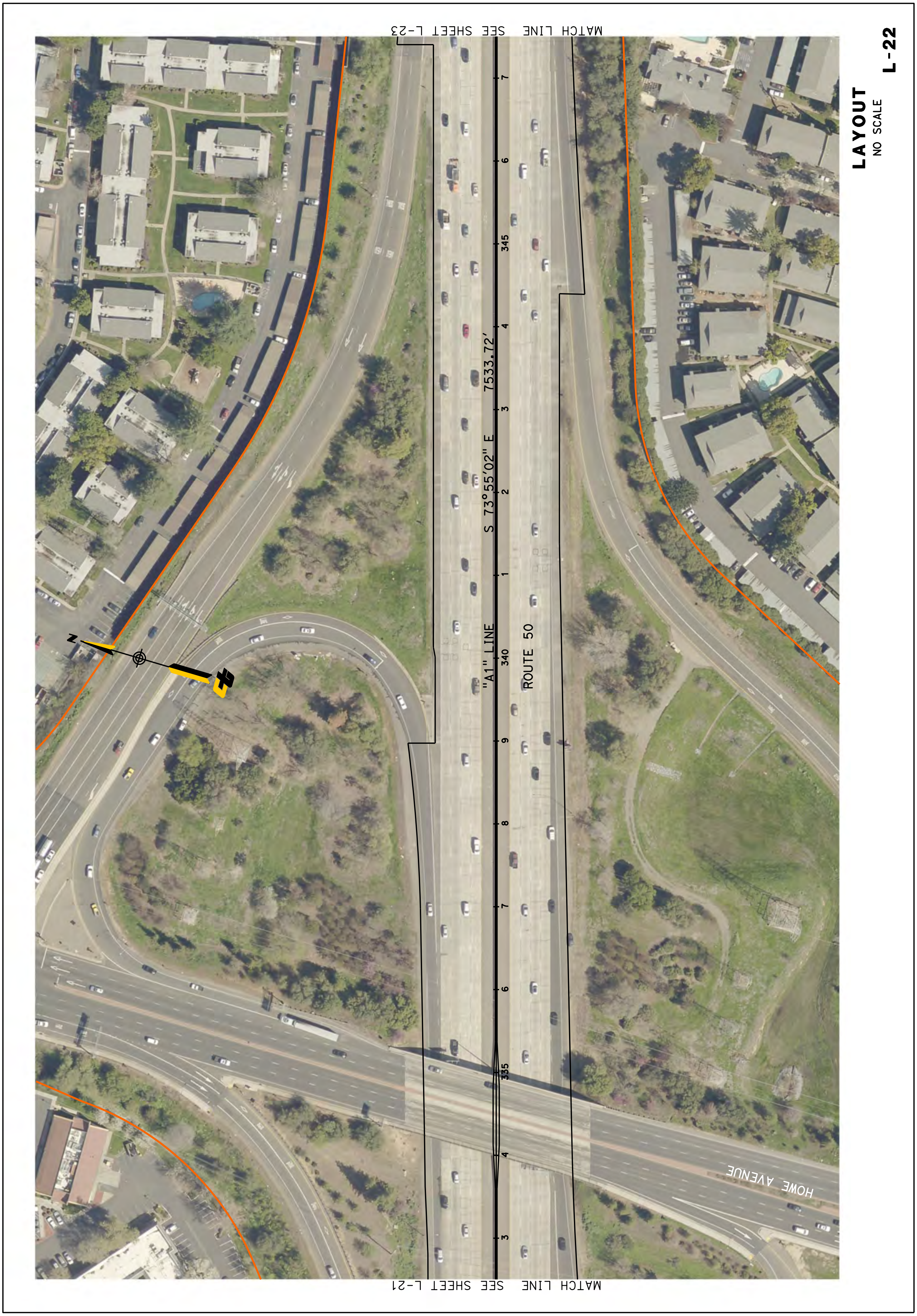


LAYOUT

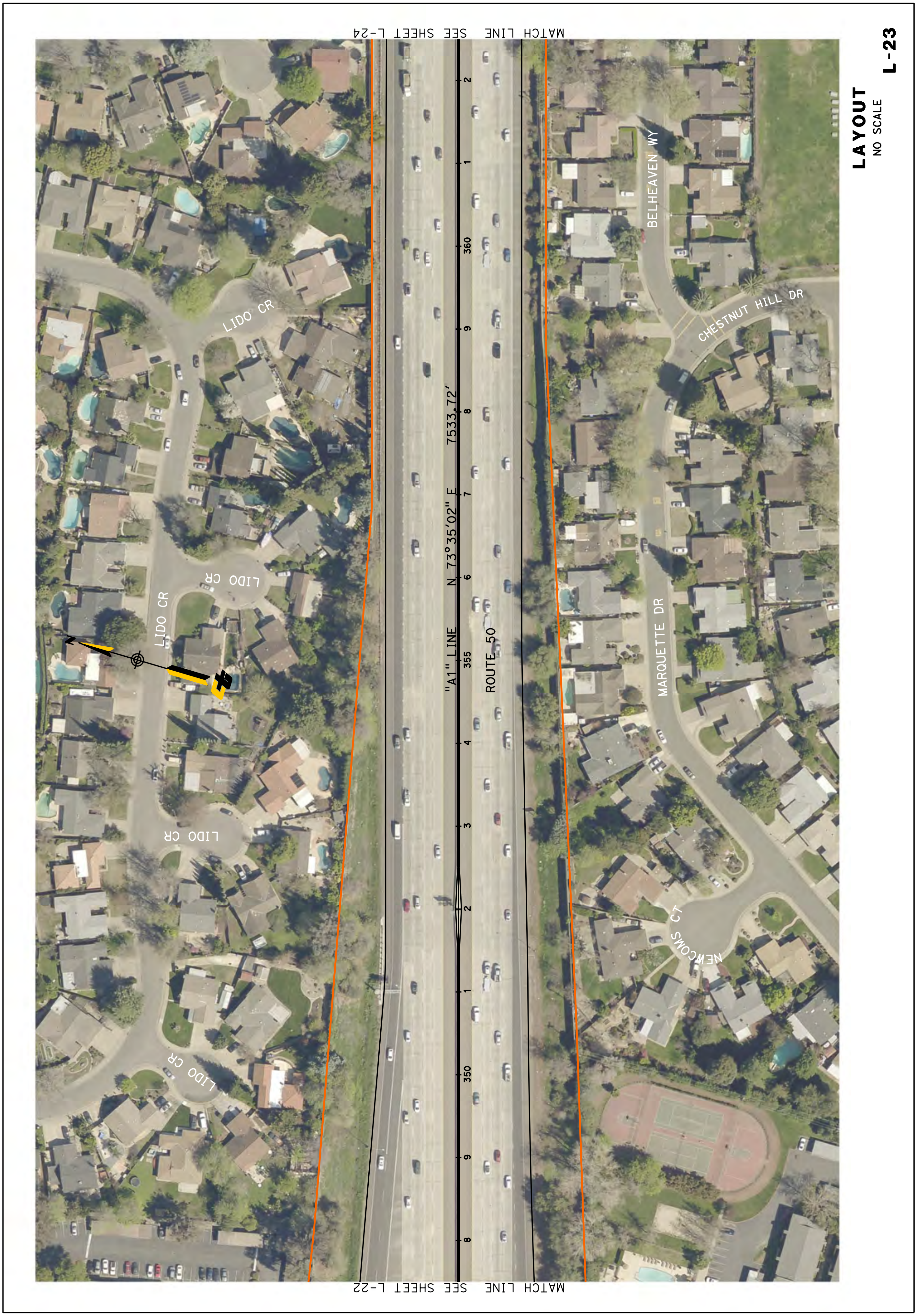
NO SCALE

L-21

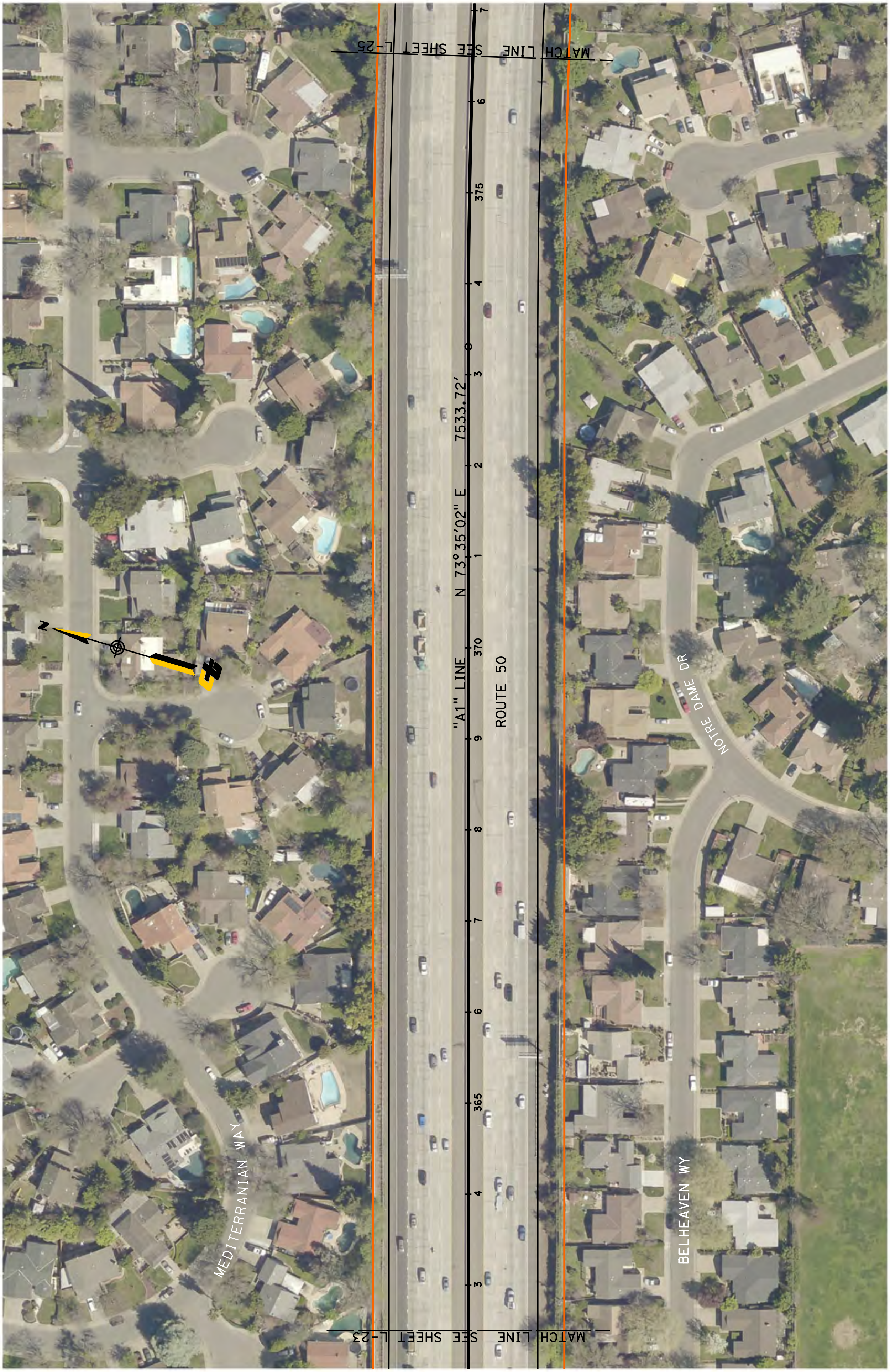
Attachment C



Attachment C



Attachment C



LAYOUT
NO SCALE

L-24

Attachment C

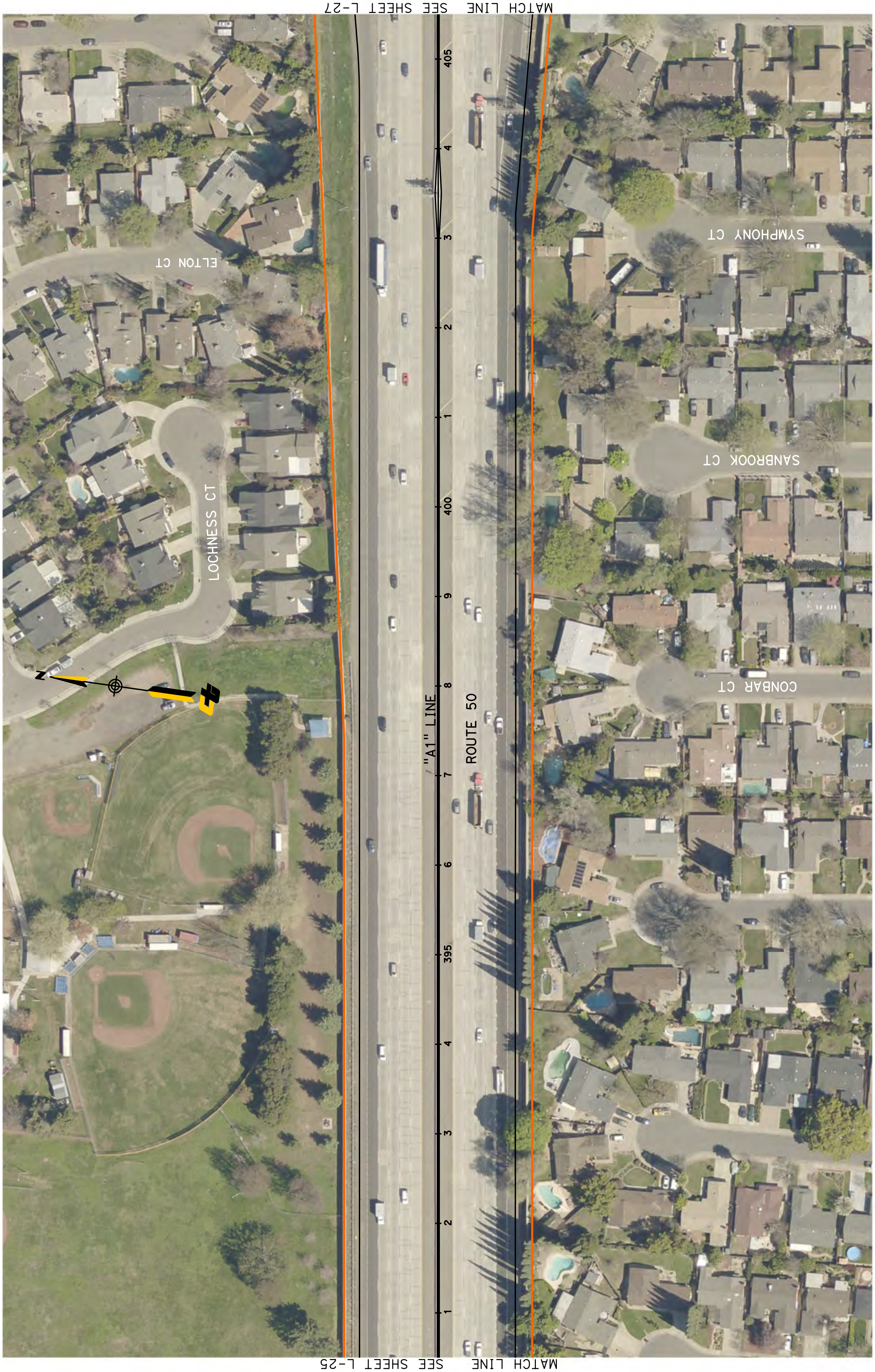
CURVE DATA

No.	R	Δ	T	L
6	10000'	08°19'58"	728.46'	1454.34'

LAYOUT
NO SCALE

L-25

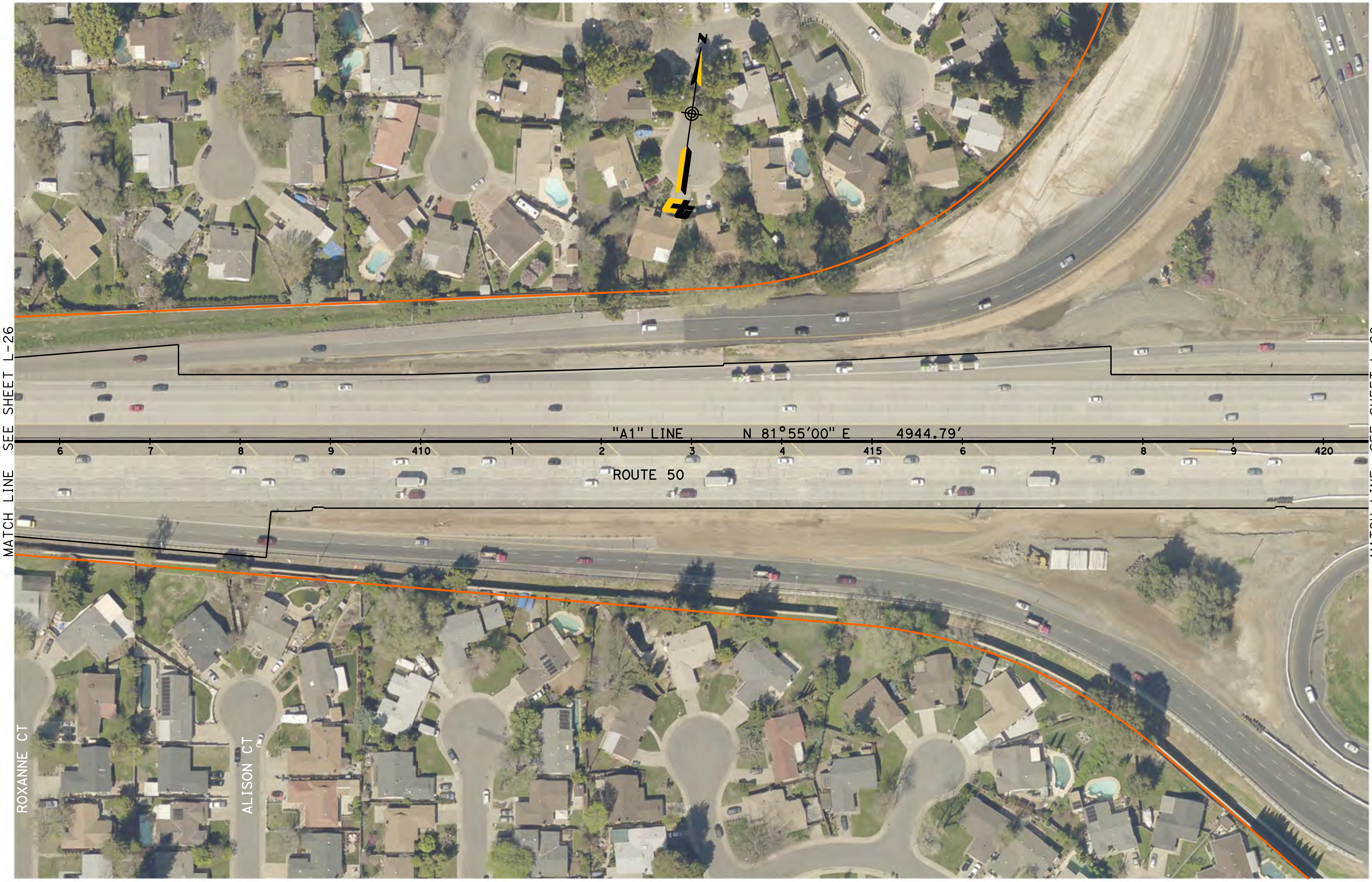
Attachment C



LAYOUT
NO SCALE

L-26

Attachment C

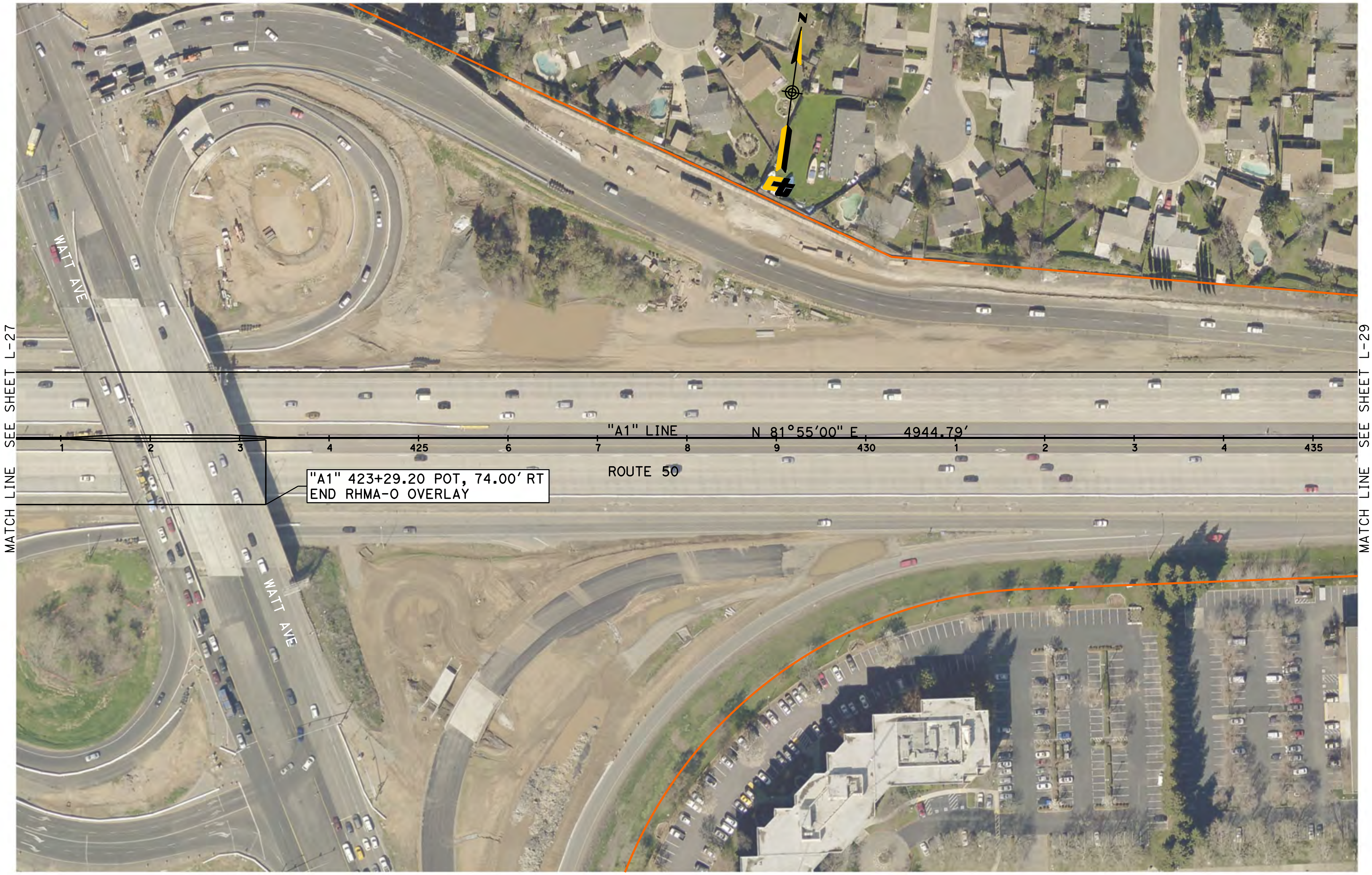


NOTE: CURRENT BACKGROUND AERIAL PHOTO IS NOT AVAILABLE. THE WATT AVE INTERCHANGE HAS BEEN RECONFIGURED FROM THE DATE THIS AERIAL PHOTO WAS TAKEN AND IS COMPLETE. THE HOV PROJECT PROPOSES NO MODIFICATIONS TO THE INTERCHANGE.

LAYOUT
NO SCALE

L-27

Attachment C

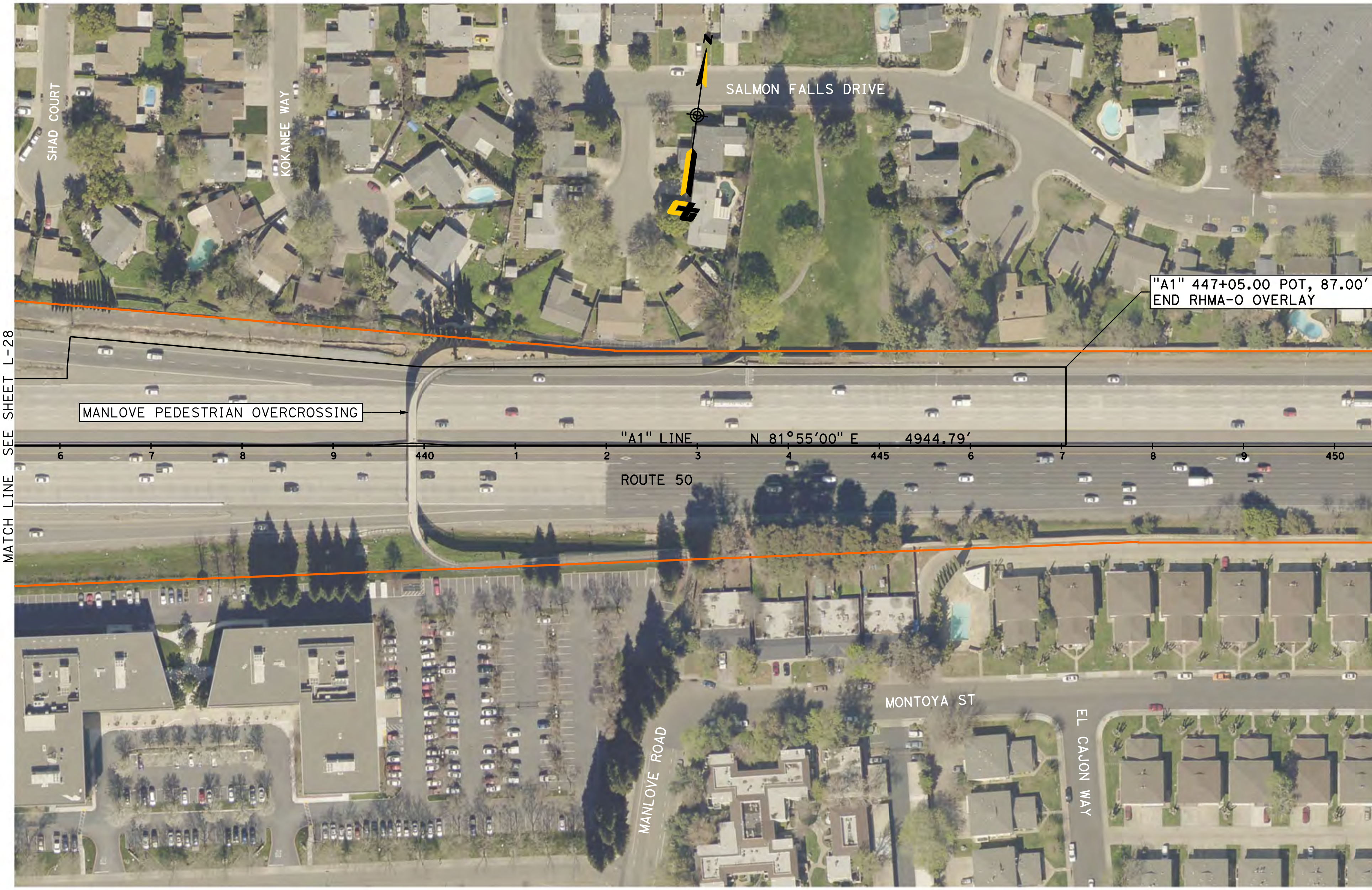


NOTE: CURRENT BACKGROUND AERIAL PHOTO IS NOT AVAILABLE. THE WATT AVE INTERCHANGE HAS BEEN RECONFIGURED FROM THE DATE THIS AERIAL PHOTO WAS TAKEN AND IS COMPLETE. THE HOV PROJECT PROPOSES NO MODIFICATIONS TO THE INTERCHANGE.

LAYOUT
NO SCALE

L-28

Attachment C



NOTE:
A CAPM OVERLAY PROJECT WAS COMPLETED IN THE WB DIRECTION AND THE WATT AVE I/C PROJECT INCLUDED AN OVERLAY IN THE EB DIRECTION PROCEEDING THE AERIAL BACKGROUND PHOTOGRAPHY.

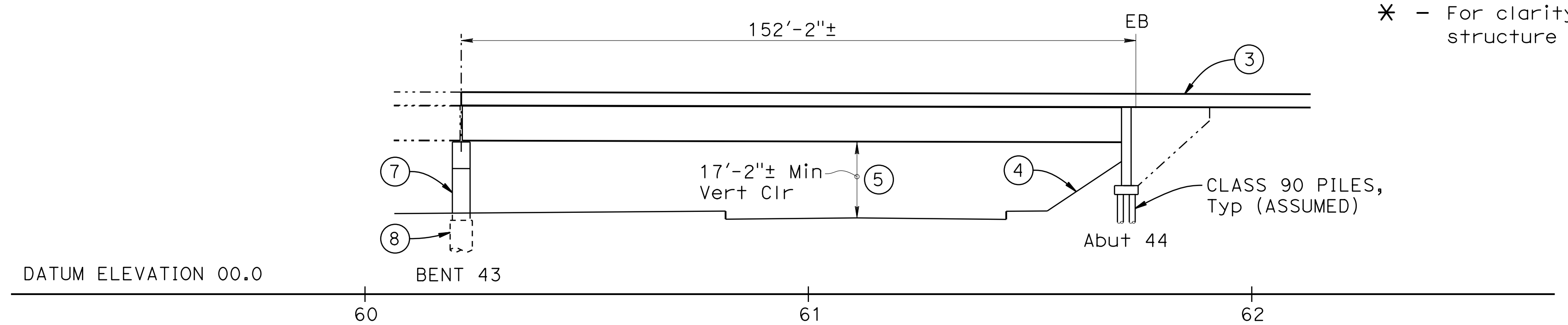
LAYOUT
NO SCALE

L-29

Attachment C

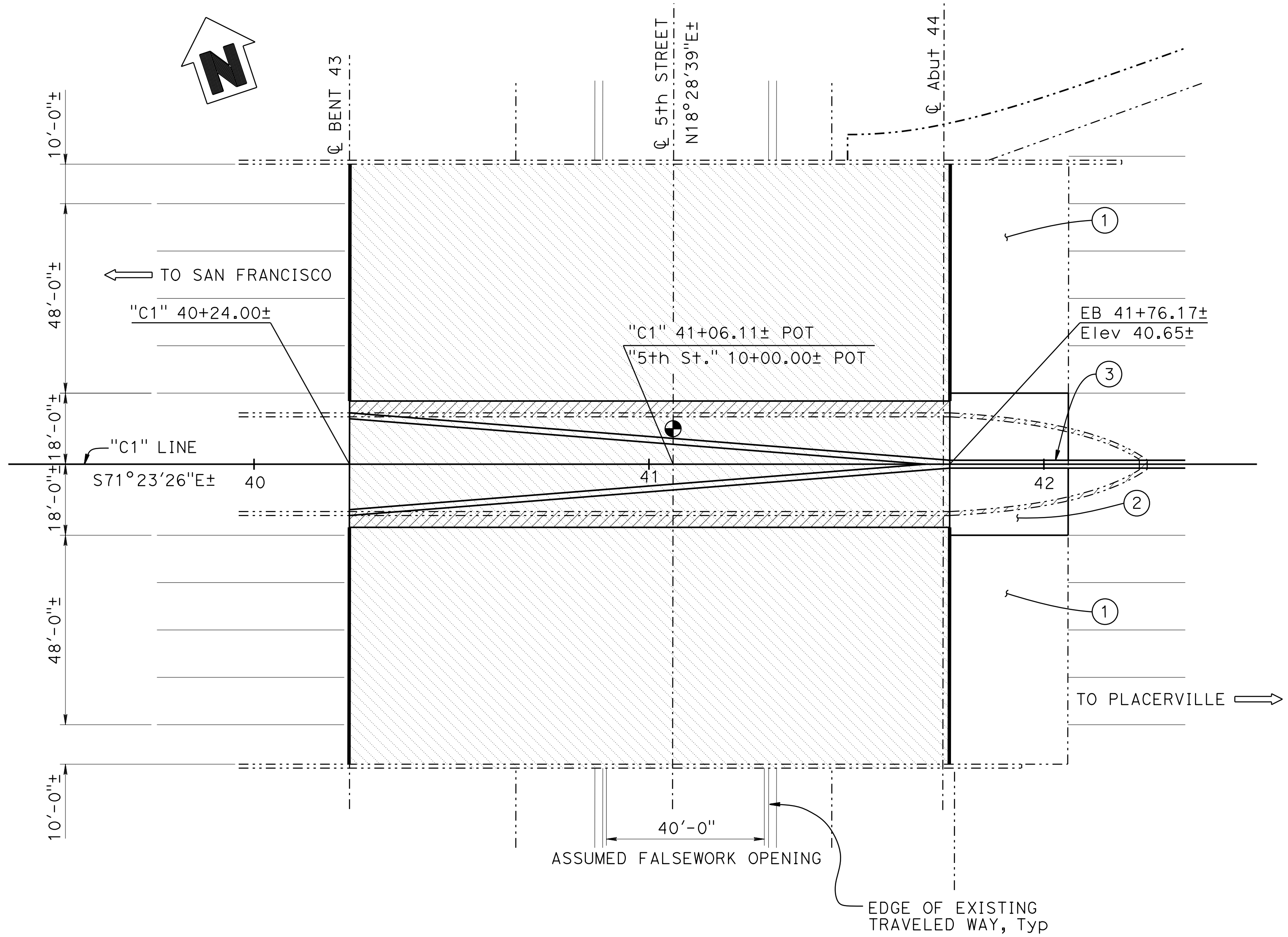
DIST	COUNTY	ROUTE	POST MILE
03	Sac	50	X

* - For clarity, existing structure is not shown.



ELEVATION

1" = 20'-0"



PLAN

1" = 20'-0"

NOTES:

1. Existing PCC approach slab.
2. Structure Approach Type N(30S).
3. Concrete Barrier Type 60A.
4. Existing Slope Paving to remain.
5. Traffic will pass through construction site.
6. Prepare concrete deck and place 1" polyester concrete overlay.
7. 4'-0"ø Column
8. 5'-0"ø CISS Pile

DATE OF ESTIMATE	4/24/2015
STRUCTURE DEPTH	= 9'-0"
LENGTH	= 152'-2"
WIDTH	= 32'-0"
AREA	= 4867 ft^2
COST/ □__INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $445
TOTAL COST	= $2,165,000

LEGEND:
- Indicates new construction
- Indicates existing structure
- Indicates bridge removal (portion)
- Indicates prepare Concrete Bridge Deck and place 1" polyester concrete overlay
- Indicates replace existing joint seal MR=½"
- Point of Min Vertical Clearance

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

ORIGINAL SCALE IN INCHES 0 1 2 3

DESIGNED BY L. Wu	DATE 3-18-15	
DRAWN BY G. Hallstrom	DATE 3-18-15	
CHECKED BY D. Adams	DATE 3-18-15	
APPROVED D. Adams	DATE 3-18-15	

STRUCTURE DESIGN BRANCH 10

PLANNING STUDY

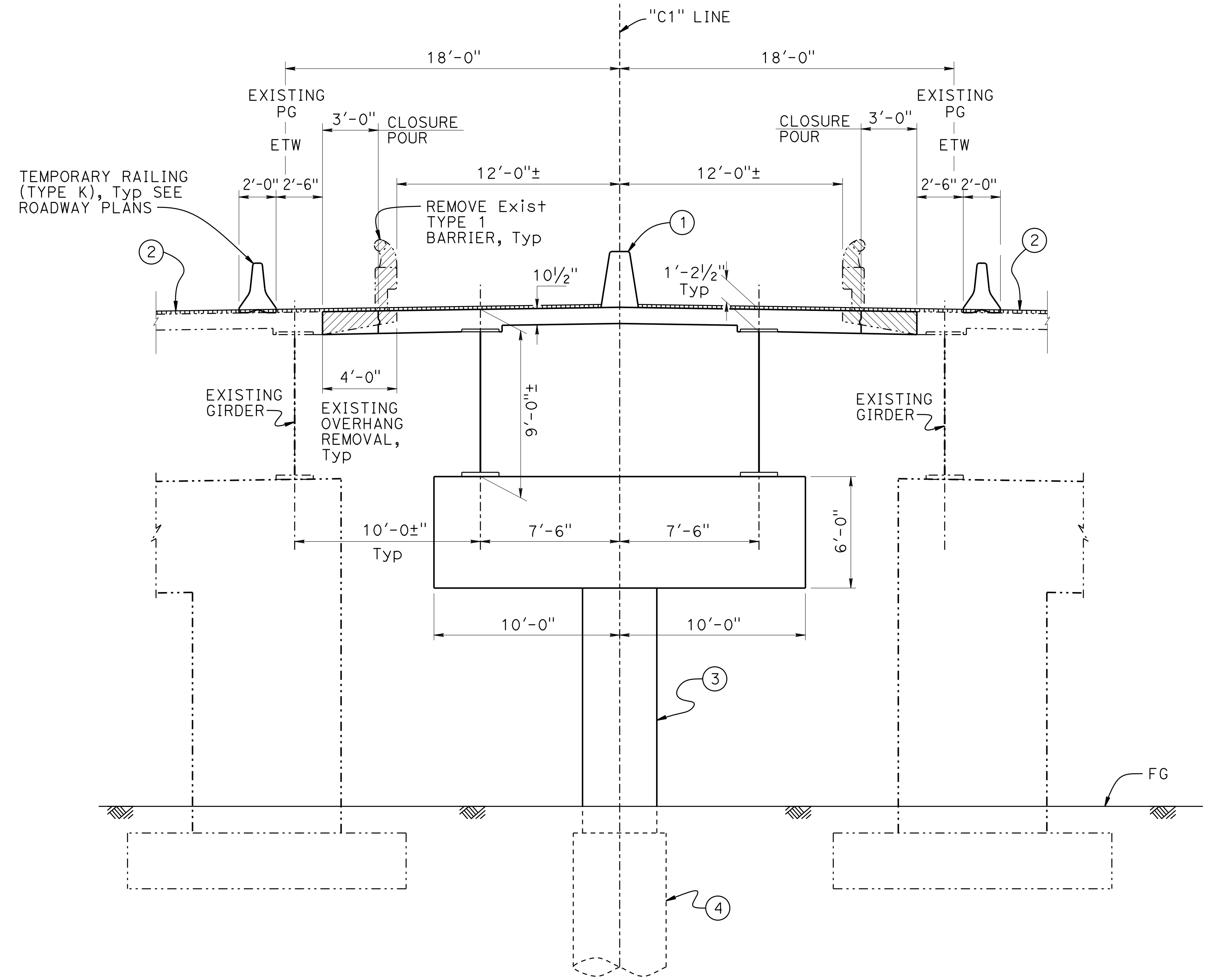
SACRAMENTO RIVER VIADUCT (PARTIAL MEDIAN WIDENING)

UNIT: 3589 | BRIDGE No. 24-0004R/L
SCALE: AS NOTED | PROJECT No. & PHASE: 0312000216
CONTRACT No.: 03-3F3604

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 08-09-10)
FILE => 240004rlaps01.dgn
USERNAME => s130406 DATE PLOTTED => 12-MAY-2015 TIME PLOTTED => 13:19

Attachment D

DIST	COUNTY	ROUTE	POST MILE
03	Sac	50	X



PART TYPICAL SECTION

¼" = 1'-0"

NOTES:

(1) Concrete Barrier Type 60A.

(2) Prepare concrete deck and place 1" polyester concrete overlay.

(3) 4'-0"Ø Column

(4) 5'-0"Ø CISS Pile

LEGEND:

- Indicates new construction
- Indicates existing structure
- Indicates bridge removal (portion)
- Indicates prepare Concrete Bridge Deck and place 1" polyester concrete overlay

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

ORIGINAL SCALE IN INCHES 0 1 2 3

DESIGNED BY	L. Wu	DATE 3-18-15
DRAWN BY	G. Hallstrom	DATE 3-18-15
CHECKED BY	D. Adams	DATE 3-18-15
APPROVED	D. Adams	DATE 3-18-15

STRUCTURE DESIGN BRANCH 10

PLANNING STUDY

SACRAMENTO RIVER VIADUCT (PARTIAL MEDIAN WIDENING)

UNIT: 3589
BRIDGE No. 24-0004R/L
SCALE: AS NOTED
PROJECT No. & PHASE: 0312000216
CONTRACT No.: 03-0F3604
SHEET 2 OF 2

FILE => 240004rlaps02.dgn

USERNAME => s130406 DATE PLOTTED => 12-MAY-2015 TIME PLOTTED => 13:19

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF STRUCTURES

Attachment D

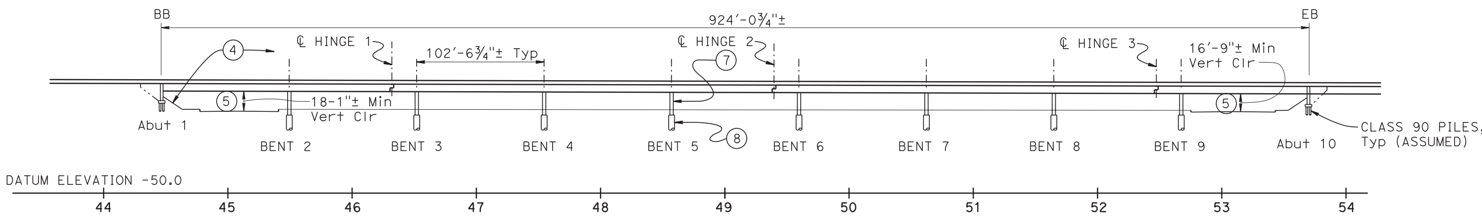
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER — LARRY WU — No. 57035 — Exp. 6-30-17 — CIVIL — STATE OF CALIFORNIA



Note: For clarity, existing structure is not shown.

ELEVATION

1" = 50'-0"

Vehicular Traffic

1. ___ New alignment. No traffic at the site.
2. ___ Traffic will be detoured away from the site.
3. X Traffic will be carried on the structure. Stage construction will/will not be required.
4. X Traffic will pass under the structure on 6th & 8th Streets (Name of St. or Hwy.)
   A. ___ No falsework allowed over traffic.
   B. X Falsework opening(s) required:

	Temporary Vertical Clearance	Width of Traffic Opening
6th Street	15'-0"	32'-0"
8th Street	15'-0"	32'-0"

Pedestrian Traffic

Falsework opening required on 6th Street (Name of St.)

Location	Height	Width
West & East Sidewalk	8'-0"	5'-0"

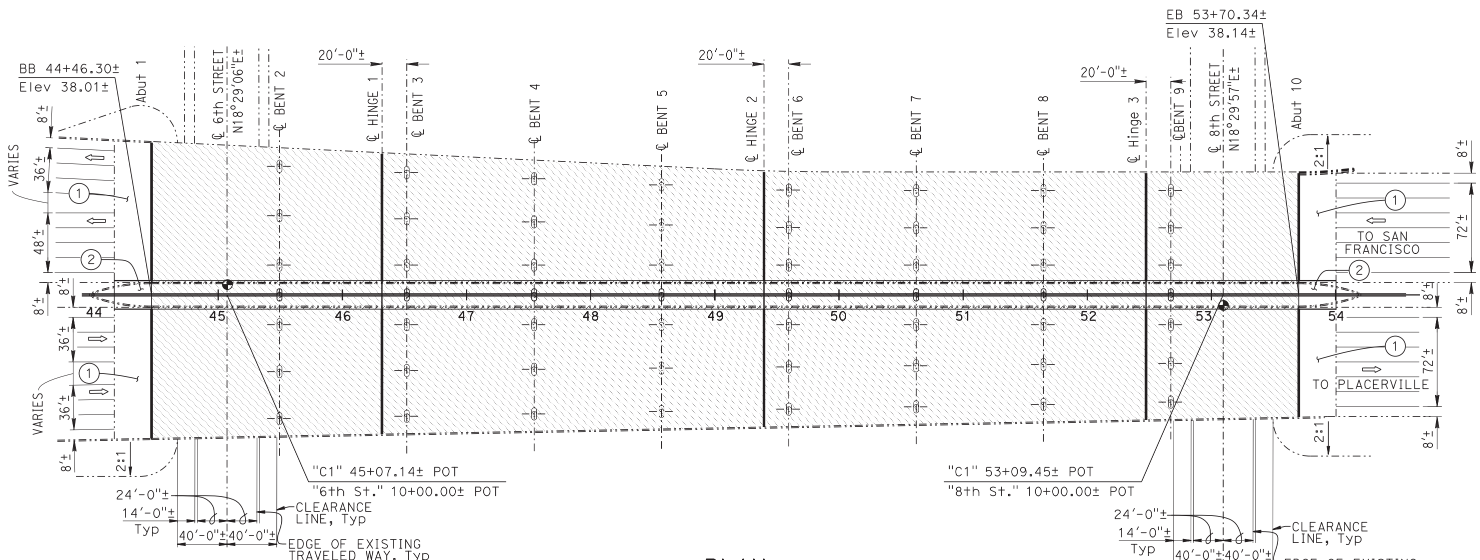
Falsework opening required on 8th Street (Name of St.)

Location	Height	Width
West & East Sidewalk	8'-0"	5'-0"

Railroad Traffic

Falsework opening required over N/A (Name of RR)

Vertical Clearance ________ Horizontal Clear Width ________



PLAN

1" = 50'

NOTES:

1. Existing PCC approach slab.
2. Structure Approach Type N(30D).
3. Concrete Barrier Type 60A.
4. Existing Slope Paving to remain.
5. Traffic will pass through construction site, falsework openings required (15'-0" Min Vert clearance required under falsework).
6. Prepare concrete deck and place 1" polyester concrete overlay.
7. 4'-0"Ø Column, Typ
8. 5'-0"Ø CIDH Pile, Typ (Assumed)

LEGEND:

- Indicates new construction
- Indicates existing structure
- Indicates bridge removal (portion)
- Indicates prepare Concrete Bridge Deck and place 1" polyester concrete overlay
- Indicates replace existing joint seal MR=½" to 3"
- Point of Min Vertical Clearance

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DANIEL T. ADAMS
DESIGN ENGINEER

	BY	CHECKED
DESIGN	L. Wu	X
DETAILS	G. Hallstrom	X
QUANTITIES	X	X

LOAD & RESISTANCE FACTOR DESIGN — LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE

	BY	CHECKED
LAYOUT	X	X
SPECIFICATIONS	X	PLANS AND SPECS COMPARED X

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 10

BRIDGE NO. 24-0243RL
POST MILE X

SOUTHSIDE PARK VIADUCT (WIDEN)

GENERAL PLAN NO. 1

UNIT: 3589
PROJECT NUMBER & PHASE: 0312000216
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES → REVISION DATES 8-05-15 9-29-15

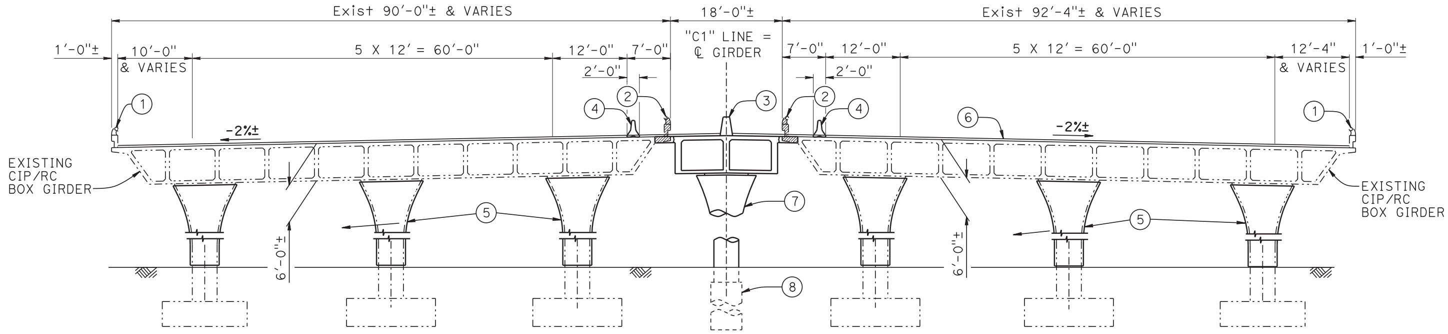
SHEET 1 OF X

FILE => 240243rlgap01.dgn

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

USERNAME => s130406 DATE PLOTTED => 29-SEP-2015 TIME PLOTTED => 10:12

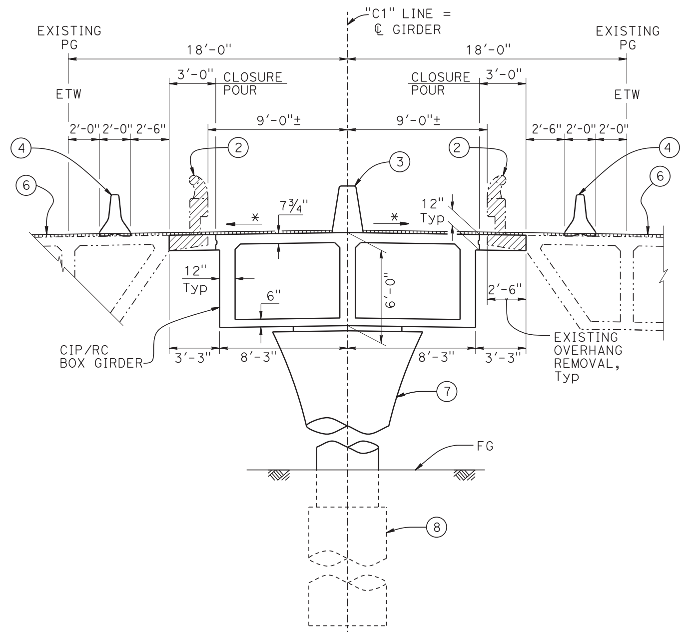
Attachment D



TYPICAL SECTION

1" = 10'-0"

NOTE: Bent 9 shown, Bents 2, 3, 4, 5, 6, 7, and 8 similar.



PART TYPICAL SECTION

¼" = 1'-0"

NOTES:

1. Existing Barrier Type 1
2. Remove Exist Barrier & Salvage Metal
3. Concrete Barrier Type 60A.
4. Temporary Railing (Type K), see "ROADWAY PLANS"
5. Column Steel Casing
6. Prepare concrete deck and place 1" polyester concrete overlay.
7. 4'-0"Ø Column, Typ
8. 5'-0"Ø CIDH Pile, Typ (Assumed)

LEGEND:

- —— Indicates new construction
- -·-·- Indicates existing structure
- ▨ Indicates bridge removal (portion)
- * Match existing cross slope

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LARRY WU — No. 57035 — Exp. 6-30-17 — CIVIL — STATE OF CALIFORNIA

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DANIEL T. ADAMS
DESIGN ENGINEER

	BY	CHECKED
DESIGN	L. Wu	X
DETAILS	G. Hallstrom	X
QUANTITIES	X	X

LOAD & RESISTANCE FACTOR DESIGN — LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE

	BY	CHECKED
LAYOUT	X	X
SPECIFICATIONS	X	PLANS AND SPECS COMPARED X

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 10

BRIDGE NO. 24-0243RL
POST MILE X

SOUTHSIDE PARK VIADUCT (WIDEN)
GENERAL PLAN NO. 2

UNIT: 3589
PROJECT NUMBER & PHASE: 0312000216
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES → REVISION DATES 8-19-15 9-29-15

SHEET 2 OF X

FILE => 240243rlagp02.dgn

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

USERNAME => s130406 DATE PLOTTED => 01-OCT-2015 TIME PLOTTED => 08:15

Attachment D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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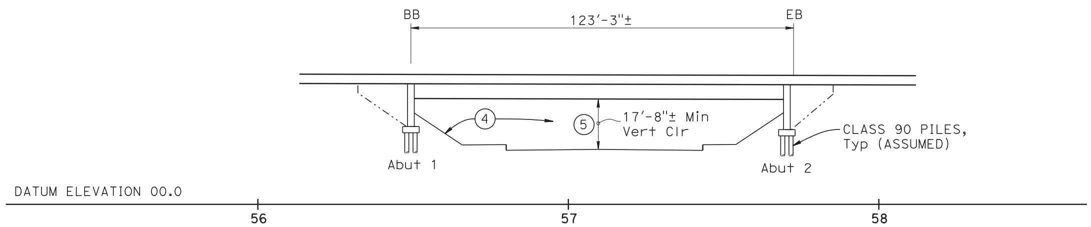
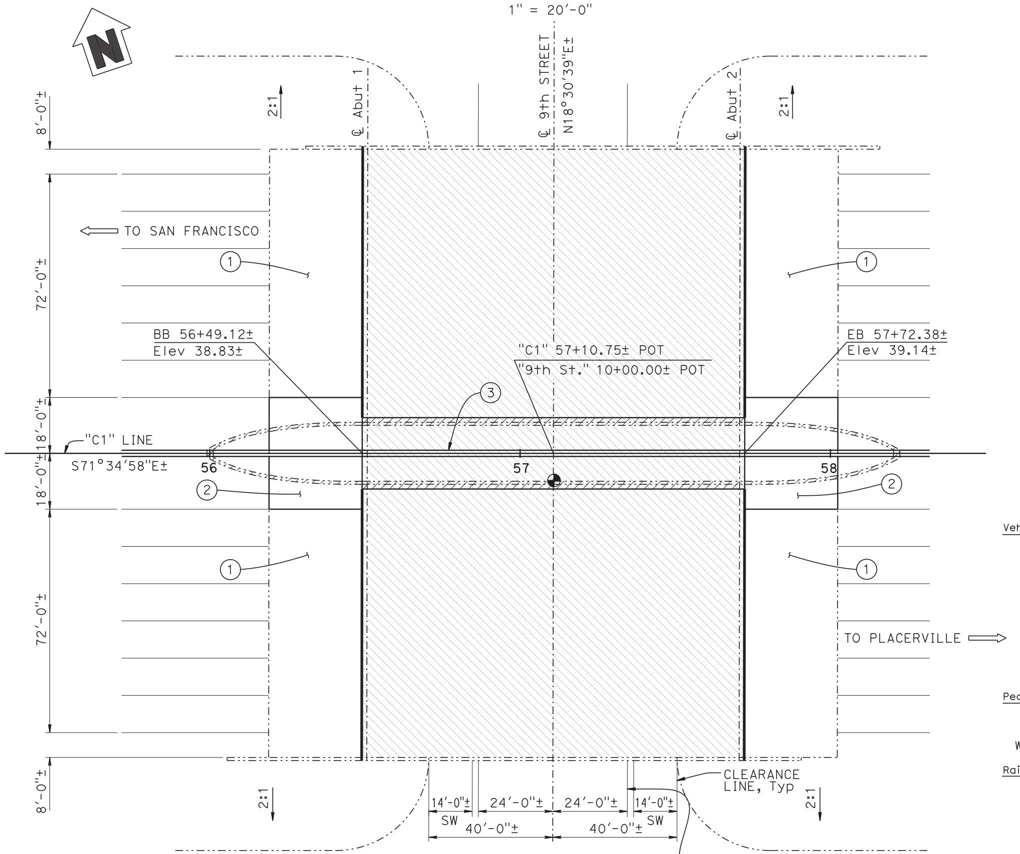
REGISTERED PROFESSIONAL ENGINEER LARRY WU No. 57035 Exp. 6-30-17 CIVIL STATE OF CALIFORNIA



ELEVATION

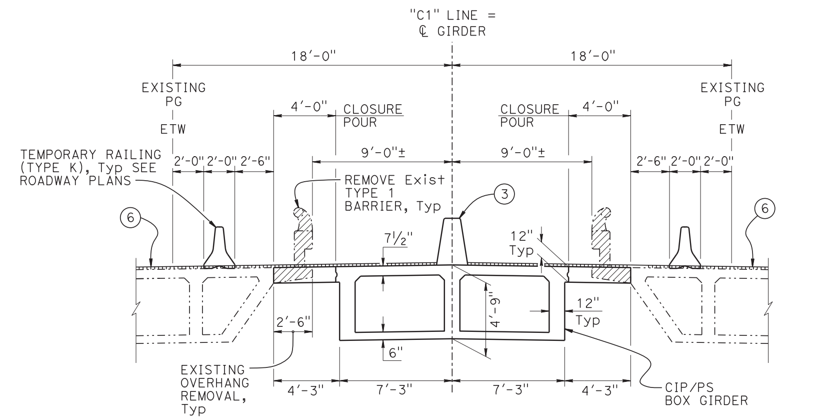
1" = 20'-0"



NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

PLAN

1" = 20'-0"



PART TYPICAL SECTION

¼" = 1'-0"

Vehicular Traffic

1. ___New alignment. No traffic at the site.
2. ___Traffic will be detoured away from the site.
3. _X_Traffic will be carried on the structure.
   Stage construction will/will not be required.
4. _X_Traffic will pass under the structure on
   9th Street (Name of St. or Hwy.)
   A. ___No falsework allowed over traffic.
   B. _X_Falsework opening(s) required:

	Temporary Vertical Clearance	Width of Traffic Opening
___ Bnd	15'-0"	32'-0"

Pedestrian Traffic

Falsework opening required on 9th Street (Name of St.)

Location	Height	Width
West & East Sidewalk	8'-0"	5'-0"

Railroad Traffic

Falsework opening required over N/A (Name of RR)
Vertical Clearance ______ Horizontal Clear Width ______

NOTES:

1. Existing PCC approach slab.
2. Structure Approach Type N(30D).
3. Concrete Barrier Type 60A.
4. Existing Slope Paving to remain.
5. Traffic will pass through construction site, falsework openings required (15'-0" Min Vert clearance required under falsework).
6. Prepare concrete deck and place 1" polyester concrete overlay.

LEGEND:

- Indicates new construction
- Indicates existing structure
- Indicates bridge removal (portion)
- Indicates prepare Concrete Bridge Deck and place 1" polyester concrete overlay
- Indicates replace existing joint seal MR=½"
- Point of Min Vertical Clearance

DESIGN	BY L. Wu	CHECKED X	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE
DETAILS	BY G. Hallstrom	CHECKED X	LAYOUT BY X	CHECKED X
QUANTITIES	BY X	CHECKED X	SPECIFICATIONS BY X	PLANS AND SPECS COMPARED X

DANIEL T. ADAMS
DESIGN ENGINEER

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 10

BRIDGE NO. 24-0244RL
POST MILE X

9TH STREET UC (WIDEN)
GENERAL PLAN

UNIT: 3589
PROJECT NUMBER & PHASE: 0312000216
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES 9-04-15

SHEET 1 OF X

FILE => 240244rlgap01.dgn

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

USERNAME => s130406 DATE PLOTTED => 29-SEP-2015 TIME PLOTTED => 10:12

Attachment D

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WU No. 57035 Exp. 6-30-17 CIVIL STATE OF CALIFORNIA

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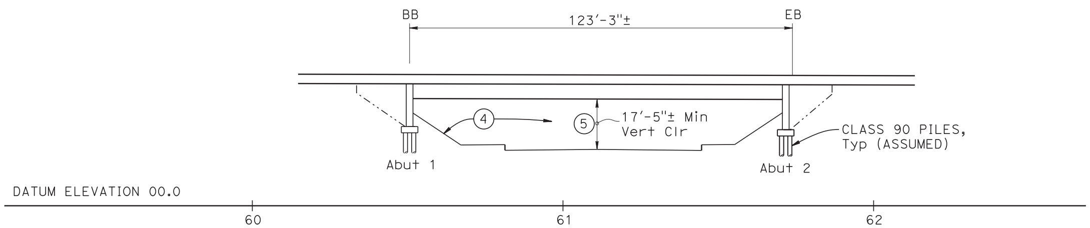
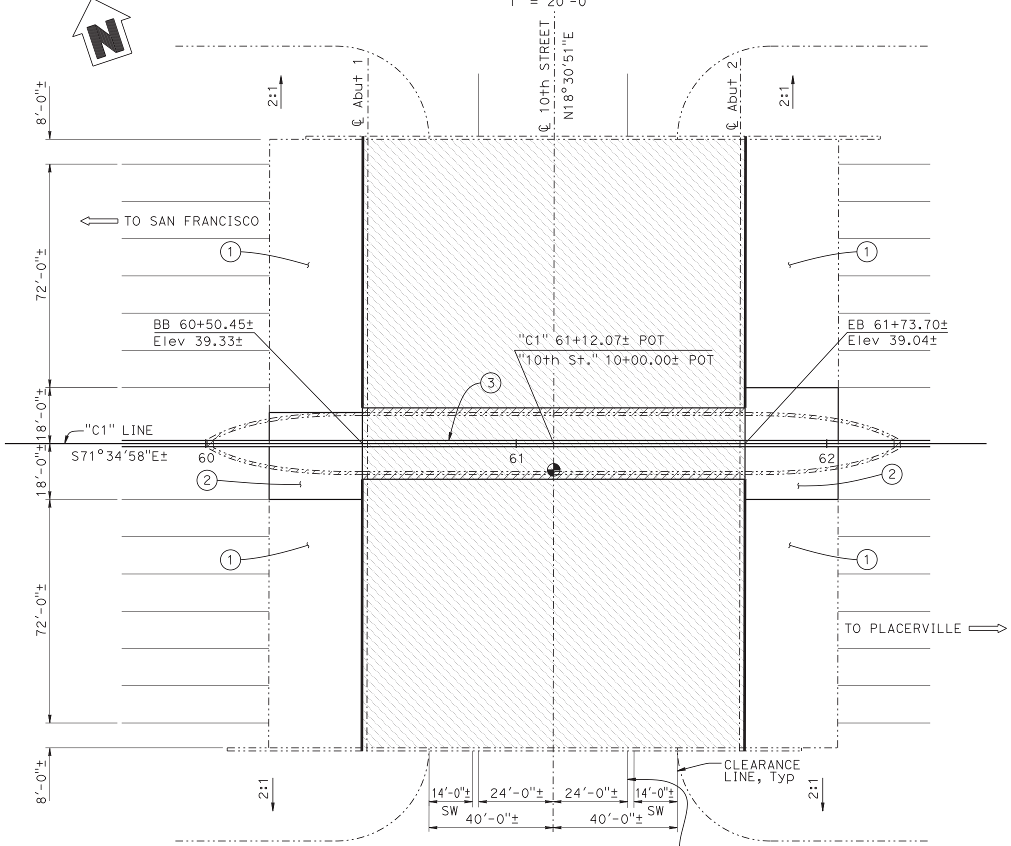


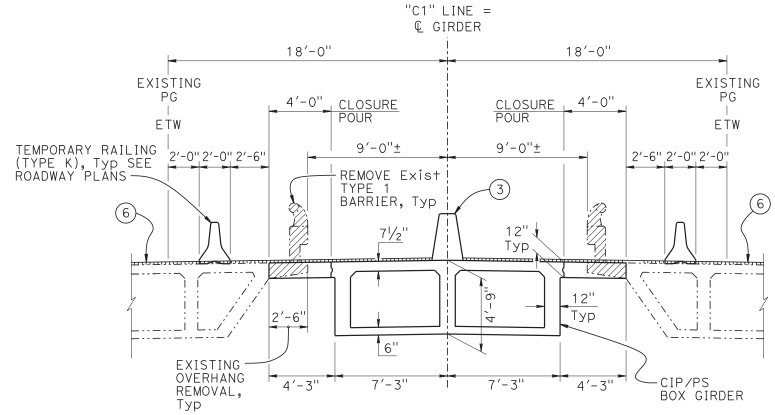
ELEVATION
1" = 20'-0"

Note: For clarity, existing structure is not shown.



PLAN
1" = 20'-0"

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.



PART TYPICAL SECTION
¼" = 1'-0"

Vehicular Traffic

1. ___New alignment. No traffic at the site.
2. ___Traffic will be detoured away from the site.
3. _X_Traffic will be carried on the structure. Stage construction will/will not be required.
4. _X_Traffic will pass under the structure on 10th Street (Name of St. or Hwy.)
   - A. ___No falsework allowed over traffic.
   - B. _X_Falsework opening(s) required:

	Temporary Vertical Clearance	Width of Traffic Opening
___ Bnd	15'-0"	32'-0"

Pedestrian Traffic

Falsework opening required on 10th Street (Name of St.)

Location	Height	Width
West & East Sidewalk	8'-0"	5'-0"

Railroad Traffic

Falsework opening required over N/A (Name of RR)
Vertical Clearance ______ Horizontal Clear Width ______

NOTES:

1. Existing PCC approach slab.
2. Structure Approach Type N(30D).
3. Concrete Barrier Type 60A.
4. Existing Slope Paving to remain.
5. Traffic will pass through construction site, falsework openings required (15'-0" Min Vert clearance required under falsework).
6. Prepare concrete deck and place 1" polyester concrete overlay.

LEGEND:
- Indicates new construction
- Indicates existing structure
- Indicates bridge removal (portion)
- Indicates prepare Concrete Bridge Deck and place 1" polyester concrete overlay
- Indicates replace existing joint seal MR=½"
- Point of Min Vertical Clearance

DESIGN	BY L. Wu	CHECKED X	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	
DETAILS	BY G. Hallstrom	CHECKED X	LAYOUT	BY X	CHECKED X
QUANTITIES	BY X	CHECKED X	SPECIFICATIONS	BY X	PLANS AND SPECS COMPARED X

DANIEL T. ADAMS
DESIGN ENGINEER

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN
DESIGN BRANCH 10

BRIDGE NO. 24-0245RL
POST MILE X

10TH STREET UC (WIDEN)
GENERAL PLAN

UNIT: 3589
PROJECT NUMBER & PHASE: 0312000216
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES 9-04-15

SHEET 1 OF X

FILE => 240245rlgap01.dgn

Attachment D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER   DATE

PLANS APPROVAL DATE

LARRY WU No. 57035 Exp. 6-30-17 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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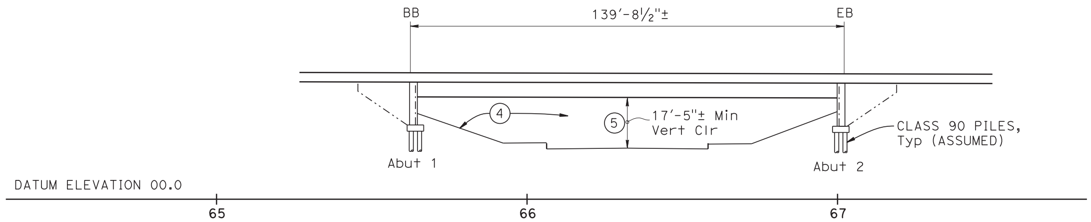
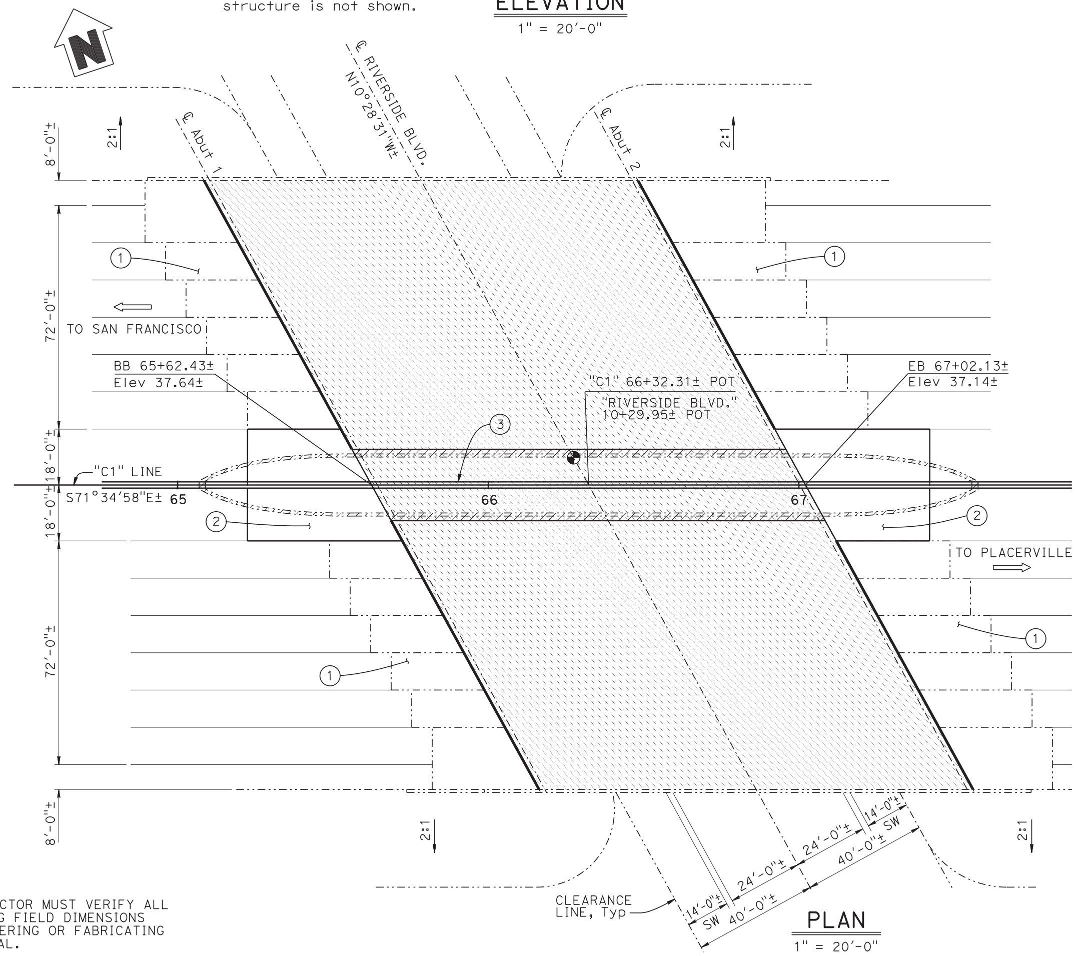


ELEVATION

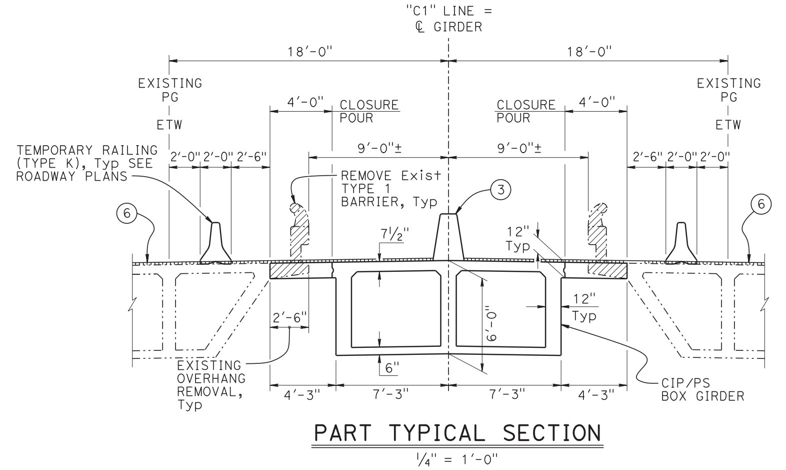
1" = 20'-0"



PLAN

1" = 20'-0"

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.



PART TYPICAL SECTION

¼" = 1'-0"

Vehicular Traffic

1. ___ New alignment. No traffic at the site.
2. ___ Traffic will be detoured away from the site.
3. X Traffic will be carried on the structure. Stage construction will/will not be required.
4. X Traffic will pass under the structure on Riverside Blvd. (Name of St. or Hwy.)
   A. ___ No falsework allowed over traffic.
   B. X Falsework opening(s) required:

	Temporary Vertical Clearance	Width of Traffic Opening
___ Bnd	15'-0"	32'-0"

Pedestrian Traffic

Falsework opening required on 10th Street (Name of St.)

Location	Height	Width
West & East Sidewalk	8'-0"	5'-0"

Railroad Traffic

Falsework opening required over N/A (Name of RR)
Vertical Clearance ______ Horizontal Clear Width ______

NOTES:

1. Existing PCC approach slab.
2. Structure Approach Type N(30D).
3. Concrete Barrier Type 60A.
4. Existing Slope Paving to remain.
5. Traffic will pass through construction site, falsework openings required (15'-0" Min Vert clearance required under falsework).
6. Prepare concrete deck and place 1" polyester concrete overlay.

LEGEND:
- Indicates new construction
- Indicates existing structure
- Indicates bridge removal (portion)
- Indicates prepare Concrete Bridge Deck and place 1" polyester concrete overlay
- Indicates replace existing joint seal MR=½"
- Point of Min Vertical Clearance

DESIGN	BY L. Wu	CHECKED X	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	
DETAILS	BY G. Hallstrom	CHECKED X	LAYOUT	BY X	CHECKED X
QUANTITIES	BY X	CHECKED X	SPECIFICATIONS	BY X	PLANS AND SPECS COMPARED X

DANIEL T. ADAMS
DESIGN ENGINEER

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 10

BRIDGE NO. 24-0246RL
POST MILE X

RIVERSIDE BOULEVARD UC (WIDEN)
GENERAL PLAN

UNIT: 3589
PROJECT NUMBER & PHASE: 0312000216
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES
REVISION DATES 9-04-15
SHEET 1 OF X

FILE => 240246rlgap01.dgn

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

USERNAME => s130406   DATE PLOTTED => 29-SEP-2015   TIME PLOTTED => 10:12

Attachment D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WU No. 57035 Exp. 6-30-17 CIVIL STATE OF CALIFORNIA

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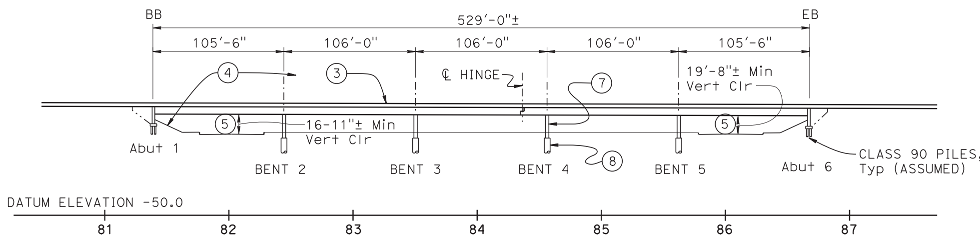
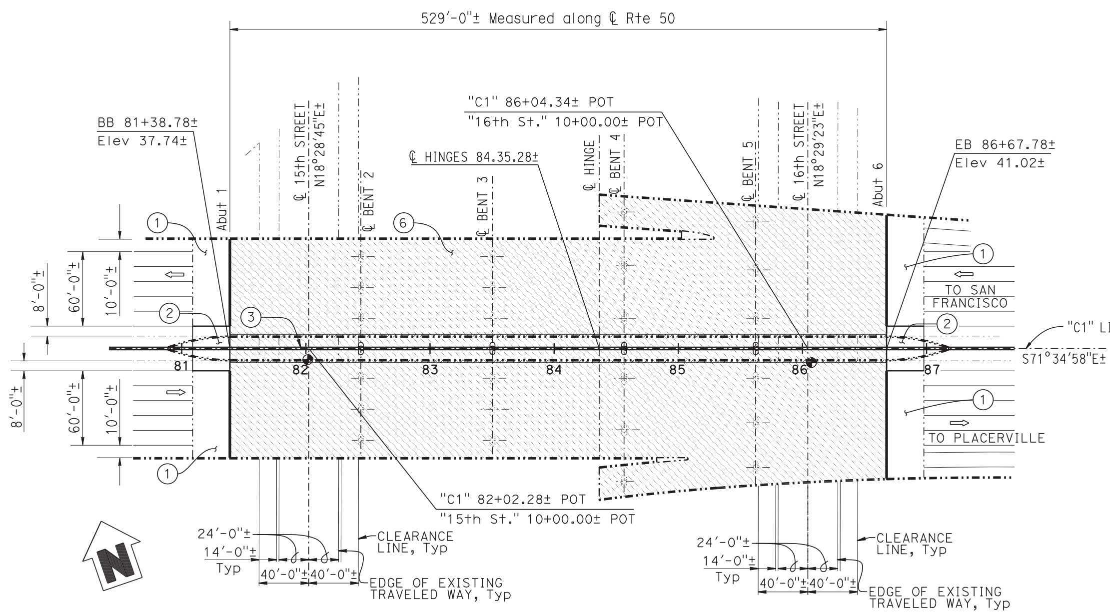


ELEVATION

1" = 50'-0"



PLAN

1" = 50'

Vehicular Traffic

1. ___New alignment. No traffic at the site.
2. ___Traffic will be detoured away from the site.
3. X Traffic will be carried on the structure.
   Stage construction will/will not be required.
4. X Traffic will pass under the structure on 15th & 16th Streets (Name of St. or Hwy.)
   A. ___No falsework allowed over traffic.
   B. X Falsework opening(s) required:

	Temporary Vertical Clearance	Width of Traffic Opening
15th Street	15'-0"	40'-0"
16th Street	15'-0"	40'-0"

Pedestrian Traffic

Falsework opening required on 15th Street (Name of St.)

Location	Height	Width
West & East Sidewalk	8'-0"	5'-0"

Falsework opening required on 16th Street (Name of St.)

Location	Height	Width
West & East Sidewalk	8'-0"	5'-0"

Railroad Traffic

Falsework opening required over N/A (Name of RR)
Vertical Clearance ________ Horizontal Clear Width ________

NOTES:

1. Existing PCC approach slab.
2. Structure Approach Type N(30S).
3. Concrete Barrier Type 60A.
4. Existing Slope Paving to remain.
5. Traffic will pass through construction site, falsework openings required (15'-0" Min Vert clearance required under falsework).
6. Prepare concrete deck and place 1" polyester concrete overlay.
7. 4'-0"Ø Column, Typ
8. 5'-0"Ø CIDH Pile, Typ (Assumed)

LEGEND:

- —— Indicates new construction
- —·-— Indicates existing structure
- Indicates prepare Concrete Bridge Deck and place 1" polyester concrete overlay
- Indicates replace existing joint seal MR=½" to 3"
- Point of Min Vertical Clearance

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

	DESIGN	BY L. Wu	CHECKED X	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	
DANIEL T. ADAMS DESIGN ENGINEER	DETAILS	BY G. Hallstrom	CHECKED X	LAYOUT	BY X	CHECKED X
	QUANTITIES	BY X	CHECKED X	SPECIFICATIONS	BY X	PLANS AND SPECS COMPARED X

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN
DESIGN BRANCH 10

BRIDGE NO. 24-0247RL
POST MILE X

15TH-16TH ST. SEPARATION (WIDEN)
GENERAL PLAN NO. 1

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3589
PROJECT NUMBER & PHASE: 0312000216
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 9-29-15

SHEET 1 OF X

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

FILE => 240247rlgap01.dgn

USERNAME => s130406 DATE PLOTTED => 29-SEP-2015 TIME PLOTTED => 10:12

Attachment D

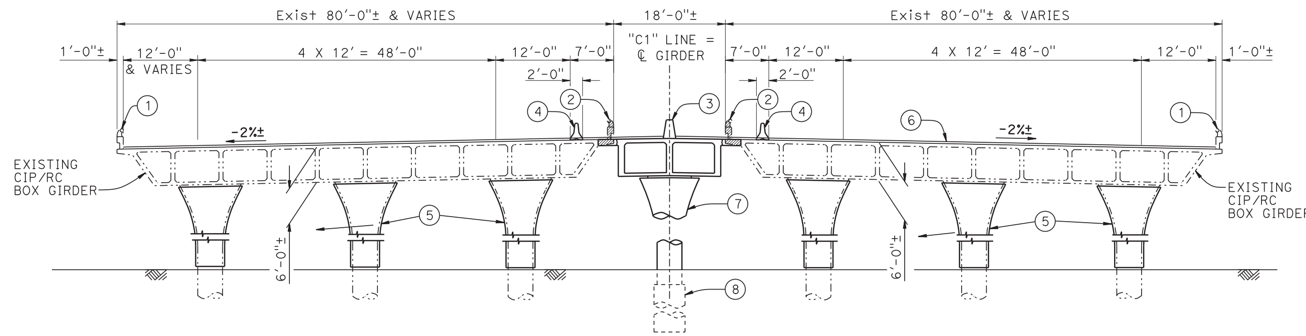
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.

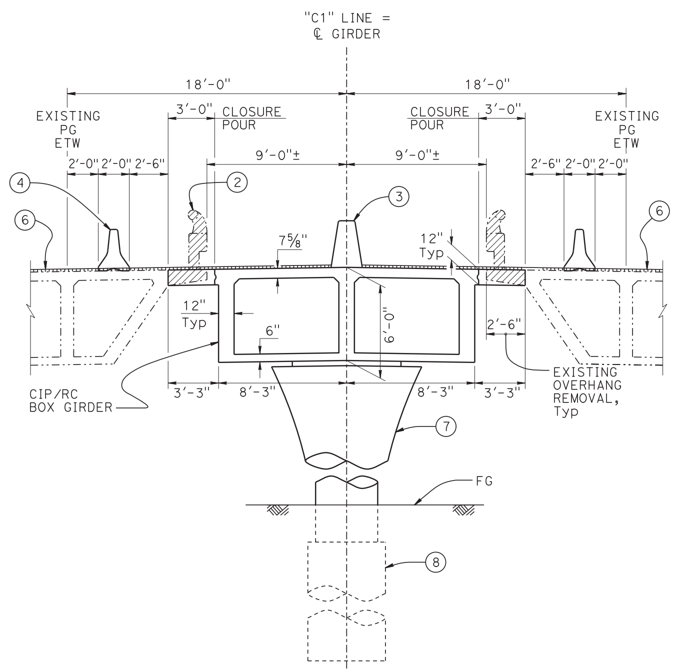
REGISTERED PROFESSIONAL ENGINEER — LARRY WU — No. 57035 — Exp. 6-30-17 — CIVIL — STATE OF CALIFORNIA



TYPICAL SECTION

1" = 10'-0"

NOTE: Bent 2 shown, Bents 3, 4, and 5 similar.



PART TYPICAL SECTION

¼" = 1'-0"

NOTES:

1. Existing Barrier Type 1
2. Remove Exist Barrier & Salvage Metal
3. Concrete Barrier Type 60A.
4. Temporary Railing (Type K), see "ROADWAY PLANS"
5. Column Steel Casing
6. Prepare concrete deck and place 1" polyester concrete overlay.
7. 4'-0"Ø Column, Typ.
8. 5'-0"Ø CIDH Pile, Typ (Assumed)

LEGEND:

—— Indicates new construction
-··- Indicates existing structure
▨ Indicates bridge removal (portion)

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DANIEL T. ADAMS DESIGN ENGINEER	DESIGN	BY L. Wu	CHECKED X	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE
	DETAILS	BY G. Hallstrom	CHECKED X	LAYOUT BY X	CHECKED X
	QUANTITIES	BY X	CHECKED X	SPECIFICATIONS BY X	PLANS AND SPECS COMPARED X

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN — DESIGN BRANCH 10

BRIDGE NO. 24-0247RL — POST MILE X

15TH-16TH ST. SEPARATION (WIDEN)

GENERAL PLAN NO. 2

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3589
PROJECT NUMBER & PHASE: 0312000216
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES — REVISION DATES 9-29-15 — SHEET 1 OF X

FILE => 240247rlgap02.dgn

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

USERNAME => s130406 DATE PLOTTED => 29-SEP-2015 TIME PLOTTED => 10:12

Attachment D

Vehicular Traffic

1. ___New alignment. No traffic at the site.
2. ___Traffic will be detoured away from the site.
3. _X_Traffic will be carried on the structure.
   Stage construction will/will not be required.
4. _X_Traffic will pass under the structure on 18th, 19th, 20th, 21st, 22nd, 23rd, 24th Streets (Name of St. or Hwy.)
   A. ___No falsework allowed over traffic.
   B. _X_Falsework opening(s) required:

Temporary Vertical Clearance	Width of Traffic Opening
15'-0"	40'-0"

Pedestrian Traffic

Falsework opening required on 18th, 19th, 20th, 21st, 22nd, 23rd, 24th Streets (Name of St.)

Location	Height	Width
West & East Sidewalks	8'-0"	5'-0"

Railroad Traffic

Falsework opening required over "SBRT", "NBRT", "UPRR" (Name of RR)

Vertical Clearance	Horizontal Clear Width
21'-6"	57'-0"

MINIMUM VERTICAL CLEARANCE	
LOCATION	CLEARANCE
18th STREET	22'-7"±
19th STREET	26'-10"±
RAILWAY	25'-4½"±
20th STREET	27'-3½"±
21st STREET	20'-10½"±
22nd STREET	24'-6"±
23rd STREET	24'-2"±
24th STREET	21'-5"±

NOTES:

1. Existing PCC approach slab.
2. Structure Approach Type N(30S).
3. Concrete Barrier Type 60A.
4. Existing Slope Paving to remain.
5. Traffic will pass through construction site.
6. 4'-0"Ø Column
7. 5'-0"Ø CIDH Pile (Assumed)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WU No. 57035 Exp. 6-30-17 CIVIL STATE OF CALIFORNIA

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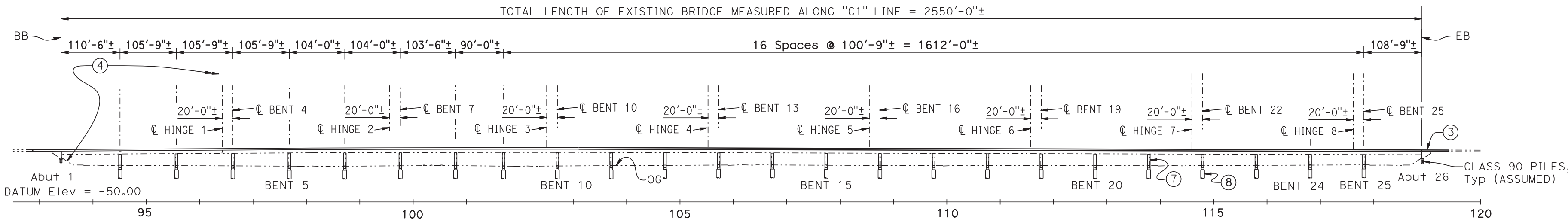
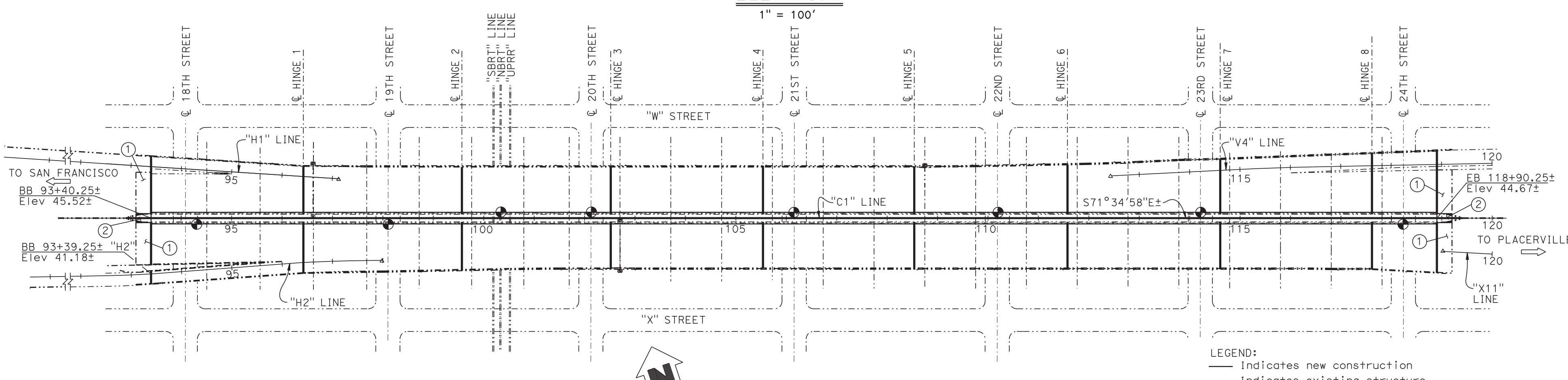


NOTE: For clarity, existing structure is not shown.

ELEVATION

1" = 100'



PLAN

1" = 100'

LEGEND:
- Indicates new construction
- Indicates existing structure
- Indicates bridge removal (portion)
- Indicates replace existing joint seal MR=½" to 3"
- Point of Min Vertical Clearance

"SBRT" LINE=South Bound Regional Transit Light Rail Line
"NBRT" LINE=North Bound Regional Transit Light Rail Line
"UPRR" LINE="UNION PACIFIC RAILWAY" Line

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DANIEL T. ADAMS
DESIGN ENGINEER

	BY	CHECKED
DESIGN	L. Wu	X
DETAILS	G. Hallstrom	X
QUANTITIES	X	X

LOAD & RESISTANCE FACTOR DESIGN | LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE

	BY	CHECKED
LAYOUT	X	X
SPECIFICATIONS	X	PLANS AND SPECS COMPARED X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 10

BRIDGE NO. 24-0248RL
POST MILE X

CAMELLIA CITY VIADUCT (WIDEN)

GENERAL PLAN NO. 1

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

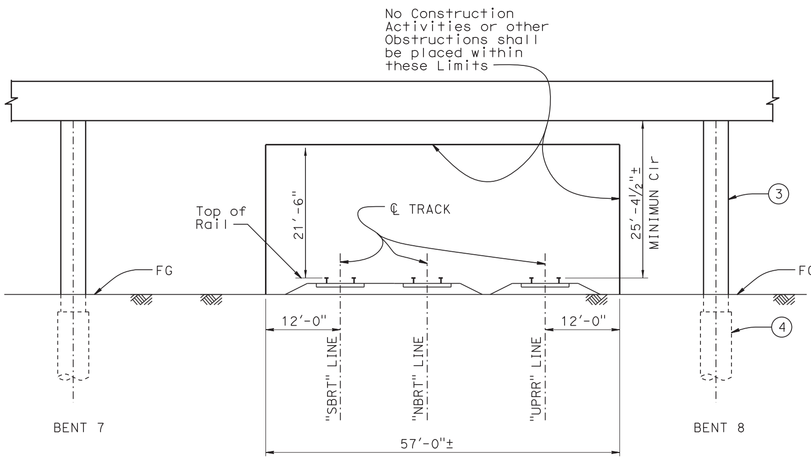
UNIT: 3589
PROJECT NUMBER & PHASE: 0312000216
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES

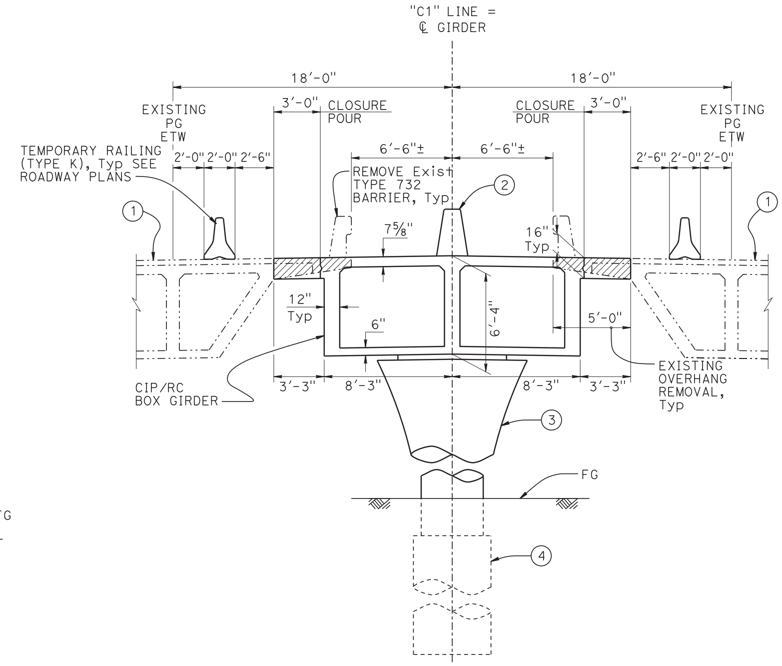
REVISION DATES 9-29-15 | SHEET 1 | OF X

FILE => 240248rlgap01.dgn

Attachment D



MINIMUM TEMPORARY CONSTRUCTION CLEARANCES
(NORMAL TO RAILROAD)
NO SCALE



PART TYPICAL SECTION
¼" = 1'-0"

LEGEND:
—— Indicates new construction
-·-·- Indicates existing structure
▨ Indicates bridge removal (portion)

NOTES:

1. Existing 4" fiber-reinforced PCC overlay
2. Concrete Barrier Type 60A.
3. 4'-0"Ø Column, Typ
4. 5'-0"Ø CIDH Pile, Typ (Assumed)

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — LARRY WU — No. 57035 — Exp. 6-30-17 — CIVIL — STATE OF CALIFORNIA

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DANIEL T. ADAMS
DESIGN ENGINEER

DESIGN	BY L. Wu	CHECKED X
DETAILS	BY G. Hallstrom	CHECKED X
QUANTITIES	BY X	CHECKED X

LOAD & RESISTANCE FACTOR DESIGN — LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE

LAYOUT	BY X	CHECKED X
SPECIFICATIONS	BY X	PLANS AND SPECS COMPARED X

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 10

BRIDGE NO. 24-0248RL
POST MILE X

CAMELLIA CITY VIADUCT (WIDEN)
GENERAL PLAN NO. 2

UNIT: 3589
PROJECT NUMBER & PHASE: 0312000216
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 9-29-15
REVISION DATES
SHEET 1 OF X

FILE => 240248rlgap02.dgn

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

USERNAME => s130406 DATE PLOTTED => 29-SEP-2015 TIME PLOTTED => 10:12

Attachment D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WU No. 57035 Exp. 6-30-17 CIVIL STATE OF CALIFORNIA

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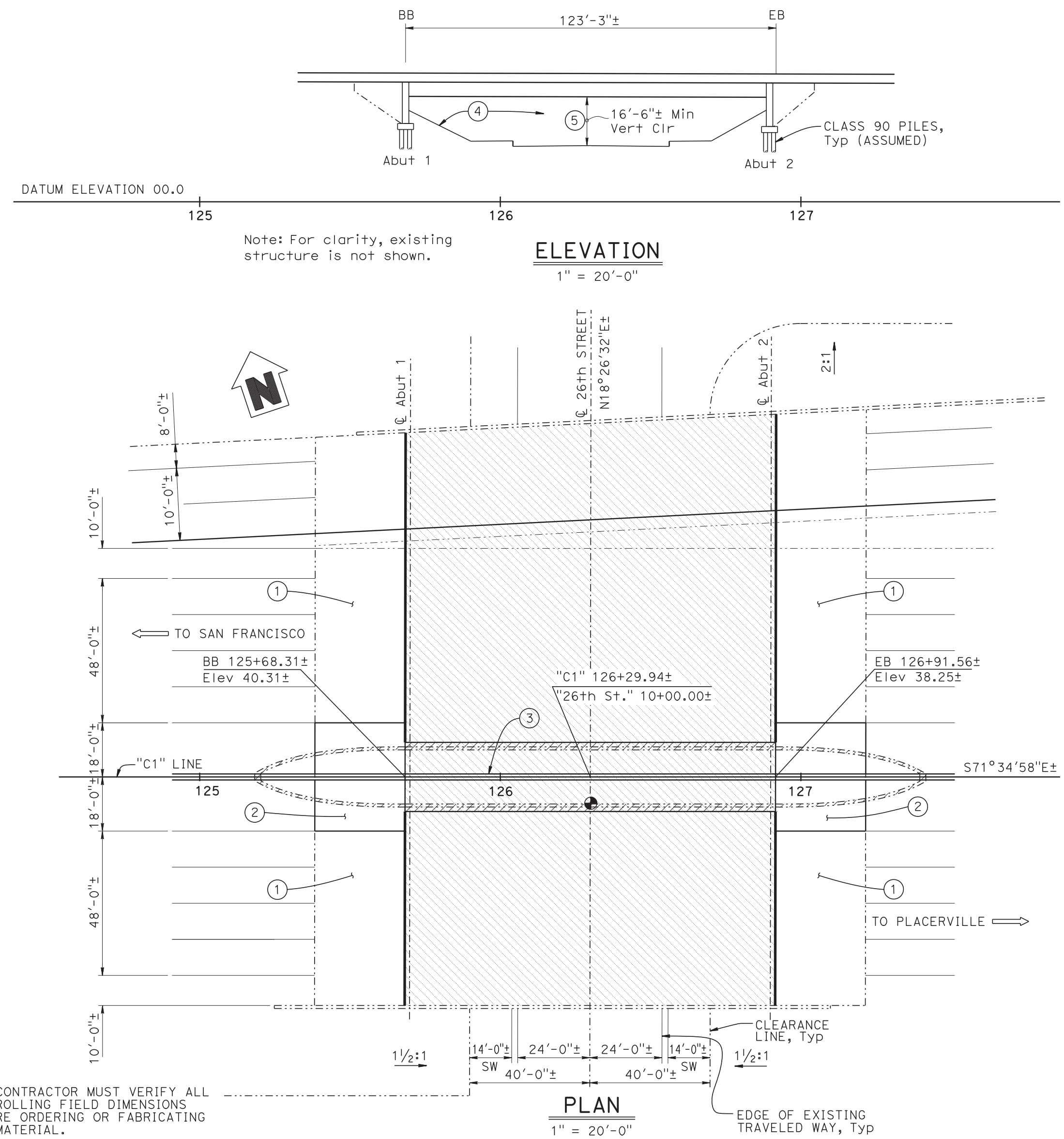
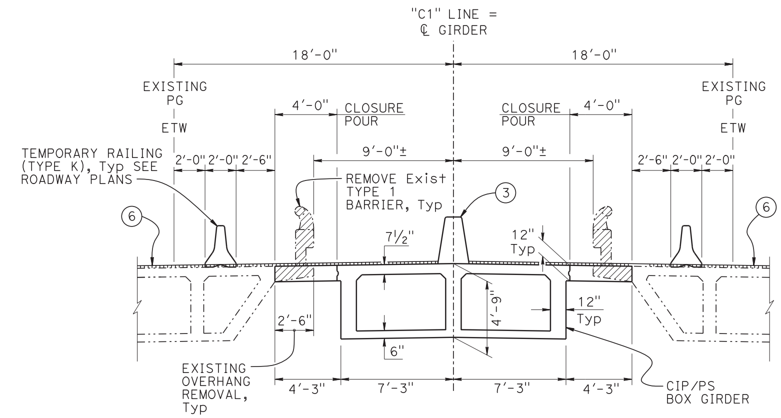




PART TYPICAL SECTION

¼" = 1'-0"

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

Vehicular Traffic

1. ___New alignment. No traffic at the site.
2. ___Traffic will be detoured away from the site.
3. _X_Traffic will be carried on the structure. Stage construction will/will not be required.
4. _X_Traffic will pass under the structure on 26th Street (Name of St. or Hwy.)
   A. ___No falsework allowed over traffic.
   B. _X_Falsework opening(s) required:

	Temporary Vertical Clearance	Width of Traffic Opening
Bnd	15'-0"	32'-0"

Pedestrian Traffic

Falsework opening required on 26th Street (Name of St.)

Location	Height	Width
West & East Sidewalk	8'-0"	5'-0"

Railroad Traffic

Falsework opening required over N/A (Name of RR)
Vertical Clearance ______ Horizontal Clear Width ______

NOTES:

1. Existing PCC approach slab.
2. Structure Approach Type N(30D).
3. Concrete Barrier Type 60A.
4. Existing Slope Paving to remain.
5. Traffic will pass through construction site, falsework openings required (15'-0" Min Vert clearance required under falsework).
6. Prepare concrete deck and place 1" polyester concrete overlay.

LEGEND:
- Indicates new construction
- Indicates existing structure
- Indicates bridge removal (portion)
- Indicates prepare Concrete Bridge Deck and place 1" polyester concrete overlay
- Indicates replace existing joint seal MR=½"
- Point of Min Vertical Clearance

DESIGN	BY L. Wu	CHECKED X	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE
DETAILS	BY G. Hallstrom	CHECKED X	LAYOUT BY X	CHECKED X
QUANTITIES	BY X	CHECKED X	SPECIFICATIONS BY X	PLANS AND SPECS COMPARED X

DANIEL T. ADAMS
DESIGN ENGINEER

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN
DESIGN BRANCH 10

BRIDGE NO. 24-0223RL
POST MILE

26TH STREET UC (WIDEN)
GENERAL PLAN

UNIT: 3589
PROJECT NUMBER & PHASE: 0312000216
CONTRACT NO.: 03-3F3604

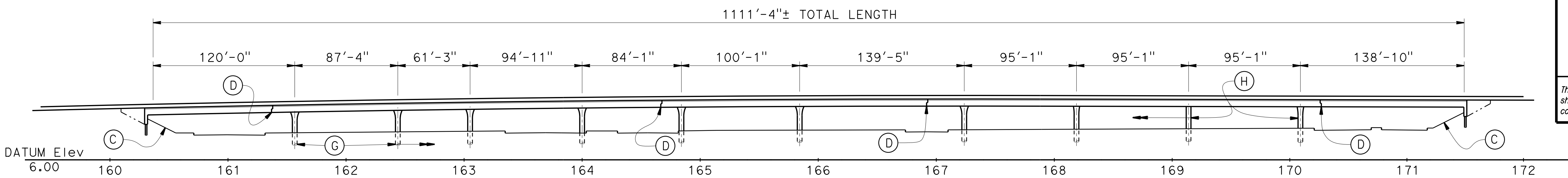
DISREGARD PRINTS BEARING EARLIER REVISION DATES → REVISION DATES 9-04-15 SHEET 1 OF X

FILE => 240225rlgap01.dgn

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

USERNAME => s130406 DATE PLOTTED => 29-SEP-2015 TIME PLOTTED => 10:12

Attachment D



DEVELOPED ELEVATION

1" = 50'

Vehicular Traffic

1. ___New alignment. No traffic at the site.
2. ___Traffic will be detoured away from the site.
3. XX Traffic will be carried on the structure. Stage construction will/will not be required.
4. XX Traffic will pass under the structure on Stockton Blvd. 34th St. T St.
   - A. ___No falsework allowed over traffic.
   - B. XX Falsework opening(s) required:

	Temporary Vertical Clearance	Width of Traffic Opening
North Bnd Stockton Blvd.	15'-0"	32'
South Bnd Stockton Blvd.	15'-0"	32'
34th St.	14'-6"	32'
T St.	15'-0"	32'

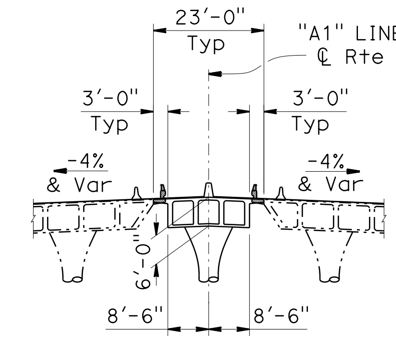
Pedestrian Traffic

Falsework opening required on Stockton Blvd. 34th St. T St.

	Location	Height	Width
Stockton Blvd.	West & East sidewalk	8'-0"	5'-0"
34th St.	West & East sidewalk	8'-0"	5'-0"
T St.	North sidewalk	8'-0"	5'-0"

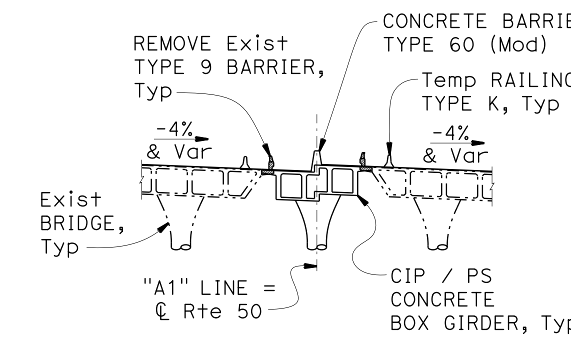
NOTES:

- (A) Existing PCC pavement
- (B) Structure Approach Type N (30S)
- (C) Existing slpoe paving to remain
- (D) Location of new hinge. Falsework bent will be required directly under all new hinges.
- (E) Typical skew Abutment 1, Bent 2 though Bent 6
- (F) Concrete Barrier Type 60 (Mod)
- (G) 5' ø CIDH piles assumed
- (H) 4' ø column with one way flare
- (I) Traffic will pass through construction site; falsework openings required.



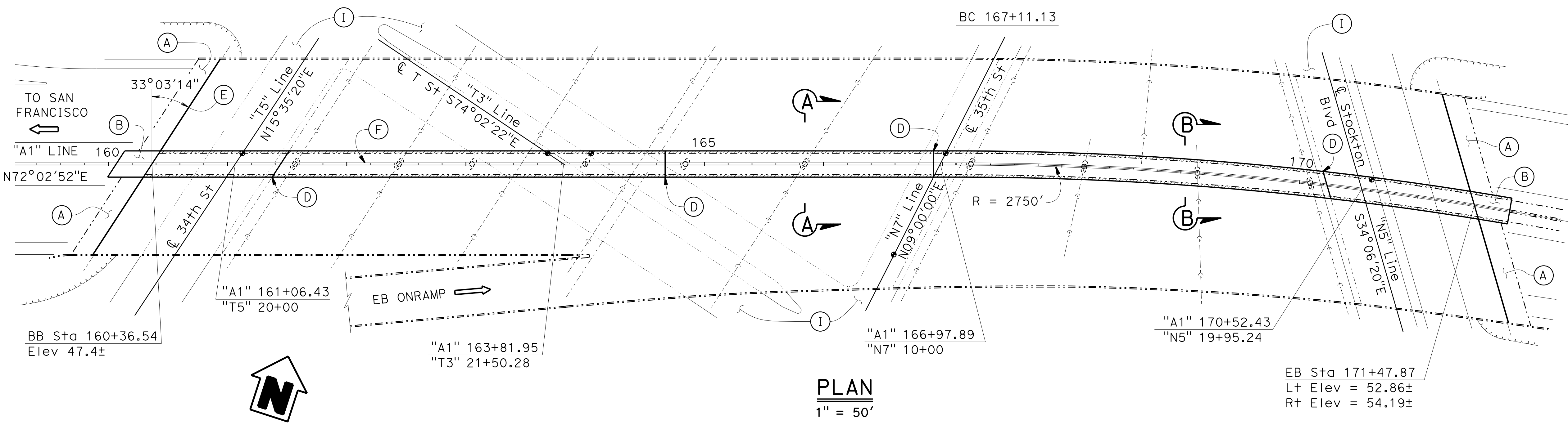
SECTION A-A

1" = 20'



SECTION B-B

1" = 20'



PLAN

1" = 50'

LEGEND:

- —— New structure
- -··- Existing structure
- ▨ indicates bridge removal (portion)
- • Point of minimum vertical clearance

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER — DATE X

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

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Gary Blakesly
DESIGN ENGINEER

	BY	CHECKED
DESIGN	M. Cullen	X
DETAILS	P. Silva / B. Huddleston	X
QUANTITIES	X	X

LOAD & RESISTANCE FACTOR DESIGN — LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE

	BY	CHECKED
LAYOUT	M. Cullen	X
SPECIFICATIONS	X	PLANS AND SPECS COMPARED X

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 6

BRIDGE NO. 24-0228R/L
POST MILE 2.2

ELMHURST VIADUCT (WIDEN)
GENERAL PLAN

UNIT: 3591
PROJECT NUMBER & PHASE: 03120002161
CONTRACT NO.: 03-3F3604

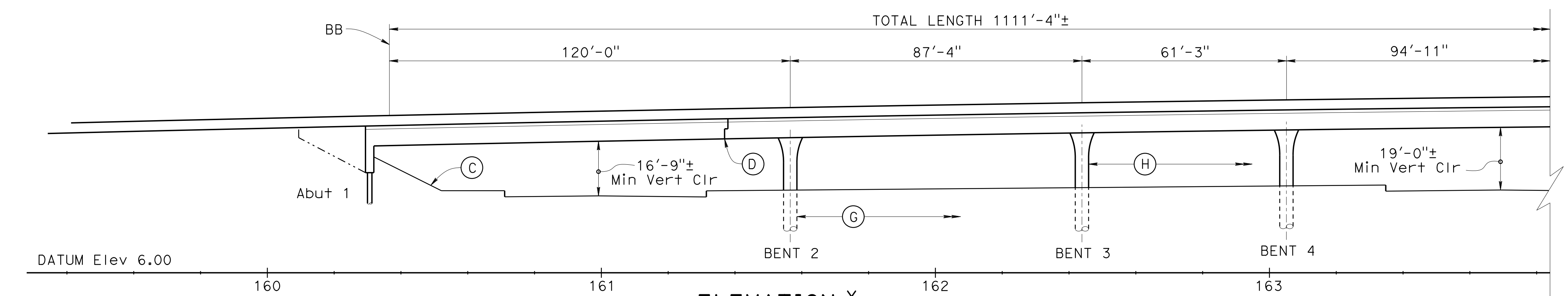
DISREGARD PRINTS BEARING EARLIER REVISION DATES — REVISION DATES 11-04-15 11-10-15 — SHEET 1 OF X

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

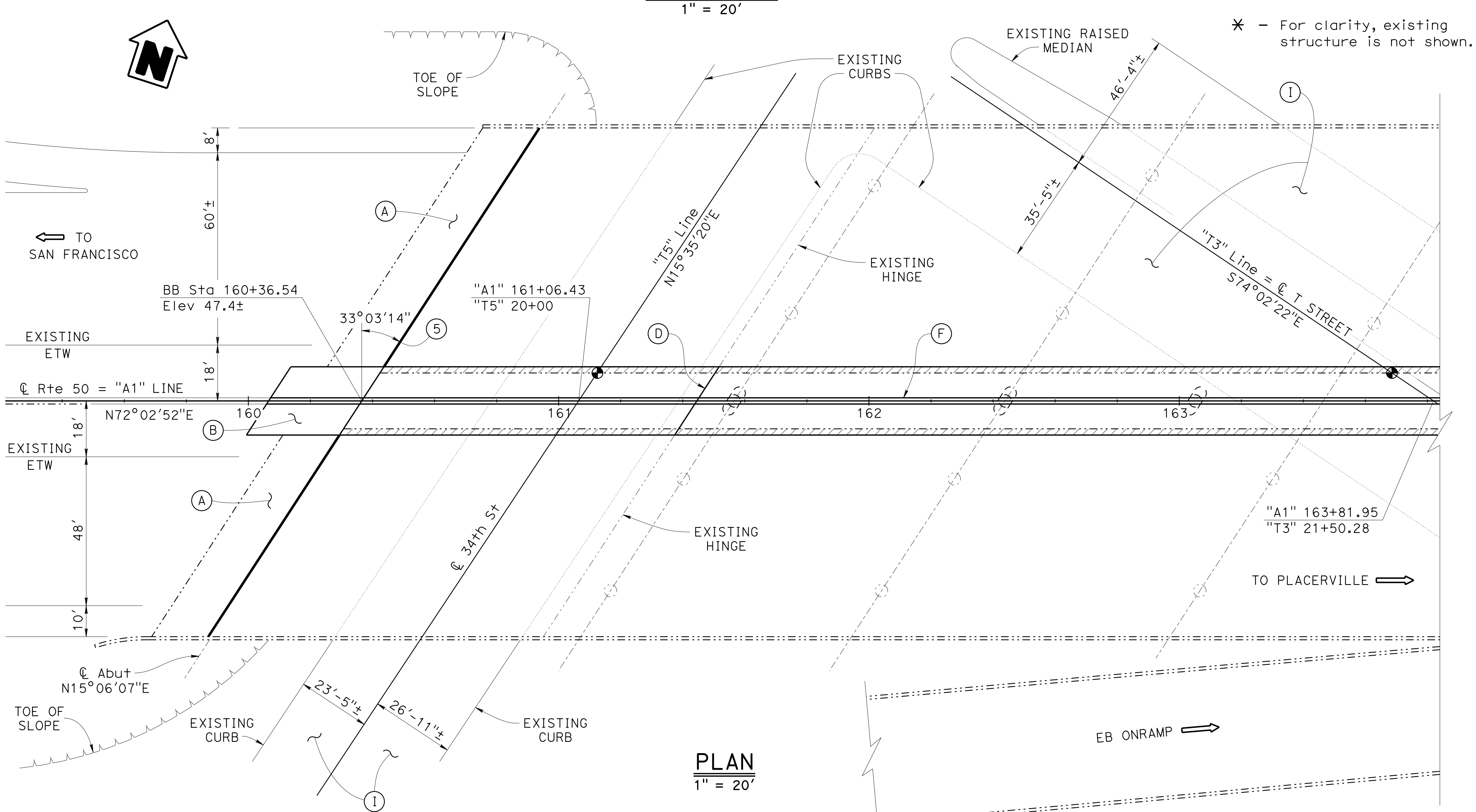
FILE => 24-0228rl-a-gp01.dgn

USERNAME => s117606 DATE PLOTTED => 02-DEC-2015 TIME PLOTTED => 13:50

Attachment D



ELEVATION *
1" = 20'



PLAN
1" = 20'

* - For clarity, existing structure is not shown.

NOTES:

(A) Existing PCC pavement

(B) Structure Approach Type N (30S)

(C) Existing slpoe paving to remain

(D) Location of new hinge. Falsework bent will be required directly under all new hinges.

(E) Typical skew Abutment 1, Bent 2 though Bent 6

(F) Concrete Barrier Type 60 (Mod)

(G) 5' Ø CIDH piles assumed

(H) 4' Ø column with one way flare

(I) Traffic will pass through construction site; falsework openings required.

LEGEND:

New structure

Existing structure

Indicates bridge removal (portion)

Point of Minimum Vertical Clearance

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER X DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. X Exp. X CIVIL STATE OF CALIFORNIA

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DESIGN	BY M. Cullen	CHECKED X
DETAILS	BY P. Silva / B. Huddleston	CHECKED X
QUANTITIES	BY X	CHECKED X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 6

BRIDGE NO. 24-0228R/L
POST MILE 2.2

ELMHURST VIADUCT (WIDEN)
STRUCTURE PLAN NO. 1 OF 3

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3591
PROJECT NUMBER & PHASE: 03120002161

CONTRACT NO.: 03-3F3604

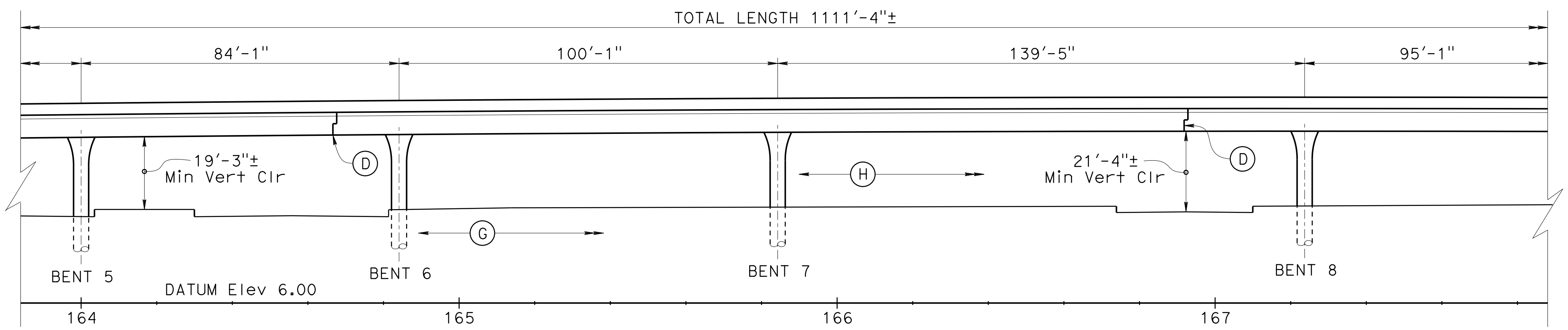
DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 11-06-15 11-10-15

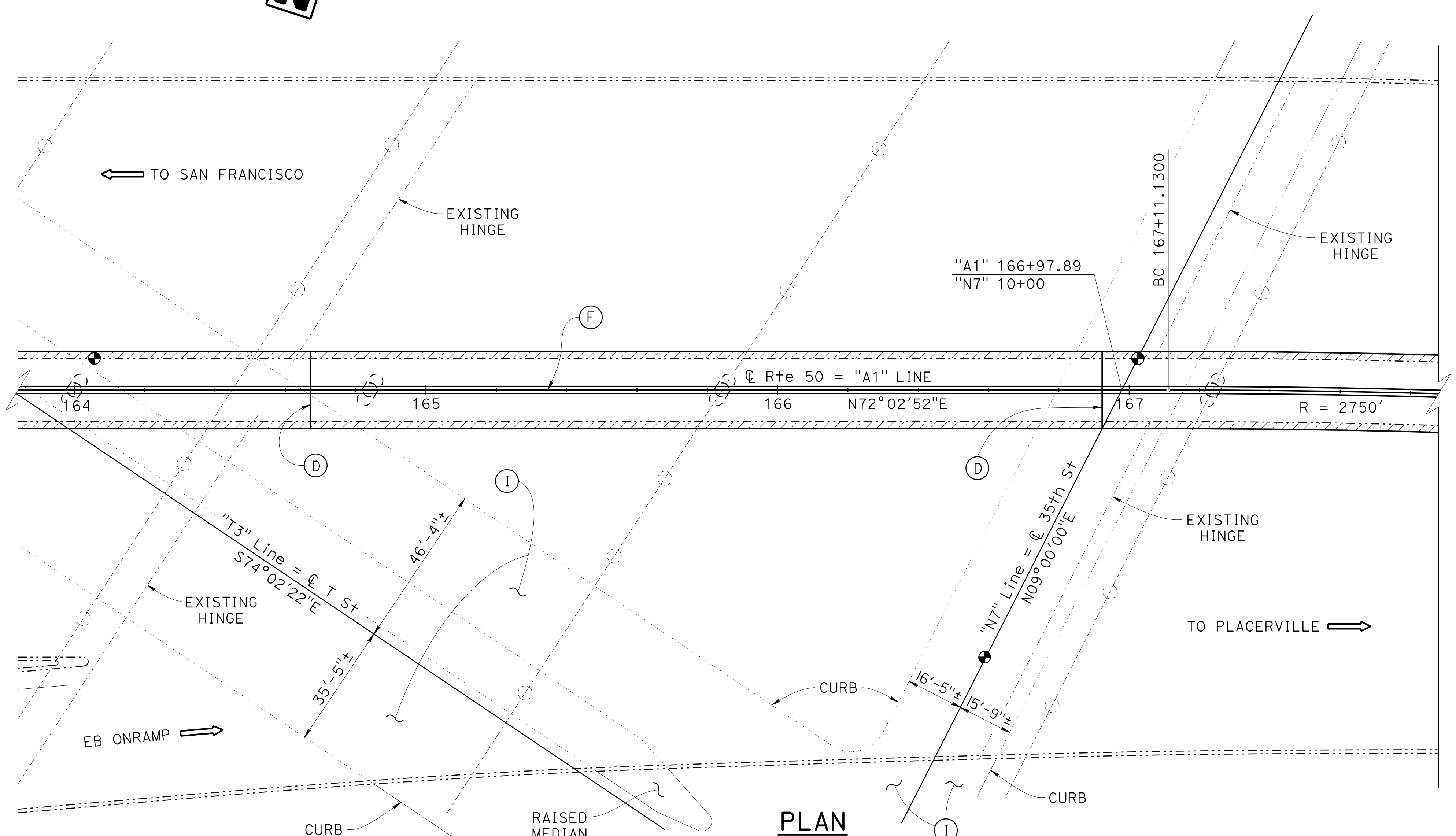
SHEET 2 OF X

FILE => 24-0228rl-c-sp01.dgn

Attachment D



ELEVATION
1" = 20'



PLAN
1" = 20'

NOTES:

- (A) Existing PCC pavement
- (B) Structure Approach Type N (30S)
- (C) Existing slpoe paving to remain
- (D) Location of new hinge. Falsework bent will be required directly under all new hinges.
- (E) Typical skew Abutment 1, Bent 2 though Bent 6
- (F) Concrete Barrier Type 60 (Mod)
- (G) 5' ø CIDH piles assumed
- (H) 4' ø column with one way flare
- (I) Traffic will pass through construction site; falsework openings required.

LEGEND:

- New structure
- Existing structure
- Indicates bridge removal (portion)
- Point of Minimum Vertical Clearance

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER — X DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

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	BY	CHECKED
DESIGN	M. Cullen	X
DETAILS	P. Silva / B. Huddleston	X
QUANTITIES	X	X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN
DESIGN BRANCH 6

BRIDGE NO. 24-0228R/L
POST MILE 2.2

ELMHURST VIADUCT (WIDEN)
STRUCTURE PLAN NO. 2 OF 3

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

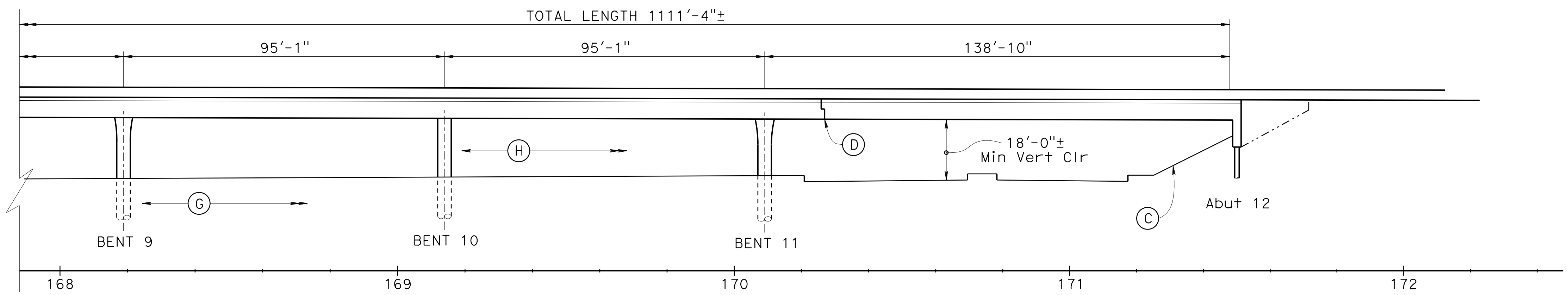
UNIT: 3591
PROJECT NUMBER & PHASE: 03120002161

CONTRACT NO.: 03-3F3604

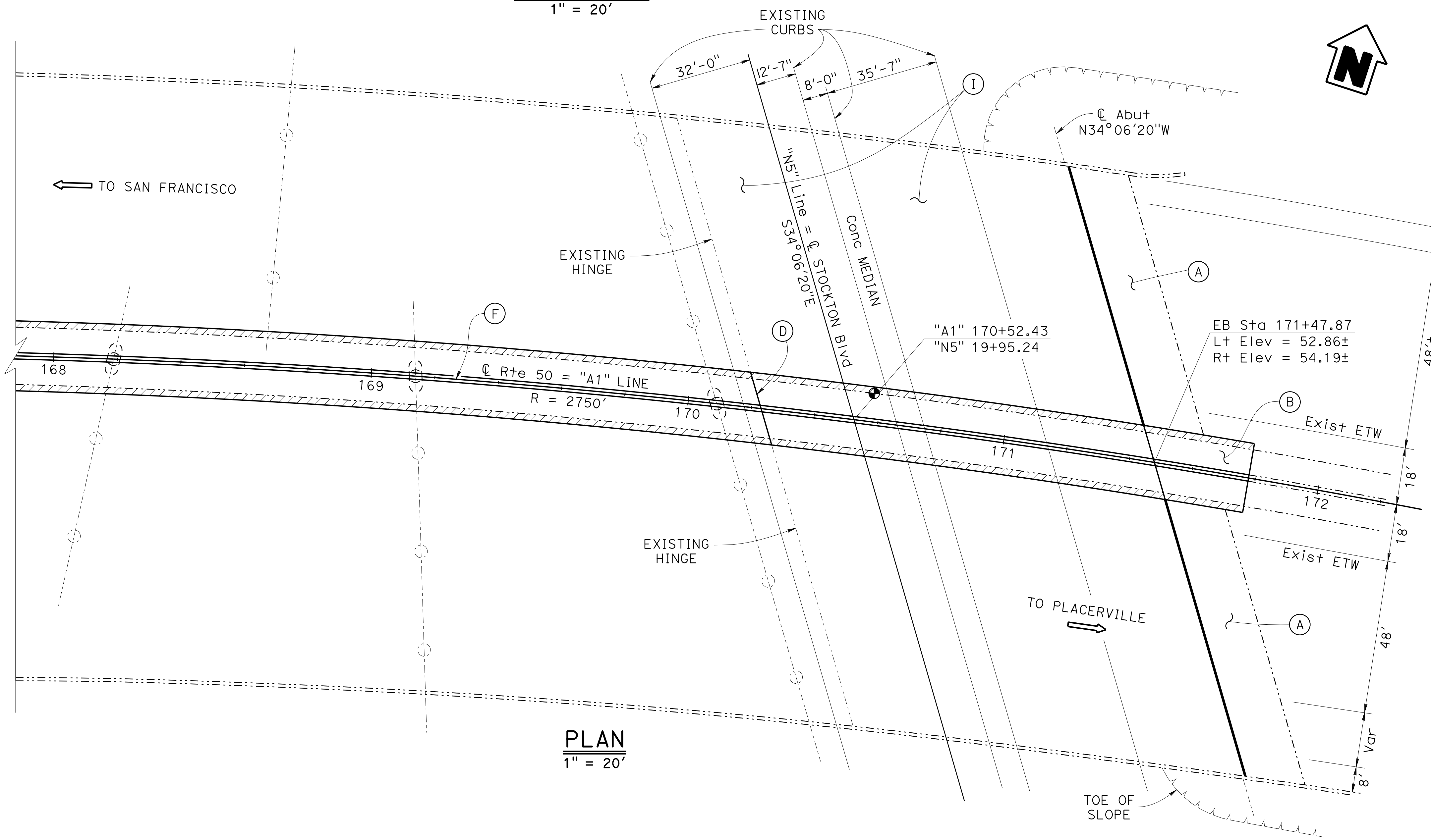
DISREGARD PRINTS BEARING EARLIER REVISION DATES — REVISION DATES 11-06-15 11-10-15 — SHEET 3 OF X

FILE => 24-0228rl-c-sp02.dgn

Attachment D



ELEVATION
1" = 20'



PLAN
1" = 20'

NOTES:

- (A) Existing PCC pavement
- (B) Structure Approach Type N (30S)
- (C) Existing slpoe paving to remain
- (D) Location of new hinge. Falsework bent will be required directly under all new hinges.
- (E) Typical skew Abutment 1, Bent 2 though Bent 6
- (F) Concrete Barrier Type 60 (Mod)
- (G) 5' Ø CIDH piles assumed
- (H) 4' Ø column with one way flare
- (I) Traffic will pass through construction site; falsework openings required.

LEGEND:

- ——— New structure
- ·-··-··- Existing structure
- [hatched box] Indicates bridge removal (portion)
- ● Point of Minimum Vertical Clearance

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER — X DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

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	BY	CHECKED
DESIGN	M. Cullen	X
DETAILS	P. Silva / B. Huddleston	X
QUANTITIES	X	X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 6

BRIDGE NO. 24-0228R/L
POST MILE 2.2

ELMHURST VIADUCT (WIDEN)
STRUCTURE PLAN NO. 3 OF 3

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3591
PROJECT NUMBER & PHASE: 03120002161
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES — REVISION DATES 11-10-15 11-10-15 — SHEET 4 OF X

FILE => 24-0228rl-c-sp03.dgn

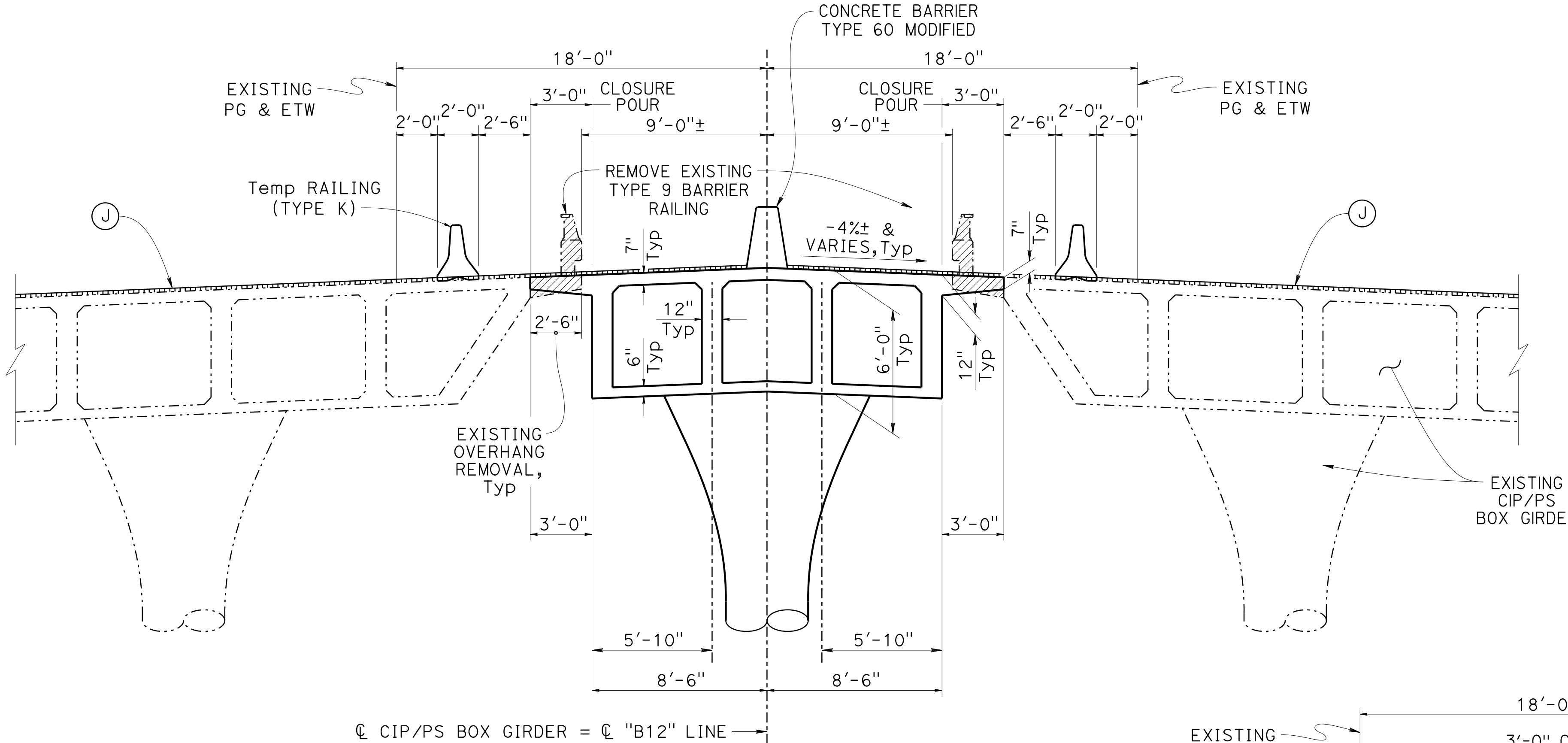
Attachment D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER — X DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA



PART TYPICAL SECTION A-A

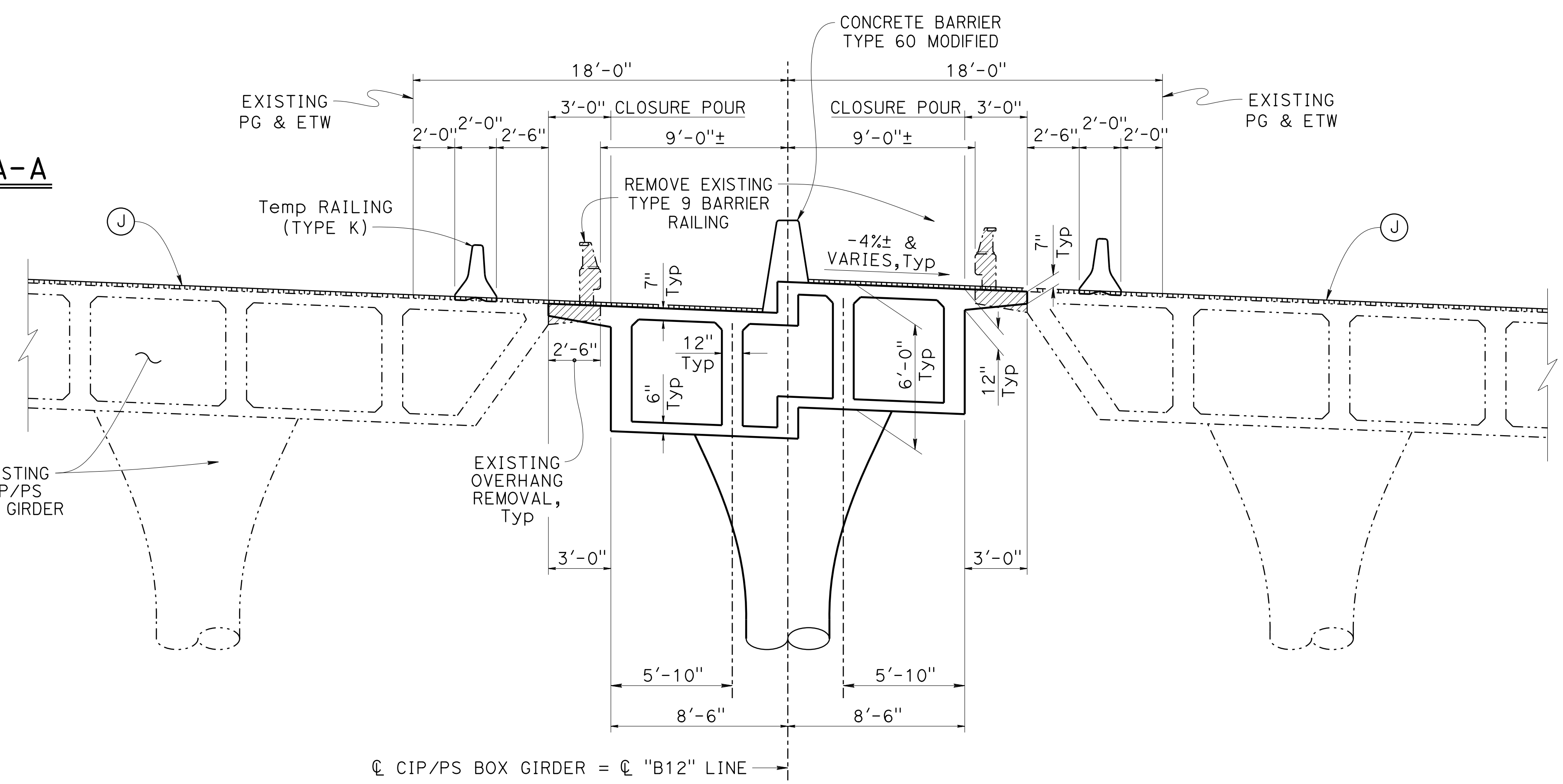
1/4" = 1'-0"

NOTE:

(J) - PREPARE CONCRETE DECK AND PLACE 1" POLYESTER CONCRETE OVERLAY

LEGEND:

- New structure
- Existing structure
- Indicates bridge removal (portion)



PART TYPICAL SECTION B-B

1/4" = 1'-0"

DESIGN	BY M. Cullen	CHECKED X
DETAILS	BY P. Silva / B. Huddleston	CHECKED X
QUANTITIES	BY X	CHECKED X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 6

BRIDGE NO. 24-0228R/L
POST MILE 2.2

ELMHURST VIADUCT (WIDEN)

TYPICAL SECTION

Attachment D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER   X DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No. X
Exp. X
CIVIL
STATE OF CALIFORNIA

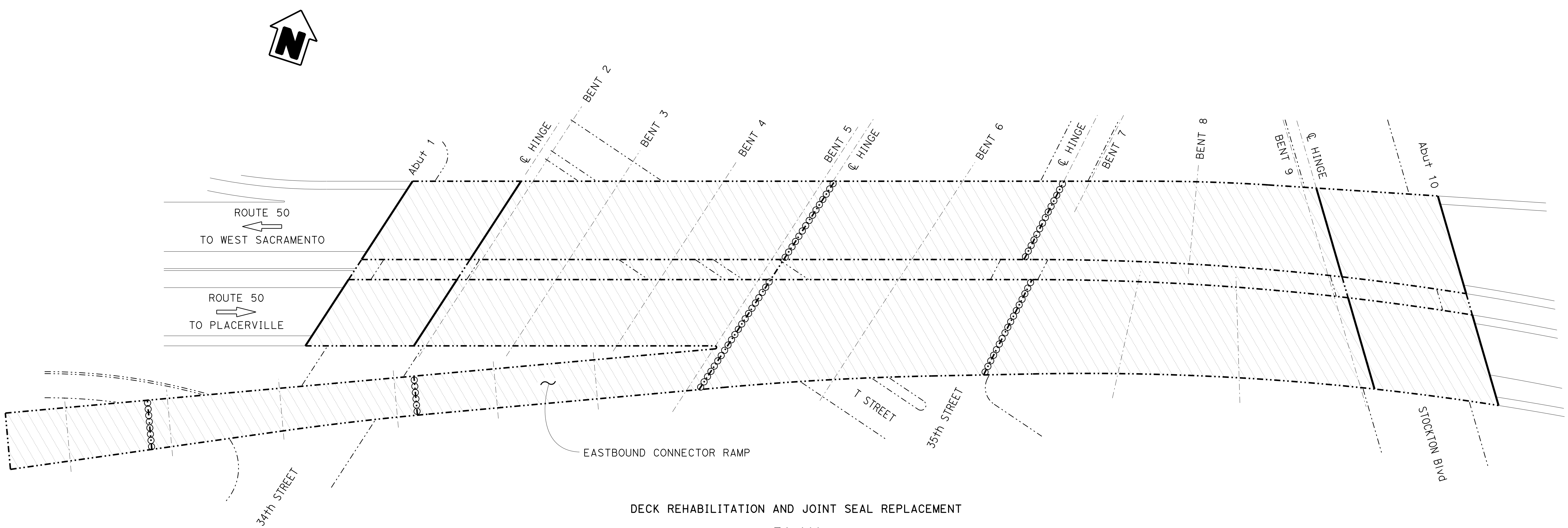
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.

LEGEND:

Indicates replace existing joint seal MR = ½"

Indicates replace existing joint seal MR = 3"

Indicates prepare concrete bridge deck and place 1" polyester concrete overlay



DECK REHABILITATION AND JOINT SEAL REPLACEMENT

PLAN
NO SCALE

DESIGN	BY M. Cullen	CHECKED X
DETAILS	BY P. Silva / B. Huddleston	CHECKED X
QUANTITIES	BY X	CHECKED X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 6

BRIDGE NO. 24-0228R/L
POST MILE 2.2

ELMHURST VIADUCT (WIDEN)
DECK REHABILITATION

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3

UNIT: 3591
PROJECT NUMBER & PHASE: 03120002161
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES
REVISION DATES 11-05-15
SHEET 5 OF X

FILE => 24-0228rl-u-miscdt01.dgn

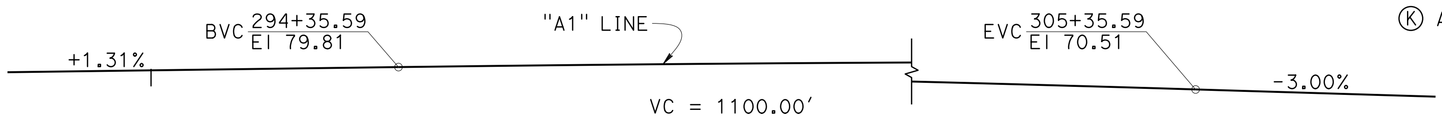
Attachment D

LEGEND:

●	Point of Minimum Vertical Clearance
———	New structure
-·-·-·-	Existing structure
▬	Indicates replace existing joint seal MR = ½"
○○○○○○○○	Indicates replace existing joint seal MR = 3"
▨	Indicates location of falsework Bent.
▧	Indicates bridge removal (portion)

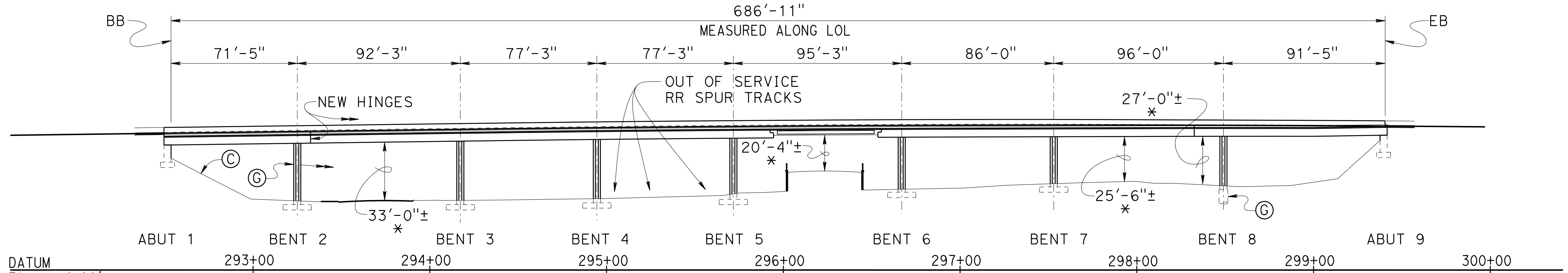
NOTES:

Ⓐ Existing PCC pavement
Ⓑ Structure Approach Type N (30S)
Ⓒ Existing slope paving to remain
Ⓓ No falsework or construction activity permitted inside "REGIONAL TRANSIT RETAINING WALLS".
Ⓔ Union Pacific Railroad clearance line. No falsework or construction activity permitted inside clearance lines. Measurement is to ℄ of nearest track.
Ⓕ Concrete Barrier Type 60 (Mod)
Ⓖ 5'Ø CIDH Pile
Ⓗ 4'Ø Column with one way flare
Ⓙ Future Roadway Construction
Ⓚ Approximate toe of existing slope paving



PROFILE GRADE

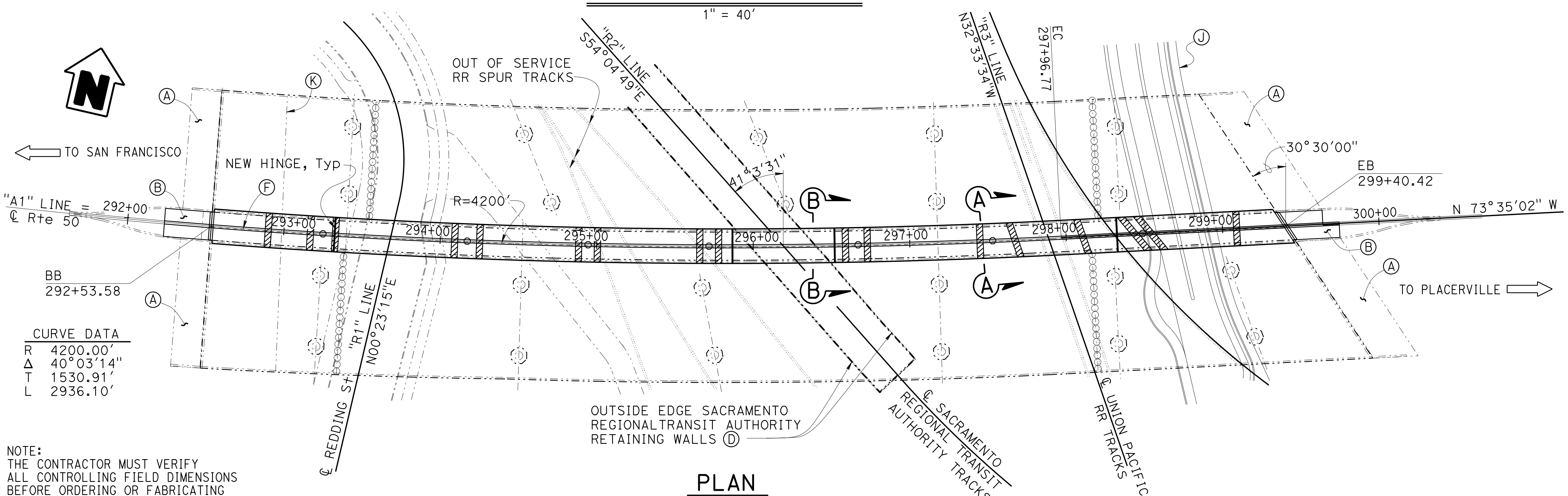
NO SCALE



* Indicates minimum vertical clearance

DEVELOPED ELEVATION

1" = 40'



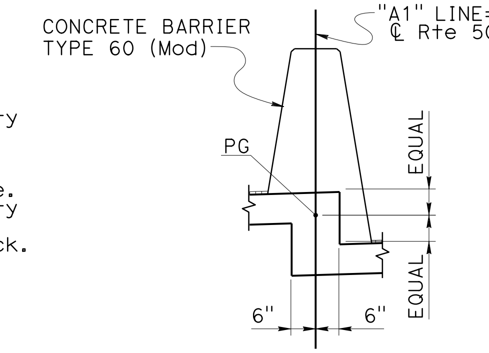
CURVE DATA

R	4200.00'
Δ	40°03'14"
T	1530.91'
L	2936.10'

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

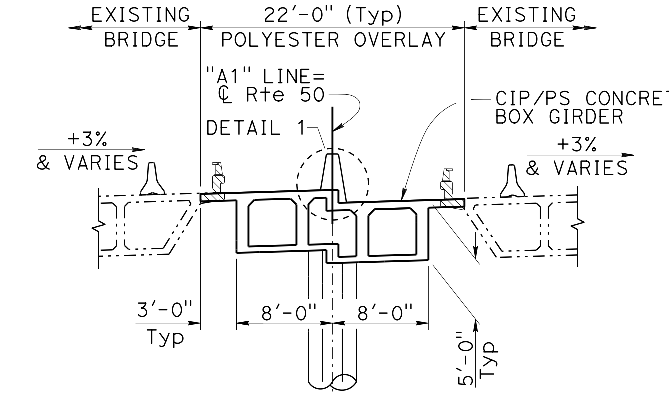
PLAN

1" = 40'



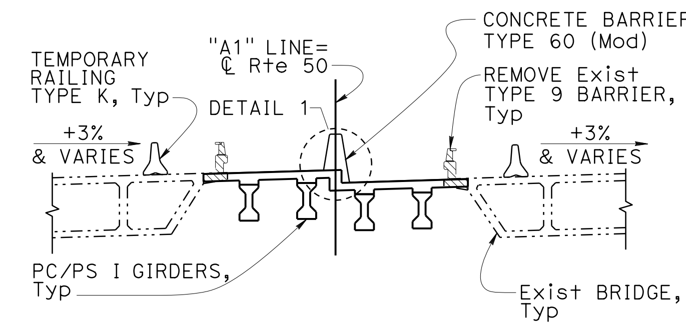
DETAIL 1

NO SCALE



SECTION A-A

⅛" = 1'-0"



SECTION B-B

⅛" = 1'-0"

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

DESIGN	BY	CHECKED	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY" PERMIT DESIGN VEHICLE	
DETAILS	BY T. Trefz	CHECKED	LAYOUT	BY	CHECKED
QUANTITIES	BY	CHECKED	SPECIFICATIONS	BY	PLANS AND SPECS COMPARED

DESIGN ENGINEER

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 15

BRIDGE NO.	POST MILE
24-0289RL	2.2

BRIGHTON OVERHEAD (WIDEN)

GENERAL PLAN

UNIT: 3604
PROJECT NUMBER & PHASE: 03120002161
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES → REVISION DATES 12-10-15 01-11-16 01-22-16

SHEET 1 OF X

FILE => 24-0289rl-a-gp.dgn

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

USERNAME => s136545 DATE PLOTTED => 22-JAN-2016 TIME PLOTTED => 14:01

Attachment D

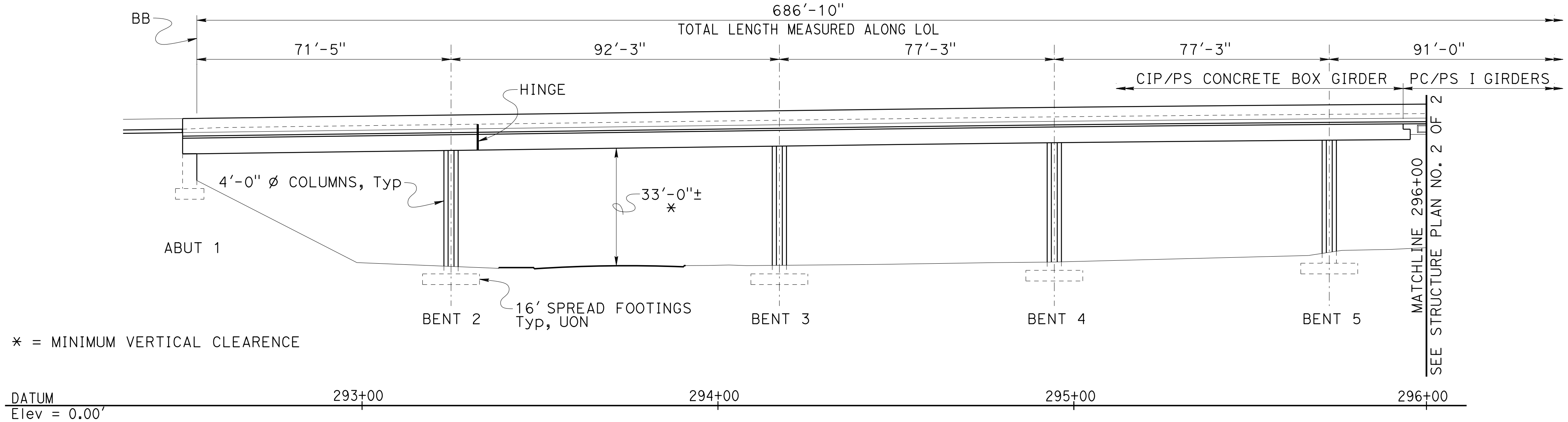
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

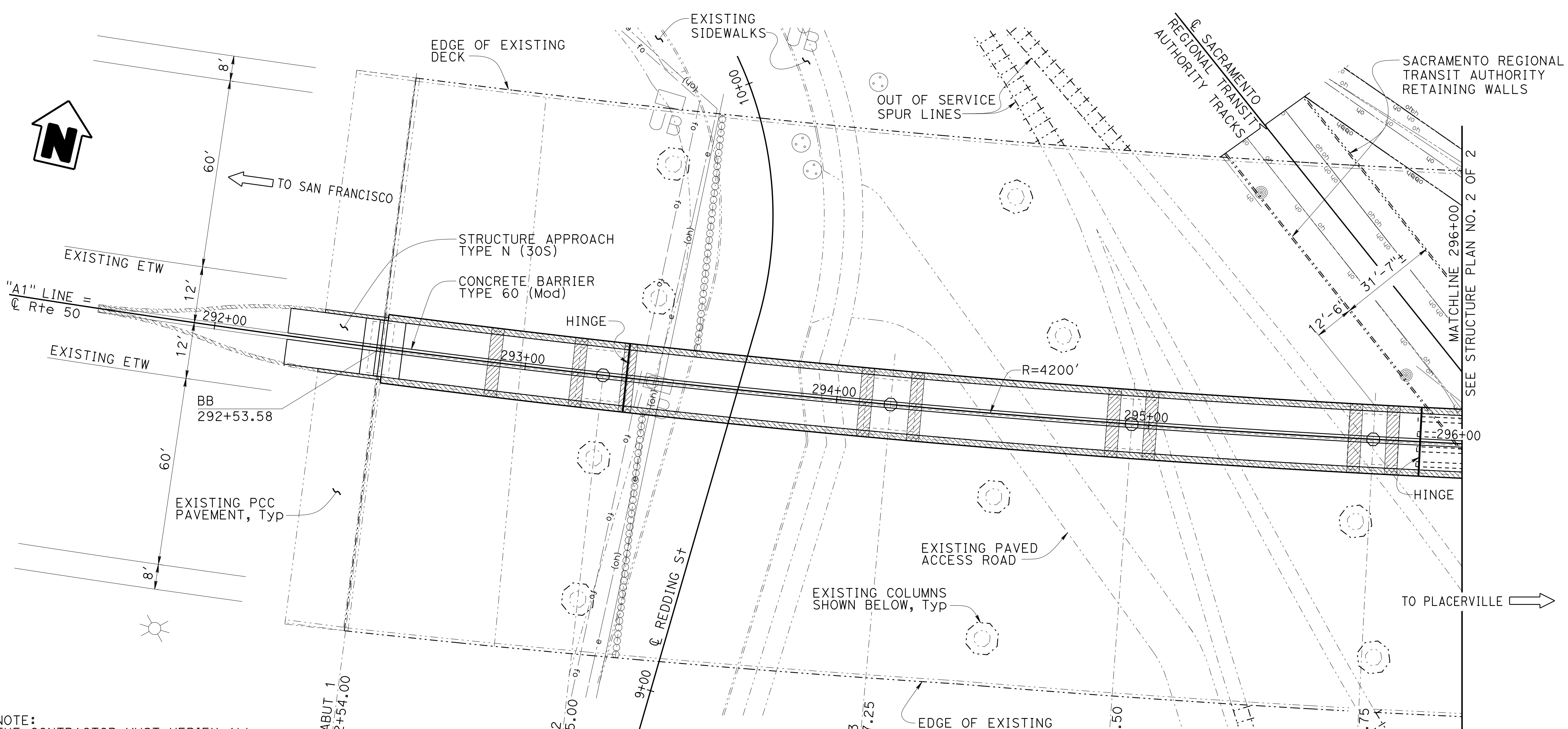
REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



DEVELOPED ELEVATION

1" = 20'



NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

PLAN

1" = 20'

NOTES:

1. No falsework or construction activity permitted inside "REGIONAL TRANSIT RETAINING WALLS".
2. Union Pacific Railroad clearance line. No falsework or construction activity permitted inside clearance lines. Measurement is to ℄ of nearest track.

LEGEND:

- Point of Minimum Vertical Clearance
- New structure
- Existing structure
- Indicates replace existing joint seal MR = ½"
- Indicates replace existing joint seal MR = 3"
- Indicates location of falsework Bent
- Indicates bridge removal (portion)

DESIGN	BY	CHECKED
DETAILS	BY T. Trefz	CHECKED
QUANTITIES	BY	CHECKED

STATE OF **CALIFORNIA**
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH **15**

BRIDGE NO. 24-0289RL
POST MILE 2.2

BRIGHTON OVERHEAD (WIDEN)

STRUCTURE PLAN NO. 1 OF 2

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3604
PROJECT NUMBER & PHASE: 03120002161

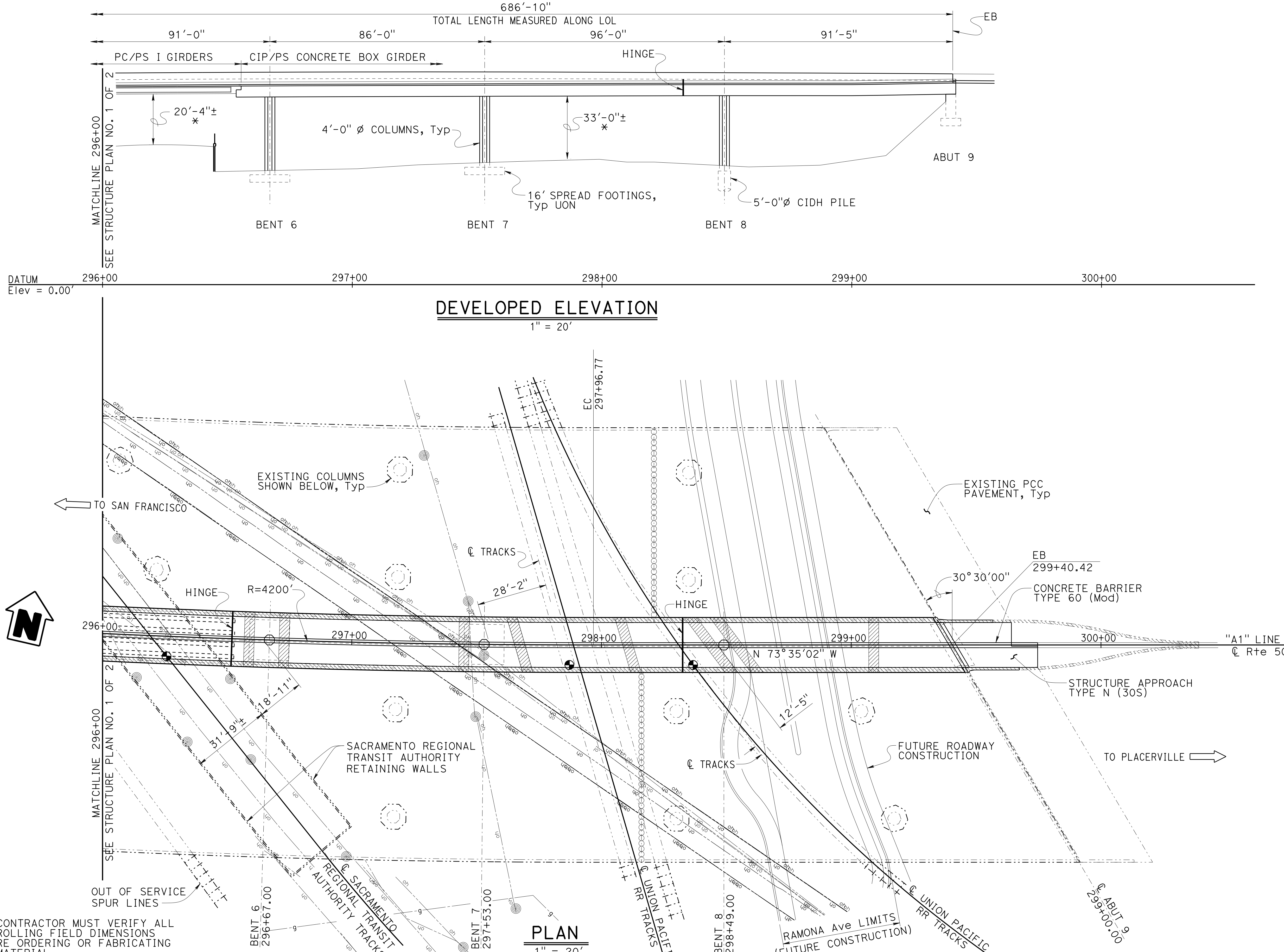
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 12-16-15

SHEET 3 OF X

FILE => 24-0289rl-c-sp01.dgn

Attachment D



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

NOTES:
1. No falsework or construction activity permitted inside "REGIONAL TRANSIT RETAINING WALLS".
2. Union Pacific Railroad clearance line. No falsework or construction activity permitted inside clearance lines. Measurement is to ℄ of nearest track.

LEGEND:
- Point of Minimum Vertical Clearance
- New structure
- Existing structure
- Indicates replace existing joint seal MR = ½"
- Indicates replace existing joint seal MR = 3"
- Indicates location of falsework Bent
- Indicates bridge removal (portion)

NOTE:
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY	CHECKED
DETAILS	BY T. Trefz	CHECKED
QUANTITIES	BY	CHECKED

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 15

BRIDGE NO. 24-0289RL
POST MILE 2.2

BRIGHTON OVERHEAD (WIDEN)
STRUCTURE PLAN NO. 2 OF 2

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3604
PROJECT NUMBER & PHASE: 03120002161
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 12-16-15 01-12-16 01-22-16
SHEET 4 OF X

FILE => 24-0289rl-c-sp02.dgn

Attachment D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER X DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER M. J. CULLEN No. C 40620 Exp. 3-31-2017 CIVIL STATE OF CALIFORNIA

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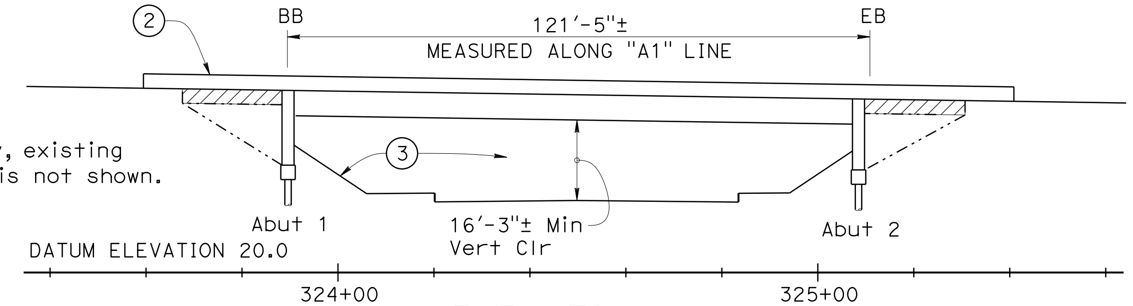
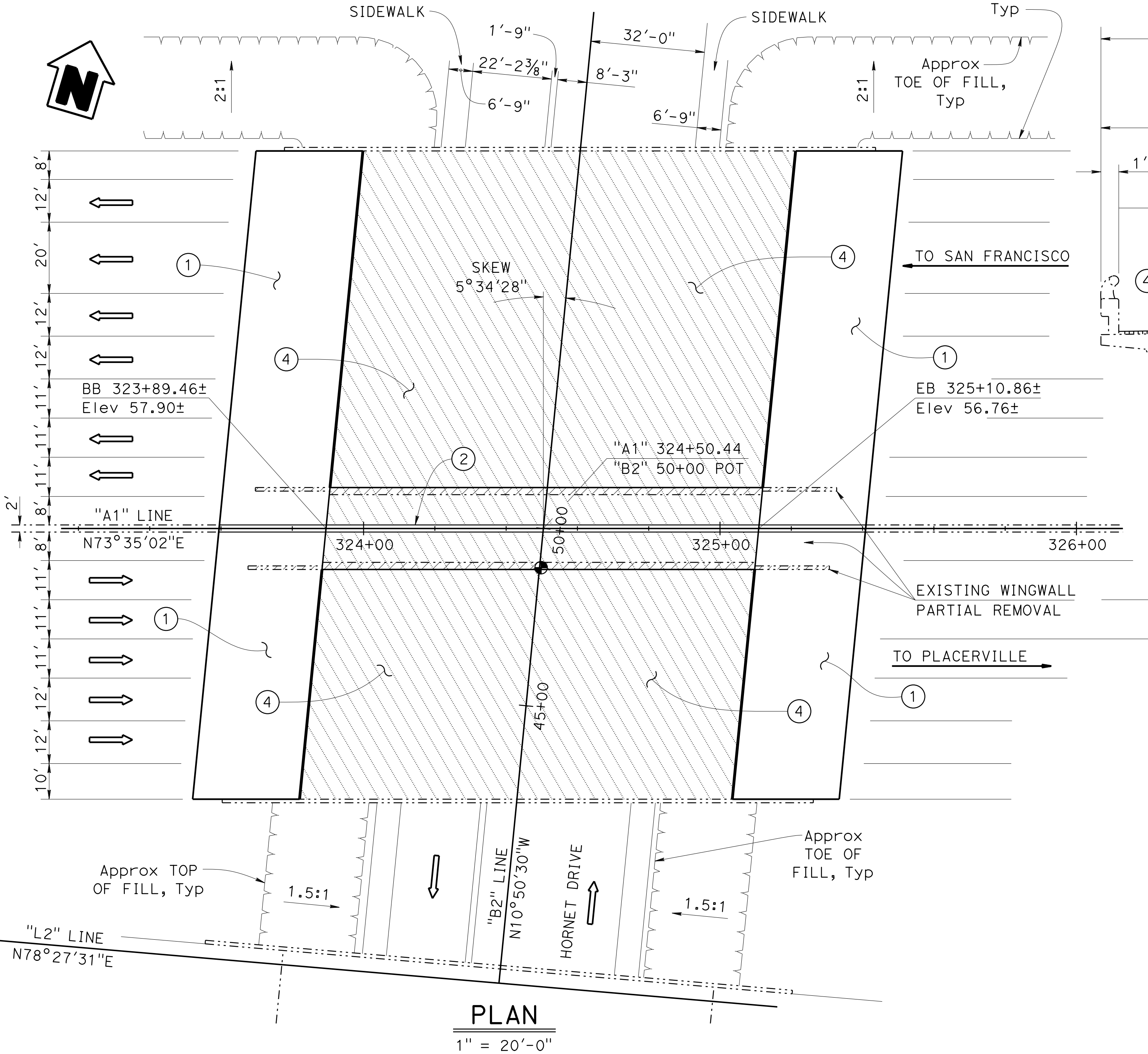
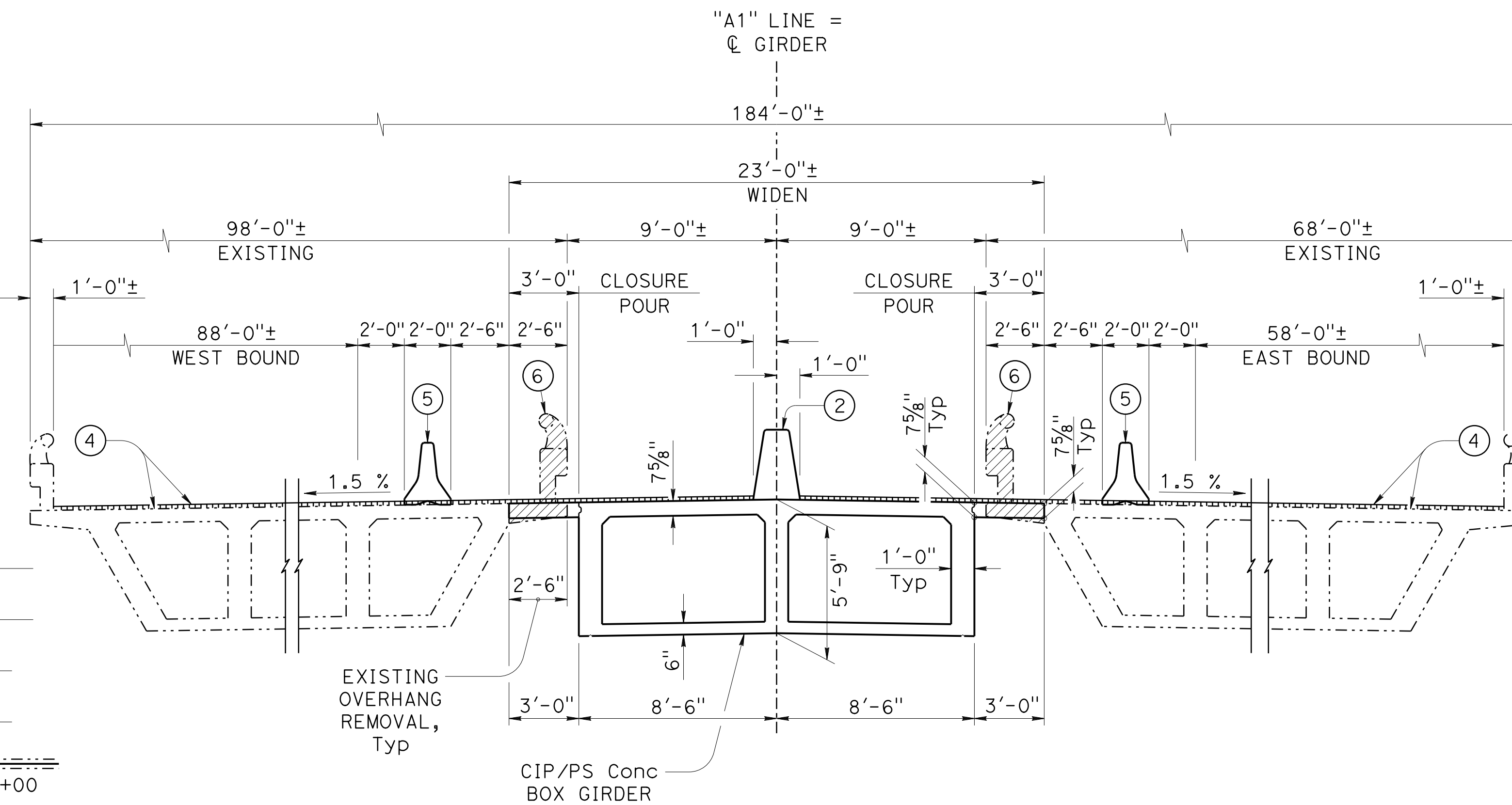
NOTE:
For clarity, existing structure is not shown.



ELEVATION
1" = 20'-0"



PLAN
1" = 20'-0"



TYPICAL SECTION
¼" = 1'-0"

LEGEND:

- New structure
- Existing structure
- Indicates bridge removal (portion)
- Indicates replace existing joint seal MR = 2"
- Indicates remove existing AC overlay and prepare Concrete Bridge Deck and place 1" polyester concrete overlay
- Point of Minimum Vertical Clearance
- Indicates direction of traffic

NOTES:

1. Structure Approach Type N(30S).
2. Concrete Barrier Type 60A.
3. Remove Portion of Slope Paving and reconstruct Slope Paving.
4. Remove existing AC overlay and prepare concrete deck and place 1" polyester concrete overlay.
5. Temporary Railing Type K, see Road Plans.
6. Remove Exist Type 9 Barrier.

X
DESIGN ENGINEER

DESIGN	BY A. THURMAN	CHECKED X	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY" PERMIT DESIGN VEHICLE
DETAILS	BY P. SILVA / S. NG	CHECKED X	LAYOUT BY X	CHECKED X
QUANTITIES	BY X	CHECKED X	SPECIFICATIONS BY X	PLANS AND SPECS COMPARED X

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 6

BRIDGE NO. 24-0286R/L
POST MILE 3.47

HORNET DRIVE UC (MEDIAN WIDENING)
GENERAL PLAN

UNIT: 3591
PROJECT NUMBER & PHASE: 0312000216 1
CONTRACT NO.: 03-3F3604

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES 11-4-15 12-4-15 1-25-16 2-04-16

SHEET 1 OF X

Attachment D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50			

REGISTERED CIVIL ENGINEER X DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Mike Cullen No. 40620 Exp. 3/31/17 CIVIL STATE OF CALIFORNIA

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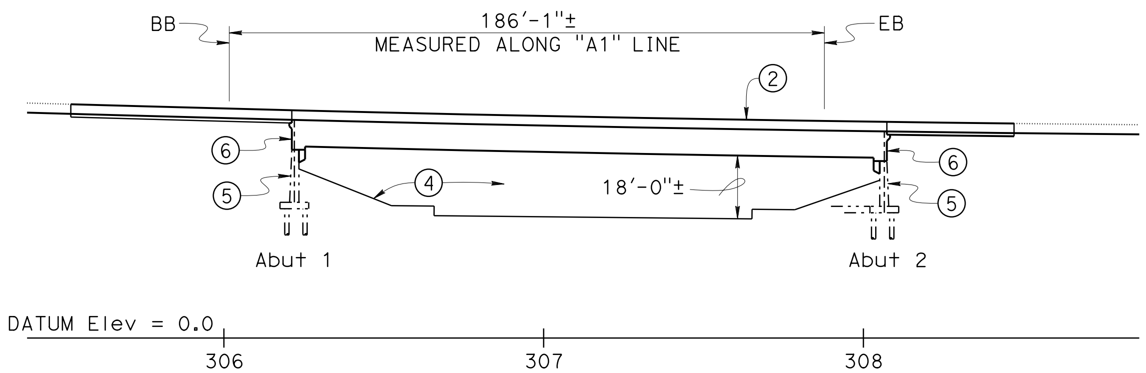
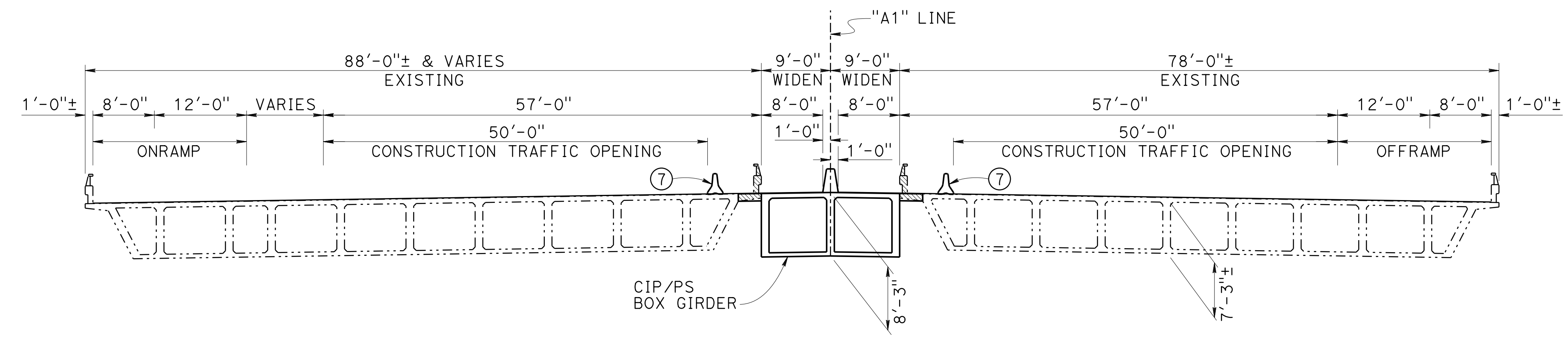


ELEVATION A-A
1" = 30'

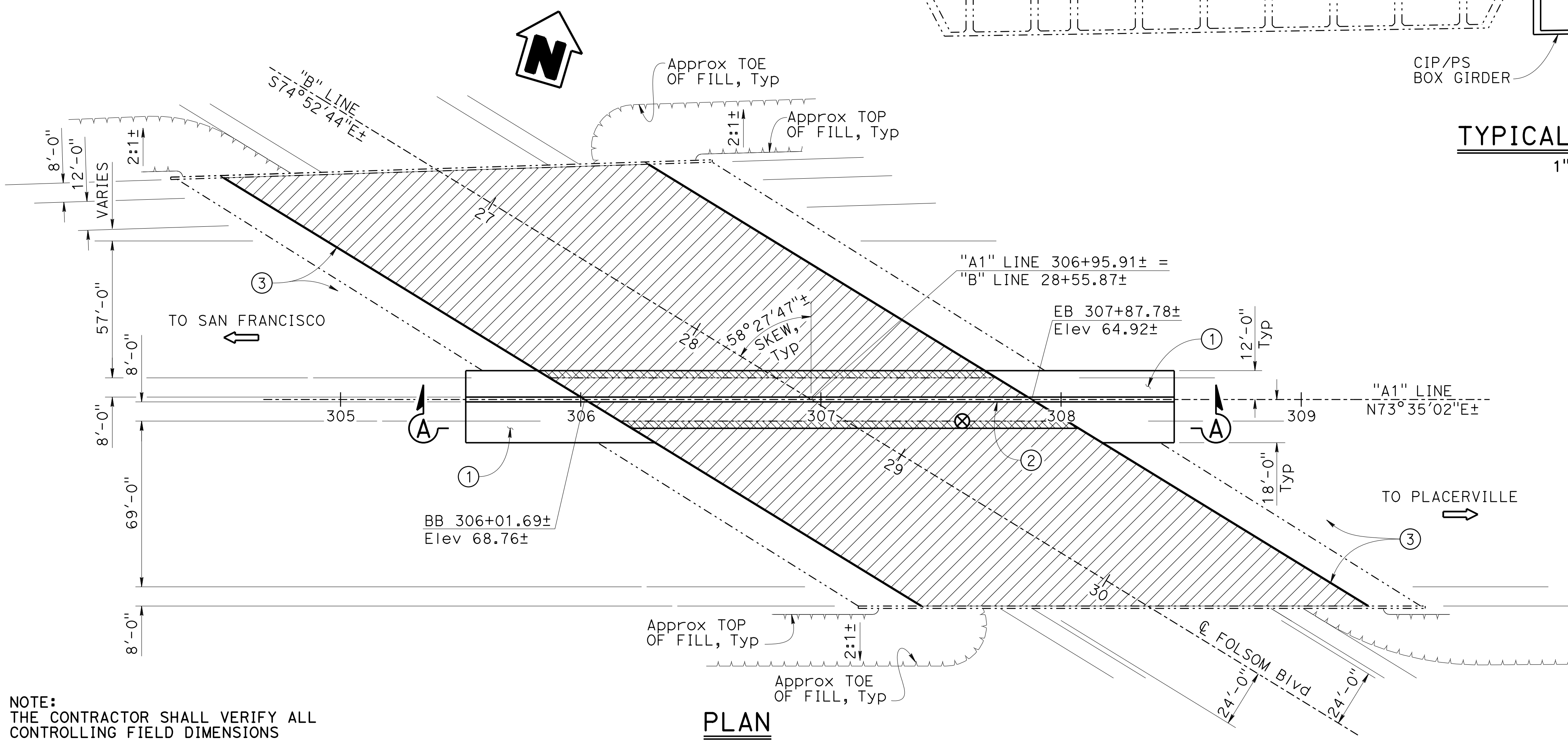
NOTE:
For clarity, existing structure not shown.

NOTES:
1. Structure Approach Type N(30S).
2. Concrete Barrier Type 60A.
3. Joint Seal Replacement (MR = 2").
4. Existing Slope Paving to remain.
5. Existing Retaining Wall to remain.
6. Remove and reconstruct tops of existing Retaining Walls.
7. Temporary Railing (Type K), see "Roadway Plans".

LEGEND:
- -·-·-·- Existing Structure
- Indicates Bridge Removal (Portion)
- Indicates prepare concrete bridge deck and place ¾" Polyester Concrete Overlay
- ⊗ Indicates point of minimum vertical clearance



TYPICAL SECTION
1" = 10'



PLAN
1" = 30'

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

Vehicular Traffic

1. ___ New alignment. No traffic at the site.
2. ___ Traffic will be detoured away from the site.
3. X Traffic will be carried on the structure.
   Stage construction will/will not be required.
4. X Traffic will pass under the structure on
   Folsom Blvd (Name of St. or Hwy.)
   - A. ___ No falsework allowed over traffic.
   - B. X Falsework opening(s) required:

		Temporary Vertical Clearance	Width of Traffic Opening
___	Bnd	15'-0"	32'-0"
___	Bnd		
___	Two-way		

   - C. ___ Temporary traffic lane reduction needed for footing excavation.

Pedestrian Traffic

Falsework opening required on Folsom Blvd (Name of St.)

Location	Height	Width
North & South Sidewalk	8'-0"	5'-0"

Railroad Traffic

Falsework opening required over N/A (Name of RR)

Vertical Clearance	Horizontal Clear Width

DESIGN	BY Mike Cullen	CHECKED X	
DETAILS	BY Gerald Dickerson	CHECKED X	
QUANTITIES	BY X	CHECKED X	

X
DESIGN ENGINEER

LOAD & RESISTANCE FACTOR DESIGN — LIVE LOADING: HL93 W/"LOW-BOY" PERMIT DESIGN VEHICLE

LAYOUT	BY X	CHECKED X
SPECIFICATIONS	BY X	PLANS AND SPECS COMPARED X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 6

BRIDGE NO. 24-0288R/L
POST MILE 2.2/5.3

FOLSOM BLVD UC (WIDEN)
GENERAL PLAN

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3591
PROJECT NUMBER & PHASE: 03120002161
CONTRACT NO.: 03-3F3601

DISREGARD PRINTS BEARING EARLIER REVISION DATES
REVISION DATES 09/24/15 10/12/15
SHEET X OF X

FILE => 24-0288-a gp.dgn

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

USERNAME => s136481 DATE PLOTTED => 08-DEC-2015 TIME PLOTTED => 14:04

Attachment D

PROJECT COST ESTIMATE SUMMARY

DIST-CO-RTE: 03-Sac-50
PM: L0.2/R6.1
EA: 03-3F360
Project Number: 03 12000216
Program Code: 20.XX.400.100

PROJECT DESCRIPTION: Preferred Alternative - Add HOV Lanes
(Includes Sound Walls from Stockton Blvd to 65th St)

Limits: In Sacramento County, on US 50 from I-5 to 0.8 mile east of Watt Ave.

Proposed Improvement: Add additional HOV lanes by restriping facility, widening bridges in median, and construct sound walls. (10% contigency accounts for unforeseen and anticipated utility conflicts during construction)

ROADWAY ITEMS:	**$43,800,000**
STRUCTURE ITEMS:	**$55,580,000**
SUBTOTAL CONSTRUCTION:	**$99,380,000**
RIGHT-OF-WAY:	**$5,251,548**
TOTAL PROJECT COST:	**$104,630,000**

I. ROADWAY ITEMS

Section 1 Earthwork

	Quantity	Unit	Unit Price	Cost
Clearing & Grubbing	5.0	ACRE	$10,000.00	$50,000
Roadway Excavation	19350	CY	$22.00	$425,700
			Total Earthwork:	**$475,700**

Section 2 Structural Section

Aggregate Base (Class 2)	2270	CY	$78.00	$177,060
Replace Concrete Pavement	1	LS	$3,000,000.00	$3,000,000
Dowel Bar Retrofit	1	LS	$5,000,000.00	$5,000,000
Grind Existing Concrete Pavement	352000	SQYD	$7.70	$2,710,400
Crack Treatment	60	LNMI	$4,000.00	$240,000
HMA (Type A)	1640	TON	$113.00	$185,320
Ruberized HMA-Open Graded	45100	TON	$89.00	$4,013,900
Shoulder Backing	690	TON	$62.00	$42,780
			Total Structural Section:	**$15,369,460**

Section 3 Drainage

Abandon/Remove/Adjust	1	LS	$66,000.00	$66,000
Inlets & Manholes	1	LS	$12,000.00	$12,000
Pipes & Culverts & Flared End Sec	1	LS	$38,400.00	$38,400
Sediment Basins/AC Ditches	1	LS	$50,000.00	$50,000
Detention System	1	LS	$1,000,000.00	$1,000,000
			Total Drainage:	**$1,166,400**

Section 4 Specialty Items

Remove Concrete Barrier	650	LF	$53.00	$34,450
Remove Guardrail	4000	LF	$5.40	$21,600
Reconstruct Guardrail	8620	LF	$21.80	$187,916
Remove Roadside Signs	1	LS	$55,000.00	$55,000
Remove Sign Structure	11	EA	$5,000.00	$55,000
Remove Sign Panels	1	LS	$55,000.00	$55,000
Remove Traffic Stripe	1	LS	$90,000.00	$90,000
Remove Yellow Traffic Stripe	1	LS	$75,000.00	$75,000
Remove Pavement Marker	1	LS	$7,000.00	$7,000
Remove Sound Wall	2200	LF	$100.00	$220,000
Concrete Barrier (Type 60)	650	LF	$73.00	$47,450
Place AC Dike	1	LS	$10,000.00	$10,000
MGS	700	LF	$60.00	$42,000
Progress Schedule	1	LS	$20,000.00	$20,000
Time Related Overhead	460	WD	$1,500.00	$690,000
Sound Wall	1	LS	$4,300,000.00	$4,300,000
Temporary Fence (Cl 6 Slatted)	8860	LF	$41.00	$363,260
Wood Fence (6 ft cedar)	1	LS	$40,000.00	$40,000

Section 4 Specialty Items - Continued

RE Office	1	LS	$465,000.00	$465,000
Partnering	1	LS	$150,000.00	$150,000
Highway Planting	1	LS	$985,000.00	$985,000
SWPP and Implementation	1	LS	$170,000.00	$170,000
Erosion Control & BMPs	1	LS	$239,000.00	$239,000
Lead Compliance Plan	1	LS	$2,500.00	$2,500
Asbestos Compliance Plan	1	LS	$2,000.00	$2,000
Treated Wood Waste	1	LS	$5,000.00	$5,000
Construction Site Management	1	LS	$100,000.00	$100,000
Temporary Concrete Washouts	1	LS	$90,000.00	$90,000
Temporary Railing (Type K)	32500	LF	$15.50	$503,750
Temporary Traffic Screen	25700	LF	$5.00	$128,500
Channelizers (Surface Mounted)	800	EA	$40.00	$32,000
Temporary Stripe (Paint)	81200	LF	$0.40	$32,480
Temporary Pavement Marking	1	LS	$6,000.00	$6,000
Temporary Crash Cushion System	70	EA	$3,000.00	$210,000
Temporary Crash Cushion Array	240	EA	$240.00	$57,600
Type III Baricades	20	EA	$95.00	$1,900
Temporary Fence (Type Cl 6))	490	LF	$13.00	$6,370
Bird Exclusion	1	LS	$50,000.00	$50,000
Paleontolgical Monitor	1	LS	$25,000.00	$25,000
Native American Monitor	1	LS	$50,000.00	$50,000
			Total Specialty Items:	**$9,625,776**

Section 5 Traffic Items:

Traffic Control System	1	LS	$200,000.00	$200,000
Construction Area Signs	1	LS	$12,000.00	$12,000
Portable CMS	1	LS	$90,000.00	$90,000
COZEEP	1	LS	$70,000.00	$70,000
Public Information	1	LS	$200,000.00	$200,000
Railroad Flagging	1	LS	$990,000.00	$990,000
Traffic Stripe	1	LS	$390,000.00	$390,000
Traffic Marking	1	LS	$65,000.00	$65,000
Pavement Markers	1	LS	$130,000.00	$130,000
Sign Structures, One Post	4	EA	$65,000.00	$260,000
Sign Structures, Two Post	7	EA	$200,000.00	$1,400,000
New Sign Panel Overhead	1	LS	$250,000.00	$250,000
Bridge Mounted Signs	1	LS	$350,000.00	$350,000
Roadside Signs	1	LS	$65,000.00	$65,000
Lighting	1	LS	$650,000.00	$650,000
Maintain TMS	1	LS	$100,000.00	$100,000
Highway Advisory Radio	1	LS	$50,000.00	$50,000
Traffic Monitoring Stations	1	LS	$130,000.00	$130,000
Census Count Stations	1	LS	$200,000.00	$200,000
ITS Elements	1	LS	$2,600,000.00	$2,600,000
			Total Traffic Items:	**$8,202,000**

		CONSTRUCTION SUBTOTAL (SECT. 1-5):		**$34,839,336**

Section 6 Minor Construction Items:

Subtotal Construction		$34,839,336	x	2%	$696,787
				Total Minor Construction Items:	**$697,000**

Section 7 Roadway Mobilization:

Subtotal Construction		$34,839,336			
Minor Construction Items		$697,000			
	Sum	$35,536,336	x	10%	$3,553,634
				Total Roadway Mobilization:	**$3,554,000**

Section 8 Roadway Additions:

Supplemental Items(5%-10%)					
Subtotal Construction		$34,839,336			
Minor Construction Items		$697,000			
	Sum	$35,536,336	x	2%	$710,727
				Total Roadway Additions:	**$711,000**

ROADWAY SUBTOTAL (SECT. 1-8):	**$39,801,063**
10% CONTINGENCY:	**$3,980,106**
TOTAL ROADWAY ITEMS:	**$43,781,169**
TOTAL STRUCTURE ITEMS:	**$55,576,000**
SUBTOTAL CONSTRUCTION:	**$99,357,169**
TOTAL R/W ITEMS:	**$5,251,548**
TOTAL PROJECT:	**$104,608,717**

II. STRUCTURES ITEMS

1	Bridge Name, Number	Sacramento River Viaduct, 24-04 R/L	
	Cost per sf/Structure Cost	$445	$2,103,000
2	Bridge Name, Number	Southside Park Viaduct, 24-043 R/L	
	Cost per sf/Structure Cost	$491	$10,169,000
3	Bridge Name, Number	9th St. UC, 24-0244 R/L	
	Cost per sf/Structure Cost	$305	$832,000
4	Bridge Name, Number	10th St. UC, 24-0245 R/L	
	Cost per sf/Structure Cost	$303	$823,000
5	Bridge Name, Number	Riverside Blvd UC, 24-0246 R/L	
	Cost per sf/Structure Cost	$326	$994,000
6	Bridge Name, Number	15th-16th St. Separation, 24-0247 R/L	
	Cost per sf/Structure Cost	$463	$5,492,000
7	Bridge Name, Number	Camellia City Viaduct, 24-0248 R/L	
	Cost per sf/Structure Cost	$245	$14,060,000
8	Bridge Name, Number	26th St. UC, 24-0223 R/L	
	Cost per sf/Structure Cost	$299	$817,000
9	Bridge Name, Number	Elmhurst Viaduct, 24-0228 R/L	
	Cost per sf/Structure Cost	$430	$10,997,000
10	Bridge Name, Number	39th St UC, 24-0313	
	Cost per sf/Structure Cost	$3	$76,000
11	Bridge Name, Number	65th St UC, 24-0318	
	Cost per sf/Structure Cost	$4	$104,000
12	Bridge Name, Number	Brighton OH, 24-0289 R/L	
	Cost per sf/Structure Cost	$311	$4,700,000
13	Bridge Name, Number	Folsom Blvd UC, 24-0288 R/L	
	Cost per sf/Structure Cost	$455	$1,945,000
14	Bridge Name, Number	Hornet Dr UC, 24-0286 R/L	
	Cost per sf/Structure Cost	$589	$1,654,000

Subtotal Structure Items:	**$54,766,000**
Railroad Related Costs:	**$810,000**
TOTAL STRUCTURE ITEMS:	**$55,576,000**

III. RIGHT-OF-WAY

Acquisition (includes excess lands and damages), Utility Relocation, & Title and Escrow Fees	$5,251,548
Subtotal Right of Way Items:	**$5,251,548**
Construction Contract Work:	**$0**
TOTAL RIGHT OF WAY ITEMS:	**$5,251,548**

Sac 50 Phase 2 High Occupancy Vehicle Lanes Project

SACRAMENTO COUNTY, CALIFORNIA
DISTRICT 3 – SAC – 50 (PM L0.2/R6.1)
3F360/0312000216

Initial Study With Mitigated Negative Declaration/ Environmental Assessment with Finding of No Significant Impact

Prepared by the
State of California Department of Transportation

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S.C. 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

Caltrans

June 2017

Attachment F

Sac 50 Phase 2 High Occupancy Vehicle Lanes Project

SACRAMENTO COUNTY, CALIFORNIA
DISTRICT 3 – SAC – 50 (PM L0.2/R6.1)
3F360/0312000216

Initial Study With Mitigated Negative Declaration/ Environmental Assessment with Finding of No Significant Impact

Prepared by the State of California Department of Transportation

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S.C. 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

Caltrans

May 2017

General Information about This Document

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Julia Green, Office of Environmental Management, 2379 Gateway Oaks Dr, Suite 150, Sacramento, CA 95833-93401; (916) 274-0570 Voice, or use the California Relay Service by dialing 711, or (800) 735-2929 (TTY to Voice) or (800) 735-2922 (Voice to TTY).

SCH#2016092060
03-SAC-50-PM L0.2/R6.1
3F360
0312000216

Sac 50 Phase 2 High Occupancy Vehicle Project
From the Sacramento River to Watt Avenue (postmile L0.2 to R6.1)

INITIAL STUDY with Mitigated Negative Declaration/Environmental Assessment

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

THE STATE OF CALIFORNIA
Department of Transportation

Responsible Agencies: California Transportation Commission

5-31-17
Date of Approval

Suzanne Melim
Suzanne Melim, Chief
North Region Environmental Services – District 3
California Department of Transportation

The following person may be contacted for more information about this document:

Julia Green, Senior
Office of Environmental Management
2379 Gateway Oaks Dr, Suite 150
Sacramento, CA 95833-93401
(916) 274-0570
julia_green@dot.ca.gov

SCH#2016092060

MITIGATED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to construct high occupancy vehicle (HOV) lanes in both directions on US 50 from the Sacramento River to Watt Avenue in Sacramento, California.

Determination

Caltrans has prepared an Initial Study for this project, and following public review, has determined from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no effect on agriculture and forest products, cultural resources, geology and soils, land use and planning, mineral resources, population and housing, recreation, transportation/traffic, and utilities and service system.

In addition, the proposed project would have less than significant effects to aesthetics, air quality, biological resources, hazards and hazardous materials, hydrology and water quality, noise, and public services.

With the following mitigation measures incorporated, the proposed project would have less than significant effects to paleontological resources:

- Due to the presence of sensitive formations within the project limits, a Preliminary Paleontological Mitigation Plan was prepared to address potential discoveries during construction of the proposed project (Appendix F). A final Paleontological Mitigation Plan will be prepared by a qualified paleontologist near completion of the final design. The plan will be implemented during project construction. Please refer to Appendix F for specific measures.

Suzanne Melim

Suzanne Melim, Chief
North Region Environmental Services – District 3
California Department of Transportation

5-31-17
Date

CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Sac 50 Phase 2 High Occupancy Vehicle Lanes Project

FOR

The California Department of Transportation (Caltrans) has determined that Alternative 1, HOV lanes, will have no significant impact on the human environment. This FONSI is based on the attached Environmental Assessment (EA) and incorporated technical studies which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement (EIS) is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA.

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

5/31/17
Date

Ray Zhang, Acting District Director
District 3
California Department of Transportation

Summary

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007 and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6th, 2012, amended 23 USC 327 to establish a revised and permanent Surface Transportation Project Delivery Program. As a result, Caltrans entered into a memorandum of understanding pursuant to 23 USC 327 (NEPA Assignment MOU) with FHWA. The NEPA Assignment MOU became effective October 1, 2012 and terminates eighteen months from the effective date of FHWA regulations developed to clarify amendments to 23 USC 327 or on January 1, 2017. The NEPA Assignment MOU incorporates by reference the terms and conditions of the Pilot Program MOU. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and Caltrans assumed all of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to Caltrans under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions. Refer to the Standard Environmental Reference (SER), Vol. 1, Chapter 38, “NEPA Assignment” for detailed guidance on the policy and procedures for compliance with NEPA and other federal environmental laws, regulations, and executive orders for projects assigned to Caltrans.

Below is a summary table that highlights potential impacts, mitigation, and avoidance/minimization measures.

Table S-1. Summary of Potential Impacts and Avoidance/Minimization/Mitigation Measures

Affected Resource	Potential Impacts	Mitigation Measure
Paleontology	Alternatives 1 and 2: • Potential impacts to paleontological resources during construction at structures. Alternative 3: • None anticipated.	• A final Paleontological Mitigation Plan will be prepared by a qualified paleontologist near completion of the final design. The plan will be implemented during project construction. Please refer to Appendix F for specific measures.

Affected Resource	Potential Impacts	Avoidance/Minimization Measures
Land Use	Alternatives 1 and 2: • Temporary removal of leased uses under the viaduct sections of US 50 between 5th Street and 26th Street. • The lease for the mini-storage business expires in 2019, prior to project construction. Either not renew the lease, terminate the lease prior to 2019, or rebuild access. Alternative 3: • None anticipated.	• Possible phased construction of viaduct sections. This measure, if feasible, may allow current uses to move to areas under the freeway either not in construction or where construction is completed.
Growth	All alternatives: • None anticipated.	• None required.
Community Impacts	All alternatives: • None anticipated.	• None required.
Environmental Justice	All alternatives: • None anticipated.	• None required.
Utilities, Emergency Services	Alternatives 1, 2, and 3: *Emergency Services* • Possible temporary disruption of emergency services.	• Coordinate with emergency service providers prior to construction.

Affected Resource	Potential Impacts	Avoidance/Minimization Measures
	Alternatives 1 and 2: *Utilities* • Utility relocation and possible temporary utility disruption. Alternative 3: • None anticipated.	• Coordinate with utility companies regarding utility relocations and temporary disruptions. • Coordinate with Regional Transit regarding the light rail electrical supply line at 65th Street. • Prepare and implement a Transportation Management Plan. • Implement a public participation plan.
Traffic and Transportation/Pedestrian and Bicycle Facilities	Alternatives 1 and 2: • Temporary construction-related impacts (lane closures, lane shifts, ramp disruptions, disruption of bus and light rail service, pedestrian/bicycle disruptions). • Temporary relocation of bus stops during construction, • Temporary suspension of light rail service as a result of de-energizing the line. • Temporary closure of sidewalks during construction. Alternative 3: • Temporary construction-related impacts (lane closures, lane shifts, ramp disruptions, disruption of bus and light rail service, pedestrian/bicycle disruptions).	• Coordinate with Regional transit to minimize bus and light rail disruptions (temporary relocation of bus stops, temporary suspension of light rail service) • Maintain pedestrian/bicycle access during construction. • Prepare and implement a Transportation Management Plan. • Implement a public participation plan.
Visual/Aesthetics	Alternatives 1, and 2: • Temporary visual changes during construction and minor effects to the visual character of locations within the project limits. • Potential visual impacts associated with construction of sound walls east of the Oak Park Interchange. • Blocking of motorist's elevated views of nearby commercial/residential along with brief distant views of the Sacramento City Skyline along the viaduct portion of US 50. • Loss of trees and vegetation.	• Use materials similar to those incorporated into other sound walls within the US 50 corridor, if these sound walls have public support and local funding. • Use transparent sound walls along the W-X freeway only if cost-effective and supported by the community • Restore all areas of ground disturbance related to construction activities. • Limit vegetation removal for sound wall construction. • Develop highway planting and irrigation plan.

Affected Resource	Potential Impacts	Avoidance/Minimization Measures
	Alternative 3: • Potential visual impacts associated with construction of sound walls east of the Oak Park Interchange.	• Use materials similar to those incorporated into other sound walls within the US 50 corridor, if these sound walls have public support and local funding. • Use transparent sound walls along the W-X freeway only if cost-effective and supported by the community • Restore all areas of ground disturbance related to construction activities. • Limit vegetation removal for sound wall construction. • Develop highway planting and irrigation plan.
Cultural Resources	Alternatives 1, 2, and 3: • None anticipated	• If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find. • If buried archaeological deposits are revealed at the column installation locations, further review by a Caltrans PQS Archaeologist is required to assess and evaluate the nature of the find. • If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendent. At this time, the person who discovers the remains will contact the project's District environmental construction liaison and cultural resources specialist so that they may work with the Most Likely Descendent, when designated, on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable

Affected Resource	Potential Impacts	Avoidance/Minimization Measures
Floodplain/Hydrology	Alternatives 1, 2, and 3: • None anticipated.	• None proposed.
Water Quality	Alternatives 1, 2, and 3: • None anticipated.	• All temporary equipment and material storage areas on State property must be accounted for and included in the total disturbed soil area (DSA) estimate, unless a stabilization method has been implemented, reviewed, and approved by NPDES or Storm Water staff. • Caltrans' Storm Water Management Plan (SWMP), Project Planning and Design Guide Section 4, and Evaluation Documentation Form provide detailed guidance in determining if a specific project requires the consideration of permanent Treatment best management practices (BMPs). Line Item BMPs may be required during the PS&E phase of the project. • The project shall adhere to the conditions of the Caltrans Statewide NPDES MS4 Permit CAS No. 000003 (Order No. 2012- 0011-DWQ). • Projects with DSA equal to or exceeding 1 acre must adhere to the compliance requirements of the NPDES Construction General Permit CAS No. 000002 (Order No. 2009-0009-DWQ) for General Construction Activities (see special considerations within the SWDR). Under certain conditions, a rainfall erosivity value can be calculated to determine if a project qualifies for a waiver and exemption from CGP requirements. In which case, a Storm Water Pollution Prevention Plan (SWPPP) would not be necessary and the project could be covered under a Water Pollution Control Plan (WPCP). Both of these (SWPPP and WPCP) specify the level of temporary pollution control measures required for a project. • Follow all applicable guidelines and requirements in the 2015 Caltrans Standard Specifications (2015 CSS), Section 13, regarding water pollution control and general specifications for preventing, controlling, and abating water pollution in streams, waterways, and other bodies of water.

Affected Resource	Potential Impacts	Avoidance/Minimization Measures
		• Attention and focus (by the Contractor and field staff) should be given to 2015 CSS, Section 13-4 (Job Site Management), to control and manage potential sources of water pollution, such as material pollution, waste products and non-storm water related pollutants before they encounter storm water conveyance systems or receiving waters within the project limits. • Additional scrutiny should also include 2015 CSS, sections 13-9.02C and 13-9.02D (when and where applicable) for requirements related to the handling and disposal of concrete waste during construction operations. • The Contractor prepared and Department approved SWPPP (or WPCP, if a construction general permit (CGP) exemption is pursued) shall incorporate and describe appropriate strategies to address the effective implementation, handling, storage, use and disposal practices of temporary construction site BMPs during the course of construction operations and project activities. • Shoulder backing areas should be stabilized by temporary construction site BMPs, or rolled and compacted in place, by the end of each day and prior to the onset of any precipitation. • Existing drainage facilities should be identified and protected by the application of appropriate construction site BMPs.
Hazardous Materials	Alternatives 1 and 2: • Potential hazardous materials exist (ADL, groundwater and soil contamination, ACM, treated wood waste, lead, and chromium). Alternative 3: • Potential hazardous waste impacts will be less than for Alternatives 1 and 2 because Alternative 3 will only involve re-striping and soil disturbance.	• Groundwater and soil contamination: Potential hazardous materials in soil and groundwater will be avoided to the extent feasible by design provisions. If infeasible soil and groundwater will be controlled and discharged pursuant to regulatory and permit requirements during construction. • Treated wood waste: The project will be designed to avoid removal of metal beam guard rail posts and other treated wood and otherwise minimize the quantity requiring removal. Any metal beam guardrail posts and other treated wood removed will be disposed consistent with Caltrans Standard Special Provision

Affected Resource	Potential Impacts	Avoidance/Minimization Measures
		14-11.09 (Treated Wood Waste). The quantity will be determined during design. • Asbestos Containing Material (ACM): ACM will be avoided to the extent practicable. Any ACM on bridges requiring removal will be removed and disposed by a licensed and certified asbestos abatement contractor implementing an Asbestos Compliance Plan to prevent or minimize exposure to asbestos. Non-Standard Special Provisions addressing ACM will be included in the project specifications. • Aerial Deposited Lead (ADL): The quantity of ADL soil requiring special handling will be minimized during design by identifying and restricting special handling areas to those above regulatory limits. Any ADL soil requiring removal will be managed pursuant to Standard Special Provision 7-1.02K(6)(j)(iii) when non-hazardous or SSP 14-11.03 when hazardous. • Yellow Traffic Stripes Grindings (which consist of the roadway material and the yellow color traffic stripes) will be removed and disposed of in accordance with Caltrans Standard Special Provision 15-1.03B (Residue Containing High Lead Concentration Paints). Non-hazardous levels of lead are known to exist in the white traffic striping. As such, these grindings shall be removed and disposed of in accordance with the same specification.
Air Quality	Alternatives 1,2, and 3: • Temporary construction-related dust and vehicle emissions would occur during site preparation and project construction.	• Construction contractors would comply with Caltrans Standard Specification Provisions which uses newer/retrofit engines for construction equipment; • Comply with District's Rule 403 for fugitive dust emissions; • Prohibit truck idling in excess of 5 minutes, whenever practical; • Use only well-maintained equipment • Utilize proper planning to reduce rework and multiple handling of earth materials.
Noise	Alternatives 1, 2, and 3:	

Affected Resource	Potential Impacts	Avoidance/Minimization Measures
	• Temporary construction noise anticipated.	• Evaluate sound walls) at nine locations (note that none of the walls were reasonable ($71,000 per benefited receptor) under FHWA noise criteria). • Include Caltrans' standard specification 14.8-02.
Biological Resources	Alternatives 1 and 2: • Affect nesting migratory birds and roosting bats during construction. Alternative 3: • None anticipated.	• Install exclusionary devices between September 1 and January 31 in order to prevent nesting and roosting. • If necessary, daily scraping of partially completed nests between February 1 and September 1. • None required.
Cumulative Impacts	Alternatives 1, 2, and 3: • Concurrent construction of other road and highway projects within or near the project limits.	• Develop Transportation Management Plan. • Implement BMPs for water quality and hazardous waste. • Coordinate with emergency service providers. • Incorporate Caltrans' standard specifications. • Implement landscape planting plan.

Table of Contents

List of Figures and Tables

Chapter 1 Proposed Project

INTRODUCTION

California Department of Transportation (Caltrans) is the lead agency under the National Environmental Policy Act (NEPA) and the lead agency under the California Environmental Quality Act (CEQA). Caltrans proposes to extend the existing high occupancy vehicle (HOV) lanes on US 50 7.8 miles west from the existing HOV lanes at the Watt Avenue interchange (I/C) to the eastern approach of the Sacramento River Viaduct (I-5 I/C) in downtown Sacramento. Figure 1-1 shows project location and vicinity. Note that all Chapter 1 figures follow this chapter.

The project development is funded by Sacramento Measure A Transportation Sales Tax Program for $13 million for the preliminary engineering, environmental studies, design, and right-of-way work. The project is included in the 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) and the 2015/18 financially-constrained Metropolitan Transportation Improvement Program (MTIP), CAL18838.

This Initial Study/Environmental Assessment includes responses to comments received on the Draft Initial Study/Environmental Assessment and identifies Alternative 1, HOV Lanes, as the preferred alternative. A Notice of Determination will be published for compliance with CEQA, and Caltrans will issue a Finding of No Significant Impact (FONSI) for compliance with NEPA. A Notice of Availability (NOA) of the FONSI will be sent to the affected units of federal, state, and local government, and to the State Clearinghouse in compliance with Executive Order 12372.

NEED AND PURPOSE

The purpose of the project is to reduce congestion on US 50 west from Sacramento County at the Watt Avenue I/C to the I-5 I/C in downtown Sacramento. Additional objectives to this project are as follows:

- allow connectivity and consistency with the planned HOV system in the Sacramento Region
- enhance mobility and provide incentives for ridesharing during peak period travel
- achieve the goals of the current SACOG MTP by promoting ridesharing
- improve US 50 to meet the growing travel demand in the Sacramento Region
- provide an option for reliable peak period travel time
- use the highway facilities as efficiently as possible
- improve general traffic operations by reducing congestion and travel time
- improve bicycle and pedestrian access

The US 50 corridor is experiencing recurring congestion during peak commute periods. The amount and duration of congestion is expected to increase in the future as suburban development continues in the eastern portions of Sacramento County and in El Dorado County.

In the 2016 MTP-SCS, the Sacramento Area Council of Governments (SACOG) found that area HOV lanes convey more people during commute times than any of the adjacent mixed-flow lanes. HOV lanes carry 2-3 times the passenger volume as a comparable mixed-flow lane. As a result, studies have correlated HOV lanes to improvements in air quality due to vehicle emissions.

The benefits of a comprehensive HOV network cannot be realized until all segments are connected and fully functional. HOV lanes on US 50 would improve connectivity with the existing network and provide consistency with the existing US 50 HOV lane corridor. Figure 1-2 includes a map showing the HOV plan and status for Sacramento County and the neighboring counties.

State Planning:
The current 2014 Transportation Concept Report and District System Management Plan for Caltrans District 3 includes the addition of a HOV lane in each direction from I-80 in Yolo County to Missouri Flat Road in El Dorado County.

Regional Planning:
The proposed regional network of high occupancy vehicles is included in 2016 MTP/SCS, which is based upon the principles of the Preferred Blueprint Scenario. The MTP/SCS identified HOV lanes on US 50 within the project limits that express buses can use the HOV lanes with higher frequencies. Sacramento County voters approved funding for HOV lanes, including those on US 50 in 2004 as part of the package of transportation improvements in the Measure A sales tax initiative. The proposed project is included in the 2016 MTP/SCS

Transit Operator Planning:
The HOV lanes would benefit transit routes that would use US 50 in the project limits. HOV lanes would provide reduced travel time and improved travel time reliability due to reduced congestion. The Sacramento Regional Transit District has bus routes that use US 50 in the study area and an express bus during peak hour times on US 50 with no near term plans for expansion along this corridor.

<u>Traffic</u>

Current and Forecasted Traffic:
Capacity is defined as the maximum amount of traffic that can accommodate a uniform segment of freeway under prevailing conditions. If vehicular demand exceeds capacity, vehicle density will increase and speeds will decrease until breakdown occurs, resulting in queuing and congestion. Much of this segment of US 50 has reached or exceeded its capacity and congestion is occurring in the AM and PM peak periods. Additionally, travel demand is forecasted to increase significantly by year 2040.

According to the 2012 Caltrans traffic count data, US 50 carries Annual Average Daily Traffic (AADT) ranging between approximately 171,000 to 246,000 vehicles and peak month Average Daily Traffic (ADT) of 178,000 to 256,000 vehicles through various segments in the project limits. According to 2011 Caltrans Truck traffic data, truck composition varies between 2.3% to 5.5% of the average daily traffic on US 50.

Wood Rodgers Inc. (traffic analysis consultant) obtained additional 2013 traffic volumes using a combination of machine/automated counters (including radar and video technology) as well as manual counters in the data collection process. The consultant then forecasted more detailed ADT volumes and other statistics.

ADT volumes in the project limits for eastbound (EB) US 50 range from 90,300 to 149,800 vehicles. Westbound (WB) US 50 ADT volumes range from 85,800 to 135,900 vehicles.

Table 1-1 provides a summary of performance measures based on fall 2013 data (also referred to as Base Year) and projected 2040 year data in the traffic report.

Table 1-1. Existing and Year 2040 4-hour Peak Period Network Summary

	Performance Measure	Existing (2013)	No Build
AM	Vehicles Served (veh)	255,601	312,352
	Vehicle Miles of Travel (mi)	1,003,482	1,256,171
	Persons Served (per)	309,617	412,493
	Person Miles of Travel (per-mi)	1,215,548	1,658,902
	Average Travel Time (h)	24,736	44,046
	Average Travel Speed (mph)	42	32
	Vehicle Hours of Delay (h)	3,588	11,495
	Person Hours of Delay (per-h)	4,347	15,180
PM	Vehicles Served (veh)	305,890	360,625
	Vehicle Miles of Travel (mi)	1,055,036	1,270,674
	Persons Served (per)	381,602	476,465
	Person Miles of Travel (per-mi)	1,316,172	1,678,841
	Average Travel Time (h)	26,268	68,749
	Average Travel Speed (mph)	41	19
	Vehicle Hours of Delay (h)	4,135	24,363
	Person Hours of Delay (per-h)	5,159	32,189

Notes: 1. Data shown in this table is compiled from Wood Rodgers Consulting US 50 Travel Demand Modeling & Traffic Micro-Simulation Analysis.
2. Corridor performance assumes that the I-5 HOV lanes, EB US 50 Hornet Drive Off-Ramp/Intersection Improvements, and WB US 50 Auxiliary Lane between Stockton Blvd ramps are completed by 2030.

The traffic data summarized in Table 1-1 shows the performance between existing and future (2040) traffic during the AM and PM peak periods. The performance measures for both the AM and PM peak periods will be worse in 2040 without the project.

Tables 1-2 and 1-3 show the existing and future year (2040) AM and PM peak period travel times (in minutes) in the WB and EB directions between various locations.

Table 1-2. Existing and Year 2040 (No Build) WB US 50 4-hour Peak Period Travel Times (Minutes)

Travel Time Route	AM		PM	
	Existing	No Build	Existing	No Build
WB US 50 at Watt Ave to NB I-5 at Richards Blvd	11.0	15.1	11.5	28.4
WB US 50 at Watt Ave to WB I-80 at West Sacramento	10.5	14.6	10.5	28.5
WB US 50 at Watt Ave to SB I-5 at Sutterville Rd	12.0	15.4	12.0	31.1
WB US 50 at Watt Ave to SB SR 99 at 12th Ave	8.5	11.9	8.5	24.8
WB US 50 at Watt Ave to NB US 51 at E St	9.0	13.0	8.5	23.8

Table 1-3. Existing and Year 2040 (No Build) EB US 50 4-hour Peak Period Travel Times (Minutes)

Travel Time Route	AM		PM	
	Existing	No Build	Existing	No Build
SB I-5 at Richards Blvd to EB US 50 at Watt Ave	11.5	15.8	13.5	26.5
EB I-80 at West Sacramento to EB US 50 at Watt Ave	10.5	10.7	11.0	12.0
NB I-5 at Sutterville Rd to EB US 50 at Watt Ave	11.5	14.1	12.5	23.8
NB SR 99 at 12th Ave to EB US 50 at Watt Ave	8.5	10.7	8.5	13.0
SB US 51 at E St to EB US 50 at Watt Ave	8.5	9.4	8.5	10.2

Travel times in 2040 will be longer than existing during the AM and PM peak periods, in both directions. These differences are more pronounced for the WB PM peak period.

According to the City of Sacramento, the 65th Street Bicycle/Pedestrian Improvements is needed because as the Transit Village South develops, south of US 50, the amount of pedestrians and bicyclists using 65th Street to cross US 50 to get to the California State University, Sacramento campus or the 65th Street light rail station is anticipated to increase.

Please refer to the Traffic and Transportation section of this document for a more detailed discussion.

Independent Utility and Logical Termini

FHWA regulations (23 CFR 771.111 [f]) require that the proposed action evaluate:

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

Operational improvements to the US 50 corridor were initially identified in the Sacramento Area Council of Governments (SACOG)'s *High Occupancy Vehicle Planning Study for the Sacramento Metro Area* (1990). The study recommended adding HOV lanes to US 50 between downtown Sacramento and Shingle Springs in El Dorado County. A chronology of this project's development follows:

1996: SACOG updates the MTP to include HOV lanes within these project limits.
1997: SACOG completed the *Major Investment Study of the US 50 Corridor* that included these project limits.
1998: A Project Study Report was approved.
2001: A Supplemental PSR was approved.
2006: SACOG's MTP was updated and included HOV lanes on US 50.
2006: Draft Project Report was approved that included alternatives that were rejected due to funding. Alternative 10D-1 in the DPR is Alternative 1 in this document.
2012: SACOG's MTP was updated and included HOV lanes on US 50 within the project limits

2015: SACOG's MTP was amended to include the extended project limits to the Sacramento River

The project has logical termini and independent utility.

Logical termini are defined as (1) rational end points for a transportation improvement, and (2) rational end points for a review of the environmental impacts. Independent utility, or independent significance, is defined as being a usable and reasonable expenditure even if no additional transportation improvements in the area are made. The project has two rational end points, the US 50 – I-5 interchange and Watt Avenue, and will function independent of other transportation projects. US 50 – I-5 is a major interchange with high traffic volumes; Watt Avenue is the end/start of the existing bus/carpool lane that extends from Sacramento County into El Dorado County.

PROJECT DESCRIPTION

The proposed project involves extending HOV lanes 7.8 miles west from the existing HOV lanes at the Watt Avenue I/C to the eastern span of the Sacramento River Viaduct (US 50 - I-5 I/C) in downtown Sacramento (see Figure 1-1). Four alternatives are proposed: Alternative 1, HOV Lanes; Alternative 2, Mixed Flow Lanes; Alternative 3, Take-A-Lane; and Alternative 4, No Build.

Project alternatives are described in more detailed below.

An agreement made between the City of Sacramento and Caltrans in 2012 involved including the scope of the City of Sacramento's 65th Street Bicycle/Pedestrian Improvement Project in the environmental approval of this project. This partnership is intended for Caltrans to meet its commitment to American Disabilities Act (ADA) and Complete Streets design since this project could not be included with the HOV project due to schedule and funding. There is no construction funding available for the HOV lanes project and the Sacramento Regional Transportation Agency will not fund any work not directly related to the HOV lanes construction. Even though the City's project is included in this environmental document, Caltrans will not construct these elements as part of the HOV Project; the City will be responsible for the construction of the 65th Street improvements. Alternatives 1, 2, and 3 include the 65th Street improvement.

Figure 1-3 shows these improvements. The City's project, which extends from Folsom Boulevard on the north to Broadway on the south, includes:

- Overlaying 65th Street and re-striping the pavement with narrower traveled lanes and new bike lanes.
- Constructing new pedestrian "pork chop" islands at the WB US 50 off-ramp terminus, including signal modifications.
- Interconnecting the WB off-ramp, EB off-ramp, 4th Avenue, and Broadway traffic signals.
- Reconstructing the curb and gutter to provide bifurcated sidewalks with landscaped planters.
- Constructing a concrete barrier with hand railing and raising the sidewalk above the roadway level underneath the US 50 undercrossing structure.
- Replacing the existing 5-foot wide sidewalks with 8-foot wide sidewalks where existing right of way permits. These sidewalks will be Americans with Disabilities Act (ADA) compliant.
- Reconfiguring the ramp connections to 65th Street to encourage slower speeds.
- Providing landscaping and irrigation in the medians and sidewalk planters along 65th Street.
- Widening the US 50 EB off-ramp (1-right, 2-left turns) to improve ramp queuing.

PROJECT ALTERNATIVES

Alternative 1, HOV Lanes

Alternative 1 involves constructing one HOV lane in each direction, connecting to the existing HOV lanes at the Watt Ave I/C and extending west to the Sacramento River Viaduct. The HOV lanes will be constructed in both directions onto the existing structural section by re-striping and signing the facility. The eastbound HOV lane would begin at the Sacramento River Viaduct and terminate east of Watt Avenue. The westbound HOV lane would begin at the existing HOV at Watt Avenue and terminate at the Sacramento River Viaduct by converting to a mixed flow lane. The estimated cost to build Alternative 1 is approximately $109 million.

Alternative 2, Mixed Flow Lanes

Adding mixed flow lanes (lanes that allow all traffic) would require the same design features as Alternative 1, except the additional lanes are utilized as mixed flow vehicle lanes to add vehicle capacity. The estimated cost to build Alternative 2 is approximately $109 million.

Alternative 3, Take-a-Lane

This alternative would convert an existing mixed flow lane in each direction to an HOV lane by re-striping and signing to prohibit non-HOV traffic during peak periods. The estimated cost to build Alternative 3 is approximately $55 million.

Alternative 4, No Build

The No-Build alternative proposes no modifications to US 50 other than routine maintenance and rehabilitation, and future programmed projects. Alternative 4 does not meet the purpose and need of the project.

Common Design Features of the Build Alternatives

<u>Alternatives 1 and 2</u>

Proposed Freeway Engineering Features
The existing paved 36-foot median between the Sacramento River Viaduct and Watt Avenue I/C has capacity to add HOV or mixed flow lanes with minor deviations from design standards. The proposed median shoulder width would be 8 feet, the HOV/mixed flow lane width would be 11 feet, and the width of the number 1 and 2 mixed flow lanes would be restriped for 11 feet.

Twelve structures will be widened within the project limits (a discussion of structure work is included later in this section).

A combined drainage report and floodplain evaluation was performed for this project in January 2007. There are no direct storm water outfalls to water bodies within the project limits. All of the highway drainage discharges into local systems and is conveyed to the American River, north of the project limits. The existing local systems are at or near capacity. There will be no substantial increase to impervious drainage areas as a result of the proposed project. Drainage work was installed during the 2008 State Highway Operation and Protection Program (SHOPP) project that constructed the paved median and concrete barrier.

Minor drainage improvements will be included as part of the structure widening and to existing drainage facilities where sound walls are proposed along the edge of pavement.

Edge drains were placed next to the PCC pavement in the early 1970s. These are no longer functioning and are not being maintained. They will not be perpetuated in areas of outside widening where proposed sound wall along the edge of pavement is proposed.

Two sign structures must be relocated to meet worker safety requirements, as per Caltrans policy. Selected roadside signs along the edge of pavement in areas where proposed sound walls will be replaced. New signs will be added, as appropriate, including HOV lane signage.

Ramp Metering and other Intelligent Transportation Systems (ITS)
All on-ramps within the projects limits have operational ramp meters. Other ITS components are being evaluated to better monitor traffic conditions and report real-time information to vehicles in the corridor. These components would include additional fiber optic cable, CCTV, EMSs and CMSs.

A fiber optic communication system project is programmed for the 2014 SHOPP within the project limits. The current system is leased and consist of both wireless and DSL services. Performance and maintenance requirements would be improved. Project cost is estimated at $6.8 million. A Rehabilitation project is also planned that would impact all ITS elements within the PCC lanes on mainline. Both projects are included on Table 2-42. Coordination with these projects is on-going.

Utility Involvement
There are existing utilities within the project limits, including several high risk electric lines. Positive location (potholing) work for the high risk facilities and other facilities where there are potential conflicts will be done early in the Plans, Standards & Estimates (PS&E) phase.

PS&E includes the contract drawings which show the locations, character, and dimension of the prescribed work, including layouts, profiles, cross sections, and other details (Plans), the predicted project cost at the time of receipt of bids developed from a knowledge of the costs for materials, labor, and equipment required to perform the necessary items of work (Estimate), and the compilation of provisions and requirements for the performance of prescribed work (Specifications). The final “Determination of Liability” will occur on a case-by-case basis as the utility relocation plans are finalized.

Railroad & Light Rail Involvement
Two Union Pacific Railroad tracks and two Sacramento RT light rail tracks cross under US 50 at the Camellia City Viaduct between 19th St and 20th St downtown and at the Brighton OH just east of 65th St. Coordination with the railroads will be required to maintain construction clearances while widening the Camellia City Viaduct. Brighton OH will be widened in the median, spanning two active mainline tracks and relocating spur lines. No new crossings are being proposed.

Sacramento RT operates light rail in the corridor, generally paralleling Folsom Boulevard. The light rail is elevated as it crosses under US 50 at the Brighton OH. The system of overhead wires that supply electricity to light rail is referred to as a messenger wire and is attached directly to the soffit of this structure. The messenger lines for the Sacramento Regional Transit light rail crossing under US 50 east of 65th Street is attached to the soffit of the overhead structure and will be affected by the proposed structure widening. The messenger wire requires relocation since the new structure depth will be greater than the existing depth and conflicts with the existing messenger line. Cal OSHA clearance requirements also restrict workers in the vicinity of the active messenger line's existing alignment during construction.

Noise Barriers
There are existing state-built sound walls within the project limits as well as several private walls on residential properties along the State right of way (ROW). Caltrans recognizes the strong desire for noise abatement and is working actively with local agencies/groups to respond to any noise concerns. The project analyzed nine proposed sound walls. However, none met the reasonable allowance cost requirements set by FHWA requirements and thus are not eligible for federal re-imbursement. In determining whether sound walls will be built, factors such as existing sound wall replacement, public perception, local funding, and ultimate build requirements are will also considered. This environmental document analyzes potential environmental impacts resulting from sound walls, since the aforementioned factors may ultimately allow construction to occur as part of the project.

Highway Planting
If any of the proposed sound walls are constructed, new and replacement plantings, such as vines, are planned on proposed sound walls along the ROW. The single row of irrigated vines at some of the proposed sound wall locations will discourage graffiti and will be planted as part of this HOV Lane project. A revegetation plan would be required for the trees and miscellaneous landscaping along the ROW that would be removed for construction access to build sound walls. A one-year plant establishment will be included for the sound wall plantings.

Structure Rehabilitation and Upgrading
The decks of the existing structures throughout the project area are generally in fair to poor condition. The Sacramento River Viaduct and the Camellia City Viaduct have had deck rehabilitations since this project was initiated in 2012. The proposed project includes a 0.1 foot concrete polyester overlay to extend the service life of the bridge decks and match the new overlay profile. The table below lists each structure, their location, work proposed, and which alternative includes the work.

Table 1-4. Structures within the project limits.

Bridge Number	Bridge Name	Post Mile	Proposed Work
24-04 R/L	Sacramento River Viaduct	L0.20	Widen Median (westbound span only)
24-0243R/L	Southside Park Viaduct	L0.66	Widen Median and Place Sound Wall on North Side
24-0244R/L	9th St UC	L0.89	Widen Median and Place Sound Wall on North Side
24-0245R/L	10th St UC	L0.96	Widen Median and Place Sound Wall on Both Sides
24-0246R/L	Riverside Blvd UC	L1.06	Widen Median and Place Sound Wall on Both Sides
24-0247R/L	15th-16th St Separation	L1.36	Widen Median and Place Sound Wall on Both Sides
24-0248R/L	Camellia City Viaduct	L1.59	Widen Median and Place Sound Wall on Both Sides
24-0223R/L	26th St UC	L2.20	Widen Median
24-222G	East Connector OC	R0.13	Place Sound Wall
24-228R/L	Elmhurst Viaduct	R0.38	Widen Median and Place Sound Wall on Both Sides
24-0313	39th Street UC	R0.85	Place Sound Wall on Right Side
24-0289R/L	Brighton OH	R2.88	Widen Median
24-0288R/L	Folsom Blvd UC	R3.13	Widen Median
24-0286R/L	State College UC	R3.47	Widen Median

Right of Way
Temporary construction easements (TCE) are required for most of the proposed sound wall construction and grading along the State ROW. TCEs would be required for 20 properties to construct the proposed sound walls. Four properties will not require disturbance to occupied property since the utility easement along the ROW is clear. A small section of new right of way (ROW) may be required for sound wall SW WB1, located along the westbound SR 99/SR 50 connector, if this sound wall is constructed. The area involves existing roadway; no structures or land would be involved.

Existing Caltrans ROW fence and private property fencing/walls will be permanently removed to eliminate "double" fencing and in some cases "triple" fencing if sound wall was otherwise constructed next to the existing fencing.

<u>Alternative 3</u>

Potential sound walls, along with TCEs and replanting of disturbed areas related to the construction of sound walls, are the only features of Alternative 1 or 2 that will be included with Alternative 3.

Unique Features of Build Alternatives

<u>Alternative 1</u>

Alternative 1 involves the construction of HOV lanes in both directions. HOV lanes allow vehicles carrying the required minimum number of people (2) to travel in the HOV lane during posted operational hours. Certain plug-in-hybrid, alternative fuel and clean-air vehicles, motorcycles, mass transit, and para-transit are exempted from the occupancy requirement. Outside of posted hours, all vehicles may use the HOV lanes.

<u>Alternative 2</u>

Adding mixed flow lanes (lanes that allow all traffic) would require the same design features as Alternative 1, except the additional lanes are utilized as mixed flow vehicle lanes to add vehicle capacity.

<u>Alternative 3</u>

Alternative 3 would convert an existing mixed flow lane to HOV use during the peak AM and PM commutes.

Transportation System Management (TSM) and Transportation Demand Management (TDM)

Transportation System Management (TSM) strategies consist of actions that increase the efficiency of existing roadways; they are actions that increase the number of vehicle trips a roadway can carry without increasing the number of through lanes. Examples of TSM strategies include ramp metering, auxiliary lanes, turning lanes, reversible lanes, and traffic signal coordination. Transportation Demand Management (TDM) focuses on regional strategies for reducing the number of vehicle trips and vehicle miles traveled, as well as increasing vehicle occupancy.

Regarding TSM strategies, on-ramps within the projects limits have operational ramp meters. Nine out of the nineteen on-ramps provide an HOV bypass lane. HOV bypass lanes on the remaining ramps are not proposed due to limited funding and other geometric constraints. However, various ramps are being evaluated for widening to provide an HOV bypass lane in the future, pending funding and schedule.

Caltrans Design is also evaluating Intelligent Transportation Systems (ITS) components to better monitor traffic conditions and report real-time information to vehicles in the corridor. These components would include additional fiber optic cable, closed-circuit television (CCTV), extinguishable message signs (EMSs), and changeable message signs (CMSs). Note that a fiber optic communication system is programmed for the 2014 SHOPP within the project limits. Coordination with these projects and the development of ITS scope is on-going.

TDM focuses on regional strategies for reducing the number of vehicle trips and vehicle miles traveled as well as increasing vehicle occupancy. It facilitates higher vehicle occupancy or reduces traffic congestion by expanding the traveler's transportation choice in terms of travel method, travel time, travel route, travel costs, and the quality and convenience of the travel experience. Alternatives 1 and 3 provide HOV lanes, a TDM measure, throughout the project limits. TDM recognizes that as urban areas continue to grow, opportunities for investments in transportation infrastructure ("supply" or capacity side) become limited and that urban transportation corridors increasingly lack the physical space to accommodate more lanes. Thus, typical TDM strategies focus on the "demand" side to make existing transportation facilities work better (Association for Commuter Transportation, et al. 2004). Demand-side strategies are designed to better balance people's need to travel a particular route at a particular time with the capacity of available facilities to efficiently handle this demand. General TDM activities can range from infrastructure investments like high occupancy vehicle lanes and preferential parking spaces, to more programmatic investments like tax-based incentives and marketing. More targeted strategies can include guaranteed ride home programs for carpoolers, transit pass programs, flexible work schedules, and real-time route information.

IDENTIFICATION OF THE PREFERRED ALTERNATIVE

Following the public comment period, and after carefully considering the comments received, the Project Development Team (PDT) recommended Alternative 1, HOV Lanes, as the Preferred Alternative.

Alternative 1, HOV Lanes, was selected as the preferred alternative for the following reasons:

Alternative 1, HOV Lanes, would accomplish the objectives set forth in the purpose and need statement for the project while minimizing the impact on affected resources. Specifically, Alternative 1 would:

- Allow connectivity and consistency with the planned HOV system in the Sacramento Region.
- Enhance mobility and provide incentives for ridesharing during peak period travel.
- Achieve the goals of the current SACOG MTP by promoting ridesharing.
- Improve US 50 to meet the growing travel demand in the Sacramento Region.
- Provide an option for reliable peak period travel time.
- Use the highway facilities as efficiently as possible.
- Improve general traffic operations by reducing congestion and travel time.

Alternative 1 will experience traffic benefits over the other project alternatives:

Under Year 2040 conditions, Alternative 1 is projected to serve 1,400 more persons in the eastbound project corridor than Alternative 4 under peak period conditions (AM and PM peak hour), while Alternative 3 is projected to serve 850 less eastbound persons than Alternative 4. Alternative 1 is projected to serve 2,000 more persons in the westbound project corridor than Alternative 4 under peak period conditions (AM and PM peak hour), while Alternative 3 is projected to serve 1,200 less westbound persons than Alternative 4. Westbound travel times under Alternative 1 is shown to decrease by up to 7 minutes compared to Alternative 4 during the PM peak period. Additionally, Alternative 3 experience additionally delay due to vehicles having to wait in queues outside the project corridor and the increased bottlenecks that form when converting an existing lane to HOV.

Alternative 1 would result in 5% less VMT per person as compared to Alternative 4 and 2.5% less VMT per person than Alternative 3.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DISCUSSION PRIOR TO DRAFT ENVIRONMENTAL DOCUMENT

Transit-Only Alternative

This alternative constructs a lane for the dedicated use of transit. Although this alternative would meet some of the project objectives, such an alternative would not be consistent with the goals of SACOG's 2016 MTP/SCS. The proposed project is part of a larger network of existing and planned HOV lanes in the Sacramento region. A map of existing HOV lanes is available at www.dot.ca.gov/hq/traffops/trafmgmt/hov/. A list of planned HOV lane projects in the area are included in Appendix A of the 2016 MTP/SCS on the SACOG website (http://www.sacog.org/general-information/2016-mtpscs).

The 2016 MTP/SCS, and the preferred blueprint on which it is based, focuses upon providing a balance of transportation investments in order to offer alternatives for travelers. The Traffic Report shows the proposed project is expected to improve travel time for high occupancy vehicles and all other exempted vehicles from the occupancy requirement. Additionally it is expected to have a positive increase in commuter transit usage. Previous HOV lane projects have shown a positive correspondence between carpooling and bus ridership after implementation (Caltrans 2008). Information on HOV lanes can be found at www.dot.ca.gov/hq/traffops/trafmgmt/hov/hov_sys/index.html.

The Transit Only Alternative was considered because of the regional air quality benefits. It was rejected because the microsimulation traffic model showed it could not compete with other alternatives (even in a low growth scenario) and does not meet the purpose and need of this project.

Reversible Lanes

Reversible flow is an operational mode where the HOV lanes operate in one direction during the AM peak period and change to the opposite direction during the PM peak period. According to Caltrans HOV guidelines (California Department of Transportation 2016), a reversible barrier-separated HOV facility should be considered when the project is severely constrained by right of way and environmental considerations. This type of operation is feasible only if the existing and forecast peak period directional traffic split is 35% or less in one direction during the design life of the project. Other factors, which could support the use of a reversible flow operation, are right of way constraints and physical constraints, such as bridge columns, in retrofitting a reversible flow operation into the median. Reversible flow operation should only be used on barrier-separated HOV facilities with limited ingress/egress to the HOV lanes.

For this project, the project limits begin at Watt Avenue and extend to the Sacramento River. On this segment of freeway, the directional peak period traffic flows are almost even, with both directions heavily congested during the AM and PM commute hours. According to Caltrans' 2015 Annual Mobility Performance Report, eastbound and westbound US 50 near the Oak Park interchange are two of the top ten bottleneck locations (PM commute period) in Sacramento region. Secondly, reversible flow operation would require a moveable barrier. The cost of constructing the moveable barrier for this project is approximately $105 million, with an annual maintenance and operation cost of $700,000. The estimated cost to build Alternative 1, HOV Lanes, is approximately $151 million. Finally, this project is not severely constrained by either right of way or environmental considerations. As a result, a reversible lane alternative is not feasible for this project.

PROJECT SCHEDULE

Currently, the project is scheduled to begin construction in 2019 and finish in three years.

PERMITS AND APPROVALS NEEDED

No permits and approvals would be required for project construction.

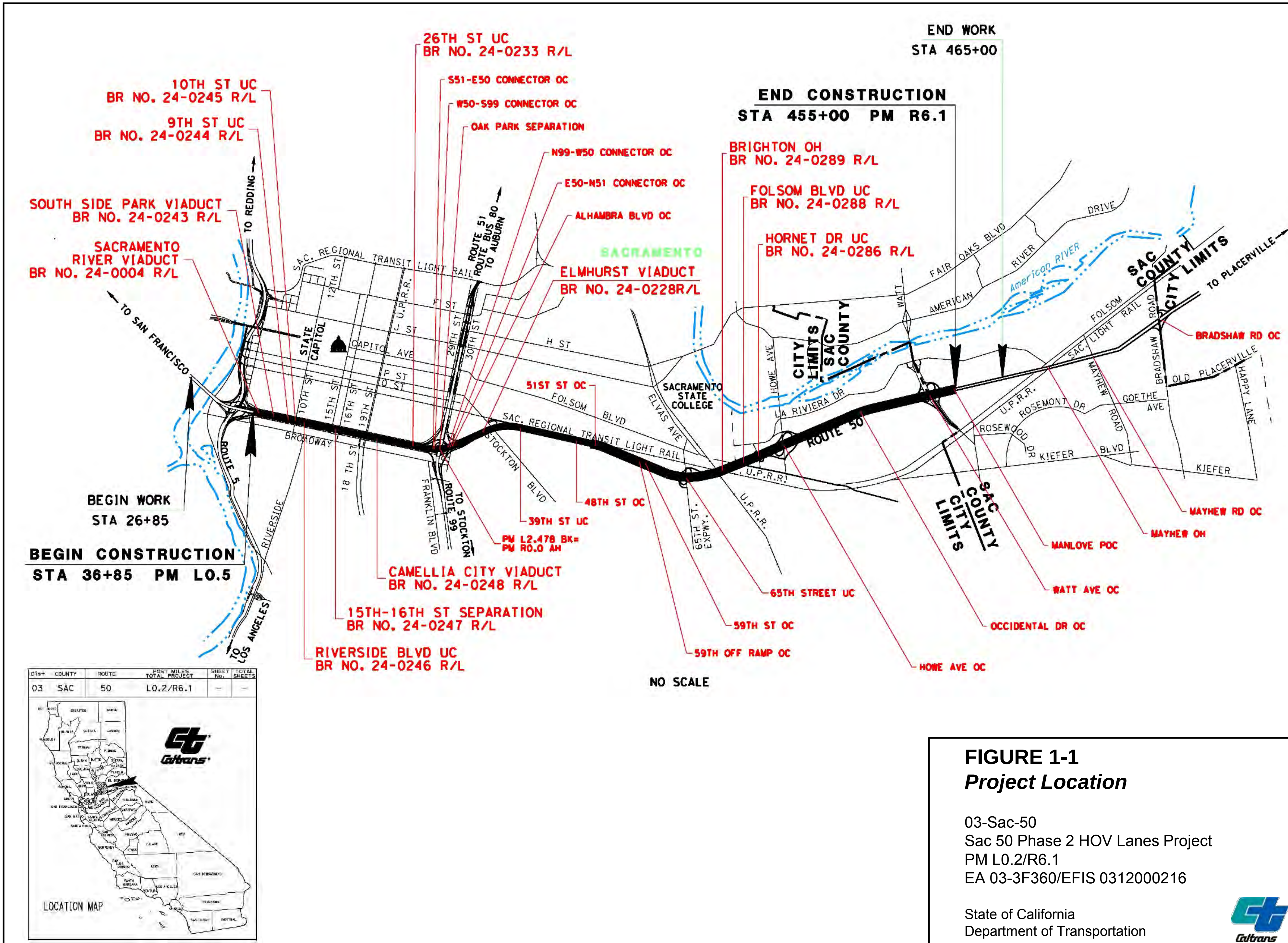


FIGURE 1-1
Project Location

03-Sac-50
Sac 50 Phase 2 HOV Lanes Project
PM L0.2/R6.1
EA 03-3F360/EFIS 0312000216

State of California
Department of Transportation

FIGURE 1-2
HOV Network Map

03-Sac-50
Sac 50 Phase 2 HOV Lanes Project
PM L0.2/R6.1
EA 03-3F360/EFIS 0312000216

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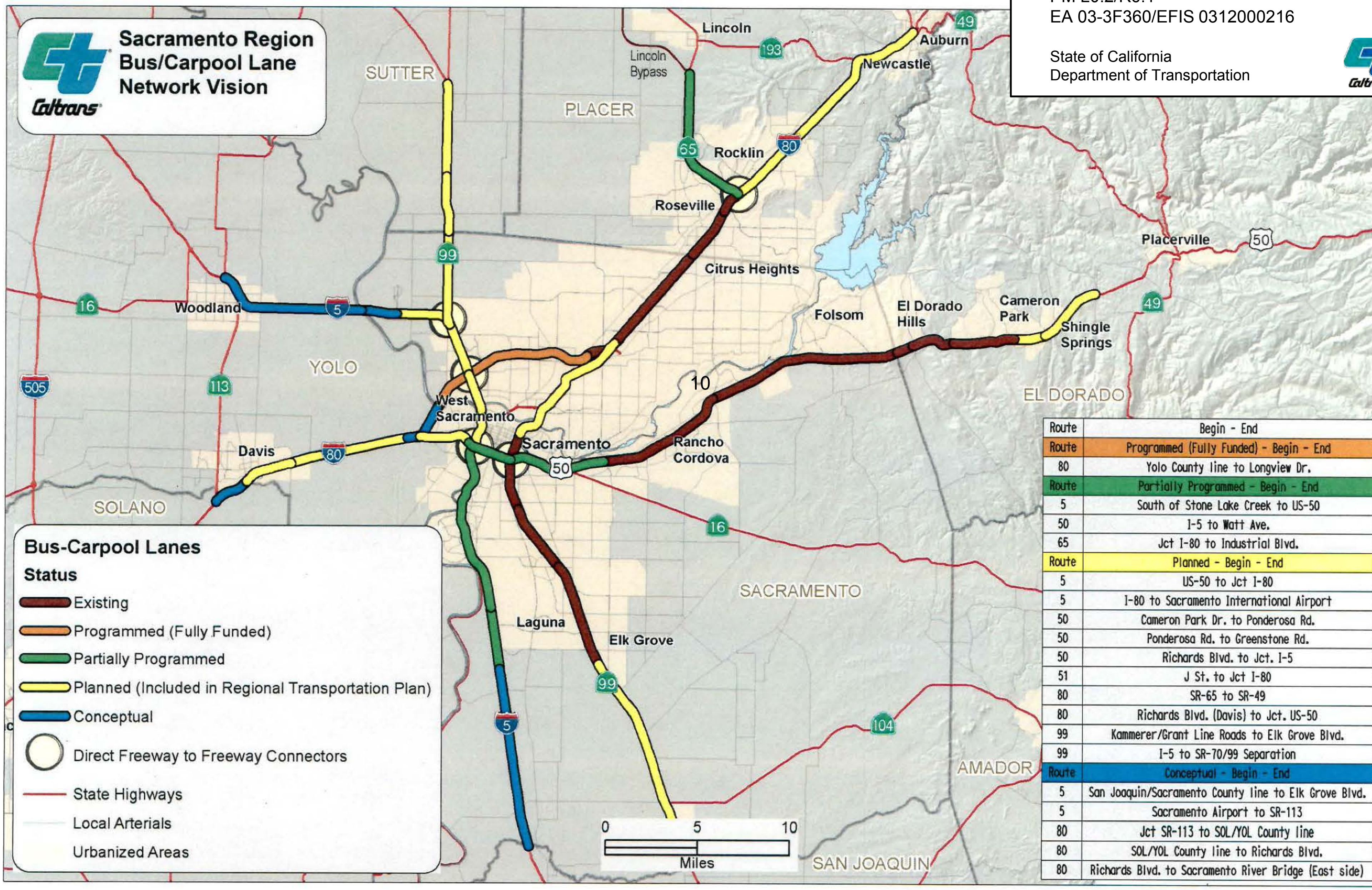

Route	Begin - End
Route	Programmed (Fully Funded) - Begin - End
80	Yolo County line to Longview Dr.
Route	Partially Programmed - Begin - End
5	South of Stone Lake Creek to US-50
50	I-5 to Watt Ave.
65	Jct I-80 to Industrial Blvd.
Route	Planned - Begin - End
5	US-50 to Jct I-80
5	I-80 to Sacramento International Airport
50	Cameron Park Dr. to Ponderosa Rd.
50	Ponderosa Rd. to Greenstone Rd.
50	Richards Blvd. to Jct. I-5
51	J St. to Jct I-80
80	SR-65 to SR-49
80	Richards Blvd. (Davis) to Jct. US-50
99	Kammerer/Grant Line Roads to Elk Grove Blvd.
99	I-5 to SR-70/99 Separation
Route	Conceptual - Begin - End
5	San Joaquin/Sacramento County line to Elk Grove Blvd.
5	Sacramento Airport to SR-113
80	Jct SR-113 to SOL/YOL County line
80	SOL/YOL County line to Richards Blvd.
80	Richards Blvd. to Sacramento River Bridge (East side)

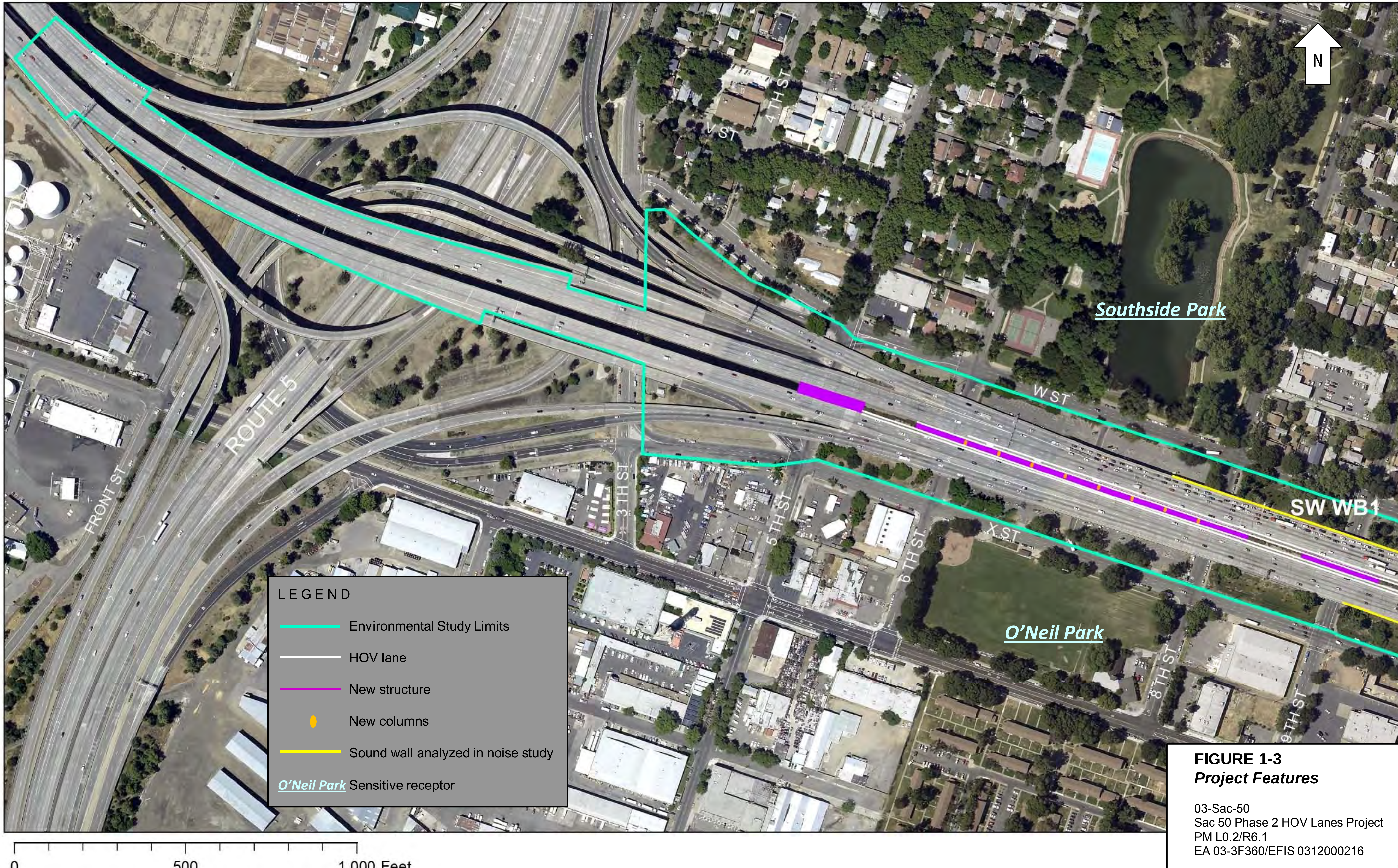

FIGURE 1-3
Project Features

03-Sac-50
Sac 50 Phase 2 HOV Lanes Project
PM L0.2/R6.1
EA 03-3F360/EFIS 0312000216

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FIGURE 1-3
Project Features (cont.)

03-Sac-50
Sac 50 Phase 2 HOV Lanes Project
PM L0.2/R6.1
EA 03-3F360/EFIS 0312000216

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FIGURE 1-3
Project Features (cont.)

03-Sac-50
Sac 50 Phase 2 HOV Lanes Project
PM L0.2/R6.1
EA 03-3F360/EFIS 0312000216

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FIGURE 1-3
Project Features (cont.)

03-Sac-50
Sac 50 Phase 2 HOV Lanes Project
PM L0.2/R6.1
EA 03-3F360/EFIS 0312000216

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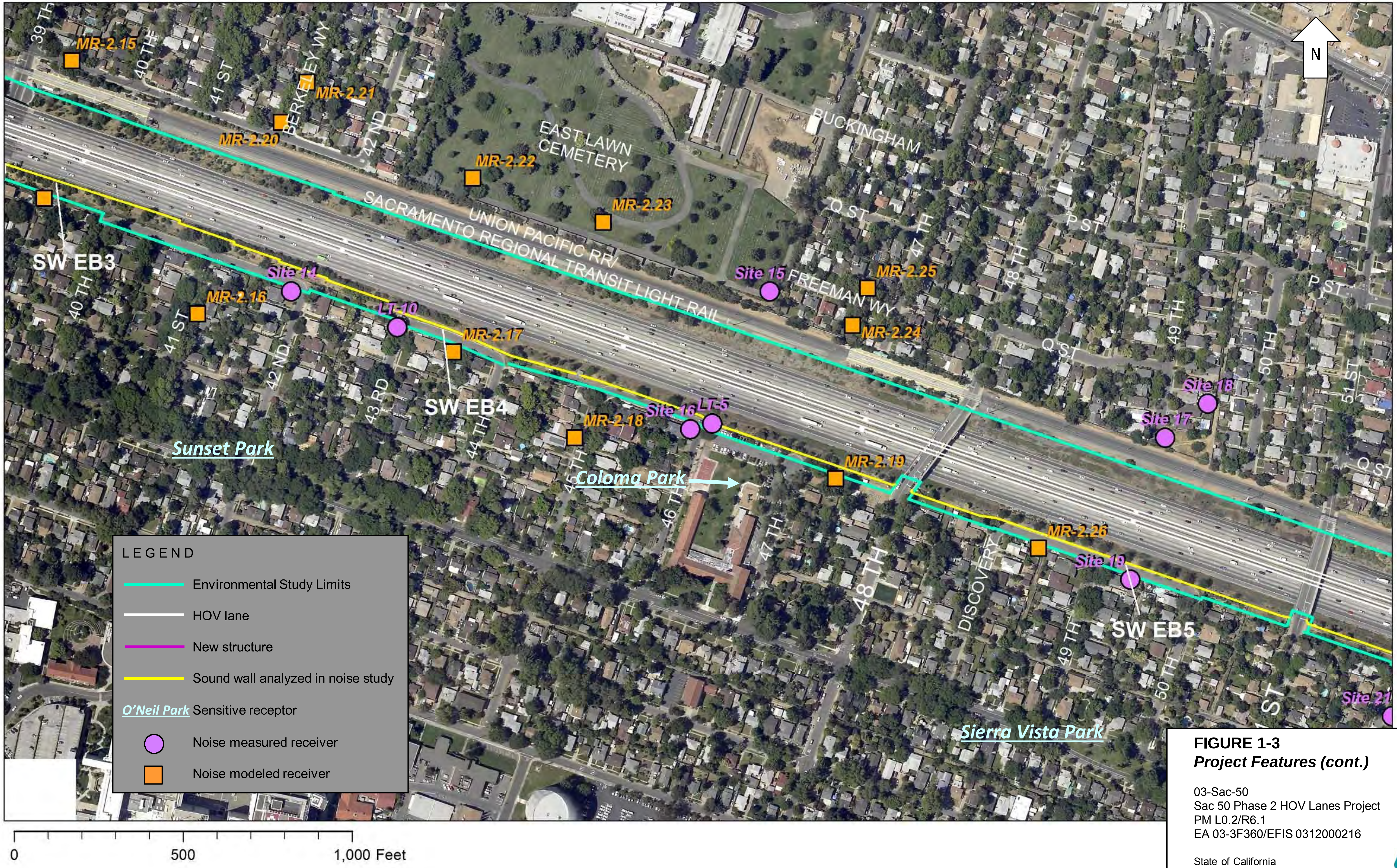

FIGURE 1-3
Project Features (cont.)

03-Sac-50
Sac 50 Phase 2 HOV Lanes Project
PM L0.2/R6.1
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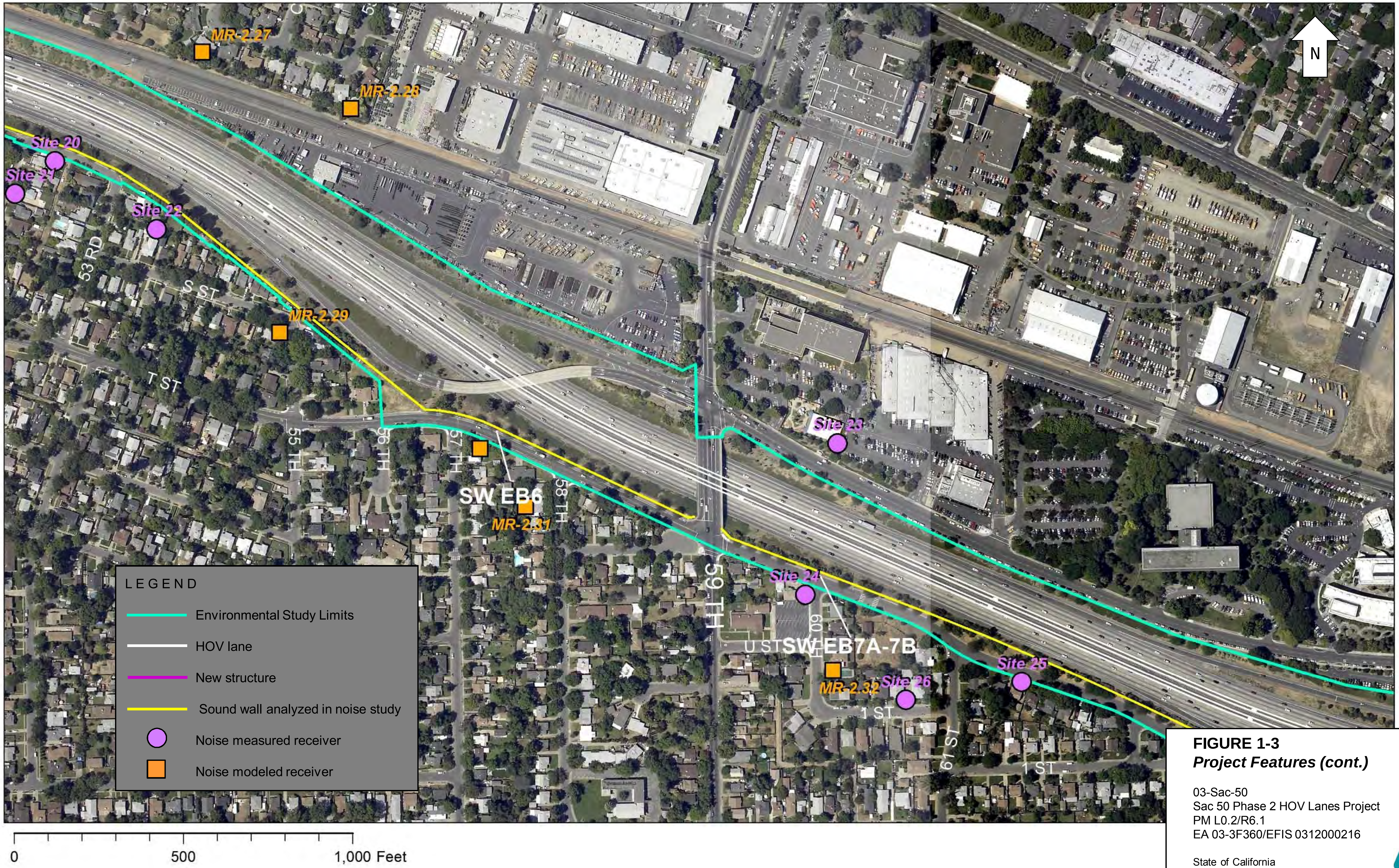

FIGURE 1-3
Project Features (cont.)

03-Sac-50
Sac 50 Phase 2 HOV Lanes Project
PM L0.2/R6.1
EA 03-3F360/EFIS 0312000216

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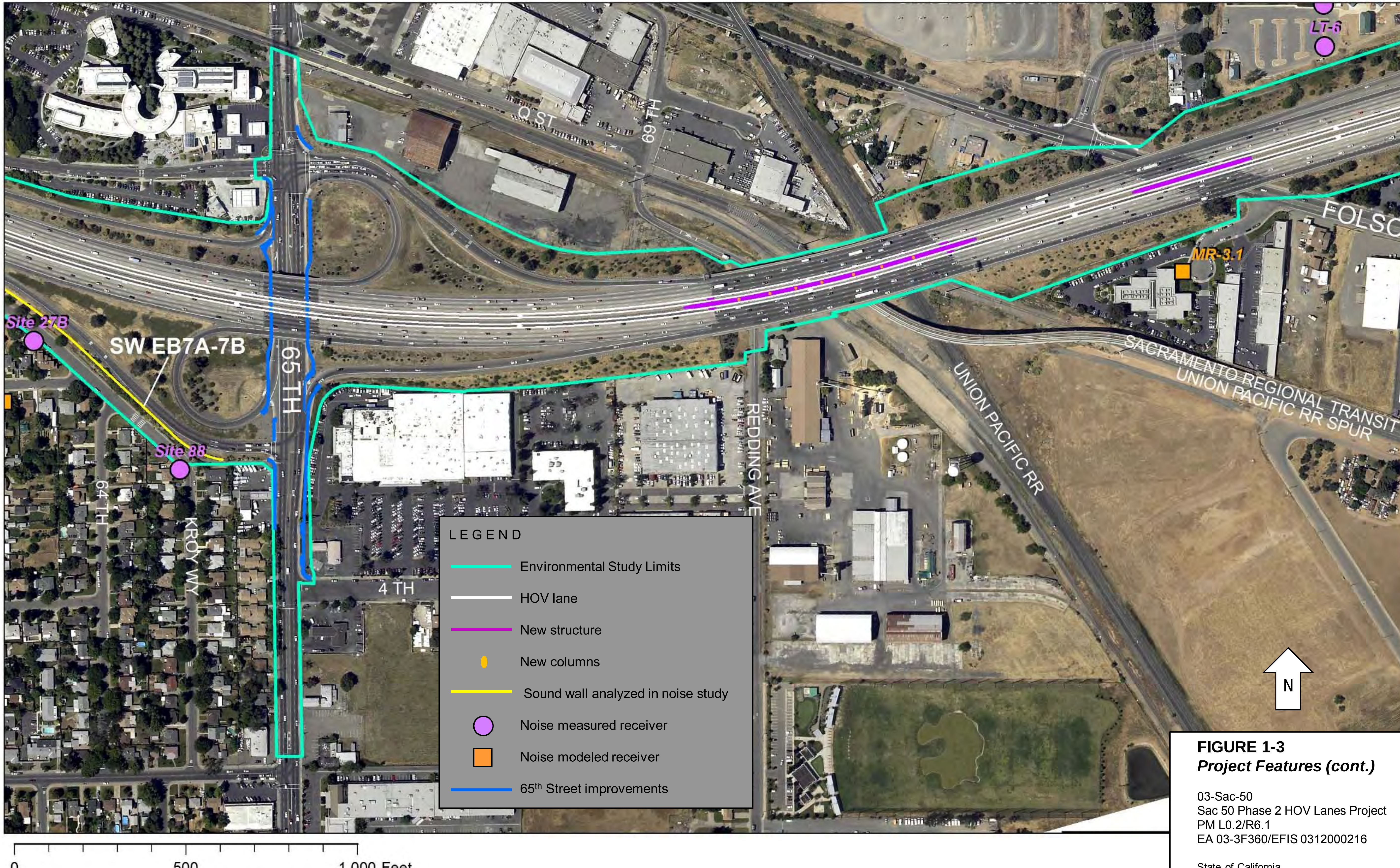

FIGURE 1-3
Project Features (cont.)

03-Sac-50
Sac 50 Phase 2 HOV Lanes Project
PM L0.2/R6.1
EA 03-3F360/EFIS 0312000216

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FIGURE 1-3
Project Features (cont.)

03-Sac-50
Sac 50 Phase 2 HOV Lanes Project
PM L0.2/R6.1
EA 03-3F360/EFIS 0312000216

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FIGURE 1-3
Project Features (cont.)

03-Sac-50
Sac 50 Phase 2 HOV Lanes Project
PM L0.2/R6.1
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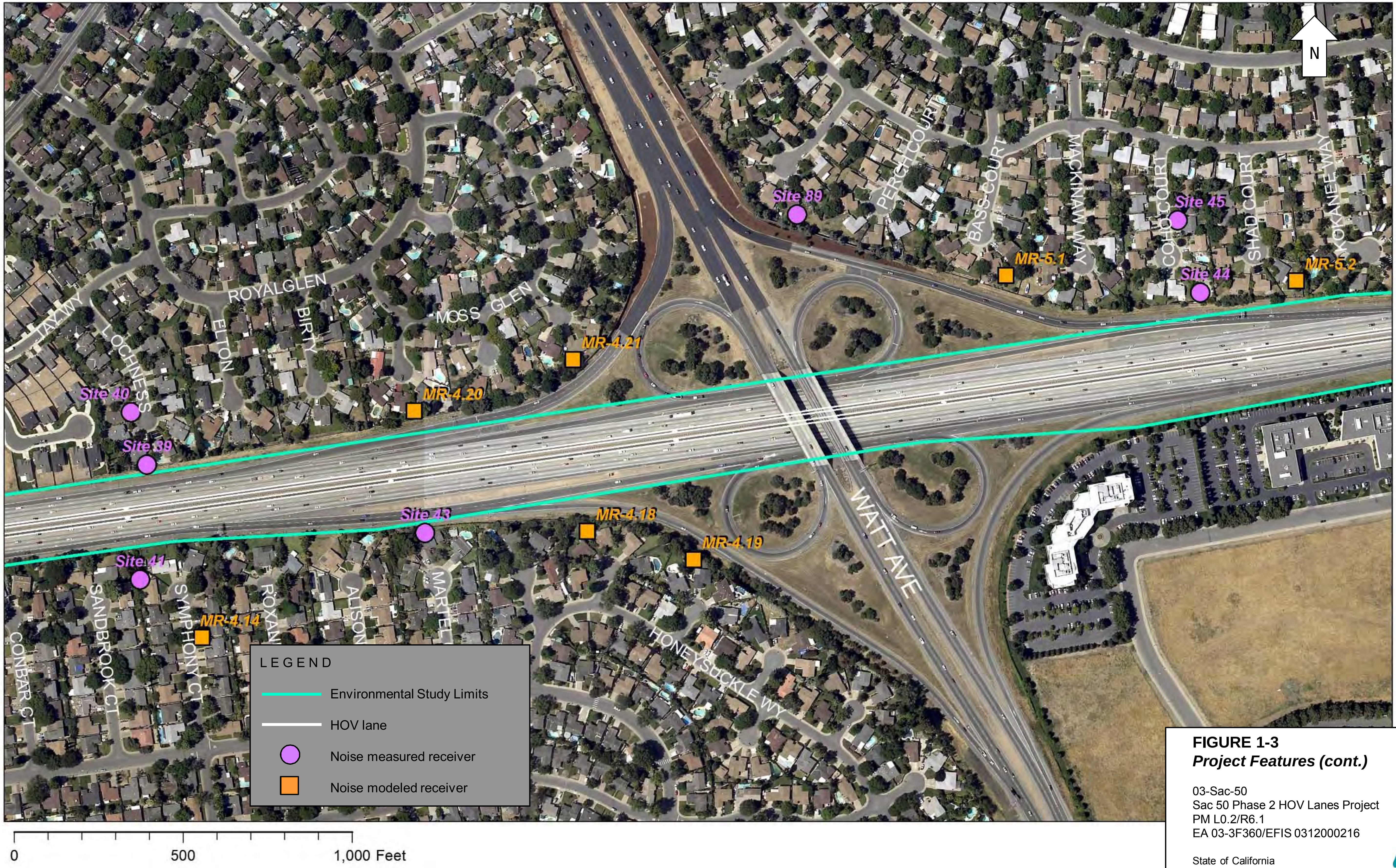

FIGURE 1-3
Project Features (cont.)

03-Sac-50
Sac 50 Phase 2 HOV Lanes Project
PM L0.2/R6.1
EA 03-3F360/EFIS 0312000216

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FIGURE 1-3
Project Features (cont.)

03-Sac-50
Sac 50 Phase 2 HOV Lanes Project
PM L0.2/R6.1
EA 03-3F360/EFIS 0312000216

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Chapter 2 – Affected Environment, Environmental Consequences, and Avoidance and Minimization Measures

As part of the scoping and environmental analysis carried out for the project, the following environmental issues were considered but no adverse impacts were identified. As a result, there is no further discussion about these issues in this document, with the exception of avoidance and minimization measures discussed at the end of the document and in Appendix E.

- Biology (except nesting birds and bats) – no biological resources, with the exception of potential nesting birds and roosting bats, were identified within the project limits (even though there are no impacts, a discussion regarding threatened and endangered species is included in the biology section).
- Farmland/Timberland – no farmlands or timberlands are within the project limits.
- Geology/Soils/Topography – no geologic, soil, or topographic features are affected.
- Mineral Resources – no mineral resources were identified within the project limits.
- Recreational Facilities – no recreational facilities will be affected by the project.
- Wetlands – no wetlands were identified within the project limits.

HUMAN ENVIRONMENT

2.1 Land Use

Affected Environment

The project area is located within a highly urbanized section of Sacramento. Land use patterns in the project area are shaped by the locations of the major roads that cross the corridor. There are a total of eight interchanges (I/C) within the project limits: I-5/US 50, SR99/I-80/US 50 (Oak Park I/C), Stockton Boulevard, 59th Street, 65th Street, Hornet Drive, Howe Avenue, and Watt Avenue. Several other streets cross below US 50, including 6th to 8th Streets, 9th Street, 10th Street, Riverside Boulevard, 15th to 16th Streets, 18th to 26th Streets, 34th Street, 39th Street, 48th Street, 51st Street, and Folsom Boulevard. Land uses along the US 50 corridor are primarily residential, with commercial and industrial near the major intersections.

The area considered for potential effects ("Study Area") covers approximately one-half-mile area around the Project Area, where direct impacts are most likely to occur. The Study Area is located within the City of Sacramento. Although not part of the Study Area, the cities of Rancho Cordova and West Sacramento were included in the population, employment, and commuting.

Land use designations in the Study Area include residential, commercial, office, retail, industrial, private, public, institutional, recreational, parks/open space, transportation/utility, and urban vacant. Land uses from I-5 to SR-99 is a mix of developed residential, commercial, and office. From SR-99 to Watt Avenue land use is primarily residential and commercial. Other major land uses near US 50 include the California State University at Sacramento and U.C. Davis Medical Center, which are located adjacent to the US 50/Howe Avenue I/C.

Zoning from I-5 to the Oak Park I/C consists of R-1 (Standard Single Family Residential), R-3A (Multi-Family), and C-2 (Standard Commercial). Zoning from the Oak Park I/C to 59th Street is mainly R-1. From 59th Street to Howe Avenue, zoning is mixed, including R-1, C-2, EC (Employment Center), and OB (Office Building). From Howe Avenue to Watt Avenue, zoning consists mainly of R-1, with R-2B (Multi-Family) just east of the Howe Avenue I/C.

The City manages the Coloma Community Center located south of US 50 at 48th Street.

The area underneath the elevated portion of the freeway in downtown Sacramento (viaducts) is owned by Caltrans and is currently leased and under airspace agreements with the State, including the City of Sacramento, various State agencies, and several local businesses. The current leases include parking, a monthly antiques fair, a weekly farmer's market, and a self-storage facility (see Table 2-1, below).

Table 2-1. Current tenants under the downtown viaducts.

Street Address	Tenant	Comments
Between 6th and 8th Street	City of Sacramento	The City of Sacramento is now responsible for this lease until 2025. Use activities include parking, weekly Farmers Market and the SactoMoFo (mobile food trucks) twice per year.
Between 14th & 15th Street	Mini Storage	Lease expires in July 2019.
Between 18th & 19th Street	City of Sacramento	Lease with City of Sacramento, just extended 10 years to 2025. Used for parking.
Between 19th & light rail	City of Sacramento	Lease with the City of Sacramento until 2062. Possible location of the Sacramento Streetcar Maintenance yard.
Between Light rail & 20th Street	Vacant	Vacant dirt lot.
Between 20th & 22nd Street	City of Sacramento	Lease with City of Sacramento until 2025. Activities include parking and the Sacramento Antiques Faire.
Between 22 & 23rd Street	City of Sacramento	Lease with the City of Sacramento until 2026. Activities include parking.
Between 23rd & 24th Street	DMV	Lease with DMV until 12/31/16 with 2 five year options to extend. Activities include parking.

Consistency with State, Regional, and Local Plans and Programs

Sacramento Area Council of Governments (SACOG)

Regional Blueprint
The SACOG Board of Directors adopted the Preferred Blueprint Scenario in December 2004, a vision for growth that promotes compact, mixed-use development and more transit choices as an alternative to low density development. The Preferred Blueprint Scenario depicts a way for the region to grow through the year 2050 in a manner generally consistent with the Blueprint growth principles. The Preferred Blueprint Scenario is part of SACOG's 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy, the long-range transportation plan for the six-county region. It also serves as a framework to guide local government in growth and transportation planning through 2050.

2016 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS)
The proposed regional network of high occupancy vehicles is included in 2016 MTP/SCS, which is based upon the principles of the Preferred Blueprint Scenario. The proposed project is included in the 2016 MTP/SCS (see Appendix J).

City of Sacramento General Plan, 2030

The current City of Sacramento General Plan was adopted on March 3, 2015 (City of Sacramento 2015). The City of Sacramento's 2035 General Plan supports the development of programs that increase vehicle occupancy:

Goal M 1.2
Multimodal System. Increase multimodal accessibility (i.e., the ability to complete desired personal or economic transactions via a range of transportation modes and routes) throughout the city and region with an emphasis on walking, bicycling, and riding transit.

Policies

M 1.2.1 Multimodal Choices. The City shall develop an integrated, multimodal transportation system that improves the attractiveness of walking, bicycling, and riding transit over time to increase travel choices and aid in achieving a more balanced transportation system and reducing air pollution and greenhouse gas emissions.

Goal M 1.3
Barrier Removal. Improve accessibility and system connectivity by removing physical and operational barriers to safe travel.

M 1.3.7 Regional Transportation Planning. The City shall continue to actively participate in Sacramento Area Council of Government's (SACOG's) regional transportation planning efforts to coordinate priorities with neighboring jurisdictions and continue to work with all local transit providers and the California Department of Transportation (Caltrans) on transportation planning, operations, and funding.

Goal M 1.4
Transportation Demand Management. Decrease the dependence on single-occupant use of motor vehicles through Transportation Demand Management.

Policies

M 1.4.1 Increase Vehicle Occupancy. The City shall work with a broad range of agencies (e.g., SACOG, SMAQMD, RT, Caltrans) to encourage and support programs that increase vehicle occupancy including the provision of traveler information, shuttles, preferential parking for carpools/vanpools, transit pass subsidies, and other methods.

M 1.4.2 Automobile Commute Trip Reduction. The City shall encourage employers to provide transit subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting and work-at-home programs, employee education, and preferential parking for carpools/vanpools.

Sacramento County General Plan

Sacramento County adopted its General Plan in December 1993 and amended in November 9, 2011 and in May 28, 2014. The Circulation Element of the 1993 General Plan supported the construction of a regional network of bus/carpool lanes (County of Sacramento 2014a):

> Bus/Carpool lanes, also known as High Occupancy Vehicle (HOV) lanes, is a system of exclusive lanes signed and striped for use by vehicles, buses, motorcycles, and vanpools with multiple occupants (two or more or three or more persons). Bus/Carpool lanes are designed to reduce traffic congestion, improve safety, reduce fuel consumption, and improve air quality. Sacramento County supports the development of a regional network of Bus/Carpool lanes.

GOAL: Provide mobility for current and future residents of Sacramento County through complete streets and through a balanced and interconnected transportation system which includes all modes of travel - automobile, transit, pedestrian and bicycling.

Policies

CI-3. Travel modes shall be interconnected to form an integrated, coordinated and balanced multi-modal transportation system, planned and developed consistent with the land uses to be served.

CI-4. Provide multiple transportation choices to link housing, recreational, employment, commercial, educational, and social services.

GOAL: Provide a balanced and integrated roadway system that maximizes the mobility of people and goods in a safe and efficient manner.

Policies

CI-7. Plan and construct transportation facilities as delineated on the Transportation Plan of the Sacramento County General Plan. Transportation facilities shall be consistent with the Sacramento County, Municipal Services Agency Improvement Standards and Construction Specifications, and supplemented by the California Department of Transportation (Caltrans) design standards. The County may deviate from the adopted County Improvement Standards and Construction Specifications in circumstances where conditions warrant special treatment.

Sacramento Regional Transit District's Strategic Plan, 2015 - 2020

The Sacramento Regional Transit District (RT) produced its current Strategic Plan in 2015. RT Board of Directors adopted the last Strategic Plan in 2004. In the decade since the previous Strategic Plan was approved, the region has experienced tremendous change. This update to RT's Strategic Plan provides a current framework to evaluate and prioritize potential services and efforts included in various agency plans. (Sacramento Regional Transit 2015).

The mission of the 2015-2020 plan is to promote and improve access in the Sacramento region by providing safe, reliable, and fiscally responsible transit service that links people to resources and opportunities. The vision of the plan is to connect people to resources and opportunities while stimulating livable communities and supporting economic development by providing an efficient and fiscally sustainable transit system that attracts and serves riders by offering an appealing transportation choice.

The proposed project is consistent with local plans and policies.

Environmental Consequences

Land Use
No permanent direct or indirect effects to land use are anticipated. The proposed project is consistent with local plans and policies.

A small section of new ROW would be required for sound wall SW WB1, located along the westbound SR 99/SR 50 connector. The area involves existing roadway; no buildings or land would be involved. Temporary construction easments may be required for storage and movement of equipment and materials through and around the construction zone and for the construction of sound walls.

Under Alternatives 1 and 2, the airspace leases for the uses under the W-X freeway will be relieved during the time of construction (see Table 2-1). The tenants will vacate the space during the duration of construction for safety reasons. After construction has ended, most tenants will be invited back after construction. The tenants would be responsible for finding an alternate location to conduct business until these sites are made available again. The airspace leases stipulate that in the event of work on all or a part of the freeway structures which are situated on, above or adjacent to the leased area or be required to use all or a portion of the leased area in connection with the protection, maintenance, reconstruction, and operation of the state highway system, Caltrans has the right to impose restrictions on the leasee's right to enter, occupy, and use the leased area.

The lease for the mini-storage business expires in 2019, prior to project construction. Caltrans may either not renew the lease, terminate the lease, or rebuild access.

Alternatives 3 and 4 do not require any tenants under the W-X freeway to relocate.

Construction Impacts

Temporary construction impacts would not affect local or regional land use or development plans.

For Alternatives 1 and 2, the airspace leases under the viaducts of the W-X freeway will be affected by project construction. Caltrans will terminate the tenancy and require these uses to vacate during the duration of construction for safety reasons. After construction has ended, tenants will be invited back.

The tenants would be responsible for finding an alternate location to conduct business until these sites were made available again.

Avoidance and/or Minimization Measures

For Alternatives 1 and 2, Caltrans will consider phased construction in the W-X freeway section as a possible strategy to reduce impacts to the airspace lease tenants beneath US 50 (see Table 2-1). Phased construction would involve constructing one viaduct segment at a time, so that not all the tenants would be affected concurrently. This would reduce potentially parking issues for events at the new downtown arena.

CEQA Considerations

As discussed above, the project alternatives would not physically divide an established community, conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project, or conflict with any applicable habitat conservation plan or natural community conservation plan. No permanent direct or indirect effects to land use are anticipated. The proposed project is consistent with local plans and policies. Regarding uses under the W-X freeway, the airspace leases under the viaducts of the W-X freeway will be affected by construction of Alternatives 1 and 2. Caltrans will terminate the tenancy and require these uses to vacate during the duration of construction for safety reasons. After construction has ended, tenants will be invited back.

2.2 Growth

Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with NEPA, require evaluation of the potential environmental effects of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations (40 Code of Federal Regulations [CFR] 1508.8) refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

CEQA also requires the analysis of a project's potential to induce growth. The 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

This analysis was prepared using Caltrans' *Guidance for Preparers of Growth-Related, Indirect Impact Analysis (Growth-Related Guidance)* (Caltrans, 2006a). This guidance specifically addresses the subset of indirect effects associated with highway projects that encourage or facilitate land use or development that changes the location, rate, type or amount of growth—and are referred to in the *Growth-Related Guidance* as "growth-related impact."

The study area selected for growth-related impacts consisted primarily of the project limits and the cities of Rancho Cordova and West Sacramento, which house the expected trip origins and destinations most likely to be affected by the proposed project.

Previous project information reviewed for this analysis included the relevant planning documents outlined in Chapter 2 of this document, as well as the Preliminary Environmental Assessment Report (PEAR) and the Supplemental Project Study Report (PSR) prepared by Caltrans for the original Sac 50 HOV project in August 2001. The project limits in the PEAR and Supplemental PSR were Sunrise Boulevard to 9th Street in downtown Sacramento; however, the limits were changed to Watt Avenue and Sunrise Boulevard.

Assessing the Need for a Growth-Related Impact Analysis

Accessibility is the most direct link between transportation and land use and refers to the project's potential to reduce cost of travel, either in terms of money or time, potentially enhancing the attractiveness of surrounding land to developers and consumers. When changes in accessibility provided by a transportation project facilitate land use change, one outcome can be growth-related impacts to environmental resources.

Project type is another important factor to consider when evaluating the need for a growth-related analysis. According to the *Growth-Related Guidance*:

> Adding high occupancy vehicle (HOV) lanes or mixed flow lanes are examples of projects that could cause growth-related impacts because they add capacity to an existing facility. These projects warrant closer consideration to determine whether an analysis of growth-related impacts will be necessary.

Project location is another element of growth-related impacts. The proposed project is located within the city of Sacramento. Within the project limits, there is very little area for new development. The area is highly urbanized, with new development limited to reclaimed land or small in-fill.

Finally, growth pressure must be considered when evaluating the potential for growth-related impacts. Growth pressure is influenced by circumstances such as land availability and price, existing infrastructure, the regional economy, vacancy rates, and land use controls, although the degree to which growth is influenced by these circumstances will vary from project to project.

Based on the project's potential to reduce time-of-cost travel for users of the bus/carpool lanes, it was determined that an analysis of the project's potential for growth-related impacts was warranted. The growth-analysis is included in the Community Impacts Assessment (CIA) prepared for the proposed project.

The study area selected for growth-related impacts consists primarily of the project limits and to a lesser extent Sacramento County, the City of Rancho Cordova, and the City of West Sacramento—which house the expected trip origins and destinations most likely to be affected by the proposed project.

In 2013, Sacramento County had a population of just over 1.4 million, the City of Sacramento had a population of about 471,500, the City of Rancho Cordova had a population of 66,000, and the City of West Sacramento 49,000. By 2035, SACOG projects that Sacramento County's population will increase by 511,400 (27% increase), City of Sacramento by 181,400 (29% increase), City of Rancho Cordova by 66,100 (52% increase), and the City of West Sacramento by 43,500 (49%) (SACOG 2012). SACOG also projects that by 2035, employment will increase by 211,500 (25%) in Sacramento County, 77,100 (21%) in the City of Sacramento, 25,500 (35%) in the City of Rancho Cordova, and 20,800 (39%) in West Sacramento (SACOG 2012). Please refer to Table 2-6 at the end of this section. Although construction of new homes slowed in the region due to a weak housing market starting 2008, this market has picked up in the last several years and over the long run, new housing construction is expected to continue in the Sacramento area.

Potential for Growth and Local Plans

Community comprehensive plans and planning laws, such as land use and zoning regulations, are most often the primary means of controlling growth and development. County and local governments use these plans and regulations to encourage or discourage growth in their communities as they see appropriate. Any changes to these plans or regulations involve public review and input. Other constraints to growth can include a lack of public utility infrastructure and services such as water, gas and electric, and sewage.

As stated above, the proposed project is consistent with regional planning efforts, including SACOG's Preferred Blueprint Scenario and the 2016 MTP/SCS. The population distribution anticipated in SACOG's planning area is based on a future transportation network that includes the proposed project.

Potential for Growth and Accessibility Improvements

The existing development in Sacramento along the US 50 corridor has resulted in congestion and travel delays during peak hours. Even though the current Level of Service (LOS) along the US 50 corridor is currently at "D" (minimal delays), according to the Traffic Report prepared for the proposed project, the current LOS at key portions of US 50 within the study area during peak hours is " F," meaning traffic experiences forced or breakdown flow and more vehicles are arriving than are leaving. This congestion will only worsen with development anticipated outside the project area in Sacramento County, City of Sacramento, Rancho Cordova, and West Sacramento for the years ahead, as noted in the SACOG Blueprint.

The proposed project would provide a benefit to intercity commuters. The proposed project, and a regional network of high occupancy vehicle lanes, is included in both the SACOG Blueprint and the 2016 MTP/SCS. The 2016 MTP/SCS is based upon the SACOG Preferred Blueprint Scenario —a planning framework that is expected to improve jobs/housing balance in the communities in the region, when compared to future conditions without the Blueprint.

Environmental Consequences

Alternative 1

Alternative 1 seeks to reduce congestion and encourage alternative means of commuting by extending existing HOV lanes on US 50 between downtown Sacramento and Watt Avenue. This alternative would provide greater connectivity within the HOV lane system in the Sacramento region, which consists of existing and planned bus/carpool lanes on I-80, I-5, US 50, and SR 99. These improvements are being proposed because of demands put on the region's transportation system due to the existing rates of growth in the greater Sacramento area. The projects are also part of a long-term Caltrans effort to encourage the use of transit and multi-passenger occupied vehicles.

Alternative 1 would increase vehicle capacity of an existing freeway that is currently heavily congested. The alternative would improve travel times for bus and carpool users, particularly when compared to the No Build Alternative (please refer to the Traffic and Transportation section in this document). The capacity increasing potential of Alternative 1 would be insufficient to ensure a freeway with no delays given the level of residential and non-residential development that has already occurred and is planned for eastern Sacramento County. The areas next to the project are already built-out, with little opportunity for new development. Thus, the proposed build alternatives, including Alternative 1, are not expected to have a growth-inducing impact on the study area or its surrounding communities. City and regional plans indicate that Sacramento County as well as the City of Sacramento are preparing for relatively rapid growth in the near future, and the most current data indicate that this growth is occurring and is likely to continue to occur according to planned build-out with or without the proposed project.

The HOV lane is designed to provide an alternative to single-occupancy vehicle travel and encourage drivers to combine vehicle trips, thus removing some cars from the freeway. Although new capacity would be added under Alternative 1, it is not expected to result in new, unplanned growth. The design of Alternative 1 does not create any new access points or alter current ramp locations nor would Alternative 1 remove any key restraints to growth—it would not change any land use designations or open any new areas to development.

Alternative 2

Impacts to growth from Alternative 2 are similar to Alternative 1. Alternative 2 would also add vehicle capacity, but this increase in capacity is not expected to result in new, unplanned growth. The areas next to the project are already built-out, with little opportunity for new development. Thus, the proposed build alternatives, including Alternative 2, are not expected to have a growth-inducing impact on the study area or its surrounding communities. City and regional plans indicate that Sacramento County as well as the City of Sacramento are preparing for relatively rapid growth in the near future, and the most current data indicate that this growth is occurring and is likely to continue to occur according to planned build-out with or without the proposed project.

Alternative 3

With development already planned and in progress, Alternative 3 (Mixed Flow to Bus/Carpool Lane Conversion) is equally unlikely to result in growth-related indirect impacts to resources. Development would be expected to continue as planned and congestion would worsen. Alternative 3 would not be expected to constrain growth, as no data was found that would suggest that this alternative would prevent or reduce the amount or type of development outlined in local planning documents because this alternative does not add capacity to US 50.

Alternative 4

With development already planned and in progress, Alternative 4 (No-Build) is equally unlikely to result in growth-related indirect impacts. Without the proposed project, development would be expected to continue as planned and congestion would worsen. Alternative 4 would not be expected to constrain growth, as no data was found that would suggest that this alternative would prevent or reduce the amount or type of development outlined in local planning documents.

Avoidance and/or Minimization Measures

As discussed above, growth impacts are not anticipated. No avoidance and/or minimization measures are required.

CEQA Considerations

As discussed above, it is not anticipated that the project alternatives will induce substantial population growth, either directly or indirectly. Alternatives 1 and 2 would increase vehicle capacity. This increased capacity is not expected to result in new, unplanned growth. The proposed build alternatives are not expected to have a growth-inducing impact on the study area or its surrounding communities. City and regional plans indicate that Sacramento County as well as the City of Sacramento are preparing for relatively rapid growth in the near future, and the most current data indicate that this growth is occurring and is likely to continue to occur according to planned build-out with or without the proposed project. Alternatives 3 and 4 would not be expected to constrain growth, as no data was found that would suggest these alternatives would prevent or reduce the amount or type of development outlined in local planning documents because these alternatives do not add capacity to US 50. No growth-related impacts are anticipated.

2.3 Community Impacts

Regulatory Setting

NEPA, as amended, established that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive and aesthetically and culturally pleasing surroundings (42 USC 4331[b][2]). The FHWA in its implementation of NEPA (23 USC 109[h]) directs that final decisions on projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under CEQA, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider change to community character and cohesion in assessing the significance of the project's effects.

Affected Environment

Caltrans prepared a Community Impact Assessment in March 2015.

Regional Overview

Sacramento County encompasses approximately 994 square miles. The City of Sacramento is approximately 98 square miles. The Study Area is made up of the Census Tracts within a half-mile of US 50 between I-5 in downtown Sacramento and Watt Avenue. US 50 in this area is relatively flat and straight; the American River lies to the north and the Sacramento River to the west. The Study Area is located entirely within an urban and built environment.

US 50 is one of the most important regional routes serving the Sacramento Metropolitan Statistical Area (MSA), which is made up of Sacramento, El Dorado, Yolo, and Placer counties. In 2014, Sacramento County was the 8th fastest growing County in the State, according to the California Department of Finance (Finance 2014), and the City of Sacramento is its largest city and the seat of the State government. As commercial growth in Sacramento and surrounding cities continues, workers are commuting from farther and farther away, straining US 50 and the existing transportation network's capacity.

US 50 accommodates intercity traffic and provides local access to a variety of large and small businesses located adjacent to the US 50 corridor, as well as recreational opportunities in the region. The highway is part of a transportation hub of interstate and U.S. highways that converge in West Sacramento. The transportation network provides direct access to the San Francisco Bay Area, and other northern California markets and key ports.

Population

In 2000, the population for Sacramento County was about 1.2 million, 407,000 for the City of Sacramento, and 59,800 for the Study Area. By 2013, the population for the county increased to approximately 1.4 million and 471,500 for the city, but decreased to 54,000 for the Study Area (see Table 2-2). Based on 2000 and 2013 Census data, the population grew 16% in Sacramento County, 16% in the City of Sacramento, 20% in the City of Rancho Cordova, and 55% in the City of West Sacramento. The population decreased in the Study Area census tracts by nearly 10%.

SACOG projects that the County's population will increase 27% by 2035, from 1.4 million to 1.9 million. The City of Sacramento is expected to continue to be the region's largest city. Sacramento is expected to grow by nearly 181,400 residents (29% growth) to a 2035 population of 629,000. SACOG projects that Rancho Cordova will grow 52% by 2035, from a 2008 population of 60,000 to a 2035 population of 126,100. For West Sacramento, the population is projected to increase 49% (45,000 in 2008 to 88,700 in 2035).

Population projection data is not available for census tract. For the study area, projection data was obtained from zip codes (SACOG-08-20-35_forecast%20-%20ZCTA.xlsx). As such, SACOG estimates that the population for the zip codes in the study area in 2035 will increase 39% and employment by 23% (Table 2-2).

Ethnicity

2013 U.S. Census data indicates that percentages of minorities located in the study area was less than for the City of Sacramento as a whole. The ethnic composition in the Study Area was different than for both the county and city of Sacramento, especially the white population:

	White	Black	Hispanic	Other
Sacramento County:	49%	10%	21%	20%
City of Sacramento:	35%	13%	27%	25%
Study Area	62%	9%	21%	8%

As seen above, the Study Area had a higher percentage of whites than either the city or county.

Income

The neighborhoods within the project area range from low-income to high-income; the median income levels within the Study Area varied greatly, from $18,413 to $79,706. In 2013, median household income in the county was $55,064, $49,753 in the City of Sacramento, and $48,248 in the Study Area overall (Table 2-4). Low income is defined based on the Department of Health and Human Services poverty guidelines. In 2014, this was $23,850 for a family of four. Two of the 16 census tracts within the Study Area were at or below this level: Tract 27 ($22,895), and Tract 52.01 ($18,413).

In 2010, the percentage of families with incomes below poverty level for the population ages 18 to 64 was approximately 21.8% in Sacramento County and 18.4 % in the City of Sacramento, both slightly higher than the national average of 14.8%. The poverty level within the Study Area varied from 1.7% to 34.8%, with an overall rate of 16.8%, lower than the City and County of Sacramento, but higher than the national average. Eight Census Tracts within the study area—19, 20, 21, 22, 26, 27, 52.01, and 52.04—had poverty levels higher than the City of Sacramento. (Table 2-4).

SACOG projects that by 2035 the number of jobs in the County will increase 25% to 854,000. The City of Sacramento is expected to continue to be the region's largest employment center, although within the US 50 corridor, Rancho Cordova is also projected to add large numbers of jobs by 2035. Sacramento is expected to add 77,100 jobs during this period, a 21% increase. SACOG projects that the number of jobs in Rancho Cordova will increase 35%, from 47,400 to 72,900. For West Sacramento, the employment is projected to increase 39% (32,700 to 53,600) (Table 2-6).

Housing

The project is located in an urban area of the City of Sacramento that is built-out, with little opportunity for new development. Most of the housing is located within older residential areas, including homes constructed prior to World War II.

Established neighborhoods surround the project. Neighborhood areas along the Study Area includes: Southside Park, Upper Land Park, Land Park, Richmond Grove, Newton Booth, Curtis Park, Alhambra Triangle, North Oak Park, Med Center, Elmhurst, East Sacramento, Tahoe Park, Tahoe Park East, CSUS, College Town, Ramona Village, and College/Glen.

Property values for residences in the vicinity of any major freeway are generally negatively affected by roadway traffic noise but positively affected by their proximity to freeway access. Because no substantial increase is anticipated in traffic noise, property value changes are not likely to occur. However, the addition of sound walls may improve property values for some homes.

The Study Area's housing stock includes a combination of multi-story apartment buildings and single-family homes. Neighborhoods in downtown Sacramento include single-family homes, multi-family dwellings, and local businesses.

Table 2-3 provides data on the housing stock in the Study Area, the County, and the City of Sacramento based on the 2010 and 2013 Census data. In 2010, the County's housing supply was about 556,000 dwelling units. The vacancy rate in 2010 was 7.6%. The median home value in the County was $234,200 in 2010. The median household income was $55,000. According to the National Association of Realtors, the median value of homes in the Sacramento metropolitan area was $268,700 as of the fourth quarter 2014. In 2006, prior to the recession, the median home value in the Sacramento area was $383,000. By 2012, the value dropped to $201,000 (www.jparsons.net/housingbubble/sacramento.html).

In 2010, there were about 190,900 housing units in the City of Sacramento. At that time, the vacancy rate was 8.5%. The median home value in 2010 was $225,900 and the median household income was about $49,700.

The Study Area had approximately 29,000 housing units in 2010 with a vacancy rate of 8.7%. The median home value was about $305,200, and median household income was $48,200.

According to SACOG, housing units in Sacramento County are projected to increase by 24.5% from 554,400 in 2008 to 734,200 in 2035. For the City of Sacramento, housing units are projected to increase 26.5%. For the zip codes within the Study Area, it's a 37% increase (Table 2-3).

Parks and Recreational Facilities

The Study Area has a total of 15 parks within the City of Sacramento that are managed by the City of Sacramento's Parks and Recreation Department. The parks that fall within the Study Area include:

- East Lawn Children's Park, 1510 42nd Street, Sacramento
- Fremont Park, 1515 Q Street, Sacramento
- Glenbrook Park, 8500 La Riviera Drive, Sacramento
- Oki Park (Magoichi), 2715 Wissemann Drive, Sacramento
- Coloma Park, 4623 T Street, Sacramento
- Granite Regional Park, Ramona Avenue, Sacramento
- Little League Park, Redding Avenue and San Joaquin Street, Sacramento
- Greenfair Park, 2950 57th Street, Sacramento
- Sierra Vista Park, 5104 T Street, Sacramento
- Sunset Park, 4208 T Street, Sacramento
- Tahoe Park, 3501 59th Avenue, Sacramento
- Tahoe Tallac Park; 7400 San Joaquin Street, Sacramento
- Sierra 2 Park, 2795 24th Street, Sacramento
- Southside Park, 2115 6th Street
- O'Neil Field, 715 Broadway

Five of the publicly owned parks are adjacent to the proposed project; O'Neil Field, Southside Park, Coloma Park, Oki Park, and Glenbrook Park. O'Neil Field, at 715 Broadway, includes a full-sized soccer field and two softball fields. Southside Park, a 19 acre park at 6th and W street, includes a swimming pool, wading pool, three-quarter mile jogging trail, Southside Clubhouse, lake with fishing piers, accessible playground, par course with four fitness stations, amphitheater, and picnic areas. Coloma Park, located on T Street south of US 50, is a three-acre park that includes a community center, basketball courts, and a play area. Oki Park is located south of US 50 on Wissemann Drive, is 14 acres, and includes a swimming pool, picnic areas, basketball courts, and soccer fields. Glenbrook Park is located on La Rivera Drive north of US 50, is approximately 19 acres, and includes picnic areas, a ball field, soccer fields, tennis courts, and play areas.

Community Cohesion

"Community cohesion" is the degree to which residents have a sense of belonging to their neighborhood or a strong attachment to neighbors, local groups or institutions, usually as a result of continued association over time. Cohesion refers to the degree of interaction among the individuals, groups, and institutions that make up a community. This interaction can be affected by the location of physical and psychological barriers, such as water bodies, transportation routes, political boundaries, or informally established neighborhood lines. High levels of cohesiveness are often associated with areas that have low turnover rates and residents who have lived in a neighborhood for many years.

Barriers to Interaction

Within the project's limits, US 50 serves as a dividing line between north and south. The freeway is elevated through much of downtown Sacramento, and many north-south streets pass under it. Farther east, the freeway is a more substantial barrier: major surface streets (such as Howe and Watt Avenues) cross it at interchanges, and some smaller streets have over-crossings or under-crossings. Otherwise, the freeway is a barrier to north-south movement.

Indicators of Neighborhood Stability

All of the neighborhoods in the Study Area have at least one neighborhood association that is actively engaged with the City in solving community problems. Neighborhood associations within or adjacent to the Study Area include Southside Park Neighborhood Association, East Sacramento Improvement Association, McKinley East Sacramento Neighborhood Association, Sierra Curtis Neighborhood Association, Land Park Community Association, Boulevard Park Neighborhood Association, Capitol Area Development Association, Capitol Area R Street Association, Greater Broadway Partnership Business Improvement District, Newton Booth Neighborhood Association, Beverly Way Neighborhood Association, R Street Sacramento Partnership, Friends of Grant Park, Richmond Grove Neighborhood Association, Upper Land Park Neighbors, Oak Park Neighborhood Association, Oak Park Business Association, Elmhurst Neighborhood Association, Folsom Blvd. Alliance, and Campus Commons Homeowners Association.

Another indicator of neighborhood stability is the ratio of owner-occupant to renter. In 2013, the percentage of owner occupied vs renter occupied in Sacramento County was 54.2% to 45.8%. It was flipped in the city of Sacramento: 48.4% owner occupied and 51.6% renter occupied. The disparity in the Study Area was wider: 40.3% owner occupied and 56.2% renter occupied (Table 2-3).

Length of residency is another indication of neighborhood stability. The percentage of residences that moved into their homes prior to 2000 were as follows: Sacramento County 21.6%, City of Sacramento 27.2%, and Study Area 28.1%. Four of the 15 census tracts within the Study Area had over 40% of their residents moving into their homes before 2000 (Table 2-3), indicating residential stability.

Regional and Local Economy

Workers based in the Study Area are employed in a range of industries. The US 50 corridor is a major destination for commuters, with some of Sacramento County's largest employers located near the freeway.

Employment

According to the Census Bureau, the top industry categories in terms of employment of residents living in the Study Area include: Management, Business, Science, and Arts (14,371 workers), Sales and Office (7,420), and Service (5,286). There were about 29,600 residents over the age of 16 employed within the Study Area (Table 2-5)

The employment profile in the Study Area closely mirrors the types of businesses that are located in the region. Of Sacramento County's total employed civilian population of 610,662 (those over 16 years of age), 228,965 were employed in the Management, Business, Science, and Arts occupations, 163,511 in the Sales and Office occupations, and 118,000 in the Service occupations.

In 2013, approximately 55% of Sacramento County's 1,115,500 residents over 16 years of age were employed. In the City of Sacramento, this number was also 55%. In the Study Area, approximately 60% were employed. Labor force characteristics are presented in Table 2-5.

2013 Census data for civilian unemployment rates in the County, Study Area, and City of Sacramento were 8.7%, 8.2%, and 9.3%, respectively (Table 2-4). Current data also shows that the Sacramento region continues to recover from the recent recession. In 2010, the unemployment rate was about 12.5% in the City of Sacramento; in December 2014 it had decreased to 6.7%. Also, according to SACOG projections up to 2035, job growth is expected to outpace population growth (Table 2-6).

Project Area Businesses

The proposed project runs through downtown Sacramento and along a heavily developed commercial corridor in the City of Sacramento. Several large employers are situated within a half-mile of the freeway in the Study Area. Major employers located near US 50 include:

- UC Davis Medical Center and Children's Hospital
- Sutter Health
- Sacramento Municipal Utility District
- California State University, Sacramento
- State of California, various agencies

Tax Revenue
In the Study Area, tax revenue is generated through a combination of property taxes, business taxes, and sales tax. According to the County of Sacramento's Assessors Office 2014 Annual Report, the total assessed value of all property and property assets was estimated at $126.4 billion. This is the primary tax base in the Study Area (Sacramento County 2014).

Environmental Consequences

Community Cohesion
Generally speaking, the effects of transportation projects on community cohesion may be beneficial or adverse, and may include splitting neighborhoods, isolating a portion of a neighborhood or an ethnic group, generating new development, changing property values, or separating residents from community facilities. The proposed project does not cause any of these actions. Noise reduction, pedestrian safety, changes in property value, and changes in visual quality are all inexorably linked to the opportunities for – and perhaps more importantly the quality of – social life within a neighborhood. Whereas the project reduces noise (through noise abatement and RHMA pavement) and increases pedestrian safety (65th Street improvements), it does not decrease property values or substantially change visual quality.

Parks and Recreational Facilities
Coloma Park is part of the Coloma Community Center located at 4623 T Street in Sacramento. Under Alternatives 1, 2, and 3, a sound wall may be constructed along the northern boundary of the Coloma Community Center in the existing US 50 right-of-way. Temporary construction easements in the parking lot may be required for the construction of a sound wall. The TCE will involve using several parking spaces during sound wall construction. According to 23 CFR 774, a Section 4(f) evaluation must be prepared when a project will require the use of land from a publicly owned recreational facility (among other categories of land). This use may include temporary occupancy. However, Section 4(f) does not apply to temporary occupancy when the following five conditions are met:

1. Duration (of the occupancy) must be temporary, i.e., less than the time needed for construction of the project, and there should be no change in ownership of the land;
2. Scope of the work must be minor, i.e., both the nature and the magnitude of the changes to the 4(f) resource are minimal;
3. There are no anticipated permanent adverse physical impacts, nor will there be interference with the activities or purpose of the resource, on either a temporary or permanent basis;
4. The land being used must be fully restored, i.e., the resource must be returned to a condition which is at least as good as that which existed prior to the project; and
5. There must be documented agreement of the appropriate Federal, State, or local officials having jurisdiction over the resource regarding the above conditions.

No other parks or recreational facilities will be affected by any project alternatives. Temporary occupancy has been meet. The construction of the sound wall will take less time than the project as a whole and there will be no change in ownership; the scope of the work will be minor; there are no permanent adverse impacts or interference with Coloma Park; any damage to the parking lot will be repaired to a condition as good or better than before the project; and the City of Sacramento has concurred that the project would not have an adverse effect on this property (Caltrans received this concurrence on June 28, 2016; see Appendix C). As a result, 4(f) doesn't apply to Coloma Park.

Regional Access
Generally speaking, the project would be expected to have a positive impact on the regional economy. Versus Alternative 4, Alternatives 1 and 2 would improve travel times and vehicle throughput in the study area for vehicles in the bus/carpool lanes and vehicles in the mixed-flow

lanes, including inter-regional freight carriers. Alternative 3 is projected to result in less throughput and greater travel times versus Alternative 4.

Property Tax
None of the proposed alternatives require the acquisition of private property. Impacts to property tax revenue is not anticipated.

Sales Tax
The proposed project will not permanently impact any business operations in the Study Area. Under Alternatives 1 and 2, all the affected businesses under the W – X freeway, with the possible exception of the mini-storage business, will temporarily relocate to another area which will allow them to continue operations.

Sales tax revenues from businesses in the Study Area would remain unchanged.

Property Values
The proposed project is not likely to have a substantial impact on any of the factors that currently influence property values in the Study Area.

Property values are based on a complicated interaction of factors, including statewide and national economic conditions, consumer tastes and trends, and the desirability of individual locations. Transportation facilities can, generally speaking, improve property values by improving access, business productivity, or travelers' safety, or reduce them by substantially increasing noise levels, affecting community cohesion, or reducing an area's visual quality. Please refer to the appropriate sections for a discussion of the project's anticipated effects on noise levels, visual quality, and community cohesion.

Construction Impacts

Project construction would not have a substantial effect on the local or regional economy. Construction delays may have a minor effect on travel times.

Avoidance and/or Minimization Measures

No community resource impacts are anticipated. No avoidance and/or minimization measures are required.

CEQA Considerations

As discussed above, the project alternatives will not displace substantial numbers of existing housing or displace substantial numbers of people. None of the alternatives affect housing. The project alternatives 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 or include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. The alternatives involve adding capacity to the highway and do not affect the use of the 15 existing adjacent parks described earlier. The project alternatives do not impact community resources.

Table 2-2. Population and Ethnicity

Area	Population, 2013	Population, 2000	% change, 2000 to 2013	Age, under 18	Age, 18 and 64	Age, over 65	Ethnicity, white (alone)	%	Ethnicity, black (alone)	%	Ethnicity, not Hispanic	Ethnicity, Hispanic	%
Sacramento County	1,418,788	1,223,499	16.0%	363,053	897,184	158,551	688,052	48.5%	139,014	9.8%	1,122,410	296,378	20.9%
City of Sacramento	471,477	407,051	15.8%	116,121	300,947	49,420	163,722	34.7%	62,692	13.3%	343,325	128,152	27.2%
City of Rancho Cordova	66,027	55,060	19.9%										
City of West Sacramento	49,061	31,615	55.2%										
Study Area	54,024	59,836	-9.7%	9,670	39,994	7,160	33,648	62.3%	5,095	9.4%	47,484	11,131	20.6%

Table 2-3. Housing

Area	Housing units, 2010	Housing units, 2000	Vacancy rate, 2010	Total Households, 2010	Total Households, 2000	Change, 2000 to 2010	Median home value, 2010	Median home value, 2000	Owner occupied	Owner occupied, percent	Renter occupied	Renter occupied, percent	Moved in prior to 2000	Percent
Sacramento County	555,932	474,814	7.6%	557,331	453,600	18.6%	$234,200	$144,200	282,206	54.2%	238,374	45.8%	136,128	26.1%
City of Sacramento	190,911	163,957	8.5%	174,624	154,581	11.5%	$225,900	$128,800	85,886	48.4%	91,442	51.6%	48,301	27.2%
Study Area*	28,896		8.7%	26,415	27,330	-3.5%	$305,264		11,392	40.3%	14,824	56.2%	7,771	28.1%

* Study Area data is for 2013

Sources: US Census, DP04, Selected Housing Characteristics

Table 2-4. Income

Area		Median Household Income	Per capita income		Poverty rate, 2010	Civilian labor force	Civilian, employed	Unemployment rate
State of California		$56,533	$27,733		11.9%	18,804,519	16,635,854	7.5%
Sacramento County		$55,064	$26,739		21.8%	707,855	610,662	8.7%
City of Sacramento		$49,753	$25,508		18.4%	236,390	202,226	9.3%
Study Area		$48,248	$31,493		16.8%	34,472	30,389	8.2%

Table 2-5. Occupations

	Sacramento County	City of Sacramento	Study Area
Population 16 Years and Older	1,115,458	369,218	49,651
Civilian Employed over 16 Years Old	610,662	202,226	29,641
Percent Employed	54.7%	54.8%	60.1%
Percent Unemployed	8.7%	9.3%	8.2%
Occupation			
Management, Business, Science, and Arts	228,965	77,263	14,371
Service	118,000	40,720	5,286
Sales and Office	163,511	53,474	7,420
Natural Resources, Construction, and Maintenance	47,602	13,006	1,216
Production, Transportation, and Material Moving	52,584	17,763	1,348
Class of Worker			
Private Wage and Salary Workers	425,584	138,138	19,557
Government Workers	139,122	50,767	7,983
Self-Employed Workers	45,112	13,101	2,090
Unpaid Family Workers	844	220	11

Source: US Census Bureau, Selected Economic Characteristics, DP03. 2009-2013 American Community Survey 5-Year Estimates

Table 2-6. Projections: 2008, 2020, 2035

	2008				2020				2035			
Area	Population	House-holds	Housing Units	Employment	Population	House-holds	Housing Units	Employment	Population	House-holds	Housing Units	Employment
Sacramento County	1,376,868	511,515	554,360	622,579	1,547,978	596,707	621,084	679,874	1,888,307	685,500	734,169	834,066
City of Sacramento	447,571	175,220	191,499	285,977	516,720	209,712	219,114	309,623	629,006	242,195	260,704	363,097
City of Rancho Cordova	59,979	22,808	24,868	47,385	79,305	31,256	32,826	54,066	126,112	46,476	49,812	72,852
City of West Sacramento	45,098	16,529	17,825	32,759	62,346	24,055	24,672	38,075	88,659	32,803	35,615	53,599
Zip Codes*	133,865	61,681	67,152	114,351	159,414	76,582	78,893	125,113	219,804	100,147	106,554	148,973
SACOG region	2,215,044	819,434	885,082	966,285	2,519,947	966,886	1,004,151	1,068,839	3,086,213	1,114,451	1,188,210	1,327,423

	Change, 2008 to 2035							
Area	Population, number	Population, percentage	Households, number	Households, percentage	Housing Units, number	Housing Units, percentage	Employment, number	Employment, percentage
Sacramento County	511,439	27.1%	173,985	25.4%	179,809	24.5%	211,487	25.4%
City of Sacramento	181,435	28.8%	66,975	27.7%	69,205	26.5%	77,120	21.2%
City of Rancho Cordova	66,133	52.4%	23,668	50.9%	24,944	50.1%	25,467	35.0%
City of West Sacramento	43,561	49.1%	16,274	49.6%	17,790	50.0%	20,840	38.9%
Zip Codes*	85,939	39.1%	38,466	38.4%	39,402	37.0%	34,622	23.2%
SACOG region	871,169	28.2%	295,017	26.5%	303,128	25.5%	361,138	27.2%

* Zip codes crossed by US 50 were used because projection data for census tracts was not available.
Sources:
SACOG Modeling Projections for 2008, 2020, and 2035; May 2012, Total Population, Total Households, Total Dwelling Units, and Total Employment
SACOG-08-20-35_forecast%20-%20ZCTA.xlsx (for zip code data)

2.4 Environmental Justice

Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on California Department of Health and Human Services poverty guidelines. For 2014, this was $24,850 for a family of four.

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

Affected Environment

Data from the US Census, including income, housing and ethnicity, was used to help determine whether minority or low income populations resided within the project study areas. This data is presented in Tables 2-2, 2-3, and 2-4. As these tables show, within the study area the minority populations were lower, the median housing value was higher, the per capita income higher, and the poverty rate lower than within the City of Sacramento.

However, two individual census tracts had income levels below the 2014 level of $23,850: Tracts 27 ($22,895), and 52.01 ($18,413).

2013 U.S. Census data indicates that percentages of minorities located in the study area was less than for the City of Sacramento as a whole. The ethnic composition in the Study Area was different than for both the county and city of Sacramento, especially the white population:

	White	Black	Hispanic	Other
Sacramento County:	49%	10%	21%	20%
City of Sacramento:	35%	13%	27%	25%
Study Area	62%	9%	21%	8%

As seen above, the Study Area had a higher percentage of whites than either the city or county. Several tracts had a non-white population higher than 50%: Tracts 20, 21, 22, 27, and 52.01.

Environmental Consequences

Increased noise levels resulting from the construction of proposed project may affect residents adjacent to the proposed project. However, this noise is temporary. Proposed measures to reduce construction noise will be part of the project.

Substantial noise increases as a result of the project are not anticipated; any increases in noise would generally affect all residents along the project corridor similarly. There are also sound walls throughout the project limits that will continue reducing freeway noise to nearby residents.

No permanent substantial socioeconomic impacts are expected to affect any population within the study area due to implementation of the proposed project. Temporary construction related impacts are expected due to noise, air, dust and debris. Disruption to the traveling public is expected to be kept to a minimum as travel lanes and ramps are expected to remain open during peak and daylight hours.

Portions of the project, such as widening the viaducts, may be phased so as to affect a limited area at a time.

Any cumulative socioeconomic impacts from related projects to residents and their neighborhoods would be minimized by implementation of a Transportation Management Plan (TMP).

The socioeconomic impacts due to implementation of the proposed project are generally spread evenly throughout the project area and any temporary impacts during construction are not expected to reach a "high and adverse" level of concern. Based on the above discussion and analysis, the project alternatives will not cause disproportionately high and adverse effects on any minority or low-income populations as per E.O. 12898 regarding environmental justice.

The proposed project would not impact community character or cohesion. Neighborhoods within the project corridor currently have well-defined boundaries based upon the artificial division provided by the existing freeway. The addition of bus/carpool lanes within the median would not be expected to affect the character or cohesion of these neighborhoods.

Avoidance and/or Minimization Measures

No environmental justice impacts are anticipated. No avoidance and/or minimization measures are required.

2.5 Utilities/Emergency Service

Affected Environment

Caltrans prepared a Community Impact Assessment in March 2015.

Utilities

Designated utility corridors and easements are located in the Study Area. Utilities such as water, storm drains, sanitary sewer systems, gas, and electrical lines traverse the Study Area.

Water Supply and Distribution
Drinking water within the Study Area is supplied by the City of Sacramento's Department of Utilities (85 % from the American River and 15 % from groundwater).

Flood Control
The Sacramento Area Flood Control Agency has been charged with the responsibility of providing the Sacramento area with flood protection from the American and Sacramento rivers. Stormwater drainage and flood control services in the Study Area are provided by the Sacramento County Stormwater Utility of the County's Water Resources Department.

Wastewater Collection and Treatment
Sewer and wastewater collection, conveyance and treatment services in the Study Area is provided by the City of Sacramento's Department of Utilities (routed to the Sacramento Regional County Treatment Plant where it receives primary and secondary treatment).

Solid Waste Disposal
Solid waste disposal and recycling services in the Study Area are provided by the City of Sacramento. The City of Sacramento services all residential and a third of the commercial customers within the city, and transports the waste initially to a transfer station and then to the Lockwood Landfill in Sparks, Nevada. Private franchised haulers service the remaining commercial customers in the City of Sacramento and dispose of the waste at various facilities including the Sacramento County Keifer Landfill, the Yolo County Landfill, L and D Landfill, Florin Perkins Landfill and private transfer stations.

Natural Gas and Electricity
The Sacramento Municipal Utility District (SMUD) provides electricity in the County and Study Area, while Pacific Gas and Electric Company (PG&E) provides natural gas.

Telecommunications
Multiple companies provide telecommunications services in the Sacramento area, with a variety of services providing land line and cellular service, cable television, and internet connectivity. The primary telecommunications service providers in the Sacramento area are AT&T, Sprint, Verizon, T-Mobile, Comcast, and Direct TV.

Emergency Services

Police
Primary public safety services are provided by the Sacramento Police Department (SPD) within the City of Sacramento jurisdictions of the Study Area. The California Highway Patrol provides public safety services along US 50 but does not have facilities within the Study Area.

Fire Stations/Emergency Services
The Sacramento Fire Department provides emergency first responder services (fire and ambulance). No SFD stations are located within the Study Area, but SFD Battalion 1 Stations 1, 2, 4, 5, 6, 8, and 60 service the City of Sacramento jurisdictions of the Study Area.

Hospitals
Emergency medical facilities located within the Study Area include the University of California Davis Medical Center, Sutter Health, and Mercy Medical Group.

Environmental Consequences

Utilities
There are existing utilities within the project limits, including several high risk electric lines. The project will comply with Public Utility Commission (PUC) General Order 131-D if these lines are over 50KV. Positive location (potholing) work for the high risk facilities and other facilities where there are potential conflicts will be done early in the PS&E phase once an alternative is selected. Under Alternatives 1 and 2, these utilities will either be avoided or relocated. It is anticipated that any required relocations can be accommodated within the limits of environmental clearance. The final “Determination of Liability” will occur on a case by case basis as the relocation plans are finalized. Preliminary indications show that cost sharing should be on a 50%-50% split with most of the major utility companies.

Minor utility disruption may occur during construction; however, this will be temporary and localized.

The overhead power line for the light rail east of 65th Street is attached to the soffit of the overhead structure and will be affected by the proposed structure widening under Alternatives 1 and 2. The system of overhead wires that supply electricity to light rail is referred to as a messenger wire and is attached directly to the soffit of this structure. The messenger wire requires relocation since the new structure height will be lower and will conflict with the messenger line. Cal OSHA clearance requirements also restrict workers in the vicinity of the active messenger line's existing alignment during construction.

No utilities will be relocated under Alternatives 3 and 4.

Emergency Services

Under Alternatives 1 and 2, the added capacity of the HOV/mixed flow lane would not negatively affect emergency vehicles.

Under Alternatives 3 and 4, congestion is anticipated to worsen, affecting access to public facilities. Please refer to the Traffic and Transportation section for more information.

During roadway construction under Alternatives 1, 2, and 3, emergency vehicles may need to stop temporarily or slowdown in order to ensure that they can safely pass through the project area.

Construction staging under Alternatives 1 and 2 would likely slightly disrupt activities at the interchanges within the project area. On-ramps and off-ramps may see temporary disruptions. However, most of the construction at critical junctions along the impacted route is expected to occur at night and not during peak hour commute times. No disruptions are anticipated for Alternatives 3 and 4.

Avoidance and/or Minimization Measures

Coordinate with utility companies regarding relocating utilities affected by the project prior to construction.

Coordinate with Regional Transit (RT) to relocate the light rail line wire east of 65th Street prior to construction.

Coordinate with all emergency public services, such as medical services, law enforcement agencies, fire departments, and local ambulance services prior to construction.

A Transportation Management Plan (TMP) will be implemented for this project. A TMP is a program of activities for alleviating or minimizing work-related traffic delays by applying traditional traffic handling practices and innovative strategies including public awareness campaigns, motorist information, demand management, incident management, system management, construction methods and staging, and alternate route planning. TMP strategies also strive to reduce overall duration of work activities where appropriate. Typical components of a TMP can include measures such as the implementation of staging, traffic handling, and detour plans; restricting construction work to certain days and/or hours to minimize impacts to traffic and pedestrians; coordination with other construction projects to avoid conflicts; and the use of portable changeable message signs to inform the public of construction activities.

A public participation plan will be formulated, involving public workshops, press releases, project website, construction updates, etc.

CEQA Considerations

As discussed above, there are no significant impacts to utilities.

Project alternatives would not impact schools or parks. Project construction may temporarily impact emergency vehicles. Coordination with emergency service providers will occur. This impact will be temporary and less than significant.

2.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

This section provides a description of the transportation setting and assesses the potential circulation impacts associated with the implementation of the proposed project. This section also discusses the impact to pedestrian and bicycle facilities. A Traffic Report was completed for this project in May 2015. A copy of the Traffic Study is available at www.dot.ca.gov/dist3/Projects/00216/prjindex.htm.

Regulatory Setting

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

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

Affected Environment

The study area for the Traffic Report included US 50 from Watt Avenue (City of Sacramento) in the east to Jefferson Boulevard (City of West Sacramento) in the west. Additional freeway segments were also included in the project study area to account for congestion buildup and bottlenecks that could potentially spill back onto US 50, including I-5 between Sutterville Road in the south and Richards Boulevard in the north, SR 99 between Fruitridge Road in the south and US 50 in the north, and SR 51 (Business 80) between US 50 in the south and the American River Bridge in the north.

There are eight (8) US 50 interchanges within the project limits: Watt Avenue, Howe Avenue, 65th Street, 59th Street, Stockton Boulevard, SR 51/SR 99 (Oak Park I/C), 16th/15th/10th Streets, and I-5/5th Street/3rd Street. There are two (2) additional US 50 interchanges within the traffic study area but outside the project limits: South River Road and Jefferson Boulevard, both in the City of West Sacramento. There are five (5) I-5 interchanges within the traffic study area: Sutterville Road, US 50, P/Q Streets, I/J/L Streets, and Richards Boulevard. There are also five (5) SR 99/SR 51 interchanges within the traffic study area: Sutterville Road, US 50, P/N Streets, H/J Streets, and E Street. Within the project area, US 50 has 33 grade-separated crossings for motor vehicles.

US 50 is an east-west route of national importance that stretches over 3,000 miles through the middle of the United States from Ocean City, Maryland to West Sacramento, California. Within and through Sacramento County limits, US 50 serves as an important east-west commuter route, truck route, and recreational route. It connects the major north-south routes in the area (including I-5, SR

99, and SR 51) and connects the region to other parts of the state and country. US 50 is a part of the National Highway System (NHS) and its federal functional classification through Sacramento County is "Freeway or Expressway". US 50 within Sacramento County is also a part of the Interregional Road System (IRRS) and is designated as a National Network STAA (Surface Transportation Assistance Act) truck route. Additionally, it has been classified by Caltrans as a High-Emphasis Focus Route, which means it has a high priority for construction of improvements in the future. Overall travel on the US 50 corridor in Sacramento County has increased dramatically in recent years and is expected to continue to increase over the next 25 years according to SACOG's 2016 MTP/SCS.

Through the City of Sacramento limits, US 50 has a general eight-lane divided freeway cross-section with a 65 mph posted speed limit. During weekday peak periods, the dominant traffic flow east of the Junction of US 50 and SR 99 is both eastbound and westbound in the morning and evening, reflecting the large volume of commuters headed into and out of downtown Sacramento area for work to/from Rancho Cordova, Fair Oaks, and Folsom, and communities in El Dorado County. US 50 also carries a large amount of commuter traffic traveling to Davis and the Bay Area every day, which further adds to the westbound traffic in the morning. According to 2012 Caltrans traffic count data, US 50 currently carries an Annual Average Daily Traffic (AADT) ranging between approximately 171,000 to 246,000 vehicles and peak month Average Daily Traffic (ADT) of 178,000 to 256,000 vehicles through various segments within the City. According to 2011 Caltrans Truck traffic data, truck composition varies between 2.32% to 5.54% of the average daily traffic on the US 50 mainline corridor through Sacramento.

Methodology and Limitations

The Traffic Report prepared for the proposed project included a summary of existing and future conditions traffic operations along the project segment of US 50. *PTV VISSIM 6* software was utilized to develop microsimulation models. *PTV VISSIM* creates a sub-regional roadway network that was calibrated to match existing operational conditions in/through the project study area, including US 50, I-5, SR 51, and SR 99.

The AM (6 AM to 10 AM) and PM (3 PM to 7 PM) four-hour peak period models were developed to analyze both eastbound and westbound operations on US 50 along the project segment. Existing models were constructed from geometric data (aerial photographs, field observations, as-built plans), traffic control data (ramp meter signal timing plans), and traffic flow data (traffic counts, travel time measurements, field observations, vehicle composition, etc.). The existing conditions models were calibrated and validated to observed traffic volumes, travel times, and queues. The calibration/validation process involved iteratively adjusting the existing conditions models until they met certain criteria defined in federal, Caltrans, and Highway Capacity Manual (HCM) 2010 microsimulation guidelines. The validated existing conditions models were used as the base upon which future year microsimulation models were built.

Traffic counts and data collection for the project study area freeway mainlines, collectors, and on- and off-ramps were performed entirely in fall 2013 (September 16 through October 11) during typical weekdays and travel conditions. Collected data included mainline/ramp volumes, intersection turning movements, occupancy counts, classification counts, and travel times. The data collected in 2013 was used as inputs to the existing conditions microsimulation models and as the basis against which the project study area Travel Demand Model was calibrated. A US 50 HOV Lanes Project Corridor Travel Demand Model (US 50 TDM) was developed and calibrated using the SACOGs' Sacramento Activity-Based Travel Simulation Model (SACSIM) as the starting point. The US 50 TDM was used to develop future year volumes and vehicle compositions, per future year alternative/scenario, that were used as inputs to the future year microsimulation models.

The study area microsimulation models produced traffic operations results that included served vehicles, served persons, speeds, densities, levels of service, and travel times along the project segment of eastbound and westbound US 50. Level of service (LOS) is a measure of traffic operation conditions varying from LOS A (the best) to LOS F (the worst) based on the speed and density of vehicles on a freeway segment. This operations data was used to derive traffic, air quality, and noise performance measures throughout the project area.

Note that the data presented in the following tables summarize US 50 freeway mainline operations only. As a result, any delay experienced by vehicles traveling on nearby local roadways is not captured. By year 2040 conditions, traffic in downtown Sacramento is projected to increase on both freeways and local roads. Therefore, alternatives that do not provide improvements to the freeway, such as No Build (Alternative 4), are expected to experience the largest increase in delays on local roads as cars try to find alternative routes to their destination.

Existing Conditions

Traffic Volumes and Operations

Table 2-7 summarizes the base year network statistics for the year 2013 AM and PM 4-hour peak periods. The network statistics represent data from all freeways in the project study area.

Table 2-7. Year 2013 4-Hour Peak Period Network Summary

Performance Measure	AM	PM
Vehicles Served (veh)	255,601	305,890
Vehicle Miles of Travel (mi)	1,003,482	1,055,036
Persons Served (per)	309,617	381,602
Person Miles of Travel (per-mi)	1,215,548	1,316,172
Average Travel Time (h)	24,736	26,268
Average Travel Speed (mph)	42	41
Vehicle Hours of Delay (h)	3,588	4,135
Person Hours of Delay (per-h)	4,347	5,159

The overall base year network serves approximately 255,000 vehicles and 310,000 persons during the AM peak period, and 305,000 vehicles and 380,000 persons during the PM peak period. The average speed on the network is 41-42 mph, and the vehicle hours of delay ranges between 3,600 (AM) to 5,100 (PM).

Table 2-8 shows the average eastbound US 50 travel times (between specific origins and destinations as shown) during the AM and PM 4-hour peak periods.

Table 2-8. Year 2013 4-Hour Peak Period Travel Times (EB US 50)

Travel Time Route	Travel Time (min.)	
	AM	PM
1: SB I-5 at Richards Blvd to EB US 50 at Watt Ave	11.5	13.5
3: EB I-80 at West Sacramento to EB US 50 at Watt Ave	10.5	11.0
5: NB I-5 at Sutterville Rd to EB US 50 at Watt Ave	11.5	12.5
7: NB SR 99 at 12th Ave to EB US 50 at Watt Ave	8.5	8.5
9: SB US 51 at E St to EB US 50 at Watt Ave	8.5	8.5

As shown in Table 2-8, average eastbound travel times range between approximately 8 – 14 minutes for all routes. The northbound and southbound I-5 to eastbound US 50 experiences the longest travel time during both peak hour period.

Table 2-9 shows the average 2013 AM and PM peak hour volume served, persons served, speed, density, and LOS of eastbound mainline US 50 in the project corridor (US 50 between Watt Avenue and I-5).

Table 2-9. Year 2013 Peak Hour Project Corridor Performance (EB US 50)

Performance Measure	**AM**	**PM**
Average Volume Served (veh)	6,032	5,823
Average Persons Served (per)	7,307	7,264
Average Speed (mph)	53.5	50.0
Average Density (pcplpm)	26.5	28.5
Average LOS	D	D

Eastbound mainline US 50 generally operates at LOS D with an average speed of approximately 53 mph during the AM peak period and 50 mph during the PM peak period. There is slightly more congestion during the PM peak hour, as demonstrated by the lower average speed and higher density.

Table 2-10 shows the average westbound US 50 travel times (between specific origins and destinations as shown) during the AM and PM 4-hour peak periods.

Table 2-10. Year 2013 4-Hour Peak Period Travel Time (WB US 50)

Travel Time Route	**Travel Time (min.)**	
	AM	**PM**
2: WB US 50 at Watt Ave to NB I-5 at Richards Blvd	11.0	11.5
4: WB US 50 at Watt Ave to WB I-80 at West Sacramento	10.5	10.5
6: WB US 50 at Watt Ave to SB I-5 at Sutterville Rd	12.0	12.0
8: WB US 50 at Watt Ave to SB SR 99 at 12th Ave	8.5	8.5
10: WB US 50 at Watt Ave to NB US 51 at E St	9.0	8.5

Average westbound travel times range between approximately 8 – 12 minutes for all routes. The westbound US 50 to southbound and northbound I-5 experiences the longest travel times during both peak periods.

Table 2-11 shows the average 2013 AM and PM peak hour volume served, persons served, speed, density, and LOS of westbound US 50 in the project corridor (US 50 between Watt Avenue and I-5).

Table 2-11. Year 2013 Peak Hour Project Corridor Performance (WB US 50)

Performance Measure	AM	PM
Average Volume Served (veh)	6,376	6,505
Average Persons Served (per)	7,307	7,264
Average Speed (mph)	54.0	55.5
Average Density (pcplpm)	28.5	28.0
Average LOS	D	D

As shown in Table 2-11**,** westbound US 50 generally operates at LOS D, with an average speed of approximately 54 mph during the AM peak period and 55 mph during the PM peak period. Westbound congestion is similar during the AM and PM peak hours, as demonstrated by the similar average speeds and densities.

Traffic Safety

Available Traffic Accident Surveillance and Analysis System (TASAS) collision data summaries provided by Caltrans District 3 for the project segment of US 50 between I-5 (03 SAC 050 PM L000.3500) and Watt Avenue (03 SAC 050 PM R005.336) for the most-recent three-year data period (April 1, 2010 through March 31, 2013) were reviewed. The overall collision data and rates is summarized in Table 2-12. The project segment of US 50 between I-5 and Watt Avenue had 1,482 total collision s over a recent three year period, four of which were fatality-related collisions, and 443 of which were injury-related. Actual collision rates for the project segment of US 50 were less than average collision rates for “fatal”, “fatal plus injury” and “total” collision types for this type of facility.

Table 2-12. Study Area Collison Data Summary

US 50 Segment Location (Post Mile)	Number of Collisions							Persons		Actual Collision Rates (# of collisions/ MVM)			Average Collision Rates (# of collisions/ MVM)		
	Tot	Fat	Inj	F+I	Multi Veh	Wet	Dark	Kld	Inj	Fat	F+I	Tot	Fat	F+I	Tot
I-5 (PM 0.350) to Watt Ave (PM 5.335) (April 2010 to March 2013)	1482	4	443	447	1329	178	276	4	652	0.002	0.26	0.88	0.004	0.28	0.90

Note: *MVM = Million Vehicle Miles, Fat = Fatalities, Inj = Injuries, Veh = Vehicle, Kld = Killed, F+I = Fatalities + Injuries, Tot = Total*
Source: Caltrans District 3

Table 2-13 categorizes the study area collisions by the time of day they occurred, peak vs off-peak, and collision type.

Table 2-13. Study Area Collisions by Time and Type

Statistic	Time of Day			Collision Type				Total
	AM Peak Period 6 to 10 AM	PM Peak Period 3 to 7 PM	Off-Peak	Sideswipe	Rear End	Hit Object	Other	
Number of Collisions	341	655	486	269	989	174	50	1482
Percentage	23%	44%	33%	18%	67%	12%	3%	100%

Note: 1. *The “Other” category includes head-on, broadside, overturn, auto-pedestrian, and other collision types.*
Source: Caltrans District 3

The majority of collisions occurred during the AM and PM four-hour peak periods (67%). Rear end collisions, which are associated with congestion and mainline slowdowns, were the most common type of collision that occurred on the project segment of US 50 and accounted for 67 percent of all collisions. The PM peak period experienced nearly double the collisions that the AM peak period did. This is consistent with the findings that the PM peak period experiences a higher level of congestion and worse operations than the AM peak period, as more collisions are likely to occur (especially rear end type collisions) under congested conditions.

<u>Transit Operations</u>
The Sacramento Regional Transit District, Yolo County Transportation District's Yolobus, El Dorado County Transit Authority, and Paratransit all operate bus routes through the project corridor.

RT operates various bus routes within the project area, including 26, 38, 61, 68, 81, and 87. RT also operates the gold line light rail from downtown Sacramento to the City of Folsom and the blue line to Elk Grove. Yolobus operates several bus routes into Sacramento from Yolo County, including 39, 40, 41, 42A, 42B, 43, 43R, 44, and 45. El Dorado Transit operates 11 buses into Sacramento in the AM and PM peak commute times Monday through Friday. There are also 2 "reverse commute" buses every morning and evening. Paratransit is a private nonprofit corporation that provides on-demand transportation services to individuals with disabilities, the elderly, and related agencies throughout the Sacramento County area.

Table 2-14 shows the number of buses counted during the four-hour AM and four-hour PM peak periods during September 2013. The bus traffic counts most likely include busses from the scheduled transit routes for the agencies listed above as well as intercity busses (Amtrak, Greyhound, etc.), school buses, and charter/tour busses.

Table 2-14. Existing AM and PM Peak Period Bus Counts

Location	Peak Period	Direction	Occupancy				Total
			Full	50% Full	25% Full	Empty	
US 50 at 48th Street	AM	Eastbound	3	68	8	0	79
		Westbound	5	42	11	14	72
	PM	Eastbound	4	32	0	1	37
		Westbound	13	27	8	1	49
US 50 at Pedestrian Crossing east of Watt Avenue	AM	Eastbound	9	43	1	1	55
		Westbound	7	21	18	17	63
	PM	Eastbound	1	35	6	2	44
		Westbound	11	13	11	12	47
Notes: Data collected 9/17/2013 and 9/24/2013							

As shown in Table 2-14, bus/transit traffic on the project segment of US 50 that would benefit from the proposed extension of HOV lanes. Busses would be allowed to use the proposed HOV/Bus/carpool lanes, allowing them to bypass congestion in the mixed flow lanes during peak hours. This would result in reduced travel times for Sacramento area transit.

Pedestrian and Bicycle Facilities

There is an extensive system of Class I, Class II, and Class III bicycle paths and routes throughout the City of Sacramento in the vicinity of the proposed US 50 project segment. Several bike routes run parallel to the project segment of US 50 on T Street, Folsom Boulevard, V Street, and 2nd Avenue, among others. There are also approximately 20 bike routes that pass under/over the project segment of US 50 on local roads. Within the project study area limits, the City is planning several bike lane extension projects, including a proposed Class I bike path that would follow the current light rail tracks from Florin Perkins Road to Alhambra Boulevard, and Class II bike lanes that would cross under the US 50/I-5 I/C along 3rd Street in downtown Sacramento. The 65th street improvements proposed by the City of Sacramento include new bicycle lanes in each direction. These improvements are included in this environmental document, but will be constructed by the City of Sacramento as per agreement.

There is currently only one dedicated pedestrian/bicycle facility that crosses the project segment of US 50. It is located near the eastern limits of the project area, just east of the Watt Avenue I/C.

The 2010 Sacramento City/County Bikeway Master Plan was last updated in March 2011. This document's objective is to create and maintain a safe, comprehensive, and integrated bicycle system and support facilities throughout the City that encourage accessible bicycling for all. The plan supports bicycling as a sustainable, equitable, healthy, and non-polluting form of transportation which promotes the development of vibrant urban streets and public places.

The Bikeway Master Plan specifies three classifications of bikeways:

- Bike trails or bike paths are separated from vehicular traffic and are for the exclusive use of bicyclists and pedestrians. Cross traffic by motorists is minimized.
- Bike lanes are designated lanes within the street for use by bicycles. Bicyclists are required to travel in the same direction as the automobile traffic.
- Bike routes are designated streets that are shared with other road users which serve to designate preferred routes and to provide continuity to other bikeways.

Existing bike routes within the project area include Folsom Blvd., T Street, 34th Street, 39th Street, 48th Street, 51st Street, 65th Street, Occidental Drive, and Watt Avenue.

The City of Sacramento's 65th Street improvements will provide several bicycle and pedestrian features, including

- Constructing new pedestrian "pork chop" islands at the WB US 50 off-ramp terminus, including signal modifications.
- Reconstructing the curb and gutter to provide bifurcated sidewalks with landscaped planters.
- Constructing a concrete barrier with hand railing and raising the sidewalk above the roadway level underneath the US 50 undercrossing structure.
- Replacing the existing 5-foot wide sidewalks with 8-foot wide sidewalks where existing right of way permits.

The Study Area includes numerous neighborhood streets that cross under or over US 50. The sidewalks on these streets provide access and pathways for pedestrians throughout the Study Area.

Park and Ride Facilities

Park and ride lots offer convenient and safe locations for commuters to store their single passenger vehicle while taking carpool, vanpool, or transit to their workplace/destination. Along the US 50 corridor, current carpools utilize the existing park and ride facilities in Rancho Cordova, Folsom, and El Dorado Hills. In general, US 50 / I-80 commuters are headed to downtown Sacramento from the residential areas in Rancho Cordova / Folsom / Eldorado Hills to the east, or West Sacramento / Davis to the west. Successful park and ride lots need to be located on a major route near a large residential area and upstream of major employment areas. Easy and safe access to pedestrian crossings, sidewalks, bike lockers and transit are also vital to the success of a park and ride lot. Table 2-15 shows the bus/HOV park and ride lots nearest the study area.

Table 2-15. Bus/HOV Park and Ride Lots

Location	City	Parking Spaces	Average Usage
Hazel Ave / Gold Country Blvd	Rancho Cordova	30	73%
Folsom Blvd / Iron Point Rd	Folsom	70	70%
White Rock Rd / Latrobe Rd	El Dorado Hills	120	100%
Enterprise Blvd South	West Sacramento	79	120%
Enterprise Blvd North	West Sacramento	96	133%
Caltrans Park &Ride Inventory (June 2011)			

Table 2-16 shows the Sacramento Regional Transit light rail park and ride lots within/near the study area.

Table 2-16. Sacramento Regional Transit Park and Ride Lots

Location	City	Parking Spaces	Average Usage
Power Inn Rd / Brighton Ave	Sacramento	299	N/A
Watt Ave / Manlove Rd	Sacramento	498	N/A
Butterfield Way / Folsom Blvd	Sacramento	406	N/A
Mather Field Rd / Mills Station Rd	Rancho Cordova	235	N/A
Sunrise Blvd / Folsom Blvd	Rancho Cordova	487	N/A
Hazel Ave / Folsom Blvd	Rancho Cordova	432	N/A
Iron Point Rd / Folsom Blvd	Folsom	216	N/A
Sacramento Regional Transit Website, N/A = Not Available			

Currently, Caltrans does not own or maintain any park and ride lots along US 50 within the project study area, however, informal park and ride arrangements may be occurring at large parking areas along US 50 and nearby city streets. Also, as shown in Table 2-26, Sacramento Regional Transit operates several park and ride lots at light rail stations in the project area. One way for Caltrans to increase HOV usage in the project corridor would be to partner with RT to allow HOV commuters to park their Single Occupancy Vehicles (SOVs) in the light rail lots for a small fee. Adding park and ride lots in the project study area would also encourage more people to use the proposed HOV lanes and would contribute to the success of the project. Potential locations for future park and ride lots are described below.

- 65th Street – Vacant property exists near the intersection of 65th Street and Q Street, north of the freeway. Parking could be shared with the existing 65th Street bus and light rail stations. The Target south of the US 50 interchange could provide a shared parking opportunity as well.
- Howe Avenue / Power Inn Road – A light rail station park and ride lot exists on the corner of Brighton Avenue and Power Inn Road and does not appear to be at capacity on average. Carpool commuters could utilize the existing SacRT lot.
- Watt Avenue - A light rail station park and ride lot exists on the corner of South Watt Avenue and Manlove Road and does not appear to be at capacity on average. Carpool commuters could utilize the existing SacRT lot.

- Bradshaw Road - A light rail station park and ride lot exists on the corner of Folsom Boulevard and Butterfield Way and does not appear to be at capacity on average. Carpool commuters could utilize the existing SacRT lot.
- Zinfandel Drive – As development continues to occur in this area, a new park and ride lot should be considered near the US 50 interchange. Vacant properties exist on the corner of Zinfandel Drive / White Rock Road and White Rock Road / Quality Drive. Carpool commuters could also potentially share parking with the Zinfandel Plaza shopping center on the corner of Folsom Blvd and Olson Drive.

Traffic Operations System Elements

A need for Traffic Operations System (TOS) elements for both eastbound and westbound US 50 has been identified for the locations listed in Table 2-17. The work at these locations includes ramp metering systems (RM), traffic monitoring stations (TMS), extinguishable message signs (EMS), and closed circuit television (CCTV) facilities. By installing 96 strands of single-mode fiber optic cable (96-SMFO) along portions of US 50, high speed and high bandwidth communications to the ramp metering, traffic monitoring, EMS, and CCTV locations will be achieved. Caltrans has an existing fiber facility from Watt Avenue to the RTMC. A fiber optic communications extension from Watt Ave to 28th Street, within the project limits, is required (last column).

Currently, all on-ramps within the projects limits have operational ramp meters. Note that a fiber optic communication system is programmed for the 2014 SHOPP within the project limits.

Table 2-17. US 50 HOV Corridor Planned TOS Elements

Route	P	PM	Location	Dir	Element	Existing Communication Type	Proposed Communication Type
050	L	2.385	28th St.	NA	CCTV	DSL	Fiber
050	L	2.385	28th St.	EB	RMS	DSL	Fiber
050	R	2.426	65th St. (SB)	WB	RMS	GPRS	Fiber
050	R	2.61	65th St. (SB)	EB	RMS	DSL	Fiber
050	R	2.68	65th St. (NB)	WB	RMS	GPRS	Fiber
050	R	2.81	65th St. (NB)	EB	RMS	DSL	Fiber
050	R	3	65th Street	NA	CCTV	DSL	Fiber
050	R	3.226	Hornet Dr.	WB	RMS	GPRS	Fiber
050	R	3.426	Howe Ave. (SB)	WB	RMS	DSL	Fiber
050	R	3.63	Howe Ave. (SB)	EB	RMS	Wireless	Fiber
050	R	3.7	Howe Ave.	NA	CCTV	Wireless	Fiber
050	R	3.759	Howe Ave. (NB)	WB	RMS	GPRS	Fiber
050	R	3.88	Howe Ave. (NB)	EB	RMS	GPRS	Fiber
050	R	4.262	Howe Ave	EB	CMS	Analog - POTS	Fiber
050	R	5.055	Watt Ave. (SB)	WB	RMS	GPRS	Fiber
050	R	5.249	Watt Ave. (NB)	WB	RMS	GPRS	Fiber
050	R	5.29	Watt Ave. (SB)	EB	RMS	Fiber	Fiber
050	R	5.3	Watt Ave.	NA	CCTV	Fiber	Fiber
050	R	5.3	Watt Ave.	EB	EMS	GPRS	Fiber
050	L	2.166	25th St.	NA	TMS	GPRS	Fiber
050	L	2.4	SB 51/WB 50 Connector	NA	TMS	GPRS	Fiber

050	R	2.7	65th St.	NA	TMS	GPRS	Fiber
050	R	3.3	Hornet Dr.	NA	TMS	GPRS	Fiber
050	R	3.7	Howe Ave.	NA	TMS	GPRS	Fiber
050	R	4.5	Occidental Dr. OC	NA	TMS	GPRS	Fiber
050	R	5.3	Watt Ave.	NA	TMS	GPRS	Fiber
050	L	2.385	28th St.	NA	BTR	DSL	Fiber
050	R	2.426	65th St. (SB)	NA	BTR	GPRS	Fiber
050	R	3.226	Hornet Dr.	NA	BTR	GPRS	Fiber
050	R	4.262	Howe Ave	NA	BTR	DSL	Fiber
050	R	5.3	Watt Ave.	NA	BTR	Wireless	Fiber
Source: Caltrans							

Environmental Consequences

Construction of Alternatives 1, 2, and 3 could result in some temporary disruptions of traffic flow, including temporary lane shifts or closures, disruptions of on- and off-ramps at interchanges, and areas where traffic may need to slow down to pass through construction safely. Emergency vehicles may need to temporarily stop or slow down during roadway construction to safely pass through the project area. However, most of the construction is expected to occur at night, not during peak hour commute times, and without major impacts to traffic flows. Lane closures and shifts are also possible on the W-X freeway section (the elevated section of US 50 between 29th Street and I-5 in downtown Sacramento) to accommodate widening of the viaduct segments for Alternative 1 or 2.

Traffic Forecasts

For purposes of this project, a US 50 HOV Lanes Project Corridor Travel Demand Model (TDM) was developed that primarily focused on the segment of US 50 in the City of Sacramento between I-5 and Watt Avenue. The TDM was then used to generate traffic volume forecasts and other travel demand data for an operational evaluation of the US 50 HOV Lanes Project alternatives/scenarios. The TDM was essentially created using the Sacramento Area Council of Governments' (SACOG) Sacramento Activity-Based Travel Simulation Model (SACSIM) as the starting point. The primary purpose of the creation of the US 50 TDM was to develop a base year (2013) model calibrated to simulate existing traffic conditions in the US 50 HOV Lanes Project area, and then develop future year traffic volume forecasts for the area under a variety of scenarios using the calibrated base year model as the starting basis.

The SACSIM model is a regional model, and therefore is calibrated at a regional level. In order to develop a "sub-area" US 50 TDM for the project, the model had to be calibrated to more accurately simulate existing conditions within the project corridor. Base year SACSIM land use files were reviewed and updated to match existing (year 2013) conditions as needed. The year 2014 SACSIM roadway network was extensively reviewed and updated for coding issues (e.g. one-way directionality), attribute data (e.g. travel speed, number of lanes, etc.), and missing/incorrect geometry (e.g. a freeway ramp that did not get coded into the model) to reflect existing conditions network in the US 50 TDM area. All changes to the TDM were based off of current aerial photographs, census data, and parcel map information.

Future year TDMs were built to forecast future year study area volumes for with and without project scenarios. The ultimate year 2040 scenario, developed to analyze proposed project impacts under long-term future conditions, was created using SACOG's Metropolitan Transportation Plan (MTP) for 2035 land use buildout projections for the Sacramento region. The 2035 land use projections were created before 2008 and project growth throughout the Sacramento region, and can be conservatively viewed as 2040 projections. The ultimate year 2040 scenario roadway network contained all improvement projects listed in the MTP as well as several other projects identified by Caltrans.

The following separate projects are also planned for the study area. Each of the following improvements was assumed complete under each future year conditions travel demand model beyond the project's completion date.

- Watt Avenue Interchange Reconstruction - US 50 / Watt Avenue interchange improvements were recently completed after the assumed 2013 base year conditions had been determined. The eastbound and westbound US 50 / Watt Avenue loop off-ramps were closed, and the existing diagonal off-ramps were realigned and signalized. This project was completed in 2014. This project was included in the 2020, 2030, and 2040 future year models for all alternatives.
- I-5 HOV Lanes - Caltrans plans to construct new northbound and southbound HOV lanes on I-5 by the year 2030. The lanes are proposed to stretch from the Beach Lake vicinity in Elk Grove to US 50 in Sacramento (and eventually further in subsequent years). For the purposes of this project, HOV lanes were assumed for the entire length of I-5 in the study area. This project was included in the 2030 and 2040 future year models for all alternatives.
- EB US 50 / Hornet Drive Off-Ramp Intersection Improvements – Caltrans has proposed to improve the safety and traffic operations for the off-ramp terminus by widening the ramp and adding a traffic signal. This operational improvement may be complete by the year 2030. This project was included in the 2030 and 2040 future year models for all alternatives.
- WB US 50 Auxiliary Lane between Stockton Blvd Ramps - It has been proposed/envisioned that a new auxiliary lane on westbound US 50 between the Stockton Boulevard westbound off-ramp and westbound loop on-ramp would be constructed by year 2030. The project would extend the existing auxiliary lane, which currently ends at the Stockton Boulevard off-ramp. This project was included in the 2030 and 2040 future year models for all alternatives.
- Project Study Area Ramp Meters - Ramp meters and HOV bypass lanes were assumed to be constructed wherever there were not existing on-ramp meters / bypass lanes within the study area (I-5, SR 51/SR 99, US 50). Exceptions include loop on-ramps with 1,000+ vehicles, where two metered lanes and no HOV bypass were assumed. Ramp meters for the US 50 connectors were not assumed, per direction from Caltrans. This project was included in the 2020, 2030, and 2040 future year models for all alternatives.

Average US 50 HOV project corridor gateway-to-gateway traffic growth factors, as extracted from the travel demand model runs, were reviewed. Table 2-18 summarizes the average ambient growth factors of the year 2040 SACSIM-based US 50 TDM runs for each project alternative as compared to year 2013 existing conditions for the four-hour AM and the PM peak periods.

Table 2-18. US 50 HOV Lane Corridor Average Growth Factors Between 2013 and 2040

Peak Period	2013 to 2040 Peak Period Volume Growth (US 50 Project Area)			
	Alternative 1 (Add HOV Lane)	Alternative 2 (Add Mixed-Flow Lane)	Alternative 3 (Take-a-Lane)	Alternative 4 (No Build)
AM	28%	29%	17%	21%
PM	32%	32%	22%	23%
Note: The above-listed traffic growth factors are corridor-level average growth factors. Spot locations and segments within the corridor may experience slightly higher or lower growth.				

US 50 is projected to experience higher demand under Alternative 1 and Alternative 2 than under the Alternative 3 or 4 due to the added capacity. The Alternative 3 is projected to experience the smallest increase in demand overall due to the slight reduction in capacity associated with restricting the use of an existing lane to high occupancy vehicles only. The amount of growth projected throughout the study area will most likely outpace the increases in study area roadway capacity assumed in this study (including the proposed US 50 project). Therefore, while the proposed US 50 project would improve operations, all scenarios will likely experience heavy congestion, increased travel times, and reduced speeds under year 2040 buildout conditions.

HOV volumes and percentages were also forecasted for all project scenarios. TDM projected year 2013 mainline HOV volumes were slightly below existing counts, so all forecasted mainline HOV percentages for all alternatives were increased based on the relationship of the year 2013 model HOV forecasts to existing counts. Final forecasted HOV percentages on US 50 mainline for all project alternatives are shown in Table 2-19. Note that the values shown in the table are average mainline values only, and that individual mainline segments, connectors, and ramps within the project area may have slightly higher or lower HOV percentages, but generally have similar variation between alternatives. Final HOV forecasts were checked for consistency with projected HOV forecasts on other Sacramento region facilities.

Table 2-19. Forecasted Future Year HOV Percentages - Mainline

Scenario	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Year 2013	N/A	N/A	N/A	15.0%
Year 2020	20.0%	17.0%	20.0%	16.5%
Year 2030	21.5%	18.5%	21.5%	18.0%
Year 2040	23.5%	20.5%	23.5%	20.0%
N/A = Scenario Not Applicable or Necessary				

The addition of HOV lanes under Alternatives 1 and 3 is projected to increase HOV usage by approximately 3.5% over No Build conditions.

Induced Demand

"Induced demand", as it relates to transportation, is travel demand that is generated due to an increase in the capacity of a transportation network. The added capacity makes traveling on the improved route faster / more appealing and therefore more people begin to utilize the improved route. These new trips can be from a variety of sources, including diverted traffic that used to take another route, rescheduled traffic that used to use the modified facility at a different time, changes in mode (i.e. someone switching from transit to a vehicle), and additional travel by current facility users. Additionally, over the long term, demand can be generated by new developments that are attracted by the new roadway capacity. For example, as capacity increases on a freeway that provides access to a downtown, people that work in downtown may be more likely to move further away from where they work. Since traveling on the improved freeway segment takes less time and is more convenient than it had been before the improvements were constructed, people may be more willing to travel longer distances to work than they had been previously.

For the project, induced demand can be observed in the future year volume forecasts. As shown in Table 2-20, the travel demand models project Alternatives 1 and 2 to have higher demand volumes than the other alternatives due to the addition of new lanes along US 50 between Watt Avenue and downtown Sacramento. In other words, the project segment of US 50 is projected to experience induced demand because of added network capacity under Alternatives 1 and 2. This increase in demand due to increased roadway capacity was carried forward into the *VISSIM* microsimulation models and can be seen in the resulting traffic operations analysis.

Table 2-20. Change in Lane-Miles vs. Change in Vehicle Miles Traveled

Criteria	Alternative 1	Alternative 2	Alternative 3
% Change in Lane-Miles	21.4%	21.4%	0.0%
% Change in VMT	+4.3%	+4.4%	-0.6%
Elasticity of Travel Demand[1]	0.20	0.21	N/A
Notes: 1. Elasticity of travel demand = Change in VMT / Change in Lane-Miles.			

The year 2040 SACSIM based US 50 TDM was able to reasonably capture the effects of induced demand in the US 50 study area. Alternative 1 and 2 both experienced an increase in VMT due to the increase in lane-miles (capacity). The elasticity of travel demand for Alternatives 1 and 2 was similar to that projected for other HOV projects within the Sacramento region as well as typical elasticity values of freeways. While the lane-miles in the project area did not change under Alternative 3, the total capacity of the study segment decreased due to the conversion of an existing lane to an HOV lane. The US 50 TDM projected a small decrease in overall travel demand under Alternative 3, which is consistent with the reduced capacity.

Traffic Operations

The Traffic Report prepared for this project analyzed traffic operations of the four alternatives under future year 2040 peak period conditions. The overall findings are summarized below.

Table 2-21 summarizes the projected change in year 2040 AM and PM 4-hour peak period performance measures, for the entire US 50 HOV Lanes Project study area network, for each project alternative as compared to Alternative 4.

Table 2-21. Year 2040 4-hour Peak Period Network Summary

	Performance Measure	Change in Performance Measure vs. No Build			
		Alt. 1 - Add HOV Lane	Alt. 2 - Add Mixed Flow Lane	Alt. 3 - Take-a-Lane	Alt. 4 - No Build
AM Peak Period	Vehicles Served (vehicles)	+6,500	+10,500	-13,000	0
	Persons Served (persons)	+31,000	+16,500	-2,500	0
	Person Miles of Travel	+109,000	+73,000	-41,000	0
PM Peak Period	Vehicles Served (vehicles)	+11,000	+7,000	-15,500	0
	Persons Served (persons)	+40,000	+11,000	-6,500	0
	Person Miles of Travel	+145,500	+82,500	-57,000	0

As shown in Table 2-21, Alternatives 1 and 2 are projected to serve more vehicles than Alternative 4 under year 2040 AM and PM peak period conditions. Alternative 2 is projected to serve the most vehicles under AM Peak Period conditions (10,500 more vehicles than Alternative 4), but the Alternative 1 is projected to consistently serve the most persons overall (31,000 more persons than Alternative 4 under AM peak period conditions, and 40,000 more persons than Alternative 4 under PM peak period conditions). Alternative 1 also accommodates the largest amount of person-miles of travel of any of the four alternatives within the US 50 HOV Lanes Project study area (over 100,000 more person-miles of travel than Alternative 4 under both AM and PM peak period conditions). Alternative 3 is projected to serve the least vehicles and persons of all the alternatives.

Table 2-22 shows the projected change in average eastbound US 50 travel times during the AM and PM 4-hour peak periods for each project alternative as compared to Alternative 4 conditions.

Table 2-22. Year 2040 4-Hour Peak Period Travel Times (EB US 50)

	Travel Time Route	**Change in Travel Time vs. No Build (minutes)**			
		Alt. 1	**Alt. 2**	**Alt. 3**	**Alt. 4**
AM Peak Period	SB I-5 at Richards Blvd to EB US 50 at Watt Ave	+0.5	0	+1.5	0
	EB I-80 at West Sacramento to EB US 50 at Watt Ave	+0.5	+0.5	+0.5	0
	NB I-5 at Sutterville Rd to EB US 50 at Watt Ave	0	0	+1.5	0
	NB SR 99 at 12th Ave to EB US 50 at Watt Ave	0	-1.0	+4.0	0
	SB US 51 at E St to EB US 50 at Watt Ave	0	0	+0.5	0
PM Peak Period	SB I-5 at Richards Blvd to EB US 50 at Watt Ave	0	+1.5	+9.0	0
	EB I-80 at West Sacramento to EB US 50 at Watt Ave	+1.0	+1.5	+5.5	0
	NB I-5 at Sutterville Rd to EB US 50 at Watt Ave	-1.5	-1.5	+10.0	0
	NB SR 99 at 12th Ave to EB US 50 at Watt Ave	+1.0	+2.0	+11.0	0
	SB US 51 at E St to EB US 50 at Watt Ave	+0.0	+1.0	+7.0	0

Alternatives 1 and 2 are projected to have little impact on eastbound travel times over Alternative 4 conditions. Alternatives 1 and 2 AM and PM peak period travel times are generally projected to either stay the same or increase/decrease by up to two (2) minutes. Alterative 3 travel times are generally projected to increase over projected Alternative 4 travel times, with PM peak period routes projected to increase by as much as 11 minutes. Traffic demand is projected to exceed freeway capacity under year 2040 conditions. The resulting mainline traffic queues that form under Alternative 4 conditions were projected to stretch beyond the modeled limits, resulting in vehicles experiencing delay waiting to enter the model network. The delay/travel time experienced by vehicles waiting to enter the study network was not entirely captured in the above results due to limitations of the model. Note that most of the travel time benefits due to the proposed project occur in the westbound direction under year 2040 conditions.

Table 2-23 shows the projected change in average 2040 AM and PM peak hour volume served, persons served, speed, and density of eastbound US 50 in the project corridor for each project alternative as compared to Alternative 4.

Table 2-23. Year 2040 Peak Hour Project Corridor Performance (EB US 50)

	Performance Measures	Change in Performance Measure vs. No Build			
		Alt. 1	Alt. 2	Alt. 3	Alt. 4
AM Peak Hour	Volume Served (vehicles)	+150	+250	-350	0
	Persons Served (persons)	+700	+350	-150	0
	Average Mainline Speed (mph)	0	0	-2.5	0
	Average Density (pcplpm)	-2.5	-2.0	+1.0	0
PM Peak Hour	Volume Served (vehicles)	+200	+200	-700	0
	Persons Served (persons)	+700	+300	-700	0
	Average Mainline Speed (mph)	+1.0	+1.0	-5.5	0
	Average Density (pcplpm)	-3.0	-3.0	-0.5	0

The eastbound US 50 project corridor is projected to serve several hundred more peak hour vehicles and persons with lower mainline densities under Alternatives 1 and 2 than under Alternative 4. Alternative 3, however, is projected to result in less vehicles and persons served, lower eastbound US 50 speeds, and higher eastbound US 50 mainline densities.

Table 2-24 shows the projected change in average 2040 westbound US 50 travel times during the AM and PM 4-hour peak periods for each project alternative as compared to Alternative 4.

Table 2-24. Year 2040 4-Hour Peak Period Travel Times (WB US 50)

	Travel Time Route	Change in Travel Time vs. No Build (minutes)			
		Alt. 1	Alt. 2	Alt. 3	Alt. 4
AM Peak Period	WB US 50 at Watt Ave to NB I-5 at Richards Blvd	+2.5	+3.5	+1.0	0
	WB US 50 at Watt Ave to WB I-80 at West Sacramento	+2.0	+3.0	+1.0	0
	WB US 50 at Watt Ave to SB I-5 at Sutterville Rd	+2.0	+3.0	+1.0	0
	WB US 50 at Watt Ave to SB SR 99 at 12th Ave	+2.0	+3.0	+0.5	0
	WB US 50 at Watt Ave to NB US 51 at E St	+3.5	+5.0	+0.5	0
PM Peak Period	WB US 50 at Watt Ave to NB I-5 at Richards Blvd	-5.5	-7.5	-3.5	0
	WB US 50 at Watt Ave to WB I-80 at West Sacramento	-7.0	-9.5	-4.5	0
	WB US 50 at Watt Ave to SB I-5 at Sutterville Rd	-5.5	-8.5	-5.0	0
	WB US 50 at Watt Ave to SB SR 99 at 12th Ave	-7.0	-9.5	-2.0	0
	WB US 50 at Watt Ave to NB US 51 at E St	-4.0	-7.0	-3.0	0

Alternative 1 and 2 have slightly higher westbound travel times than the other alternatives under AM peak period conditions. However, under PM peak period conditions, the Alternative 1 is projected to decrease westbound travel times by up to approximately 7 minutes, and Alternative 2 is projected to decrease westbound travel times by up to nearly 10 minutes, when compared to Alternative 4. Traffic demand is projected to exceed freeway capacity under year 2040 conditions. The resulting mainline traffic queues that form under Alternative 4 were projected to stretch beyond the modeled limits, resulting in vehicles experiencing delay waiting to enter the model network. The delay/travel time experienced by vehicles waiting to enter the study network was not entirely captured in the above results due to limitations of the model.

Based on review of the models, Alternatives 1 and 2 have the shortest travel times and serve the most vehicles before the peak hour (7:30 AM - 8:30 AM or 4:30 PM – 5:30 PM) occurs. Once the peak hour occurs, Alternatives 1 and 2 have the longest overall travel times in some cases. This is the result of chokepoints in the models becoming more severe under Alternatives 1 and 2. The higher project area throughput of Alternatives 1 and 2 enables more cars to get to the network chokepoints in a shorter amount of time, which causes queuing to increase at a faster rate than the other alternatives and negatively impacts travel times. If future chokepoint/bottleneck improvements within and outside the study segments are implemented, Alternatives 1 and 2 will continue to provide better travel times over Alternative 3 and 4.

Major westbound US 50 chokepoints include the weaving section between SR 51/99 connectors and 16th Street (caused by merging vehicles), the weaving section between the 15th Street on-ramp and the I-5 connectors (caused by merging vehicles), and spillback from the connectors to NB SR 51 and SB SR 99 (NB SR 51 and SB SR 51 both experience low speeds and high queuing under year 2040 PM peak period conditions).

Alternative 3 sometimes shows decreased travel times compared to Alternative 4 due to bottlenecks forming at the edges of the study area where the proposed reduction in capacity for mixed use vehicles would begin. When these bottlenecks form, cars spend a considerable amount of time waiting to enter the US 50 project corridor, which is not entirely captured by the study area models as the resulting queues extend outside of the modeled limits.

Table 2-25 shows the projected change in average 2040 PM peak hour volume served, persons served, speed, and density of westbound US 50 in the project corridor for Alternatives 1, 2, and 3 as compared to Alternative 4.

Table 2-25. Year 2040 Peak Hour Project Corridor Performance (WB US 50)

	Performance Measures	Change in Performance Measure vs. No Build			
		Alt. 1	**Alt. 2**	**Alt. 3**	**Alt. 4**
AM Peak Hour	Volume Served (vehicles)	-100	+100	-900	0
	Persons Served (persons)	+400	+200	-900	0
	Average Mainline Speed (mph)	-1.0	-3.0	-0.5	0
	Average Density (pcplpm)	-3.5	+1.0	-5.0	0
PM Peak Hour	Volume Served (vehicles)	+800	+1,400	-400	0
	Persons Served (persons)	+1,600	+1,900	-300	0
	Average Mainline Speed (mph)	+5.0	+5.0	+7.0	0
	Average Density (pcplpm)	-5.0	-1.0	-12.0	0

The westbound US 50 project corridor is projected to serve several hundred more persons with lower mainline densities under Alternative 1 than under Alternative 4 (No Build) during the AM hour. Alternative 2 is projected to serve several hundred more people with slightly higher densities than Alternative 4 during the AM peak hour. Alternative 3, however, is projected to result in less vehicles and persons served and lower westbound US 50 speeds and densities under AM peak hour conditions. During the PM peak hour, the westbound US 50 project corridor is projected to serve 800-1,400 more vehicles and 1,600-1,900 more persons under Alternatives 1 and 2 than under Alternative 4. Alternatives 1 and 2 are also projected to increase average westbound US 50 speeds by five (5) miles per hour and decrease the average mainline density during the PM peak hour. Alternative 3 is projected to result in less vehicle served and persons served under PM peak hour conditions.

Alternative 3 shows increased average westbound mainline speeds under year 2040 PM peak hour conditions and decreased densities under year 2040 AM and PM peak hour conditions when compared to Alternative 4 under year 2040 PM peak hour conditions. This is the result of bottlenecks for different scenarios forming at different locations. Due to the increased capacity of westbound US 50 in the project corridor, Alternatives 1 and 2 bottleneck at the W-X section of US 50, while Alternatives 3 and 4 bottleneck closer to the eastern edge of the project corridor. This sometimes leads to less volumes traveling through the project area under the Take-a-Lane alternative, as much of the traffic is waiting to enter the project corridor. Since there are less volumes in the project corridor, the vehicles in the corridor experience higher speeds and lower densities.

It is important to note that the year 2040 PM peak period network contains a considerable amount of congestion and mainline queuing due to the high volumes entering the system and the bottlenecks that form. The major W-X bottlenecks occur on eastbound and westbound US 50 between the SR 51/99 connectors and the I-5 connectors. Westbound and eastbound US 50 between the SR 51/99 connectors and the I-5 connectors is a major weave section where cars simultaneously merge (enter) onto US 50 mainline from SR 99/51, I-5, and 15th/16th Street on-ramps and US 50 mainline diverge (exit) to I-5 connectors, SR 99/51 connectors and 15th/16th Street off-ramps.

These freeway segments back up under existing conditions, and the congestion becomes more severe under 2040 conditions. The weave sections become overloaded and vehicles begin to back up on mainline US 50 as they wait for merge/diverge vehicles. Eventually, most of the US 50 lanes within the W-X section become congested with queued vehicles.

Since Alternatives 1 and 2 serve more vehicles on mainline US 50, backups at the described bottlenecks begin sooner, leading to decreased speeds and increased delays in certain locations. As a result of the high levels of traffic demand attempting to use the freeway network under year 2040 conditions, the differences in operations between the alternatives become smaller and more difficult to capture with the model.

The following is a summary of year 2040 conditions traffic operations for the four alternatives analyzed for the US 50 HOV Lanes Project:

- Alternative 1 (Add HOV Lane) is generally projected to serve the most persons and the second most vehicles of the four alternatives. Alternative 1 also is projected to have similar, sometimes better, speeds and densities through the project corridor to the other alternatives and to provide some decreased travel times over Alternative 4.

- Alternative 2 (Add Mixed Flow Lane) is generally projected to serve the most vehicles and the second most persons of the four alternatives. Alternative 2 also is projected to have similar, sometimes better, speeds and densities through the project corridor to the other alternatives and to provide some decreased travel times over Alternative 4.

- Alternative 3 (Take-a-Lane) would encourage more people to utilize high occupancy vehicles but would slightly decrease capacity of the US 50 project corridor from No Build conditions. Alternative 3 is generally projected to serve the least vehicles and persons of the four alternatives. Alternative 3 is also projected to have the lowest speeds, the longest travel times and higher densities in the eastbound direction, in comparison to the other alternatives. In the westbound direction, higher speeds and lower densities are generally projected within the project corridor for Alternative 3 compared to the other alternatives. However, Alternative 3 is also projected to create the worst bottleneck for traffic entering the project corridor.

- Alternative 4 (No Build) would not reduce peak period congestion as it would not change capacity of the US 50 project corridor. Alternative 4 is projected to have generally low speeds and high delays and travel times throughout the US 50 project corridor. Bottlenecks are projected to form throughout the project corridor, adding to delays.

Traffic Congestion Impacts
By year 2040 conditions, the *VISSIM* models project considerable traffic congestion build-up from upstream and downstream segments that impact US 50 HOV study corridor traffic operations. "Bottlenecks" are projected to form at various points in the modeled roadway network, both outside and through the US 50 project corridor, that either block a portion of upstream traffic from entering the study corridor or block a portion of the downstream traffic from departing the study corridor. This section outlines the major bottlenecks that are observed within the year 2040 microsimulation models and the effects that these bottlenecks have on the operational analysis of the proposed US 50 HOV project corridor.

Eastbound US 50: There are two major bottlenecks that occur on eastbound US 50 during the AM and PM four-hour peak periods. The first occurs at the W-X section of EB US 50. Eastbound traffic to the SB SR 99 / NB SR 51 connector backs up mainline eastbound US 50 and eventually begins to block the majority of eastbound US 50 lanes along the W-X section. The backup from this first bottleneck spills back and exacerbates the second bottleneck, which occurs at the section of W-X eastbound US 50 where traffic from the "NB/SB I-5 to EB US 50" connectors merge with mainline EB US 50 traffic and traffic heading to/from 15/16th Street on/off-ramps. This weaving section creates queuing that backs up the "NB and SB I-5 to EB US 50" connectors as well as eastbound US 50 through West Sacramento. The queuing from these bottlenecks creates a chokepoint in the W-X section of eastbound US 50 that limits the number of vehicles that can enter the eastbound US 50 project corridor during the AM and PM peak periods.

Westbound US 50: Westbound US 50 contains three closely spaced locations where major bottlenecks occur during the AM and PM four-hour peak periods. The three locations are: westbound US 50 between the Stockton Boulevard interchange and the "WB US 50 to NB SR 51 / SB SR 99" connectors, westbound US 50 between the "NB SR 99 / SB SR 51 to WB US 50" connectors and 16th Street off-ramp, and westbound US 50 between the 15th Street on-ramp and "WB US 50 to I-5" connectors. The capacities of these three weave segments are overloaded during the 2040 AM and PM four-hour peak periods and considerable westbound queuing builds up as a result. The year 2040 queuing from these chokepoints backs up through the project corridor to Watt Avenue before eventually beginning to disperse. This queuing causes low speeds, high densities, and long travel times through the US 50 project corridor.

Due to high demand volumes during the year 2040 four-hour PM peak period, the queues from the westbound US 50 bottlenecks extend to the eastern limits of the model and do not completely clear up during the four-hour peak period. As a result, not all demand volumes are able to be served. Note that it is common for the roadway networks in future year microsimulation models to be unable to serve all of the projected demand, especially in built-out areas such as downtown Sacramento. Every roadway facility has a certain maximum capacity it can serve, and the further into the future the modeled scenario gets, the more likely it becomes that the demand will exceed network capacity.

Outside the Project Corridor: Some locations outside of the US 50 project corridor are also projected to experience bottlenecks in the year 2040 VISSIM models:

- **Southbound I-5** bottlenecks at the "SB I-5 to EB/WB US 50" connectors. This causes queuing on southbound I-5 that backs up to the northern limits of the model. As a result, southbound I-5 is unable to serve all of the demand volumes during the 2040 AM and PM four-hour peak periods.

- **Northbound SR 99** bottlenecks at the "NB SR 99 / 12th Avenue" interchange and the NB SR 99 connectors to EB/WB US 50. This causes queuing that backs up to the southern limits of the model. As a result, northbound SR 99 is unable to serve all of the demand volumes during the 2040 AM and PM four-hour peak periods.

- **Southbound SR 99** bottlenecks near the connectors from EB/WB US 50 due to high EB/WB US 50 demands to SB SR 99. This results in queues that spill back to EB/WB US 50 and SB SR 51.

- **Northbound SR 51** bottlenecks near the E Street onramp due to the mainline reducing to three lanes. This results in queues that spill back to the US 50 connectors and contributes to eastbound and westbound US 50 queuing/chokepoints.

- **Southbound SR 51** bottlenecks at the "SB SR 51 to EB/WB US 50" connectors due to spillback from congestion on the W-X segments of WB US 50. This causes queuing that backs up to the northern limits of the model and prevents SB SR 51 from serving all of the demand volumes during the 2040 AM and PM peak four-hour periods.

- **Eastbound US 50** east of the project area (east of Watt Avenue) currently experiences delays and queue spill back from congestions associated with eastbound US 50 traffic reaching overcapacity conditions. Based on experience with the project area and outside of project area, this queue spill back is projected to continue to increase and spillback to the project area in the future.

Interchanges: Bottlenecks are also caused by overloaded on/off-ramps and overcrossing ramp intersections extended beyond their capacity within the study area. The following major interchange related bottlenecks were observed in the year 2040 four-hour AM and PM peak period models:

- **Watt Avenue:** The EB/WB US 50 on-ramps at Watt Avenue experience considerable backup due to the previously mentioned queuing on WB US 50 and the Watt Avenue overcrossing reaching its capacity under year 2040 four-hour AM and PM peak period conditions. This causes both southbound and northbound Watt Avenue to experience considerable queuing. Two major problems arise from the backups on Watt Avenue: 1. Vehicles on southbound Watt Avenue are unable to reach the eastbound US 50 loop on-ramp; 2. Vehicles queued on northbound Watt Avenue prevent vehicles on the eastbound US 50 direct off-ramp from turning left, which leads to queue spillback onto eastbound mainline US 50.

- **Howe Avenue:** Howe Avenue experiences interchange queuing similar to Watt Avenue. The EB/WB US 50 on-ramps at Howe Avenue also experience considerable backup due to the previously mentioned queuing on WB US 50 and the Howe Avenue overcrossing reaching its capacity under year 2040 four-hour AM and PM peak period conditions. This causes both southbound and northbound Howe Avenue to experience considerable queuing. Two major problems arise from the backups on Howe Avenue: 1. Vehicles on southbound Howe Avenue are unable to reach the eastbound US 50 loop on-ramp, 2. Vehicles queued on northbound Howe Avenue prevent vehicles on the eastbound US 50 direct off-ramp from turning left, which leads to queue spillback onto eastbound mainline US 50.

- **34th Street Off-Ramp:** The high traffic volumes utilizing the eastbound US 50 34th Street off-ramp cause queuing that spills back onto the eastbound US 50 mainline. Increasing the green time for the eastbound US 50 off-ramp intersection movement helps alleviate some of the spill back onto EB US 50 mainline. However, even with the increased green time, the 34th Street off-ramp intersection is still unable to serve all SB SR 51 and EB US 50 off-ramp to 34th Street traffic demands under 2040 conditions. As a result, traffic spills back to the SB SR 51 connector and EB US 50 mainline. This queue spillback adds to the eastbound US 50 queuing that prevents vehicles from entering the project corridor.

Operations of Year 2040 Scenarios: The US 50 project corridor (eastbound and westbound) has more throughput and demand under Alternatives 1 and 2 than under Alternatives 3 and 4. Therefore, Alternative 1 and 2 eastbound/westbound US 50 traffic operations between I-5 and Watt Avenue are generally better than Alternative 3 and 4 traffic operations during the 3:00 PM to 4:30/5:00 PM and 6:00 AM to 7:30/8:00 AM time periods. However, because of the increased throughput/demand of the project corridor, vehicles reach the major network bottlenecks in larger quantities and at a faster rate under Alternatives 1 and 2. As a result, queuing in the 2040 Alternative 1 and 2 develops at the discussed critical locations at a faster rate and causes Alternative 1 and 2 networks to have slightly worse traffic operations (longer travel times, lowers speeds, and higher delays) than Alternatives 3 and 4 beyond 4:30/5:00 PM and 7:30/8:00 AM. This is why Alternative 1 and 2 almost always serve more vehicles and persons than Alternative 3 and 4, but sometimes have longer travel times.

Vehicle Miles Traveled (VMT) Analysis

VMT data for each proposed alternative was developed for both the US 50 HOV Lanes traffic study as well as for air quality and greenhouse gas emissions analysis. Projected year 2040 VMT was calculated for the entire US 50 study area. Additionally, VMT on the project segment of mainline US 50 was calculated and sorted into five mile-per hour “speed bins”. Year 2040 mainline US 50 VMT by speed bins in the project corridor is shown in Table 2-26.

Table 2-26. Year 2040 US 50 Mainline VMT by Speed Bin

Speed Bin	Alternative 1	Alternative 2	Alternative 3	Alternative 4
0 – 5 mph	0	0	0	0
5 – 10 mph	0	0	0	0
10 – 15 mph	0	0	0	0
15 – 20 mph	0	0	0	0
20 – 25 mph	35,993	35,997	35,510	35,512
25 – 30 mph	94,389	94,423	70,255	74,009
30 – 35 mph	70,752	84,029	58,465	139,004
35 – 40 mph	79,323	134,160	245,901	516,036
40 – 45 mph	219,852	336,428	380,571	445,486
45 – 50 mph	498,019	549,186	579,666	541,603
50 – 55 mph	447,342	472,716	484,683	327,806
55 – 60 mph	567,295	431,207	408,821	358,594
60 – 65 mph	600,349	544,994	322,288	179,516
65+ mph	117,456	50,303	16,007	0
Total	**2,730,769**	**2,733,443**	**2,602,167**	**2,617,566**

As shown in Table 2-26, Alternatives 1 and 2 are projected to have the highest levels of overall VMT. This is consistent with the concept of induced demand discussed earlier, which predicted that the alternatives with the most capacity (i.e. the add-a-lane alternatives) would have the most demand for travel. Additionally, Alternatives 1 and 2 are projected to experience a higher percentage of VMT at higher speeds. Alternative 3 would experience the least VMT overall and some of the lowest speeds due to its decreased capacity. In general, freeway facilities are able to serve more vehicles with fewer emissions when they are operating at higher speeds due to larger capacities. Generally, the least pollutants and greenhouse gasses are produced when vehicles are operating between 45 and 55 miles per hour on a freeway.

HOV Lane Safety Data

The US 50 HOV lanes traffic study included a discussion of the effects that adding HOV lanes to an existing freeway segment has on traffic safety and collision rates (see page 79 of the US 50 HOV Lane traffic study). The discussion utilized the following available traffic collision data records and Traffic Accident Surveillance and Analysis System (TASAS) data summaries provided by Caltrans District 3 for the following US 50 locations and time periods:

- East of the US 50 project segment, between Watt Avenue (03 SAC 050 PM R005.055) and east of Sunrise Boulevard (03 SAC 050 PM 013.498) before construction of the eastbound and westbound HOV lanes, for the three-year data period (January 1, 2007 to December 31, 2009).

- East of the US 50 project segment, between Watt Avenue (03 SAC 050 PM R005.055) and east of Sunrise Boulevard (03 SAC 050 PM 013.498) after the construction of the eastbound and westbound HOV lanes, for the most recent 27-month data period (January 1, 2011 to March 31, 2013). Note: 27 months of data was used instead of 36 months of data because at the time of completion of the Traffic Study, collision data was only available up until March 2013 (i.e. 27 months since the completion of the HOV lanes east of Watt Avenue).

The before and after HOV lanes collision data is summarized in Table 2-27.

Table 2-27. Collision Data Summary – US 50 from Watt Avenue to Sunrise Boulevard

US 50 Segment Location (Post Mile)	Number of Collisions							Persons		Actual Collision Rates (# of collisions/MVM)			Average Collision Rates (# of collisionss/ MVM)		
	Tot	Fat	Inj	F+I	Multi Veh	Wet	Dark	Kld	Inj	Fat	F+I	Tot	Fat	F+I	Tot
Before HOV Lanes 36-Month 01-JAN-07 to 31-DEC-09 (PM 5.055 to PM 13.497)	683	3	220	223	523	75	198	3	304	0.002	0.12	0.37	0.004	0.27	0.84
After HOV Lanes 27-Month 01-JAN-11 to 31-MAR-13 (PM 5.055 to PM 13.497)	657	1	198	199	550	68	191	1	281	0.002	0.19	0.61	0.003	0.21	0.68

Note: *MVM = Million Vehicle Miles, Fat = Fatalities, Inj = Injuries, Veh = Vehicle, Kld = Killed, F+I = Fatalities + Injuries, Tot = Total*
Source: Caltrans District 3

For the segment of US 50 east of the project segment (between Watt Avenue and Sunrise Boulevard) actual collision rates were less than that of average collision rates for “fatal”, “fatal plus injury” and total collisions both before and after the installation of the eastbound and westbound HOV lanes. With the construction of the eastbound and westbound HOV lanes east of the project segment, the “fatal” type collision rate did not change, but the “fatal plus injury” and the “total” collision rates increased from 0.12 and 0.37 to 0.19 and 0.61, respectively. However, this could be a result of the different time periods for the “before” and “after” data records.

The “before” and “after” construction of the HOV lanes traffic collision records for US 50 east of the project segment were reviewed according to the following categories:

- Type of collision - head on, sideswipe, rear end, broadside, hit object, etc.
- Primary collision factor - follow too close, failure to yield, improper turn, speeding, etc.
- Movement preceding collision - proceeded straight, slowing/stopping, changing lane, etc.
- Time of day - peak period (HOV in effect) versus off-peak period (HOV not in effect)
- Location of collision - left lane, interior lane, right lane, etc.

With the construction of HOV lanes, it appears the number of collisions caused by speeding increased by approximately 14% within the segment of US 50 between Watt Avenue and Sunrise Boulevard, and rear-end collisions increased by approximately 12% within the segment. However, these apparent increases in collision rates may be due to factors other than the presence of HOV lanes, such as increased congestion or the fact that the duration of the time periods for the “before” and “after” data records were different. The locations of collisions on the mainline stayed approximately the same, with approximately 25% of collisions occurring in the left lane, 25% of collisions occurring in the right lane, 40% of collisions occurring in the interior lanes, and the remaining 10% of collisions occurring in the shoulder or median areas, thus it cannot be concluded that the addition of HOV lanes caused an increase in collision rates.

As mentioned in prior HOV reports prepared for Caltrans District 3 (*Contiguous HOV Lane Safety Review,* dated 2006*, I-5 Bus/Carpool Lanes Traffic Report,* dated September 30, 2009), recent research studies in other states have reported higher collision rates associated with HOV lanes on freeways. However, the studies focused on buffer or barrier-separated facilities, which have collision concentrations at ingress/egress locations. A buffer or barrier-separated facility contains a HOV lane that is separated from the mixed flow lanes by a striped buffer width of one foot or more or physical barrier; ingress/egress is only allowed at specific points.

The proposed US 50 HOV lanes are a continuous HOV facility, not a buffer or barrier-separated facility. A continuous HOV lane is only separated from mixed flow lanes by a single stripe and ingress/egress is permitted for the entire length. For continuous HOV lanes, safety concerns exist due to the speed difference between the freely flowing HOV lane and the adjacent congested mixed-flow lanes. However, a study titled *"A Comparative Safety Study of Limited versus Continuous Access High Occupancy Vehicle (HOV) Facilities" (Institute of Transportation Studies, University of California, Berkeley, September 18, 2007)* found that continuous access HOV lanes had a lower percentage of total collisions than limited access (buffer or barrier-separated) HOV lanes.

Based on the data and discussion above, it cannot be concluded that the presence of HOV lanes will cause an increase in collision rates in the project area.

Transit Operations

As growth in the region continues, the need for additional public transit services will also continue to increase. The proposed project would increase total capacity while encouraging a more efficient use of the roadway through peak period carpools, buses, and/or vanpools. Based on data from the traffic study as well as from prior HOV lane studies completed for other facilities in the Sacramento region, the proposed HOV lanes are projected to increase speeds and travel times of buses in the project corridor. Construction of HOV lanes between Watt Avenue and I-5 would allow commuter buses to bypass congestion on the mixed flow lanes during peak periods, allowing workers commuting to downtown Sacramento to experience shorter trips to work. Decreased commute times would likely result in increased transit ridership in the Sacramento region.

Project construction may require temporary relocation of some of the RT bus stops in the Study Area. Relocated bus stops would be within 200 feet of existing stops. Caltrans would coordinate the details of relocated bus stops with RT. Bus stop relocation would be temporary; in most cases, relocation would last six months or less.

Light rail may be temporarily suspended during construction where the line crosses US 50 at 19th Street and the Brighton Overhead. The line would need to be de-energized during false work construction. The suspended service would be temporary and would occur at night to minimize disruption of light rail operations.

Bicycle Routes

All proposed project alternatives are not projected to have any effects on other study area bicycle routes.

Under Alternatives 1and 2, widening the freeway structures that cross over surface streets will require traffic control. Constructing false work may involve one or more of the following:

- Close surface streets at night.
- Close one side of the street during daytime construction
- Completely close the street for a few days until the false work is constructed.

During partial closures, an accessible bicycle/pedestrian route on at least one side of the local street would be maintained. Bicycles and pedestrians will be diverted to the nearest crossing, if the street is fully closed.

Sidewalk width and parking may be temporarily restricted.

Alternatives 3 and 4 will not affect bicycle routes.

The City of Sacramento's 65th Street improvements includes several bicycle and pedestrian features. These features improve safety for pedestrians and bicyclists using 65th Street from the 65th Street Light Rail Station in the north to 4th Avenue in the south. These features will be constructed by the City of Sacramento.

Pedestrian Facilities

The Study Area includes numerous neighborhood streets that cross under or over US 50. The sidewalks on these streets provide access and pathways for pedestrians throughout the Study Area. Under Alternatives 1 and 2, sidewalks under the W-X freeway may be temporarily closed to pedestrians during construction. However, the number of sidewalks closed at one time will be limited. Also, for the main traveled streets, including 11th, 15th, 16th, 19th, 21st and 24th, only one sidewalk should be closed at a time.

The construction of Alternatives 3 and 4 will not affect pedestrian facilities.

The City of Sacramento's 65th Street project will include new pedestrian pork chop islands at the 65th Street / WB US 50 off-ramp intersection, wider sidewalks within the 65th Street / WB US 50 interchange vicinity, and new raised sidewalks with railings under the US 50 undercrossing structure.

Avoidance and/or Minimization Measures

Caltrans will prepare a Transportation Management Plan (TMP) in order to minimize disruptions to traffic and to emergency services during construction. A TMP is a program of activities for alleviating or minimizing work-related traffic delays by applying traditional traffic handling practices and innovative strategies including public awareness campaigns, motorist information, demand management, incident management, system management, construction methods and staging, and alternate route planning. TMP strategies also strive to reduce overall duration of work activities where appropriate. Typical components of a TMP can include measures such as the implementation of staging, traffic handling, and detour plans; restricting construction work to certain days and/or hours to minimize impacts to traffic and pedestrians; coordination with other construction projects to avoid conflicts; and the use of portable changeable message signs to inform the public and emergency vehicles of construction activities.

Caltrans will continue coordination with Regional Transit regarding the temporary relocation of bus stops within the project area. Bus stop relocation would be temporary; in most cases, relocation would last six months or less.

Caltrans will also continue coordinating with Regional Transit regarding the temporary suspension of light rail service during construction at US 50 at 19th Street and the Brighton Overhead. The suspended service would be temporary and would occur at night to minimize disruption of light rail operations

CEQA Considerations

As discussed above, the project alternatives would not:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.
- Conflict with an applicable congestion management program.
- Result in a change in air traffic patterns.
- Substantially increase hazards due to a design feature or incompatible uses.
- Result in inadequate emergency access.
- Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The project alternatives would not have a significant impact to traffic and transportation/ pedestrian and bicycle facilities. The 65th Street improvements enhance pedestrian and bicycle safety.

2.8 Visual/Aesthetics

Regulatory Setting

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

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 [PRC] Section 21001[b]).

Affected Environment

Caltrans staff completed a revised visual impact assessment (VIA) in August 2016. A copy of the VIA is available from Caltrans upon request.

The project location and setting provides the context for determining the type of changes to the existing visual environment.

The natural landscape has been altered from its original native vegetation due to the urbanization of the area. The majority of the vegetation within the vicinity of the project’s location has been planted for ornamental or aesthetic value; some areas adjacent to the highway corridor have been planted for erosion control or slope stabilization.

The land use within the project corridor is primarily urban — consisting of residential, business, commercial, and industrial development. The topography is mostly flat. The views from the road are of the surrounding development. Portions of the road are elevated that allows motorist to see the city’s structure from a higher perspective and a portion on the eastern edge of the project is depressed and runs through an area that is framed by steep slopes caused by the construction of the original freeway. Portions of the corridor are lined with sound walls.

The proposed project is not located on a highway facility that is designated as a State Scenic Highway. No scenic resources were identified within the project limits.

Criteria for Visual Assessment

The visual character and quality of the region and the project site were evaluated using established FHWA criteria for visual landscape relationships. These criteria are: vividness, intactness, and unity.

- Vividness is the visual power or impressionable memory of the landscape components as they combine in striking or distinctive visual patterns.
- Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes, as well as natural settings.
- Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the artificial landscape.

Visual Resources and Resource Change

Visual resources of the project setting are defined and identified below by assessing *visual character* and *visual quality* in the project corridor (see above). *Resource change* is assessed by evaluating the visual character and the visual quality of the visual resources that comprise the project corridor before and after the construction of the proposed project.

The visual character of the proposed project will be mostly compatible with the existing visual character of the corridor. The proposed improvements for US 50 will be similar to the existing highway facility in regard to its form, color, and texture.

The most notable change in the visual setting will be due to the increase in the amount of new sound walls. This will diminish the visual quality of the existing corridor however, the area is already highly developed and sound walls already exist along portions of this highway corridor.

The vividness, intactness and unity will not be diminished by this project. The vividness of the area is not recognized as being high due to the lack of striking or distinctive visual patterns. The area lacks intactness due to the various land uses and type of developments. The landscape is moderately well kept but is not noted for its visual integrity. The unity or visual character of the landscape will not be compromised because the area lacks a landscape that would be considered cohesive and harmonious.

Resource change (changes to visual resources as measured by changes in visual character and visual quality) will be moderately low. The visual quality and visual character is not considered high due to the mix of different types of land uses and development within the area. The highway corridor is quite wide in areas and it does not have a view shed that is memorable or scenic. The roadway is often congested, which adds stress to the driving experience and therefore creates a less than positive driving experience. This is the present condition of the highway and post construction may alleviate some of this congestion, but will not substantially alter the visual quality or resources of the highway corridor.

There are some areas where transparent sound barriers may be utilized. These sections would be on the viaduct section of US 50, which is closer to the downtown and midtown area of Sacramento. If the transparent sound barriers are used in these areas, motorists would continue to have elevated views of the city and surrounding residential and commercial areas.

Viewers and Viewer Response

There are two types of viewers: *highway viewers* (people with views *to* the road) and *highway users* (people with views *from* the road).

Highway viewers include a mix of residential, business and commercial users/owners. The views vary depending on the location. Some the views of the highway will be eliminated due to the construction of the sound walls. The walls will enclose the highway, which is apparent east of Watt Avenue where walls have been constructed in the past several years by other highway projects.

Highway users include commuters, business drivers, residents, and drivers destined for local and regional recreational locations. Weekly commuters tend to be local drivers traveling back and forth to work, while weekend drivers are more recreationally based partaking in a more casual drive. It is anticipated that the average response of all viewer groups will be low to moderately low.

The highway users view will change as the driver continues to travel east near the 51st Street exit. The section along this area of highway is depressed, with steep slopes on each side of the freeway. Any vegetation removed will be replanted.

Environmental Consequences

Each project alternative is required to be analyzed independently in order to assess visual and scenic resource impacts. From a visual impact standpoint Alternatives 1 and Alternative 2 will have identical visual impacts due to the overall project scope for each being similar with the exception of how the newly construction lane will function. Alternatives 3 and Alternative 4 will have identical visual impacts due to Alternative 3 simply converting an existing mixed flow lane to HOV with no additional work proposed. Alternatives 3 and 4 will have no visual change. The following assessment applies to both Alternatives 1 and 2.

Visual impacts are determined by assessing changes to the visual resources and predicting viewer response to those changes. Overall, the visual impacts of the project are expected to be moderately low. The visual quality of the area will not be substantially degraded by the proposed project.

The construction of the sound walls under Alternatives 1, 2, and 3 will have a greater viewer impact due to the size and length of the proposed walls. The sound walls west of the Oak Park Interchange will see a moderate impact. These walls are proposed to be constructed on the elevated viaduct portion of the highway which block motorist's views of the city and surrounding residential and commercial areas. The sound walls constructed east of the Oak Park Interchange are expected to have a low visual impact on their own but, in addition to the existing sound walls along the corridor, will have a cumulative visual effect. This effect is expected to have a moderately low overall impact due to the lack of open views of the surrounding communities and distant horizons. These changes will not necessarily be negative, the construction of new sound walls in this area will actually increase the visual continuity slightly by creating one consistent look along the roadside instead of a mixture of fences as walls. The walls will need to be reviewed and analyzed in more detail during the design phase in order to determine the appropriate aesthetics for the structures. Note that the results of the noise study found that of the studied sound walls none met the feasible criteria (please refer to the noise section of this document).

The proposed project will not create a new source of light or glare which would adversely affect day or night time views in the area; however, colorization may be warranted for the new walls in order provide visual continuity with the recently constructed sound walls along the corridor.

The construction of the roadway improvements (sound walls) along the corridor will require the removal of trees and shrubs. The removal will have a low to moderate effect due to the elimination of some large, mature ornamental species which are visually appealing as well as soften and blend the roadside environment into the surrounding community. The removal of this vegetation will expose the bare unattractive roadside slopes and highway infrastructure. The removal will result in a low to moderate visual chance due to the removal of trees nearest the tops of the slopes as well as the motorists' views of existing mature vegetation adjacent to the project corridor. The number and amount of the trees and shrubs has not been determined at this time but will be determined further in the design phase of the project.

Temporary Construction Visual Impacts

The construction of Alternatives 1 and 2 will have temporary visual impacts. The improvements made to US 50 will be visually obvious. There may also be staging areas at various locations within the highway corridor. Other inconveniences will include dust from the project and trucks hauling materials. Dust will be controlled using measures described in the air quality section of this document. The duration of this inconvenience and visual blight will be temporary.

Avoidance and Minimization Measures

Although less than significant impacts are anticipated, avoidance or minimization measures have been identified that can lessen any visual impacts caused by the project. Also, the inclusion of aesthetic features in the project design previously discussed can help generate public acceptance of a project. This section describes additional avoidance and/or minimization measures to address specific visual impacts. These will be designed and implemented with concurrence of the District Landscape Architect.

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

- Use materials, treatments, and/or color similar to those incorporated into other sound walls along the project corridor in order to provide visual continuity with the existing sound walls along the corridor.
- Transparent sound barriers may be considered for the viaduct section of US 50. If the transparent sound barriers are used in these areas, motorists would continue to have elevated views of the city and surrounding residential and commercial areas. Consideration of this concept is predicated by cost and acceptance by the City of Sacramento and the general public.
- All areas of ground disturbance used for staging, access or other construction related activities will be restored to its original condition. This can best be accomplished by contour grading the area and applying a hydro-seed consisting of an indigenous, native seed mix. This will help to blend these areas to the surrounding typography.
- Limit vegetation removal for sound wall construction.
- Develop highway planting and irrigation plans to replace highway planting and irrigation removed during construction activities in order to better bland the roadside into the surrounding community, hide visually unappealing roadside elements and beautify the corridor.

CEQA Considerations

As discussed above the project alternatives will not have a substantial adverse effect on a scenic vista, substantially damage scenic resources within a state scenic highway, or create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. Less than significant impacts to visual resources are anticipated. Although less than significant impacts are anticipated, the project will include features including those listed in the avoidance and minimization section above to reduce impacts to visual resources.

2.9 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. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966 , as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation [36 CFR 800]. On January 1, 2004 (amended January 1, 2014), a Section 106 Programmatic Agreement (PA) between the Advisory Council, FHWA, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the Advisory Council's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA's responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 USC 327).

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

On September 25, 2014, the Governor of California approved Assembly Bill (AB) 52, which requires that Caltrans begins consultation with California Native American tribes prior to the release of a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report. AB 52 requirements apply to all projects that began environmental studies after July 1, 2015. AB 52 does not apply to this project since studies began in 2013.

Affected Environment

Caltrans staff completed a Historic Property Survey Report (HPSR) in November 2015.

The Area of Potential Effects (APE) for the project was established in consultation with Richard V. Olson, Co-Principal Investigator-Prehistoric and Historical Archaeology, and Sutha Suthahar, Project Manager, on April 2, 2015. The APE was established as being the horizontal and vertical extent of the area(s) that will be required to construct HOV lanes, median widening at 12 structural sections, including vertical column installations, bicycle/pedestrian improvements on 65th Street, and addition of sound walls and drainage/culverts, at various locations.

Caltrans cultural staff consulted with local Native American tribes, groups and individuals, the Native American Heritage Commission, and the local historical society. Caltrans cultural staff also reviewed the following sources:

- National Register of Historic Places
- California Points of Historical Interest
- California Historical Resources Information System (CHRIS)
- California Historical Resources
- California Inventory of Historic Resources
- Caltrans Historic Highway Bridge Inventory
- California Historical Landmarks
- Caltrans Cultural Resources Database (CCRD)
- *US Highway 50 High Occupancy Vehicle (HOV) Lanes and Community Enhancement Project;* Historic Property Survey Report (Olson and Hope 2006); Caltrans District 3, Office of Environmental Management.

Two historic properties were identified within the APE: the Coloma Community Center (CCC) and the Sacramento Valley Railroad (SVRR) CA-SAC-428H.

The CCC located at 4623 T Street was determined eligible for the NHRP under Criteria C for its architectural distinction and as an important work of the prominent Sacramento architectural firm of Dean and Dean in 2005. The State Historic Preservation Officer (SHPO) concurred with this eligibility determination on June 15, 2006.

The SVRR was previously determined eligible for the National Register of Historic Places (NRHP) in 1993 as the states' first passenger railroad west of the Mississippi River and for its association with Theodore Judah. It is also designated California Historical Landmark Number 526. In the project area, the SVRR alignment is currently used by RT Light Rail.

Twelve structures within the project limits will be widened into the median and the project may include sound wall construction at two additional structures. According to the Caltrans Statewide Historic Bridge Inventory 2010 Update, all the bridges are Category 5 structures (not eligible for the NRHP) and require no further management.

Environmental Consequences

US 50 crosses over the historic alignment of the SVRR at three locations, one being the Brighton OH structure located east of 65th Street, which is in the proposed project limits. At the Brighton OH structure, under Alternatives 1 and 2, the highway will be widened in the median and where it crosses over the SVRR will be widened on the inside, in the gap between two structures. New columns for the widened structure will be added in the same alignment as the existing columns, and the SVRR will not be altered or affected in any way. This project will not alter the historic railroad or diminish the qualities that make it eligible for listing in the NRHP.

Under Alternatives 1, 2 and 3, a proposed sound wall along eastbound US 50 in the Elmhurst Neighborhood will extend along the northern property boundary of the Coloma Community Center. The proposed sound wall will require a temporary construction easement (TCE) extending approximately ten feet onto a parking lot on the northern end of the Coloma Community Center property. The sound wall at this location would block the view north from the first floor windows at the rear end of the CCC and from the rear grounds of the property. However, this view was altered substantially in the 1970s by highway construction and has been determined to not be an important characteristic of the property's setting (Hope 2006). The TCE would extend only onto the northernmost row of parking spaces in the paved parking lot, which is considered a modern, non-contributing feature of the property. The TCE will have no effect on the characteristics that qualify the CCC for the NRHP. Construction of a sound wall along the northern property boundary will not have an effect on this historic property, as it will not diminish any of the qualities that qualify the property for the NRHP.

Potential for Buried Archaeological Sites: Based on the current knowledge of the geological history of the project area, a very low potential exists for the discovery of subsurface/buried archaeological deposits, given the extent of the *Older (1.9 million to 22,000 years) and Latest Pleistocene (22,000 to 11,500 years)* soil deposits prevalent in the project vicinity. These geologic Epoch(s) are generally associated with landforms that include dissected alluvial fans and floodplains in the Valley lowlands, and soils are typically considered to be too old to contain buried archaeological evidence. In addition, the extent of previous soil disturbance due to highway construction, cut/fill, and dense residential/commercial development within the study limits further precludes the potential of encountering buried archaeological resources.

There are no impacts to cultural resources under Alternative 4.

Because construction activities and the change of the view shed in the vicinity of the CCC would not alter or affect the qualities for which the properties are eligible a Finding of No Historic Properties Affected is appropriate for the project as a whole. There are no Section 4(f) resources within the project; Section 4(f) does not apply.

Avoidance and/or Minimization Measures

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

If buried archaeological deposits are revealed at the column installation locations, further review by a Caltrans PQS Archaeologist is required to assess and evaluate the nature of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendent. At this time, the person who discovers the remains will contact the project's District environmental construction liaison and cultural resources specialist so that they may work with the Most Likely Descendent, when designated, on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

CEQA Considerations

As discussed above, no significant impacts to cultural resources are anticipated.

PHYSICAL ENVIRONMENT

2.10 Hydrology and Floodplain

Regulatory Setting

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

In order to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments,
- Risks of the action,

- Impacts on natural and beneficial floodplain values,
- Support of incompatible floodplain development, and
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project.

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

Affected Environment

A Floodplain Hydraulics Study was prepared for the proposed project in September 2014 and January 2015.

Roadway
Two segments of US 50 (Station 132+00 to 166+00, and Station 300+00 to 455+00) lie in a FEMA designated Zone "X" of the floodplain. Zone X is defined as "areas of 0.2% annual chance flood; and areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile and areas protected by levees from 1% annual chance flood". US 50 is protected from flooding by levees that meet the criteria for seepage and stability, which are required for certification of the levees by the Sacramento Area Flood Control Agency (SAFCA).

Structures
Elmhurst Viaduct: Zone "X" of the floodplain extends across a portion of the bridge.

Brighton OH: The Union Pacific Railroad tracks run beneath the Brighton OH bridge. The railroad itself is elevated above Zone "X" of the floodplain. The bridge is elevated above the "areas of 1% annual chance flood with average depths of less than 1 foot.”

Folsom Boulevard UC: This bridge is elevated above the surrounding floodplain.

State College UC: This bridge is also elevated above the surrounding areas.

Sound Walls
Nine sound walls were evaluated within the project limits; SWWB1, SWEB1, SWWB2, SWEB2-2A, SWEB3, SWEB4, SWEB5, SWEB6, and SWEB7A-7B. A description of these sound walls are included in the noise section of this document and are shown on Figure 1-3.

Environmental Consequences

Alternative 1
Roadway
Two segments of US 50 (Sta. 132+00 to 166+00, and Sta. 300+00 to 455+00) lie in a FEMA designated Zone "X" of the floodplain: I-5 / US 50 interchange and US 50 / Folsom Blvd. Undercrossing to Watt Ave. In Zone X with the probability of annual chance of flood water depths not exceeding 1-foot, there will not be a floodplain encroachment .

Structures
Elmhurst Viaduct: Zone "X" of the floodplain extends across a portion of the bridge. If the depth of the floodwaters is 1-foot or less then the water will be below the Elmhurst Viaduct and widening the structure will have a negligible impact on the bridge.

Brighton OH: Widening the structure in the median is expected to have a negligible impact on the floodplain.

Folsom Boulevard UC: The bridge is elevated by several feet above the floodplain and would have a negligible impact on the floodplain.

State College UC: The bridge is elevated several feet above the surrounding areas and as such widening of the structure is expected to have a negligible impact on the floodplain.

Work at the structures will not result in floodplain encroachment.

<u>Sound Walls</u>
Impacts to roadside drainage from sound wall construction will not result in floodplain encroachment.

SWEB4 will be constructed on the existing roadside embankment and will not be located within any floodplain. A Drainage Report will be prepared to ensure that runoff is not trapped on either side of the wall.

SWEB6 will be constructed on the top of embankment, but drainage on both sides of the wall should be considered during design to ensure that there are no adverse impacts to the private properties behind the wall.

In sum, Alternative 1 will not result in a significant floodplain encroachment as defined by 23 CFR, Section 650.105(q): Significant encroachment means a highway encroachment and any direct support of likely base flood-plain development that would involve one or more of the following construction-or flood-related impacts:

- A significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route.
- A significant risk, or
- A significant adverse impact on natural and beneficial flood-plain values.

In addition to the potential for encroachments within a floodplain, localized flooding and drainage issues associated with the proposed project must be considered. The risks associated with localized and drainage issues are anticipated to be similar to the current roadway, which does not have a history of local flooding or drainage issues. As is typically done, Caltrans will continue to assess and address drainage concerns as the design of the project progresses, culminating in a Drainage Report during final design

Alternative 2
Alternative 2's impact on hydrology and floodplains are the same as for Alternative 1.

Alternative 3
Alternative 3's impact on hydrology and floodplains are the same as for Alternative 1, in respect to sound wall construction. Floodplain encroachment is not anticipated under Alternative 3.

Alternative 4
The No Build Alternative would not improve the roadway and would not result in any impacts on hydrology or floodplains.

Avoidance and Minimization Measures

No floodplain avoidance and/or minimization measures are proposed.

CEQA Considerations

None of the project alternatives place housing within a 100-year flood hazard area, place within a 100-year flood hazard area structures which would impede or redirect flood flows, 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, or inundation by seiche, tsunami, or mudflow. The level of risk is expected to be minimal. Caltrans hydraulics staff have determined that the project alternatives would have no impacts to hydrology and floodplains.

2.11 Water Quality and Storm Water Runoff

Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source[1] unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

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

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

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

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's Section 404 (b)(1) Guidelines (USEPA Code of Federal Regulations [CFR] 40 Part 230), and whether the permit approval is in the public

[1] A point source is any discrete conveyance such as a pipe or a man-made ditch.

interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the USEPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent[2] standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4.

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

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

State Water Resources Control Board and Regional Water Quality Control Boards
The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- **National Pollutant Discharge Elimination System (NPDES) Program**
  Municipal Separate Storm Sewer Systems (MS4)

  Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater dischargers, including MS4s. The USEPA defines an MS4 as "any conveyance or

[2] The USEPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

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

Caltrans' MS4 Permit, adopted in September 2012, contains three basic requirements:

- Compliance with the requirements of the CGP (see below);
- Implementation of a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
- Storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) best management practices (BMPs) to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

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

Hydromodification Management Plan Requirements

The Caltrans Hydromodification Requirements Guidance (June 2014) document lists criteria for determining whether a project must evaluate for the effects of hydromodification. According to these criteria, and given the project parameters, hydromodification requirements may need to be considered. As such, during the Plans-Specifications-Estimate phase Caltrans' Storm Water Design staff will verify all criteria and project variables to determine if any measures, related to hydromodification, require implementation.

Construction General Permit (CGP)

The CGP (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ and Order No. 2012-006-DWQ) became effective on September 2, 2009, February 14, 2011, and July 17, 2012, respectively. The permit regulates stormwater discharges from construction sites that result in a land disturbance of equal or greater than one acre, and/or are smaller sites that are part of a larger common plan of development. For all projects subject to the CGP, applicants are required to develop and implement an effective SWPPP. In accordance with Caltrans' Standard Specifications, a WPCP is necessary for projects with a land disturbance of less than one acre.

By law, all stormwater discharges associated with any construction activity, including, but not limited to clearing, grading, grubbing, excavation, or any other activity that results in a land disturbance of equal to or greater than one acre, must comply with the provisions of the CGP. Construction activity that results in soil disturbance of less than one acre is subject to this CGP if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop a SWPPP; implement sediment, erosion, and pollution prevention control measures; and obtain coverage under the CGP.

The CGP separates projects into Risk Levels 1, 2, or 3. Risk Levels are determined during the planning and design phases and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff monitoring for pH, turbidity, and suspended sediment concentration when the Receiving Water Monitoring Trigger or Numeric Effluent Limitation is exceeded. For Risk Level 3 projects with more than 30 acres of soil disturbance, pre- and post-construction aquatic biological assessments will be performed during specified seasonal windows.

Section 401 Permitting
Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit. In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

Affected Environment

Caltrans staff completed a water quality assessment (Study) in May 2015. The content below reflects some of the information presented in this Study and not the complete and detailed analysis. Additional project information has been included, from other internally circulated documents, and from project correspondence (2016).

A combined drainage report and floodplain evaluation was performed in January 2007 that included the limits of this project. There are no direct storm water outfalls to water bodies. All of the highway drainage discharges into local systems and is conveyed to the American River, north of the project limits. The existing local systems are at or near capacity. No substantial increase to impervious drainage areas are anticipated that may affect the existing facility hydraulics. Drainage work was installed during the 2008 project that constructed the paved median and concrete barrier.

The proposed drainage design features (below) have included coordination with various local jurisdictions. Minor drainage will be included with the structure widening and to existing drainage facilities where sound walls are proposed along the edge of pavement.

Edge drains were placed next to the PCC pavement in the early 1970s. These are no longer functioning, are not being maintained, and will not be perpetuated in areas of outside widening, where sound walls (along the edge of pavement) are being proposed.

Staging areas have not been identified, so a finalized associated disturbed soil area (DSA) has not been determined. However, per the Project Engineer roughly 10 acre of DSA is anticipated (Mike Sullivan, 5/7/15). Projects having a DSA equal to or great than 1 acre will require a SWPPP and will be subject to the requirements of the CGP.

Caltrans' online Water Quality Planning (WQP) Tool was utilized to determine watershed characteristics and specifics related to regulatory compliance concerns and objectives within the project limits. Using this tool, PM limits indicate that the project lies within Sacramento County (County) and is located in the County's Municipal Separate Storm Sewer System (MS4) Phase I Permit boundary. As such, the project may be subject to additional MS4 Permit compliance requirements related to this jurisdictional permit.

The project limits are also within one Calwater Planning Watershed and lie within the Hydrological Area of Morrison Creek. The associated Hydrologic Sub-Area (HSA) is No. 519.11. The nearest "major[1]" receiving water bodies to the project area are the Delta Waterway (Sacramento River, northern portion) and the American River (lower, confluence with Sacramento River) and correspond to the following TMDLs:

Delta Waterways (northern portion)
2010 303(d) List
Water Body Type: Estuary
Estimated Size: 6795 Acres

Pollutant	Status
Chlordane	TMDL required
Chlorpyrifos	Being addressed with USEPA approved TMDL
DDT (Dichlorodiphenyltrichloroethane)	TMDL required
Diazinon	Being addressed with USEPA approved TMDL
Dieldrin	TMDL required
Group A Pesticides	TMDL required
Invasive Species	TMDL required
Mercury	TMDL required
PCBs (Polychlorinated biphenyls)	TMDL required
Unknown Toxicity	TMDL required

American River, Lower (Nimbus Dam to confluence with Sacramento River)
2010 303(d) List
Water Body Type: River & Stream
Estimated Size: 26.9286 Miles

Pollutant	Status
Mercury	TMDL required
PCBs (Polychlorinated biphenyls)	TMDL required
Unknown Toxicity	TMDL required

Of the TMDLs identified, pesticides are the only pollutants listed as being approved by the US Environmental Protection Agency (USEPA) (2012 USEPA 303d list). To clarify, the table above indicates that this is a water segment where standards are not met and a TMDL is required, but not yet completed, for at least one of the pollutants being listed for that segment. Regarding pesticides, the potential source identified for this constituent is agriculture; therefore, Caltrans is not a contributor of this pollutant. Additionally, the other TMDLs, while not approved, do not have sources that Caltrans is a stakeholder for nor do they need to be addressed through the implementation of permanent treatment BMPs.

- These are the major receiving waters nearest to the range of project PMs given. To clarify, major receiving waters refers to the water bodies that will most likely be impacted by storm water and non-storm water discharges resulting from project activities. These would typically be larger water bodies and not necessarily smaller drainage systems within the project limits. Smaller drainage systems (man-made or natural) that were not identified more than likely convey stormwater to these larger (or major) receiving waters.
- Using Caltrans' Water Quality Planning Tool, none of the TMDLs listed have sources that are linked to Caltrans activities. However, Caltrans has been assigned mass based and concentration based waste load allocations for constituents contributing to TMDLs in specific regions. Therefore, the Department is subject to the TMDLs listed in the amendment to ORDER 2012-0011-DWQ, effective July 1, 2014, which lists methylmercury for the Sacramento-San Joaquin Delta waterway within the Central Valley Region. In consideration of this requirement and the quantity of new impervious area anticipated for the project (which may reach or exceed 1 acre), treatment BMPs options, applicability, and their feasibility must be discussed in Caltrans' Storm Water Data Report (SWDR). Additionally, although not elaborated on in this study, Storm Water design staff may also evaluate treatment BMP options, as a means of obtaining compliance units (at a later time), but currently no alternatives have been presented.

The Central Valley Regional Water Quality Control Board basin plan lists the following beneficial uses that are nearest to HSA No. 519.11:

SURFACE WATER BODIES AND BENEFICIAL USES

	SURFACE WATER BODIES (1)			AGRI-CULTURE		INDUSTRY			RECREATION			FRESHWATER HABITAT (2)		MIGRATION		SPAWNING			
			MUN	AGR		PROC	IND	POW	REC-1		REC-2	WARM	COLD	MIGR		SPWN		WILD	NAV
		HYDRO UNIT NUMBER	MUNICIPAL AND DOMESTIC SUPPLY	IRRIGATION	STOCK WATERING	PROCESS	SERVICE SUPPLY	POWER	CONTACT	CANOEING (1) AND RAFTING	OTHER NONCONTACT	WARM	COLD	WARM (3)	COLD (4)	WARM (3)	COLD (4)	WILDLIFE HABITAT	NAVIGATION
51	FOLSOM DAM TO SACRAMENTO RIVER	519.21	E	E			E	E	E	E	E	E	E	E	E	E	E	E	

LEGEND
E = EXISTING BENEFICIAL USES
P = POTENTIAL BENEFICIAL USES
L = EXISTING LIMITED BENEFICIAL USE

After examining the 2014 – 2015 Storm Water Management Program's District 3 Work Plan, it does not appear that the project passes through areas where spills from Caltrans activities could discharge directly to municipal or domestic water supply reservoirs or ground water percolation facilities.

The project limits appear to lie within a high risk receiving watershed. High risk watersheds are specifically designated watersheds that are either on the most recent 2012 USEPA 303d list for water bodies impaired for sediment; have USEPA-approved Total Maximum Daily Load Implementation Plan for sediment; or have the beneficial uses of Cold, Spawn, and Migratory. A project that meets at least one of the three criteria has a high receiving water risk.

Environmental Consequences

Analysis of the overall project watershed indicates a high receiving water risk (as indicated above). In addition, construction activities associated with the project build alternatives have the potential to impact receiving water quality through the release and transport of pollutants such as sediment, soil stabilization residues, oil and grease, and trash and debris. This includes any type of soil disturbance that typically would expose soil to erosion from wind and water that could result in sedimentation to receiving surface waters (through direct or indirect transfer). However, due to the nature of work, it is not expected that construction operations will impact or produce deleterious water quality consequences. Moreover, the proper application and appropriate use of construction site BMPs is anticipated, so that potential environmental impacts are minimized or avoided. Previously identified constituents, such as pesticides, are not within the purview of Caltrans to address due to contributing sources identified that are outside the scope of Departmental activities. Simply stated, to prevent potential impacts to receiving waters as a result of construction activities and/or operations related to this project, temporary and permanent measures are anticipated to be implemented in accordance with applicable storm water regulations and standards. Short-term temporary measures would focus on implementing construction BMPs, aimed at reducing erosion and subsequent sediment transport, in addition to on-site material waste management. Long-term permanent measures would consider factors such as permanent stabilization of disturbed soil and natural storm water quality treatment, all of which will be vetted in the final Storm Water Drainage Report. Following the temporary and permanent avoidance and/or minimization measures outline above will prevent potential impacts to receiving waters as a result of construction activities and/or operations related to this project.

Avoidance and/or Minimization Measures

Adherence to the following (in addition to other items not listed) is recommended to prevent receiving water pollution as a result of construction activities and/or operations related to this project:

- All temporary equipment and material storage areas on State property must be accounted for and included in the total DSA estimate, unless a stabilization method has been implemented, reviewed, and approved by NPDES or Storm Water staff.
- Caltrans' SWMP, Project Planning and Design Guide Section 4, and Evaluation Documentation Form provide detailed guidance in determining if a specific project requires the consideration of permanent Treatment BMPs. Line Item BMPs may be required during the PS&E phase of the project.
- The project shall adhere to the conditions of the Caltrans Statewide NPDES MS4 Permit CAS No. 000003 (Order No. 2012- 0011-DWQ).
- Projects with DSA equal to or exceeding 1 acre must adhere to the compliance requirements of the NPDES Construction General Permit CAS No. 000002 (Order No. 2009-0009-DWQ) for General Construction Activities (see special considerations within the SWDR). Under certain conditions, a rainfall erosivity value can be calculated to determine if a project qualifies for a waiver and exemption from CGP requirements. In which case, a SWPPP would not be necessary and the project could be covered under a WPCP. Both of these (SWPPP and WPCP) specify the level of temporary pollution control measures required for a project.
- Follow all applicable guidelines and requirements in the 2015 Caltrans Standard Specifications (2015 CSS), Section 13, regarding water pollution control and general specifications for preventing, controlling, and abating water pollution in streams, waterways, and other bodies of water.

    - Attention and focus (by the Contractor and field staff) should be given to 2015 CSS, Section 13-4 (Job Site Management), to control and manage potential sources of water pollution, such as material pollution, waste products and non-storm water related pollutants before they encounter storm water conveyance systems or receiving waters within the project limits.
    - Additional scrutiny should also include 2015 CSS, sections 13-9.02C and 13-9.02D (when and where applicable) for requirements related to the handling and disposal of concrete waste during construction operations.
    - The Contractor prepared and Department approved SWPPP (or WPCP, if a CGP exemption is pursued) shall incorporate and describe appropriate strategies to address the effective implementation, handling, storage, use and disposal practices of temporary construction site BMPs during the course of construction operations and project activities.
    - Shoulder backing areas should be stabilized by temporary construction site BMPs, or rolled and compacted in place, by the end of each day and prior to the onset of any precipitation.
    - Existing drainage facilities should be identified and protected by the application of appropriate construction site BMPs.

CEQA Considerations

Project alternatives will not violate any water quality standards or waste discharge requirements, substantially deplete groundwater supplies or interfere substantially with groundwater recharge, substantially alter the existing drainage pattern of the site or area, 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, or otherwise substantially degrade water quality.

Accordingly, Caltrans staff has determined that less than significant impacts to water quality are anticipated.

2.12 Paleontology

Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils.

Several federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects, including:

- 23 United States Code (USC) 1.9(a) requires that the use of federal-aid funds must be in conformity with federal and state law.
- 23 United States Code (USC) 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law.

Under California law, paleontological resources are protected by the California Environmental Quality Act (CEQA).

Affected Environment

A paleontological evaluation report was prepared in 2006 for the U.S. Highway 50 HOV Lanes and Community Enhancements Project. The information from that report was used to prepare the paleontological section and Appendix F (Preliminary Paleontological Mitigation Plan).

Geographic Location and Setting

The project site is located on the eastern margin of the Sacramento Valley, near the westernmost foothills of the Sierra Nevada, and just north of the geographic center of the State of California in an area known as the Central Valley Physiographic Province. The Central Valley Physiographic Province is located between the Sierra Nevada Physiographic Province on the east and the Coast Ranges Physiographic Province on the west. The general project area is bounded on the west by the floodplain of the Sacramento River and on the east by a gently inclined alluvial fan, which heads in the Sierra Nevada.

In the project vicinity, coalesced (combined) alluvial fans have been created by rock debris deposited by the American River, Cosumnes River, Morrison Creek, and adjacent smaller streams, all of which drain off the foothills of the Sierra Nevada Range. In the project vicinity, sediments composing the coalesced American-Cosumnes River alluvial fan have been divided into four stratigraphic units: weakly cemented siltstone, sandstone, and conglomerate of the Pliocene Laguna Formation exposed only on the upper alluvial fan, coarser but otherwise similar sediments of the Early Pleistocene Turlock Lake Formation, and a slightly younger and less consolidated, sedimentary sequence mapped as Middle Pleistocene to Early Holocene Riverbank Formation, Modesto Formation, or “Modesto/Riverbank formations undivided” that overlies the Turlock Lake and Laguna Formation on the lower portion of the alluvial fan. Each of these stratigraphic units has yielded fossil remains at previously recorded fossil localities within the Central Valley. In the most recent and most detailed geologic mapping available, the project right of way has exposed at the surface continental deposits of the Riverbank Formation, Modesto Formation, and unnamed Quaternary alluvium (see Figure 2-1, below).

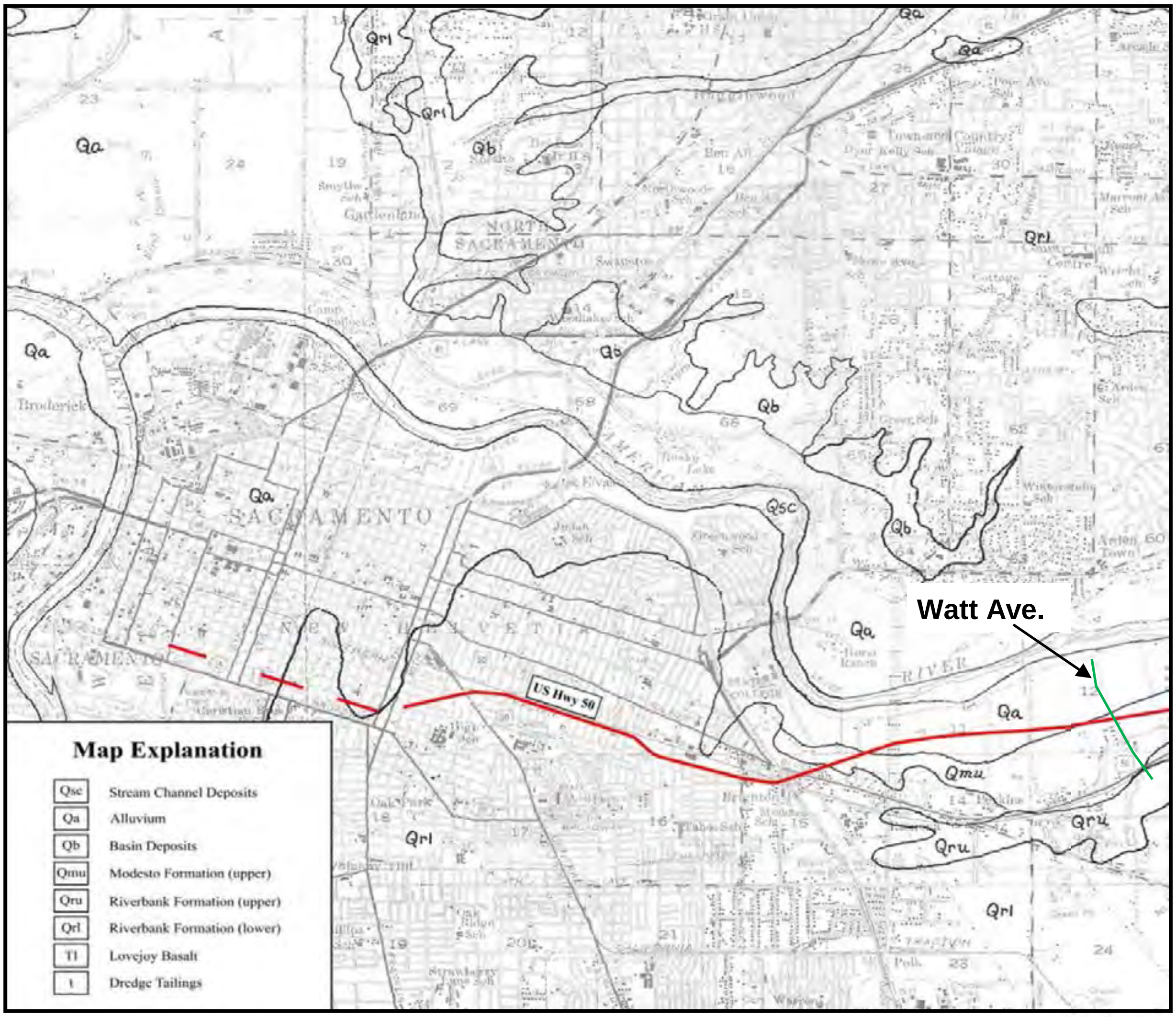
Riverbank Formation. The Riverbank Formation consists of weakly consolidated reddish-brown siltstones, sandstones, and pebble to cobble conglomerates with a few thin intervals of brick-red claystone. Where exposures are available along the east half of the US 50 right of way, abundant coarse cobble conglomerates can be observed. The age of the Riverbank Formation is between

130,000 and 450,000 years before present (BP), Middle Pleistocene. Within Sacramento County the Riverbank Formation is known to contain rare vertebrate and other fossil remains. Vertebrate content alone would indicate that this unit should be considered highly sensitive for paleontological resources. Vertebrate fossils found in the Riverbank Formation include mastodon, mammoth, camel, horse, bison, ground sloth, birds, dire wolf, rodents, frogs, snakes, and fish.

Modesto Formation. The Modesto Formation is composed of interbedded, largely unconsolidated, and poorly sorted, sandstone and siltstone with lesser amounts of pebble to cobble conglomerate. These beds are primarily fluvial deposits and are believed to represent the depositional cycle between two major glacial stages in the Sierra Nevada. The age of the Modesto Formation is between about 42,400 and 12,000 years BP, Late Pleistocene. The Modesto Formation is considered highly sensitive for paleontological resources because of its vertebrate content. Rancholabrean vertebrate fossils have been found in the Modesto Formation within Sacramento County. These included mammoth, bison, horse, camel, ground sloth, and rodents.

Unnamed Quaternary Alluvium. The unnamed Quaternary Alluvium is composed of gravels, sands, silt, and clay deposited along the channels of modern streams and on their flood plains. This informal name is also applied to the lowest and therefore youngest river terraces along the American River north of US 50. The age of the unnamed Quaternary Alluvium is probably Holocene, although there is the possibility that some sediments referred to this stratigraphic unit may be Late Pleistocene in age. These deposits may be too young to contain fossils or fossils of scientific value. There is the potential that in areas where alluvium occurs at the surface, older sediments that do have scientific value may underlie the alluvium and may be encountered if excavation is deep enough.

Figure 2-1. Paleontological Formations within the Project Limits



Environmental Consequences

Alternative 1

Although no fossils are known to directly underlie the proposed project, the Riverbank and Modesto Formations are known to contain vertebrate and other fossil remains, suggesting that there is a high potential for additional similar fossil remains to be uncovered by excavations in these formations during project construction. Under both Caltrans criteria and the Society of Vertebrate Paleontology (SVP) criteria, these formations have a high sensitivity for producing additional paleontological resources. Identifiable fossil remains recovered from these formations during project construction could be scientifically important.

Potential impacts to paleontological resources resulting from construction of Alternative 1 would primarily result from ground disturbance of previously undisturbed sediments during excavations at the four structures.

Sound wall pile foundations may extend up to 16 feet deep. Sound walls will be placed along areas highly disturbed by the construction of US 50. All the proposed sound walls would be constructed on fill up to 35 feet deep. Impacts to paleontological resources during sound wall construction are not anticipated.

Cast-in-place foundation piles will be the likely foundation method used for the new columns for the elevated structures of the W-X freeway. The columns will be approximately 30 feet deep and on 4 ft to 5 ft diameter cast-in-drilled-hole (CIDH) piles. CIDH piles are a deep foundation support that is constructed by placing fresh concrete and reinforcing steel into a drilled shaft. These reinforced concrete piles are cast in holes of predetermined diameters and depths drilled through soil and rock to the desired bearing stratum. Pre-borings for cast-in-place piles will disturb a relatively small area within the formation.

Spread footings for new columns are recommended by Caltrans Design at the Brighton OH and Elmhurst Viaduct. Spread footings are shallower and wider than CIDH piles. Spread footings will disturb a relatively small area within the formation.

The implementation of the Paleontological Mitigation Plan would lessen the potential impacts and thus effects to paleontological resources are not expected.

Alternative 2

Alternative 2 footprint and features are the same as Alternative 1. Its potential impacts to paleontological resources will be the same as well.

Alternative 3

Potential impacts to paeleontological resources from Alternative 3 are not expected because the only ground excavations involve sound walls.

Alternative 4

The No Build Alternative would not have the potential to disturb paleontological resources, as no construction-related activities would take place.

Avoidance, Minimization and/or Mitigation Measures

The presence or absence of paleontological resources usually cannot be known until construction excavation for the project is underway. Due to the presence of sensitive formations within the project limits, a Preliminary Paleontological Mitigation Plan was prepared to address potential discoveries during construction of the proposed project (Appendix F). A final Paleontological Mitigation Plan will be prepared by a qualified paleontologist near completion of the final design. The plan will be implemented during project construction. Please refer to Appendix F for specific measures.

CEQA Considerations

As discussed above, impacts to paleontological resources may occur at the excavation sites of the new columns. Pre-borings for cast-in-place piles at the W-X Freeway and potential spread footings at the Brighton OH and Elmhurst Viaduct will disturb a relatively small area within the formation. Proposed avoidance/minimization/mitigation measures will reduce potential significant impacts to paleontological resources to insignificance. Accordingly, with these measures included, less than significant impacts to paleontological resources are anticipated.

2.13 Hazardous Waste/Materials

Regulatory Setting

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

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

- Community Environmental Response Facilitation Act 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
- Federal Insecticide, Fungicide, and Rodenticide Act

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.

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.

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

Affected Environment

Caltrans hazardous waste staff completed an Initial Site Assessment in June 2015. The review for potential hazardous waste impacts involved the following:

- A review of the project plans and aerial mapping;
- Discussions with the design engineer;
- A review of Geotracker (a hazardous waste database of contaminated sites);
- A review of previous hazardous waste consultant studies performed within these project limits.

The potential for hazardous waste exists with respect to the following:

- There is the possible presence of soils with elevated concentrations of ADL within the limits of the project alternatives on the state highway system right of way that must be managed under the July 1, 2016, ADL Agreement between Caltrans and the California Department of Toxic Substances Control. Soils with elevated concentrations of ADL outside of the state right of way will be managed under all applicable laws and regulations.

- Groundwater and soil contamination may exist at new footings for the bridge widening. Potential hazardous materials in soil and groundwater will be avoided to the extent feasible by design provisions. If infeasible, soil and groundwater will be controlled and discharged pursuant to regulatory and permit requirements during construction.
- Bridge expansion joint materials and rail shims may contain asbestos that will be removed during construction. Any asbestos containing material (ACM) on bridges requiring removal will be removed and disposed by a licensed and certified asbestos abatement contractor implementing an Asbestos Compliance Plan to prevent or minimize exposure to asbestos. Non-Standard Special Provisions addressing ACM will be included in the project specifications.
- Hazardous chemicals are known to exist in the wood posts associated with metal beam guardrail. The project will be designed to avoid removal of metal beam guard rail posts and other treated wood and otherwise minimize the quantity requiring removal. Any metal beam guardrail posts and other treated wood removed will be disposed consistent with Caltrans Standard Special Provision 14-11.09 (Treated Wood Waste). The quantity will be determined during design.
- The potential for hazardous waste exists with the levels of lead and chromium in the yellow color traffic stripes. Since these traffic stripes will be ground off along with the roadway or dug out, the levels of lead and chromium may become non-hazardous. These grindings (which consist of the roadway material and the yellow color traffic stripes) shall be removed and disposed of in accordance with Caltrans Standard Special Provision 15-1.03B (Residue Containing High Lead Concentration Paints), which requires a Lead Compliance Plan (LCP). Non-hazardous levels of lead are known to exist in the white traffic striping. As such, these grindings shall be removed and disposed of in accordance with the same specification.
- A Hazardous Materials Disclosure Document will be required as an attachment to the Certificate of Sufficiency before any right of way can be acquired.

Environmental Consequences

The potential for hazardous waste exists with respect to the following:

- There is the possible presence of soils with elevated concentrations of ADL within the limits of the project alternatives on the state highway system right of way that must be managed under the July 1, 2016, ADL Agreement between Caltrans and the California Department of Toxic Substances Control. Soils with elevated concentrations of ADL outside of the state right of way will be managed under all applicable laws and regulations.
- Groundwater and soil contamination may exist at new footings for the bridge widening will occur. Potential hazardous materials in soil and groundwater will be avoided to the extent feasible by design provisions. If infeasible, soil and groundwater will be controlled and discharged pursuant to regulatory and permit requirements during construction.
- Bridge expansion joint materials and rail shims may contain asbestos that will be removed during construction. Any asbestos containing material (ACM) on bridges requiring removal will be removed and disposed by a licensed and certified asbestos abatement contractor implementing an Asbestos Compliance Plan to prevent or minimize exposure to asbestos. Non-Standard Special Provisions addressing ACM will be included in the project specifications.
- Hazardous chemicals are known to exist in the wood posts associated with metal beam guardrail. The project will be designed to avoid removal of metal beam guard rail posts and other treated wood and otherwise minimize the quantity requiring removal. Any metal beam guardrail posts and other treated wood removed will be disposed consistent with Caltrans Standard Special Provision 14-11.09 (Treated Wood Waste). The quantity will be determined during design

- The potential for hazardous waste exists with the levels of lead and chromium in the yellow color traffic stripes. Since these traffic stripes will be ground off along with the roadway or dug out, the levels of lead and chromium may become non-hazardous. These grindings (which consist of the roadway material and the yellow color traffic stripes) shall be removed and disposed of in accordance with Caltrans Standard Special Provision 15-1.03B (Residue Containing High Lead Concentration Paints), which requires a Lead Compliance Plan (LCP). Non-hazardous levels of lead are known to exist in the white traffic striping. As such, these grindings shall be removed and disposed of in accordance with the same specification.
- A Hazardous Materials Disclosure Document will be required as an attachment to the Certificate of Sufficiency before any right of way can be acquired.

Alternative 1 and 2

Both alternatives have the same footprint of the alignment and features; therefore, the potential impacts related to hazardous materials and wastes would be the same. Both alternatives involve structure work, re-striping, column construction, and possible sound wall construction. The potential hazardous waste and materials that may be encountered include ADL, groundwater and soil contamination, asbestos containing materials (ACM), treated wood waste, and lead and chromium in yellow traffic stripe.

Alternative 3

This alternative has the same footprint of the alignment as alternatives 1 and 2; however, this alternative only includes re-striping and possible sound wall construction. The potential hazardous waste and materials that may be encountered under Alternative 3 may include ADL, treated wood waste, and lead and chromium in yellow traffic stripe.

Alternative 4

The No Build Alternative would not have the potential for hazardous waste and materials impacts, as no construction-related activities would take place.

Avoidance and/or Minimization Measures

The following measures will be implemented.

Groundwater and soil contamination

Potential hazardous materials in soil and groundwater will be avoided to the extent feasible by design provisions. If infeasible soil and groundwater will be controlled and discharged pursuant to regulatory and permit requirements during construction.

Treated Wood Waste (Metal Beam Guardrail)

The project will be designed to avoid removal of metal beam guard rail posts and other treated wood and otherwise minimize the quantity requiring removal. Any metal beam guardrail posts and other treated wood removed will be disposed consistent with Caltrans Standard Special Provision 14-11.09 (Treated Wood Waste). The quantity will be determined during design.

ACM

ACM on the bridges will require removal and proper disposal by a licensed and certified asbestos abatement contractor in conjunction with the planned bridge widening. The contractor must implement an Asbestos Compliance Plan to prevent or minimize exposure to asbestos. Attention is directed to Title 8, California Code of Regulations, Construction Safety Orders, section 5192 (b) and section 1529, "Asbestos", Occupational Safety and Health Guidance Manual published by the National Institute of Occupational Safety and Health and the USEPA for elements of the ACP. Non-Standard Special Provision (NSSP) will be included in the project specifications to address National Emissions Standards for Hazardous Air Pollutants (Air Quality - NESHAP) notification.

The NSSP for removal of ACMs, bridges, will be included in the project specifications. Copies of NSSPs can be obtained by contacting Caltrans' Hazardous Waste Office at HQ_HazWaste@dot.ca.gov. In accordance with Sacramento Metropolitan Air Quality Management District (SMAQMD) Rule 902, written notification to SMAQMD is required ten working days prior to commencement of any demolition activity (whether asbestos is present or not) and for renovation activities involving specified quantities of RACM. In accordance with Title 8, CCR 341.9, written notification to the nearest Cal/OSHA district office is required at least 24 hours prior to certain asbestos-related work.

ADL

There is the possible presence of soils with elevated concentrations of ADL within the limits of the project alternatives on the state highway system right of way that must be managed under the July 1, 2016, ADL Agreement between Caltrans and the California Department of Toxic Substances Control. Soils with elevated concentrations of ADL outside of the state right of way will be managed under all applicable laws and regulations. The quantity of ADL soil requiring special handling will be minimized during design by identifying and restricting special handling areas to those above regulatory limits. Any ADL soil requiring removal will be managed pursuant to the appropriate Standard Special Provision.

Yellow Traffic Stripes

Grindings (which consist of the roadway material and the yellow color traffic stripes) will be removed and disposed of in accordance with Caltrans Standard Special Provision 15-1.03B (Residue Containing High Lead Concentration Paints) which requires a Lead Compliance Plan (LCP). Non-hazardous levels of lead are known to exist in the white traffic striping. As such, these grindings will be removed and disposed of in accordance with the same specification.

CEQA Considerations

Project alternatives would not 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, emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school, or 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 not create a significant hazard to the public or the environment. Accordingly, hazardous waste impacts from project alternatives are not anticipated.

2.14 Air Quality

Regulatory Setting

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_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 (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition. The standards for all criteria pollutants are presented in Table 2-28.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (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 (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs or projects that do not conform to State Implementation Plan (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. U.S. 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 conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and in some areas (although not in California) sulfur dioxide (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 lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years for the RTP) and 4 years (for the TIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA), make determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and "open-to-traffic" schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis. Please see Appendix J.

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 carbon monoxide (CO) and/or particulate matter (PM_{10} 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 U.S. 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 U.S. EPA and are then called "maintenance" areas. "Hot-spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot-spot analysis. In general, projects must not cause the "hot-spot" related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Table 2-28. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [a,c]	Federal Standards [b,c]	
			Primary	Secondary
Ozone (O_3)	1 Hour	0.09 ppm (180 $\mu g/m^3$)	—	—
	8 Hour	0.07 ppm (137 $\mu g/m^3$)	0.070 ppm (137 $\mu g/m^3$) [d]	—
Respirable Particulate Matter (PM_{10})	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as Primary
	Annual (AAM)	20 $\mu g/m^3$	— [e]	
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard	35 $\mu g/m^3$	Same as Primary
	Annual (AAM)	12 $\mu g/m^3$	12 [f] $\mu g/m^3$	15 $\mu g/m^3$
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	—
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)	Annual (AAM)	0.030 ppm (57 $\mu g/m^3$)	0.053 ppm (100 $\mu g/m^3$)	Same as Primary
	1 Hour	0.18 ppm (339 $\mu g/m^3$)	—	
Sulfur Dioxide (SO_2)	Annual (AAM)	—	0.030 ppm (80 $\mu g/m^3$) [i]	—
	24 Hour	0.04 ppm (105 $\mu g/m^3$)	0.14 ppm (365 $\mu g/m^3$) [i]	—
	3 Hour	—	—	0.5 ppm (1,300 $\mu g/m^3$)
	1 Hour	0.25 ppm (655 $\mu g/m^3$)	0.05 ppm (196 $\mu g/m^3$) [i]	—
Lead (Pb) [g]	30-Day Average	1.5 $\mu g/m^3$	—	—
	Calendar Quarter	—	1.5 $\mu g/m^3$	Same as Primary
	Rolling 3-Month [h]	—	0.15 $\mu g/m^3$	Same as Primary
Visibility- Reducing Particles	8 Hour	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 %	No Federal Standards	
Sulfates	24 Hour	25 $\mu g/m^3$		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)		
Vinyl Chloride [g]	24 Hour	0.01 ppm (26 $\mu g/m^3$)		

Notes:

[a] California standards for O_3, CO (except Lake Tahoe), SO_2 (1 and 24 hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles 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.

[b] National standards (other than O_3, PM, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, 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 $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] 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 these reference conditions; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[e] The annual standard of 50 $\mu g/m^3$ was revoked by USEPA in December 2006 due to lack of evidence linking health problems to long-term exposure to coarse particulate pollution.

[f] In December 2012, USEPA strengthened the annual $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS) from 15.0 to 12.0 micrograms per cubic meter ($\mu g/m^3$). In December 2014, USEPA issued final area designations for the 2012 primary annual $PM_{2.5}$ NAAQS. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

[g] The California Air Resources Board (CARB) has identified Pb and vinyl chloride as 'toxic air contaminants' with no standard level of exposure for adverse health effects determined. These actions allow for implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[h] Final rule for the new federal standard was signed October 15, 2008.

[i] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. The 1971 standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard. 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.

AAM – annual arithmetic mean; mg/m^3 – milligrams per cubic meter; $\mu g/m^3$ – micrograms per cubic meter; ppm – parts per million

Source: CARB, 2015

Affected Environment

An air quality technical report was revised in August 2016. This air quality study includes an air quality conformity analysis and Interagency Consultation documentation for the build and no-build alternatives for the opening year of 2020 and the future year of 2040. The air quality report shows that the project would not worsen or violate air quality standards under the USEPA rules. This study was conducted with EMFAC 2011 for CO analysis and EMFAC 2014 for MSAT and GHG analysis. The CO analysis was completed using EMFAC 2011 prior to the transition to EMFAC 2014. It was assumed that the results of the CO analysis would not be different between EMFAC 2011 and 2014.

The air quality report suffices under the current project scope with NEPA approval within 3 years. The project currently does not have funds to begin construction. As a result, Caltrans anticipates that the project will be shelved after draft Plans, Specifications and Estimates. Once construction funding is secured, the project will be re-evaluated with updated traffic data and the air quality study revised using a newer version of EMFAC emission model.

The proposed project is located in Sacramento County, within the Sacramento Valley Air Basin (SVAB). The Sacramento Valley Air Basin is comprised of nine air districts: the Shasta County Air Quality Management District (AQMD); the Tehama County Air Pollution Control District (APCD); the Glenn County APCD; the Butte County APCD; the Colusa County APCD; the Feather River AQMD that includes Sutter and Yuba Counties; the western portion of the Placer County APCD; the Yolo-Solano AQMD, that includes Yolo County and the eastern portion of Solano County; and the SMAQMD that consists of Sacramento County in which the project is located.

Climate and Meteorology

Air quality is affected by the rate, amount, and location of pollutant emissions and the associated meteorological conditions that influence pollutant movement and dispersal. Atmospheric conditions such as temperature, wind speed and direction, in combination with local topography determines how air pollutant emissions affect the local air quality. The proposed project corridor extends in the Metropolitan Sacramento County within the SVAB. The Sacramento Valley is a basin bounded by the Sierra Nevada Mountain Range to the east and the Coastal Mountain Ranges to the west. Topography in the Sacramento Valley is generally flat, with elevations anywhere from slightly below sea level near the Sacramento/San Joaquin Delta to over 2,150 feet above sea level at the Sutter Buttes. Hot dry summers and mild rainy winters characterize the Mediterranean climate of the SVAB.

During the year the temperature may range from 20 to 115 degrees Fahrenheit, with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 20 inches with about 75 percent occurring during the rainy season (November through March). The prevailing winds are moderate in strength and vary from moist clean breezes from the south to dry land flows from the north.

Topography is a major factor influencing wind direction over the project area. The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants when certain meteorological conditions exist. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells lie over the Sacramento Valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in a stable layer of air. The surface concentrations of particulate matter pollutants are highest when these conditions are combined with smoke or when temperature inversions trap cool air, fog and pollutants near the ground. The ozone season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds, with the delta sea breeze arriving in the afternoon out of the southwest.

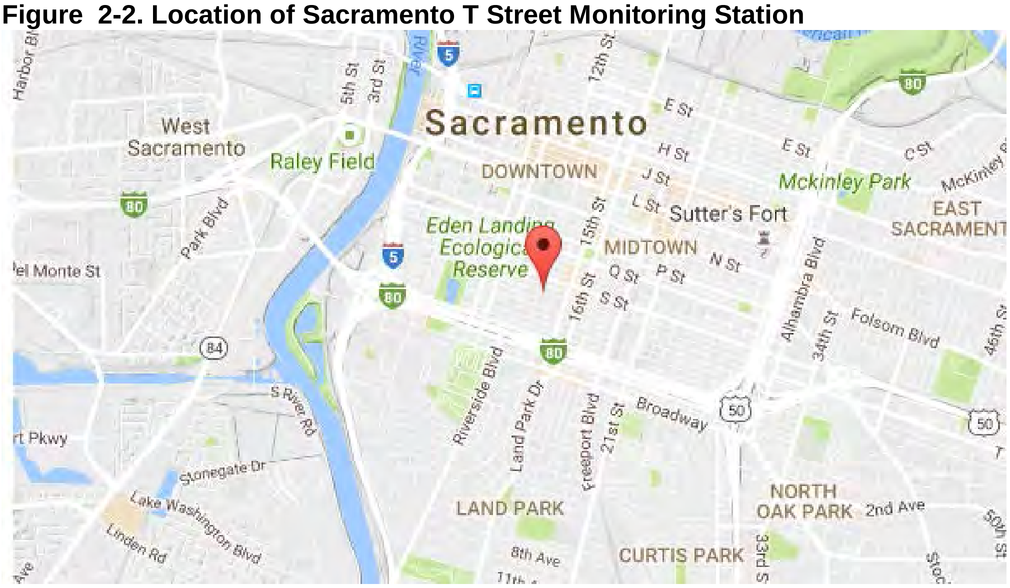
In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between reactive organic gases and oxides of nitrogen, which result in ozone formation. Likewise, peak concentrations of particulate matter $(PM)_{2.5}$ typically occur during the winter season (November – February) when temperature inversion and low wind speeds trap and concentrate $PM_{2.5}$ emissions, and cooler temperature and high humidity increase the secondary formation of particulates.

As an air basin, air quality in the Sacramento region is affected not only by pollutants generated within the region, but also by pollutants generated in the San Francisco Bay Area and the San Joaquin Valley, which are carried into the Sacramento region by Delta breezes. The effect of pollutants transported from the San Francisco Bay Area or from the San Joaquin Valley on air quality in the Sacramento region can vary from substantial to inconsequential on any given day, largely determined by accompanying meteorological conditions. Thus, the success of the Sacramento region in attaining better air quality is partially contingent on the achievement of better air quality in nearby areas that affect Sacramento's air quality.

Existing Ambient Air Quality

<u>Criteria Air Pollutants</u>
The CARB and SMAQMD maintain a network of monitoring stations throughout the air basin to effectively monitor source-receptor areas in the region. The nearest air monitoring station to the project site is the Sacramento T Street Station, which is located at 1309 T Street, approximately 0.26 miles south of the project corridor (Figure 2-2). The criteria pollutants monitored at this station include O_3, NO_2, PM_{10} and $PM_{2.5}$. The nearest station where CO monitored data are available from, is the El Camino & Watt Station, located at 3535 El Camino Street, approximately 3.4 miles north of the project's eastern terminus. Table 2-29 presents ambient air quality data, which was recorded at these stations, for the past five years. The recorded data show exceedances of the national standards for 8-hour ozone and 24-hour $PM_{2.5}$ and from the California standards for ozone and PM_{10} on one or more occasions from 2010 through 2014. No exceedances of either the state or national standards were recorded for SO_2, lead, NO_2, or CO.

Figure 2-2. Location of Sacramento T Street Monitoring Station



Attainment Status

Pursuant to the 1990 CAA Amendments (CAAA), USEPA classifies air basins (or portions thereof) as attainment or nonattainment for each criteria air pollutant, based on whether or not the NAAQS had been achieved. A "maintenance" area is one that has met the ambient air quality standards, thus removing it from nonattainment status. "Unclassified" is defined by the CAAA as any area that cannot be classified, on the basis of available information, as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

The proposed project is within Sacramento County, which is currently nonattainment for the 8-hour ozone (Severe 15) and for $PM_{2.5}$ [3], maintenance for PM_{10} [4] NAAQS and is either attainment or unclassified for the remaining criteria pollutants national standards.

Table 2-29. Criteria Air Pollutants Data Summary
(Sacramento T Street Monitoring Station)

Pollutant	Averaging Time	Applicable Standard	2010	2011	2012	2013	2014
Ozone (O_3)	1-Hour	Maximum Concentration (ppm)	0.092	0.100	0.104	0.091	0.085
		Days > CAAQS (0.09 ppm)	0	1	1	0	0
	8-Hour	4th Maximum Concentration (ppm)[a]	0.068	0.072	0.077	0.064	0.071
		Days > NAAQS (0.075 ppm)	0	**1**	**4**	0	0
		Days > CAAQS (0.07 ppm)	1	5	9	0	4
Particulate Matter (PM_{10})	24-Hour	Maximum Concentration (μg/m³)	53.9	42.2	36.7	92.3	106.4
		Days > CAAQS (50 μg/m³)	0	6	0	21	24
		Days > NAAQS (150 μg/m³)	0	0	0	0	0
	Annual	State Annual Average (20 μg/m³)	17.6	19.2	17.8	n/a	21.6
	3-Year Max Annual Avg	State Annual Average (20 μg/m³)	25	20	19	19	20
Particulate Matter ($PM_{2.5}$)	24-Hour	Maximum Concentration (μg/m³)	30.6	50.5	27.1	40	33.2
		Days > NAAQS (35 μg/m³)	0	**18.4**	0	**6**	0
		National Std. 98th Percentile[b]	27.3	**45.1**	20.5	33.4	24.1
	Annual	National Annual (12.0 μg/m³)[c]	8	10.1	8.3	10	8
Carbon Monoxide[d] (CO)	1-Hour	Maximum Concentration (ppm)	2.3	3.0	2.7	3.0	2.5
		Days > CAAQS (20 ppm)	0	0	0	0	0
		Days > NAAQS (35 ppm)	0	0	0	0	0
	8-Hour	Maximum Concentration (ppm)	1.89	2.83	2.14	2.4	2.1
		Days > CAAQS (9.0 ppm)	0	0	0	0	0
	1-hour	Maximum Concentration (ppm)	0.066	0.057	0.062	0.059	0.065
		Days > CAAQS (0.18 ppm)	0	0	0	0	0

[3] Effective August 14, 2013 the USEPA took the final action to determine that the Sacramento nonattainment area in California has attained the 2006 24-hour fine particle ($PM_{2.5}$) NAAQS. This determination was based upon complete, validated, and certified ambient air monitoring data recorded during the 2010–2012 monitoring period. However, this final action does not constitute a redesignation of the Sacramento nonattainment area to attainment for the 2006 24-hour $PM_{2.5}$ NAAQS under CAA section 107(d)(3) because USEPA has not yet approved a maintenance plan for the Sacramento nonattainment area as meeting the requirements of section 175A of the CAA or determined that the area has met the other CAA requirements for redesignation. The classification and designation status in 40 CFR part 81 remain nonattainment for this area until such time as USEPA determines that California has met the CAA requirements for redesignating the Sacramento nonattainment area to attainment. http://www.gpo.gov/fdsys/pkg/FR-2013-07-15/pdf/2013-16785.pdf

[4] Effective October 28, 2013 USEPA approved the State of California's request to redesignate the Sacramento nonattainment area to attainment for the 24-hour particulate matter of ten microns or less (PM_{10}) NAAQS. USEPA is also approving the PM_{10} maintenance plan and the associated motor vehicle emissions budgets for use in transportation conformity determinations necessary for the Sacramento area, and the attainment year emissions inventory submitted with the plan. http://www.gpo.gov/fdsys/pkg/FR-2013-09-26/pdf/2013-23245.pdf

Table 2-29. Criteria Air Pollutants Data Summary (Sacramento T Street Monitoring Station)							
Pollutant	**Averaging Time**	**Applicable Standard**	**2010**	**2011**	**2012**	**2013**	**2014**
Nitrogen Dioxide (NO_2)	Annual	Arithmetic Average (0.053 ppm)	0.013	0.013	0.012	0.012	0.011

AAM – Annual Arithmetic Mean; CAAQS – California ambient air quality standards; $\mu g/m^3$ – micrograms per cubic meter; NAAQS – National ambient air quality standards; ppm – parts per million; n/a – sufficient data not available to determine the value
The estimated / measured numbers of recorded concentrations above national standards are shown in **bold**.
Note: Ambient data for SO_2 and airborne lead are not included in this table since the Basin is currently in compliance with state and federal standards for these pollutants.
[a] The 8-hour ozone standard is attained when the fourth highest concentration in a year, averaged over 3 years, is equal to or less than the new national standard of 0.075 ppm (effective May 27, 2008).
[b] Attainment condition for $PM_{2.5}$ is that the 3-year average of the 98th percentile of 24-hour concentrations at each monitor within an area must not exceed the standard (35 $\mu g/m^3$) .
[c] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$.
[d] Carbon monoxide concentrations have not been measured at the T Street station since 2006; the listed data are from the El Camino & Watt Monitoring Station located at 3535 El Camino Street, about 3.4 miles north of the project's eastern terminus. The one-hour CO monitored data were obtained from the EPA Air Data web site. *http://www.epa.gov/airdata/ad_rep_mon.html*
Source: CARB, 2015 and EPA, 2015

Based on the state ambient air quality standards (CAAQS), the project area is classified as nonattainment area for 1-hour and 8-hour O_3 and for PM_{10} CAAQS. The area complies with the state standards for sulfates, hydrogen sulfide, and vinyl chloride, and is unclassified for the California standard for visibility-reducing particles. The project area's attainment status with respect to state and federal AAQS is provided in Table 2-30.

Table 2-30. Sacramento County Attainment Status		
Pollutant	**National Standards** [b]	**California Standards** [c]
Ozone (O_3) – 1-hour	Nonattainment – (Severe)	Nonattainment – (Serious)
Ozone (O_3) – 8-hour	Nonattainment – (Severe 15)	Nonattainment
PM_{10}	Attainment/Maintenance	Nonattainment
$PM_{2.5}$	Nonattainment (Moderate) [a]	Attainment
Carbon Monoxide (CO)	Attainment/Maintenance	Attainment
Nitrogen Dioxide (NO_2)	Attainment /Unclassified	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead (Pb)	Attainment	Attainment

Notes:
[a] Effective August 14, 2013 the EPA took the final action to determine that the Sacramento nonattainment area in California has attained the 2006 24-hour fine particle ($PM_{2.5}$) NAAQS. However, the area re-designation is pending until approval of a maintenance plan by EPA.
[b] EPA Current Nonattainment Counties for Criteria Pollutants http://www.epa.gov/airquality/greenbk/ancl.html page updated January 30, 2015.
[c] State Area Designations, as of June, 2013: http://www.arb.ca.gov/desig/adm/adm.htm
Source: CARB, 2015; EPA, 2015

<u>Toxic Air Contaminants (TACs)</u>

TACs are airborne substances that can cause long-term health effects (e.g., cancer, birth defect, or neurological damage), or short-term acute effects (e.g., headache, eye and respiratory irritation, nausea). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, diesel engines, dry cleaners, industrial operations, and painting operations. TACs are regulated differently than criteria air pollutants at both federal and state levels. At the federal level these airborne substances are referred to as Hazardous Air Pollutants (HAPs).

In 1998, CARB identified diesel particulate matter (DPM) as a TAC, based on the evidence demonstrating cancer effects in humans. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and buses are among the primary sources these emissions, and concentrations of DPM are higher near heavily traveled highways and rail lines with diesel locomotive operations.

According to CARB, DPM emissions decreased 37 percent from 2000 to 2010 primarily as a result of more stringent emissions standards and the introduction of cleaner burning diesel fuel. Emissions from diesel mobile sources are projected to continue to decrease after 2010. Overall, statewide emissions of DPM are forecasted to decline by 71 percent in 2035, compared to 2000 emissions.[5] Similarly, the average statewide cancer risk from DPM has declined from 750 in one million in 1990 to 540 in one million in 2000.

<u>Naturally Occurring Asbestos</u>
According to the California Department of Conservation's California Geological Survey (CGS), Special Report 192, on the relative likelihood for the presence of naturally occurring asbestos (NOA) in eastern Sacramento County, the proposed project location is not an area of naturally-occurring asbestos. Naturally occurring asbestos areas are identified based on the type of rock found in the area. Asbestos-containing rocks found in California are ultramafic rocks, including serpentine rocks and several naturally occurring fibrous minerals that may be present in certain geologic settings. These type of materials are found only in the northeastern portion of Sacramento County, and are not present in the project area (California Department of Conservation, 2006).

Sensitive Receptors
Some population groups, such as children, the elderly, acutely and chronically ill persons, especially those with cardio-respiratory problems, are considered more sensitive to air pollution than others. Sensitive receptor locations include schools, residential areas, hospitals, elder-care facilities, rehabilitation centers, daycare centers and parks. Residential areas are considered sensitive to air pollution because residents, including children and the elderly, tend to be at home for extended periods of time, resulting in sustained exposure to air pollutants.

The sensitive receptors that would be potentially affected by the proposed project are located within the project study area along the project segments of US 50. Therefore, during construction of the proposed project, a number of different receptors would be exposed to construction emissions. Sensitive receptors along the affected segments of US 50 include single- and multi-family residences, which are located approximately 500 feet from the boundary of proposed construction activities for the project. In addition to these, there are other land uses such as schools, daycares, parks, medical centers and hospitals within quarter of a mile distance from project corridor. Some examples of sensitive receptors near the proposed project include (most are shown on Figure 1-3):

- William Land Elementary School - Preschool (2120 12th Street)
- Sacramento Area YMCA – Preschool and Kindergarten (2021 W Street)
- California Montessori Project (2635 Chestnut Hill Drive)
- UC Davis Medical Center, Ticon-I Building (2000 Stockton Boulevard)
- Sutter Medical Center (7700 Folsom Boulevard)
- Glenbrook Park
- Oki Park
- Salmon Falls Park
- Southside Park
- O'Neil Park
- Sunset Park

[5] CARB, 2013. California Almanac of Emissions and Air Quality - 2013 Edition. Table 3-7 and Figure 3-6

- Coloma Park
- Sierra Vista Park

Environmental Consequences

Long-Term Operational Emissions

Vehicular emissions constitute the primary source of air pollutants associated with operation of the proposed project. Alternative 4 would not implement the proposed project capacity improvements and thereby would not result in any operational air quality impacts. However, Alternative 4 is not consistent with the projected regional economic growth and population increase within the project area.

Criteria Pollutants

Regional Air Quality Conformity
As described earlier, regional conformity is demonstrated by showing that the project is included in conforming transportation plans/programs and with the same design concept and scope that was used for the regional conformity analysis.

In determining whether a project conforms to an approved air quality plan, agencies must use current emission estimates based on the most recent population, employment, travel, and congestion estimates determined by SACOG. As the region's MPO, SACOG is required to develop and maintain long-range and short-range plans and programs. Conforming regional transportation plans/programs model outcome projects that the regulated pollutants will be reduced to acceptable levels within time frames that meet the NAAQS.

The proposed project is listed in the 2016 financially constrained Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) which was found to conform by the Sacramento Area Council of Governments (SACOG) on February 18, 2016, and FHWA and FTA made a regional conformity determination finding on May 3, 2012. The project is also included in SACOG's financially constrained 2015/2018 Metropolitan Transportation Improvement Program Amendment #4, page 47. The SACOG Metropolitan Transportation Improvement Program was determined to conform by FHWA and FTA on December 15, 2014. The design concept and scope of the proposed project is consistent with the project description in the 2016 MTP/SCS, 2015/18 MTIP, and the "open to traffic" assumptions of the SACOG regional emissions analysis.

Caltrans received an air quality conformity determination from FHWA in December 2016 (Appendix L). FHWA found that the project conforms with the State Implementation Plan (SIP) in accordance with 40 CFR Part 93.

The 2016 MTP/SCS and the 2015/2018 MTIP, prepared by SACOG, rely on the emission budgets established by the SIP or attainment plans that are initially developed and adopted by SMAQMD, and subsequently by CARB. Therefore, projects that are listed in the current transportation plans (i.e., MTIP and MTP) are considered consistent with the SIP; hence meet CAA conformity requirements. The proposed project is fully funded and referenced in the Appendix A (Project Listing) of the currently adopted plan, 2016 MTP/SCS, Appendix A: Project List, with following description:

> *US 50 HOV Lanes - Construct High Occupancy Vehicle (HOV) lanes on US 50 [project covers PE: from I-5 to 0.8 mile east of Watt Avenue (PM L0.2/R6.1) and CON: from 0.3 mile west of SR 99 to 0.8 mile east of Watt Avenue (PM L2.2/R6.1)]*

The project is also listed in the 2017/2020 MTIP including Amendment #4, (adopted and federally approved December 16, 2016). The following project information is excerpted from the MTIP Appendix 3 - List of Individually Listed Projects and Grouped Project Listings:

SACOG ID: *CAL18838;*
Lead Agency*: Caltrans D3*
Project Description: *US 50 HOV Lanes – Construct High Occupancy Vehicle (HOV) lanes on US 50 [project covers PE: from I-5 to 0.8 mile east of Watt Avenue (PM L0.2/R6.1) and CON: from 0.3 mile west of SR 99 to 0.8 mile east of Watt Avenue (PM L2.2/R6.1)]*

The design concept and scope of the proposed project is consistent with the project description in the 2017/2020 MTIP document and the assumptions in SACOG's regional emission analysis; therefore, the project is considered to meet the CAA requirements and is in conformity with the SIP. As such, project development would not conflict with or obstruct implementation of the Air Quality Management Plan (AQMP) or Transportation Control Measures (TCMs) identified in the currently approved SIP.

Regional Emissions Analysis:
As discussed above, the project inclusion in conforming regional transportation plan/program (MTP/MTIP) indicates that it has been incorporated into the region's air quality attainment plan. Therefore, the regional emissions analysis was conducted to demonstrate the project impact for disclosure and informational purposes. The project's operational criteria air pollutant emissions, which include emissions from vehicles traveling along the project corridor, were estimated for the three build alternatives and compared with Alternative 4 for project opening year 2020 and horizon year 2040. Emissions were also estimated for the base year 2013, representing existing conditions.

For each alternative, daily emissions were estimated using the daily VMT distributed by speed bins of 5 mph. The projected VMT and speed bin distributions were provided by the project traffic study group (Wood Rodgers, 2015). Vehicle emission factors were obtained using CARB's latest mobile source emission inventory model, EMFAC2014 (CARB, 2014); EMFAC2014 (v1.0.1) was released in December 2014. On May 15, 2015, CARB released an updated version (v1.0.7) of EMFAC2014 and has submitted it to EPA for approval. EMFAC2014 is currently being reviewed by EPA staff and approval is expected by the end of 2015.

The results of emission calculations for existing conditions (2013), opening year (2020) and horizon year (2040) are summarized in Table 2-31. The emission impacts of the project are presented as the net change and percent change in emissions from Alternative 4 in Table 2-31. As shown, emissions of NO_x decreases compared to Alternative 4 in opening year (2020) and also for Alternatives 1 and 3 in horizon year (2040).

The data in Table 2-31 also indicate that daily emissions of all criteria pollutants except PM_{10} show considerable reduction in future analyzed years (2020 and 2040) for all build alternatives when compared with 2013. This is due to improved vehicle engine efficiency, use of cleaner fuels in the future fleet, and vehicle turnover, all of which would yield reduction in pollutant emissions, even with an increase in traffic volumes and VMT.

The reason for the difference in the PM_{10} emissions trend (change from base year emissions) can be explained by examining the components of PM_{10} emissions from roadway traffic. The data for total PM_{10} emissions include PM_{10} from vehicle exhaust, tire wear, and brake wear, as well as the re-entrained road dust. Vehicles generate particulate emissions from tire wear and brake wear as well as dust from paved and unpaved roads to be re-entrained or re-suspended into the atmosphere. To show the contribution of these non-exhaust PM_{10} emissions, the exhaust PM emission data are presented separately in Table 2-31. As shown, the non-exhaust emissions from road dust and tire and brake wear constitute the majority of total PM_{10} emissions as they increase proportionally with the increase in traffic volume and VMT. The parameters used in calculation of road dust, as well as tire and brake wear emissions of particulates are independent of cleaner fuel or improved vehicle engines; therefore, the estimated emissions will increase with an increase in VMT.

Table 2-31. Summary of Project Daily Operational Emissions
(Total Emissions from Traffic Along the Project Corridor)

Year		Criteria Pollutants Emission (lbs/day)						
		VOC (ROG)	**CO**	**NO_x**	**PM_{10} Total**	**PM_{10} exhaust**	**$PM_{2.5}$ Total**	**$PM_{2.5}$ exhaust**
2013	Base Year	365	8,898	3,089	580	63	194	60
Opening Year 2020	Alternative 4	157	4,438	1,362	591	18	164	17
	Alternative 1	167	4,496	1,265	608	18	168	17
	Alternative 2	166	4,523	1,314	609	18	169	17
	Alternative 3	158	4,366	1,347	587	18	163	17
	Project Increment - Change from No Build (% change)							
	Alternative 1	10 (6%)	58 (1%)	-97 (-7%)	17 (3%)		5 (3%)	
	Alternative 2	9 (5%)	85 (2%)	-47 (-3%)	18 (3%)		5 (3%)	
	Alternative 3	1 (0.6%)	-72 (-2%)	-15 (-1%)	-4 (-0.6%)		-1 (-0.6%)	
Horizon Year 2040	Alternative 4	94	2,394	349	676	5	176	5
	Alternative 1	99	2,362	348	705	5	184	5
	Alternative 2	99	2,395	360	706	6	184	5
	Alternative 3	93	2,302	344	678	5	178	5
	Project Increment - Change from No Build (% change)							
	Alternative 1	5 (5%)	-31 (-1%)	-1 (-0.3%)	29 (4%)		8 (4%)	
	Alternative 2	5 (5%)	1 (0.1%)	12 (3%)	30 (4%)		8 (4%)	
	Alternative 3	-1 (-1%)	-92 (-4%)	-5 (-1%)	2 (0.3%)		2 (1%)	
SMAQMD Standard Levels[3]		*65*	N/A	*65*	*80*		*82*	
Exceeds Standard Levels?[3]		No	N/A	No	No		No	

VOC = Volatile organic compounds; ROG = Reactive organic gases; CO = Carbon monoxide; NO_x = Nitrogen oxides; PM_{10} = Particulate matter 10 microns in diameter; $PM_{2.5}$ = Particulate matter 2.5 microns in diameter.

Values may not add up precisely, due to rounding.

1. *Emissions are calculated using projected vehicle miles traveled (VMT) at different speed bins (5, 10, …70 mph), and emission factors calculated from EMFAC2014, at the speed intervals.*
2. *Estimates of directly emitted PM_{10} include emissions from tailpipe, tire wear, brake wear, the contribution from road dust emissions. The Paved Road Dust emission factor was calculated using EPA's methodology (AP-42, Chapter 13. January 2011).*
3. *SMAQMD has not recommended a standard level for regional CO emissions. The area has been in attainment for CO since 1990s.*

Source: Calculations/Modeling performed by AECOM, 2015

As Table 2-31 shows, comparison of the total estimated emissions from different project alternatives (including the No-Build alternative) indicate the following projected results.

- The results of emission calculations for the opening year 2020 show that compared with the No-Build alternative, the emissions of NOx under Alternatives 1 and 2 would decrease by 3 to 7 percent; all other criteria pollutants emissions would increase under the build alternatives, ranging from about 1 to 6 percent. However, Alternative 3 would result in a slight decrease in CO, PM_{10}, and $PM_{2.5}$ emissions.
- In the opening year 2020, Alternative 3 would result in operational emissions of VOC, CO, PM_{10}, and $PM_{2.5}$ that are 3 to 5 percent less than the Alternative 1 as a result of reduced VMT under Alternative 3. However, NO_X emissions under Alternative 3 would be

approximately 6 percent greater than Alternative 1 because vehicles would operate at lower and less efficient speeds with one less general-use lane.

- The estimated emissions of criteria pollutants in the horizon year 2040 show that the emissions of NOx and CO from Alternatives 1 and 3 would slightly decrease while for other criteria pollutants and other alternatives emissions increase, ranging from about 1 to 5 percent, compared to the No-Build alternative.
- In the horizon year 2040, Alternative 3 would result in a 1 to 6 percent decrease in all criteria air pollutants compared to the Alternative 1 as a result of reduced VMT under Alternative 3.
- Table 2-31 presents comparison of operational emissions from Alternatives 1, 2, and 3 with the Alternative 4. As shown, the daily emissions of criteria pollutants for Alternatives 1, 2, and 3 are either lower than Alternative 4, or slightly higher. In addition, as Table 2-31 shows, the net change in daily emissions of criteria pollutants for Alternatives 1, 2, and 3 would be below the standard levels set by the SMAQMD.

<u>Local Operation Impacts</u>

Project-Level Conformity

The local analysis is commonly referred to as project-level air quality or hot-spot analysis. Project-level conformity is demonstrated by showing that it will not cause a localized exceedance of carbon monoxide and/or PM (PM_{10} and $PM_{2.5}$) standards, and that it will not interfere with “timely implementation” of transportation control measures called out in the SIP. The primary focus of the analysis is the operational impact on air quality created by the proposed improvements. The analysis is provided for CO, PM_{10}, and $PM_{2.5}$. The analysis years consist of the proposed project’s opening year (2020) and the design or horizon year (2040) referenced in the approved plan, which represent the years when the project would impact the traffic conditions. The localized impact analysis (hot-spot analyses) can be qualitative or quantitative.

CO Hot-Spot Analysis:
Localized CO impacts from the project alternatives were evaluated following the 1997 CO Protocol. The CO Protocol has a screening exercise that would determine whether the project requires a qualitative or quantitative analysis, or whether no further analysis would be necessary. The screening exercise is included in the Air Quality Technical Study available from Caltrans.

Based on the screening analysis, the project would have the potential of worsening air quality during peak hours of traffic. Therefore, a CO quantitative hot-spot analysis was conducted at 4 ramp intersections, which according to the project traffic study, would have the highest traffic volume and worst peak hour level of service and delay. The analyzed intersections were also selected based on their proximity to residential sites.

Localized CO concentrations were estimated for the opening year (2020) and horizon year (2040) for Alternatives 1 and 2 and Alternative 4 using the CALINE4 dispersion model, developed by Caltrans. The modeling was performed in conjunction with emission factors from the CARB emission factor model EMFAC2011. It should be noted that the results would not change if EMFAC2014 are used, as the CO emission factors do not vary substantially between the two versions of EMFAC.

Background CO concentrations were taken from the nearest monitoring station to the project site, the Sacramento T Street Station, located at 1309 T Street, approximately 0.26 miles north of the project corridor. Because the air basin is in maintenance for CO standards, using the average ambient concentrations during the past 5 years at this monitoring station (i.e., 1-hour and 8-hour background concentrations of 2.8 ppm and 2.28 ppm, respectively) is appropriate for background concentrations for future years as well as the existing conditions. Receptor locations were placed 3 meters from each intersection corner, based on CO Protocol guidelines. Other modeling parameters used in CALINE4 based on CO Protocol guidelines include the following:

- Mixing height: 1,000 meters
- Stability class: 7 "G" (very stable atmosphere)
- Wind speed: 0.5 meter/second (minimum speed)
- Wind direction: Worst case (all wind directions in 10-degree increments)
- Surface roughness: 100 (default / suburban)
- 8-hour persistence factor: 0.7

The results of the analysis are provided in Tables 2-32 and 2-33 for opening year and horizon year, respectively.

Table 2-32. Localized CO Concentrations at the Affected Intersection with LOS F and Highest Traffic Volume – Opening Year 2020

Intersection	Peak Hour	1-hour Concentration (ppm)			8-hour Concentration (ppm)		
		Alt. 4	Alt. 1	Alt. 2	Alt. 4	Alt. 1	Alt. 2
15th Street and W Street / WB On-ramp	am	4.3	4.4	4.4	3.3	3.4	3.4
	pm	4.0	4.1	4.0	3.1	3.2	3.1
65th St and S St/US 50 WB Ramps	am	3.6	3.6	3.6	2.8	2.8	2.8
	pm	3.5	3.5	3.5	2.8	2.8	2.8
Howe Ave and US 50 WB Ramps	am	3.9	4.0	4.0	3.1	3.1	3.1
	pm	3.9	4.0	4.0	3.1	3.1	3.1
Jefferson Blvd and Park Blvd / I-80 Ramps	am	4.3	4.4	4.4	3.3	3.4	3.4
	pm	3.8	3.8	3.8	3.0	3.0	3.0
California Standard (ppm)		20			9		

ppm – parts per million; AM – morning peak hour; PM – afternoon peak hour; WB – westbound; EB – eastbound; NB - northbound

- Total CO concentrations include background 1-hour and 8-hour concentrations of 2.8 and 2.28 ppm, respectively, based on the maximum values recorded during the past 5 years at the Sacramento T Street monitoring station.
- Emission factors were obtained using EMFAC2011 model for Sacramento County and for winter (worst case for CO exhaust emissions).

Source: Calculations/Modeling performed by AECOM, 2015

Table 2-33. Localized CO Concentrations at the Affected Intersection with LOS F and Highest Traffic Volume – Horizon Year 2040

Intersection	Peak Hour	1-hour Concentration (ppm)			8-hour Concentration (ppm)		
		Alt. 4	Alt. 1	Alt. 2	Alt. 4	Alt. 1	Alt. 2
15th Street and W Street / WB On-ramp	am	3.5	3.6	3.5	2.8	2.8	2.8
	pm	3.5	3.6	3.6	2.8	2.8	2.8
65th St and S St/US 50 WB Ramps	am	3.3	3.3	3.3	2.6	2.6	2.6
	pm	3.3	3.3	3.3	2.6	2.6	2.6
Howe Ave and US 50 WB Ramps	am	3.4	3.5	3.5	2.7	2.8	2.8
	pm	3.6	3.6	3.6	2.8	2.8	2.8
Jefferson Blvd and Park Blvd / I-80 Ramps	am	3.6	3.6	3.6	2.8	2.8	2.8
	pm	3.4	3.5	3.5	2.7	2.8	2.8
California Standard (ppm)		20			9		

ppm – parts per million; AM – morning peak hour; PM – afternoon peak hour; WB – westbound; EB – eastbound; NB - northbound

- Total CO concentrations include background 1-hour and 8-hour concentrations of 2.8 and 2.28 ppm, respectively, based on the maximum values recorded during the past 5 years at the Sacramento T Street monitoring station.

• Emission factors were obtained using EMFAC2011 model for Sacramento County and for winter (worst case for CO exhaust emissions).
Source: Calculations/Modeling performed by AECOM, 2015

The results of localized CO analysis, shown in Tables 2-32 and 2-33, indicate that for all analyzed intersections, future predicted CO concentrations for horizon year (2040) are less than the opening year (2020) estimates. These reductions, even with projected regional growth and increased traffic, are due to compliance with adopted regulations and control measures for mobile source emissions, such as improved vehicle engine efficiency, use of cleaner fuel in future fleet, and vehicle turnover.

Under CEQA, a project is considered to have significant impacts if it results in CO concentrations that exceed the 1-hour average State standard of 20 ppm (the 1-hour average Federal standard is 35 ppm), and/or the 8-hour average standard of 9.0 ppm. As shown in Tables 2-32 and 2-33, the estimated CO concentrations for Alternatives 1 and 2 would be less than 50 percent of the applicable standards in both 2020 and 2040. The modeled data show very little difference (a maximum of 0.28 ppm) between CO concentrations for Alternative 4 and Alternatives 1 and 2. The project would not have a considerable impact on 1- hour or 8-hour local CO concentrations at the intersections with the highest traffic volumes; subsequently, under CEQA, no significant effect is anticipated to occur at any other locations in the study area.

Based on the above analysis, the maximally affected intersections under Alternatives 1 and 2 would satisfy the project-level conformity for CO emissions. Therefore, it is not anticipated that implementation of the proposed project would generate CO concentrations at intersections that would exceed the 1- or 8-hour ambient air quality standards.

Alternative 3 was not considered and included for CO analysis because total emissions would be slightly less than no-build scenario based on the result of EMFAC 2014 (Table 2-31).

Particulate Matter (PM) Hot Spot Analysis:
The proposed project is within a federal nonattainment area for fine particulate matter ($PM_{2.5}$) and attainment/maintenance area for respirable particulate matter (PM_{10}). As described earlier, in March 2006 the EPA issued the final Transportation Conformity Rule (40CFR 51.390 and Part 93) that addresses local air quality impacts in PM_{10} and $PM_{2.5}$ nonattainment and maintenance areas. The final rule requires a hot spot analysis to be performed for a project of local air quality concern (POAQC) or any other project identified by the $PM_{2.5}$ and PM_{10} SIP as a POAQC. Further, in November 2013, EPA released its updated guidance document: *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas.* The rule and the guidance documents provide criteria and procedures to ensure that such projects will not cause or contribute to new violations, increase the frequency or severity of any existing violations, or delay timely attainment of the relevant NAAQS as described in 40 CFR 93.101.

Section 40 CFR 93.123(b)(1) of the Transportation Conformity Rule defines types of projects that are considered a POAQC including the following:

- New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
- Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
- Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and

- Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ or PM_{10} applicable implementation plan or implementation plan submission, as sites of violation or possible violation.

In addition, the *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* also describes projects that are not considered a local air quality concern under 40 CFR 93.123(b)(1)(i) and (ii). The project would be consistent with the following definition:

- Any new or expanded highway project that primarily services gasoline vehicle traffic (i.e., does not involve a significant number or increase in the number of diesel vehicles), including such projects involving congested intersections operating at LOS D, E, or F.

The US 50 HOV project falls within the category of new or expanded highway projects that do not involve a significant number or increase in the number of diesel vehicles. The previous 2006 *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* defined significant diesel volumes as being 8% of annual average daily traffic (EPA 2006b). The 2040 horizon year average annual daily traffic (AADT), along some segments of US 50 Highway within the project limits are projected to be above 150,000 average daily traffic, as shown in Table 2-34. The average diesel truck percentage along segments of US 50 within the project limit (see Table 2-35) range from 3.4% to 7.5% in 2040. This is less than the percentage of diesel trucks (i.e., 8%) considered to be significant pursuant to the PM Guidance. Furthermore, the projected fleet mix will not change significantly through the horizon year.

Implementation of the proposed project is anticipated to increase VMT on the affected portion of US 50; however, roadway projects such as the proposed project would not generate more diesel truck traffic and segments would operate at a higher LOS. The proposed project is not a land use that would require additional diesel truck traffic as part of its operation. Therefore, the proposed project is not considered to have a significant amount of diesel truck traffic and would not increase diesel truck traffic along the affected portions of US 50.

According to the PM Guidance, the project would not be a POAQC and would not increase the potential for a PM hot spot. The project will also affect several intersections with LOS E and F; however, there is not a considerable LOS change between Alternative 4 and Alternatives 1 and 2. Implementation of the proposed project would not degrade intersections to LOS D, E, or F with a significant number of diesel vehicles. In addition, the project does not include the construction of a new bus or rail terminal, nor expand an existing bus or rail terminal. Finally, the proposed project is not located within and would not affect sites that are identified as sites of possible $PM_{2.5}$ violations pursuant to the $PM_{2.5}$ applicable implementation plan.

On April 27, 2016, SACOG's Project Level Conformity Group determined that the project (CAL18838) was not a Project of Air Quality Concern (POAQC). The USEPA concurred on April 20th and FHWA concurred on April 25th. A copy of the POAQC is included in Appendix K.

Table 2-34. Average Daily Traffic and Truck Traffic along the US 50 Studied Segments for Base Year (2013), and Horizon Year (2040)

Roadway Segment	Base Year	No Project	Add HOV Lane				Add Mixed Lane			
	ADT	ADT	ADT	% Truck	Truck ADT	Change in Truck ADT from No Project	ADT	% Truck	Truck ADT	Change in Truck ADT from No Project
Eastbound US 50 -- Segment between										
Jeffereson Blvd On and Off Ramps	62,629	71,553	69,715	7.3%	5,103	-71	69,654	7.3%	5,112	-62
Jeffereson Blvd On Ramp and S. River Rd On Ramp	82,292	103,315	89,736	7.3%	6,545	-932	89,726	7.3%	6,588	-889
Jefferson Blvd and I-5 Connectors	91,639	113,296	120,461	7.3%	8,786	587	120,537	7.3%	8,850	651
Connector to I-5 and 5th St Off Ramp	65,740	83,586	88,785	7.3%	6,475	426	88,895	7.3%	6,527	478
5th St Off Ramp and Connectors from I-5	62,013	74,921	81,866	7.3%	5,971	549	81,915	7.3%	6,013	591
Connectors from I-5 and 10th St	126,714	147,649	**155,493**	7.5%	**11,676**	551	**155,630**	7.6%	**11,768**	643
15th St Off Ramp and 10th St On Ramp	119,015	142,511	148,351	7.5%	**11,165**	453	148,678	7.5%	**11,213**	501
15th St & 16th St	128,618	**156,408**	**161,638**	7.1%	**11,464**	389	**161,856**	7.1%	**11,484**	408
16th St & Connectors to SR 51 & 99	149,830	**175,498**	**183,030**	6.8%	**12,446**	493	**183,424**	6.8%	**12,499**	546
Connectors to SR 51 & 99 and 26th St On Ramp	83,088	104,908	111,801	6.8%	7,609	432	112,078	6.8%	7,606	429
26th St On Ramp and 34th St Off Ramp	87,409	114,028	121,321	6.4%	7,742	396	121,574	6.4%	7,743	397
34th St and Connectors from SR 51 & 99	73,566	100,155	106,031	6.4%	6,767	304	106,267	6.4%	6,782	319
Connectors from SR 51 & 99 and Stockton Blvd	91,207	121,940	129,624	5.5%	7,155	414	129,686	5.6%	7,199	457
Stockton Blvd and 59th St	97,255	128,960	136,364	5.3%	7,289	422	136,503	5.4%	7,332	465
59th St and 65th St	90,263	119,188	127,278	5.3%	6,800	462	127,679	5.4%	6,865	527
65th St Off Ramp and 65th St Loop On Ramp	81,627	108,813	115,429	5.3%	6,166	387	115,613	5.4%	6,218	439
65th St Loop On Ramp and 65th St On Ramp	88,391	116,559	125,512	5.2%	6,538	496	125,703	5.2%	6,591	549
65th St and Howe Ave / Hornet Dr	95,678	126,681	133,413	4.9%	6,570	366	133,639	5.0%	6,617	412
Howe Ave Off Ramp and Howe Ave Loop On Ramp	71,652	93,761	97,676	4.9%	4,826	216	97,411	5.0%	4,823	213
Howe Ave Loop On Ramp and Howe Ave On Ramp	82,952	105,446	109,652	4.8%	5,283	190	109,411	4.9%	5,352	258
Howe Ave and Watt Ave	92,580	115,659	119,840	5.0%	6,001	169	119,644	5.1%	6,097	265
Watt Ave Off and On Ramps	77,154	105,171	108,474	5.0%	5,465	141	108,365	5.1%	5,528	204
Watt Ave and Bradshaw Rd	80,765	132,165	135,073	4.9%	6,660	176	135,015	5.0%	6,723	239
Westbound US 50 -- Segment between										
Watt Ave and Bradshaw Rd	81,331	127,013	130,282	3.7%	4,835	-21	130,336	3.7%	4,820	-36
Watt Ave Off and On Ramps	77,099	104,654	108,186	3.7%	3,984	-16	108,192	3.7%	3,977	-24
Watt Ave Loop On Ramp and Watt Ave Slip On Ramp	84,070	110,190	115,357	4.0%	4,603	23	115,365	4.0%	4,604	24
Watt Ave and Howe Ave	97,847	122,927	127,783	3.9%	5,022	83	127,716	4.0%	5,046	107
Howe Ave Off Ramp and Howe Ave On Ramp Ramp	75,314	96,480	101,257	3.9%	3,972	100	101,230	3.9%	3,974	103
Howe Ave Loop On Ramp and Howe Ave Slip On Ramp	84,604	108,754	114,364	4.1%	4,713	143	114,748	4.1%	4,712	141
Howe Ave and Hornet Dr	92,487	116,270	122,531	4.1%	5,026	170	123,011	4.1%	5,088	232
Hornet Dr and 65th St	99,323	128,967	135,751	4.1%	5,560	253	135,964	4.1%	5,619	312
65th St Off Ramp and 65th St Loop On Ramp	81,673	107,168	113,824	4.1%	4,678	270	113,959	4.1%	4,723	315
65th St Loop On Ramp and 65th St Slip On Ramp	82,916	110,091	119,681	4.0%	4,842	387	120,104	4.1%	4,905	450
65th St and 59th St	85,832	112,720	120,929	4.0%	4,788	337	121,347	4.0%	4,858	408
59th St and Stockton Blvd	95,999	125,186	132,557	3.9%	5,112	286	132,865	3.9%	5,202	376
Stockton Blvd Off and On Ramps	88,481	115,761	123,218	4.1%	5,087	621	123,466	4.5%	5,611	1,145
Stockton Blvd and Connectors to SR 51 & 99	99,637	126,265	133,384	3.7%	4,976	353	133,709	3.8%	5,060	437
Connectors to SR 51 and SR 99	93,563	118,133	124,669	3.7%	4,632	317	125,025	3.8%	4,721	405
Connector to SR 99 and 26th St Off	81,082	104,240	109,648	3.7%	4,094	303	109,933	3.8%	4,149	358
26th St and Connectors from SR 51 & 99	73,801	80,387	85,762	3.7%	3,194	272	85,914	3.8%	3,243	320
Connectors from SR 99 & SR 51	135,905	145,149	149,974	3.7%	5,506	373	**150,286**	3.7%	5,615	482
Connectors from SR 51 & 99 and 16th St	135,905	145,149	149,974	3.7%	5,477	375	**150,286**	3.7%	5,526	424
16th St and 15th St	125,362	142,801	145,481	3.7%	5,339	302	147,689	3.7%	5,429	393
10th St Off and 15th St On Ramp	115,966	139,293	142,037	3.7%	5,188	299	142,303	3.7%	5,203	313
10th St and Connectors to I-5	132,740	**157,288**	**162,194**	3.5%	5,697	374	**162,326**	3.5%	5,741	418
Connectors to I-5 and 5th St	66,775	92,074	94,911	3.6%	3,378	288	94,931	3.5%	3,330	240
5th St and Connectors from I-5	69,690	92,074	94,911	3.4%	3,246	243	94,931	3.4%	3,197	194
Connectors from I-5 and Jefferson Blvd	91,596	121,617	123,263	4.3%	5,249	251	123,277	4.2%	5,155	157

Table 2-35. Comparison of Average Daily Traffic Truck Percentage (Opening Year 2020 and Horizon Year 2040)

	Location	Truck Percentage					Change in Truck Percentages			Truck Percentage				Change in Truck Percentages		
		2013	2020 - Opening Year							2040 - Horizon Year						
		Base Year No Project	No Project	Add HOV Lane	Add Mixed Flow Lane	Take-a-Lane	Add HOV Lane	Add Mixed Flow Lane	Take-a Lane	No Project	Add HOV Lane	Add Mixed Flow Lane	Take-a-Lane	Add HOV Lane	Add Mixed Flow Lane	Take-a Lane
	EB US 50 Mainline b/w Jefferson Blvd and I-5 Connectors	7.3%	7.3%	7.3%	7.3%	7.3%	0.027%	0.044%	0.026%	7.2%	7.3%	7.3%	7.3%	0.089%	0.108%	0.091%
	EB US 50 Mainline b/w Connector to I-5 and 5th St Off	7.4%	7.2%	7.3%	7.3%	7.4%	0.065%	0.060%	0.158%	7.2%	7.3%	7.3%	7.4%	0.056%	0.105%	0.114%
	EB US 50 Mainline b/w 5th St Off and Connectors from I-5	7.4%	7.2%	7.3%	7.3%	7.4%	0.088%	0.077%	0.165%	7.2%	7.3%	7.3%	7.3%	0.056%	0.103%	0.106%
	EB US 50 Mainline b/w Connectors from I-5 and 10th St	7.7%	7.6%	7.7%	7.6%	7.7%	0.062%	0.010%	0.097%	7.5%	7.5%	7.6%	7.5%	-0.026%	0.027%	0.002%
	EB US 50 Mainline b/w 10th St and 15th St	7.7%	7.6%	7.7%	7.6%	7.7%	0.085%	0.017%	0.104%	7.5%	7.5%	7.5%	7.5%	0.009%	0.025%	0.017%
	EB US 50 Mainline b/w 15th St & 16th St	7.2%	7.2%	7.2%	7.2%	7.3%	0.067%	0.012%	0.087%	7.1%	7.1%	7.1%	7.1%	0.011%	0.014%	0.021%
	EB US 50 Mainline b/w 16th St & Connectors to SR 51 & 99	7.0%	6.9%	7.0%	6.9%	7.0%	0.057%	0.002%	0.083%	6.8%	6.8%	6.8%	6.8%	-0.011%	0.003%	0.008%
	EB US 50 Mainline b/w Connectors to SR 51 & 99 and 26th St On	7.0%	6.9%	7.0%	6.9%	7.0%	0.050%	0.000%	0.059%	6.8%	6.8%	6.8%	6.8%	-0.036%	-0.055%	-0.044%
	EB US 50 Mainline b/w 26th St On and 34th St Off	6.5%	6.5%	6.6%	6.5%	6.6%	0.040%	-0.015%	0.039%	6.4%	6.4%	6.4%	6.3%	-0.060%	-0.073%	-0.095%
	EB US 50 Mainline b/w 34th St and Connectors from SR 51 & 99	6.5%	6.5%	6.6%	6.5%	6.6%	0.046%	-0.015%	0.050%	6.5%	6.4%	6.4%	6.3%	-0.071%	-0.071%	-0.109%
	EB US 50 Mainline b/w Connectors from SR 51 & 99 and Stockton Blvd	5.6%	5.6%	5.6%	5.6%	5.6%	0.061%	0.008%	0.028%	5.5%	5.5%	5.6%	5.5%	-0.009%	0.022%	-0.039%
	EB US 50 Mainline b/w Stockton Blvd and 59th St	5.4%	5.4%	5.4%	5.4%	5.4%	0.050%	0.021%	0.018%	5.3%	5.3%	5.4%	5.3%	0.020%	0.046%	-0.033%
	EB US 50 Mainline b/w 59th St and 65th St	5.4%	5.4%	5.4%	5.4%	5.4%	0.049%	0.036%	0.019%	5.3%	5.3%	5.4%	5.3%	0.025%	0.059%	-0.040%
	EB US 50 Mainline b/w 65th St Off and 65th St Loop On	5.4%	5.4%	5.4%	5.4%	5.4%	0.049%	0.051%	0.028%	5.3%	5.3%	5.4%	5.3%	0.031%	0.067%	-0.021%
	EB US 50 Mainline b/w 65th St Loop On and 65th St On	5.2%	5.2%	5.3%	5.3%	5.3%	0.057%	0.062%	0.039%	5.2%	5.2%	5.2%	5.2%	0.026%	0.060%	-0.023%
	EB US 50 Mainline b/w 65th St and Howe Ave / Hornet Dr	5.0%	5.0%	5.0%	5.0%	5.0%	0.051%	0.057%	0.033%	4.9%	4.9%	5.0%	4.9%	0.027%	0.053%	-0.015%
	EB US 50 Mainline b/w Howe Ave Off and Howe Ave Loop On	5.0%	5.0%	5.0%	5.1%	5.0%	0.010%	0.057%	-0.002%	4.9%	4.9%	5.0%	4.9%	0.024%	0.035%	-0.014%
	EB US 50 Mainline b/w Howe Ave Loop On and Howe Ave On	4.9%	4.9%	4.9%	5.0%	4.9%	0.032%	0.080%	0.007%	4.8%	4.8%	4.9%	4.8%	-0.012%	0.061%	-0.022%
	EB US 50 Mainline b/w Howe Ave and Watt Ave	5.1%	5.1%	5.1%	5.1%	5.1%	0.036%	0.053%	0.007%	5.0%	5.0%	5.1%	5.0%	-0.035%	0.054%	-0.001%
	EB US 50 Mainline b/w Watt Ave Off/On Ramps	5.1%	5.1%	5.1%	5.1%	5.1%	0.023%	0.032%	-0.006%	5.1%	5.0%	5.1%	5.0%	-0.024%	0.039%	-0.015%
	EB US 50 Mainline b/w Watt Ave and Bradshaw Rd	4.9%	5.0%	5.0%	5.0%	5.0%	0.019%	0.032%	0.006%	4.9%	4.9%	5.0%	4.9%	0.024%	0.073%	0.016%
WB	WB Mainline b/w Watt Ave and Bradshaw Rd	3.8%	3.7%	3.6%	3.8%	3.6%	-0.078%	0.066%	-0.074%	3.8%	3.7%	3.7%	3.8%	-0.112%	-0.125%	-0.035%
	WB Mainline b/w Watt Ave Off/On Ramps	3.8%	3.7%	3.6%	3.8%	3.6%	-0.085%	0.051%	-0.086%	3.8%	3.7%	3.7%	3.8%	-0.140%	-0.147%	-0.057%
	WB Mainline b/w Watt Ave Loop On and Watt Ave Slip On	4.1%	4.0%	4.0%	4.1%	3.9%	-0.082%	0.047%	-0.095%	4.2%	4.0%	4.0%	4.2%	-0.166%	-0.166%	0.008%
	WB Mainline b/w Watt Ave and Howe Ave	4.0%	4.0%	3.9%	4.0%	3.9%	-0.066%	0.049%	-0.076%	4.0%	3.9%	4.0%	4.0%	-0.088%	-0.067%	-0.015%
	WB Mainline b/w Howe Ave Off and Howe Ave On	4.0%	4.0%	3.9%	4.0%	3.9%	-0.058%	0.066%	-0.088%	4.0%	3.9%	3.9%	4.0%	-0.091%	-0.087%	-0.024%
	WB Mainine b/w Howe Ave Loop On and Howe Ave Slip On	4.2%	4.1%	4.1%	4.2%	4.1%	-0.026%	0.067%	-0.040%	4.2%	4.1%	4.1%	4.2%	-0.081%	-0.097%	-0.014%
	WB Mainline b/w Howe Ave and Hornet Dr	4.2%	4.1%	4.1%	4.2%	4.1%	-0.010%	0.073%	-0.027%	4.2%	4.1%	4.1%	4.1%	-0.075%	-0.040%	-0.043%
	WB Mainline b/w Hornet Dr and 65th St	4.1%	4.1%	4.1%	4.1%	4.0%	-0.008%	0.045%	-0.034%	4.1%	4.1%	4.1%	4.1%	-0.019%	0.018%	-0.031%
	WB Mainline b/w 65th St Off and 65th St Loop On	4.1%	4.1%	4.1%	4.1%	4.0%	-0.008%	0.041%	-0.052%	4.1%	4.1%	4.1%	4.1%	-0.003%	0.031%	-0.026%
	WB Mainline b/w 65th St Loop On and 65th St Slip On	4.0%	4.0%	4.0%	4.1%	4.0%	-0.011%	0.039%	-0.060%	4.0%	4.0%	4.1%	4.0%	0.000%	0.038%	-0.015%
	WB Mainline b/w 65th St and 59th St	4.0%	4.0%	3.9%	4.0%	3.9%	-0.011%	0.030%	-0.060%	3.9%	4.0%	4.0%	3.9%	0.011%	0.056%	-0.009%
	WB Mainline b/w 59th St and Stockton Blvd	3.9%	3.9%	3.9%	3.9%	3.8%	-0.020%	0.022%	-0.074%	3.9%	3.9%	3.9%	3.8%	0.002%	0.060%	-0.015%
	WB Mainline b/w Stockton Blvd Off/On Ramps	3.9%	3.9%	3.9%	3.9%	3.8%	-0.026%	0.016%	-0.082%	3.9%	4.1%	4.5%	3.8%	0.271%	0.687%	-0.015%
	WB Mainline b/w Stockton Blvd and Connectors to SR 51 & 99	3.7%	3.7%	3.7%	3.8%	3.7%	-0.027%	0.023%	-0.084%	3.7%	3.7%	3.8%	3.7%	0.069%	0.123%	0.001%
	WB Mainline b/w Connectors to SR 51 and SR 99	3.7%	3.7%	3.7%	3.8%	3.7%	-0.036%	0.020%	-0.087%	3.7%	3.7%	3.8%	3.7%	0.063%	0.123%	0.004%
	WB Mainline b/w Connector to SR 99 and 26th St Off	3.7%	3.7%	3.7%	3.8%	3.6%	-0.051%	0.011%	-0.098%	3.6%	3.7%	3.8%	3.7%	0.097%	0.137%	0.015%
	WB Mainline b/w 26th St and Connectors from SR 51 & 99	3.7%	3.8%	3.7%	3.7%	3.7%	-0.081%	-0.031%	-0.115%	3.6%	3.7%	3.8%	3.7%	0.089%	0.139%	0.020%
	WB Mainline b/w Connectors from SR 99 & SR 51	3.6%	3.7%	3.6%	3.6%	3.6%	-0.062%	-0.020%	-0.092%	3.5%	3.7%	3.7%	3.6%	0.135%	0.200%	0.054%
	WB Mainline b/w Connectors from SR 51 & 99 and 16th St	3.6%	3.6%	3.6%	3.6%	3.6%	-0.065%	-0.032%	-0.087%	3.5%	3.7%	3.7%	3.6%	0.137%	0.162%	0.065%
	WB Mainline b/w 16th St and 15th St	3.6%	3.6%	3.6%	3.6%	3.6%	-0.061%	-0.025%	-0.081%	3.5%	3.7%	3.7%	3.6%	0.143%	0.149%	0.057%
	WB Mainline b/w 10th St Off and 15th St On	3.6%	3.6%	3.6%	3.6%	3.5%	-0.060%	-0.021%	-0.072%	3.5%	3.7%	3.7%	3.6%	0.143%	0.146%	0.057%
	WB Mainline b/w 10th St and Connectors to I-5	3.5%	3.5%	3.5%	3.5%	3.5%	-0.060%	-0.027%	-0.066%	3.4%	3.5%	3.5%	3.4%	0.128%	0.152%	0.065%
	WB Mainline b/w Connectors to I-5 and 5th St	3.5%	3.5%	3.4%	3.5%	3.4%	-0.084%	-0.003%	-0.066%	3.4%	3.6%	3.5%	3.4%	0.203%	0.152%	0.062%
	WB Mainline b/w 5th St and Connectors from I-5	3.4%	3.4%	3.3%	3.4%	3.3%	-0.067%	0.014%	-0.066%	3.3%	3.4%	3.4%	3.3%	0.159%	0.107%	0.023%
	WB Mainline b/w Connectors from I-5 and Jefferson Blvd	4.3%	4.3%	4.2%	4.3%	4.2%	-0.042%	0.028%	-0.039%	4.1%	4.3%	4.2%	4.1%	0.149%	0.072%	0.009%

Mobile Source Air Toxics

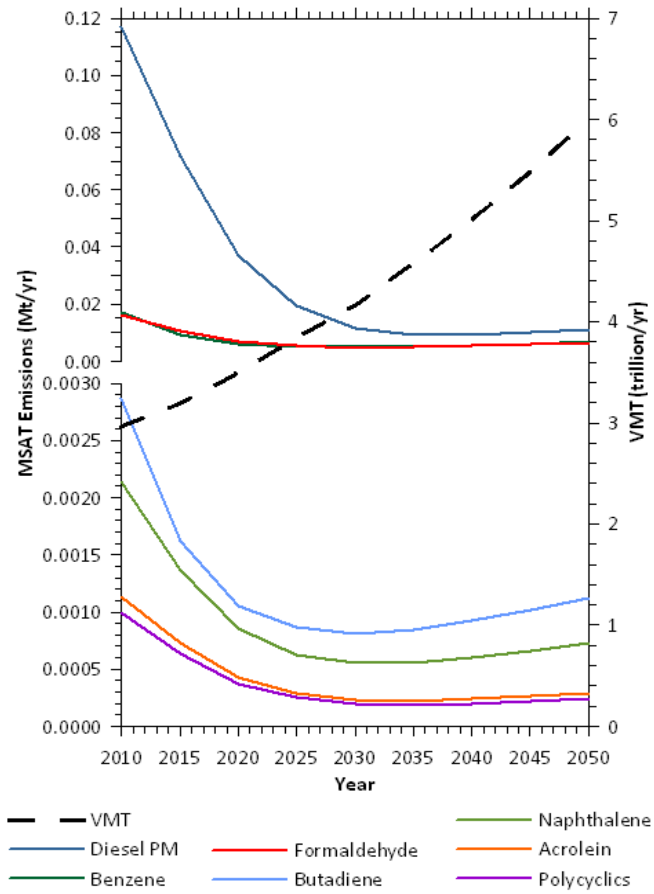
As described earlier, control of TAC is required by federal, state and local regulations. The air districts currently provide rules and policies that are designed to evaluate and minimize TACs from land use projects. Because the main sources of project toxics emissions are mobile sources, the methodology and information used for analyzing project MSATs were employed from FHWA and Caltrans.

In February 2006, FHWA issued its FHWA Interim Guidance (FHWA 2006b) to advise when and how to analyze MSATs in the NEPA process for highways. However, USEPA recommends following its report: *Analyzing, Documenting, and Communicating the Impacts of Mobile Source Air Toxic Emissions in the NEPA Process* (AASHTO 2007). In September 2009, FHWA released an update to the FHWA Interim Guidance (2009 Guidance, [FHWA 2009]). The 2009 Guidance did not change any project analysis thresholds, recommendations, or guidelines; however, seven updated primary MSATs were identified as having considerable contributions from mobile sources that are among the national- and regional-scale cancer risk drivers. In December 2012, FHWA released Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA, as an update to the 2009 FHWA Interim Guidance (2012 Guidance, [FHWA 2012]).

The 2012 Guidance document reflects recent changes in methodology for conducting emissions analysis and updates of research in the MSAT arena. The interim guidance update reflects recent regulatory changes, addresses stakeholder requests to broaden the horizon years of emission trends, and updates stakeholders on the status of scientific research on air toxics. The guidance is described as interim because MSAT science is still evolving. As the science progresses, FHWA will update the guidance accordingly. The 2012 update supersedes the September 2009 Interim Guidance and should be referenced in air quality analyses. This analysis follows the most recent FHWA guidance update (i.e., 2012 Guidance).

As previously discussed, several studies have concluded that mobile sources (i.e., on-road and non-road combined) are responsible for most of the excess cancer risk associated with exposure to urban air toxics. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. Currently, the tools and techniques for assessing project-specific health impacts from MSATs are limited. Furthermore, neither EPA nor CARB have established regulatory concentration targets for the six relevant MSAT pollutants appropriate for use in the project development process. For the same reason, states are neither required to achieve an identified level of air toxics in the ambient air nor identify air toxics reduction measures in the SIP. Developing strategies for reduction of MSATs is a cooperative effort between federal and local authorized agencies. The CAA provides EPA with the authority to establish and regulate emission standards for engines and vehicles. The State of California also has certain rights to adopt its own emission regulations, which are often more stringent than the federal rules. To reduce mobile source emissions, mandatory and incentive-based programs are developed in conjunction with new engine emission regulations; additional emission testing requirements (i.e., supplemental emission test [SET], not-to-exceed [NTE] limits); and limiting fuel sulfur content. These programs are implemented by all levels of government: federal, state, and local. Currently, FHWA's most recent interim guidance update (FHWA, 2012) is used for analysis of potential impacts of MSATs to be included in environmental documents.

The 2007 EPA rule (Control of Hazardous Air Pollutants from Mobile Sources [Federal Register, Vol. 72, No. 37, Page 8430, February 20, 2007]), require controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis, even if VMT increases by 102% as assumed from 2010 to 2050, a combined reduction of 83% in the total annual emissions for the priority MSAT is projected for the same time period, as shown in Figure 2-3.



Source: FHWA, 2012

Figure 2-3. National MSAT Emission Trends 2010 – 2050 for Vehicles Operating on Roadways

California's vehicle emission control and fuel standards are more stringent than federal standards and are effective sooner, so the effect of combined state and federal regulations is expected to result in greater reduction of MSATs in earlier time than the FHWA analysis predict.

Incomplete or Unavailable Information for Project Specific MSAT Health Impact Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The USEPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The USEPA continually assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, https://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's *Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents*. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI Web site, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (http://www.epa.gov/risk/basicinformation.htm#g) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine a “safe” or “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA’s approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Assessment of the Proposed Project MSAT Effects

Based on the FHWA's tiered approach in their 2012 Guidance, the proposed project does not meet the Category 1 criteria for projects with no potential for meaningful MSAT effects. Segments of US 50 that would be affected by the proposed project operate above the AADT levels of 140,000 to 150,000 daily vehicle trips. For some segments of US 50 within the project corridor, in horizon year 2040, the maximum ADT for Alternative 4 is 175,500, and Alternatives1 and 2 result in a maximum ADT of 183,000. The average ADT increase on US 50 within the project corridor from Alternative 4, as a result of Alternatives 1 and 2 would be 4.4% and 4.5% , respectively. Alternative 3 would result in an average ADT decrease of 0.5% along the project corridor from Alternative 4 and a 4.6% decrease in average ADT from Alternative 1. Only two segments of US 50 in the project corridor show an increase of approximately 9% for the add HOV lane alternative. However, overall VMT within the project corridor would increase by approximately 4.4% as a result of Alternatives 1 and 2. The proposed project would add HOV or mixed lanes and serve to improve operations of highway within the project corridor (i.e., reduced congestion and improved average speed compared with no build scenario); however, without creating a facility that is likely to increase MSAT emissions considerably, as discussed below.

The description of the proposed project is consistent with Category 2 projects that would require qualitative analysis for projects with low potential MSAT effects. However, since the traffic volumes with the proposed project would be greater than the FHWA criteria of 140,000 to 150,000 AADT, and there are residential uses in proximity of some segments of the project corridor, this analysis includes quantification of MSAT emissions.

For each alternative in this analysis, the amount of MSATs emitted would be proportional to the VMT, assuming that other variables such as fleet mix are the same for each alternative. The traffic volumes and subsequent VMT estimated for Alternatives 1 and 2 are slightly higher than those for Alternative 4, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network (e.g., local roadways).

Analysis of MSATs

A quantitative mass daily emission analysis was performed for the seven air toxics that are identified as priority MSATs by the EPA. The EMFAC2014 model and the latest version of the Caltrans program CT-EMFAC (Version 5.0, Sonoma Technology, Inc., 2013) were used to estimate and compare the priority MSAT emissions from the project alternatives, including Alternative 4. Because the latest CT-EMFAC (Version 5.0), at the time of preparation of this report was based on EMFAC2011, adjustments of MSAT emission rates were implemented to reflect EMFAC2014 model data and emission rates.

Analysis Results

Table 2-36 and Figures 2-4 and 2-5 present the estimated emissions of priority MSATs from operations of Alternatives 1, 2, and 3. The projected data are presented for the existing conditions (2013), and project alternatives in Opening Year (2020) and Horizon Year (2040).

As the estimated data in Table 2-36 and Figures 2-4 and 2-5 show, a considerable decrease in MSAT emissions can be expected for the proposed project alternatives from the base year (2013) through future years. This decrease is prevalent for all of the priority MSATs, and is consistent with EPA's study that projects MSAT emissions will decline markedly in the future. This is directly due to the improved pollution emission performance of a modernizing fleet of all diesel- and gasoline-fueled vehicles, which is a trend that is anticipated to continue throughout the planning horizon. This is consistent with the FHWA projected trend, shown in Figure 2-3.

Table 2-36. Priority MSATs Emissions for the Project Corridor (pounds per day)								
Year	Scenario	Benzene	Acrolein	Formaldehyde	Butadiene	Naphthalene	POM	Diesel PM
2013	Baseline	18.21	0.59	16.40	2.66	5.66	0.75	55.78
2020	Alternative 4	8.79	0.23	7.13	1.05	1.69	0.21	11.07
	Alternative 1	9.28	0.26	7.22	1.14	1.72	0.21	10.72
	Alternative 2	9.22	0.25	7.27	1.12	1.74	0.22	11.07
	Alternative 3	8.82	0.24	7.02	1.06	1.70	0.21	11.19
2040	Alternative 4	4.90	0.13	4.72	0.58	0.55	0.06	1.71
	Alternative 1	5.34	0.15	4.73	0.65	0.58	0.07	1.80
	Alternative 2	5.32	0.14	4.84	0.65	0.59	0.07	1.90
	Alternative 3	5.02	0.13	4.64	0.60	0.55	0.06	1.81
Project Increment (change from No Build Scenario)								
2020	Alternative 1	0.49	0.02	0.09	0.09	0.03	0.0	-0.35
	Alternative 2	0.43	0.02	0.13	0.07	0.05	0.01	-0.01
	Alternative 3	0.03	0.01	-0.11	0.01	0.01	0.0	0.12
2040	Alternative 1	0.44	0.02	0.01	0.07	0.03	0.01	0.10
	Alternative 2	0.43	0.01	0.12	0.06	0.03	0.01	0.20
	Alternative 3	0.12	0.0	-0.08	0.02	0.0	0.0	0.10
Notes: POM – polycyclic organic matter; Values may not add exactly, due to rounding. *Source: Calculations/Modeling performed by AECOM, 2015*								

- For Alternatives 1 and 2, a slight increase in MSAT emissions are estimated compared with the No Project alternative. Because these alternatives would add lanes to US 50, the traffic volumes and VMT within the project corridor would increase.
- For the studied corridor of US 50, Alternatives 1 and 2 would be comparable in level of MSAT emissions. It should be noted that the projected emissions were modeled with the assumption that the amount of MSATs emitted would be proportional to the VMT and would vary based on average vehicle speed of daily traffic. Other variables such as fleet mix, fleet turnover, and emission standards are assumed to stay constant for each alternative.
- Alternative 3 would also result in a net increase in most MSATs compared to the No Build alternative, except for Formaldehyde, which would decrease in opening year 2020 and horizon year 2040, and Acrolein and Napthalene, which would remain equal to the No Project alternative in 2040. However, when compared to Alternative 1, Alternative 3 would result a decrease in all MSATs for opening year 2020 and horizon year 2040.

In summary, regardless of the design option and alternative selected, the analysis determined that, consistent with the EPA projections, emission levels of all seven primary MSATs would continue a downward trend from existing conditions through the future years. Comparison of the data in Table 2-37 and Figures 2-4 and 2-5 indicates that even with an increase in traffic volume (and VMT), MSAT emissions would continue to decline from opening year (2020) to horizon year (2040).

Figure 2-4. Estimated Emissions of Priority MSATs Benzene, Formaldehyde, Diesel PM, and Butadiene Alternatives 1 and 2 and Scenarios: Base Year (2013), Opening Year (2020) and Horizon Year (2040)

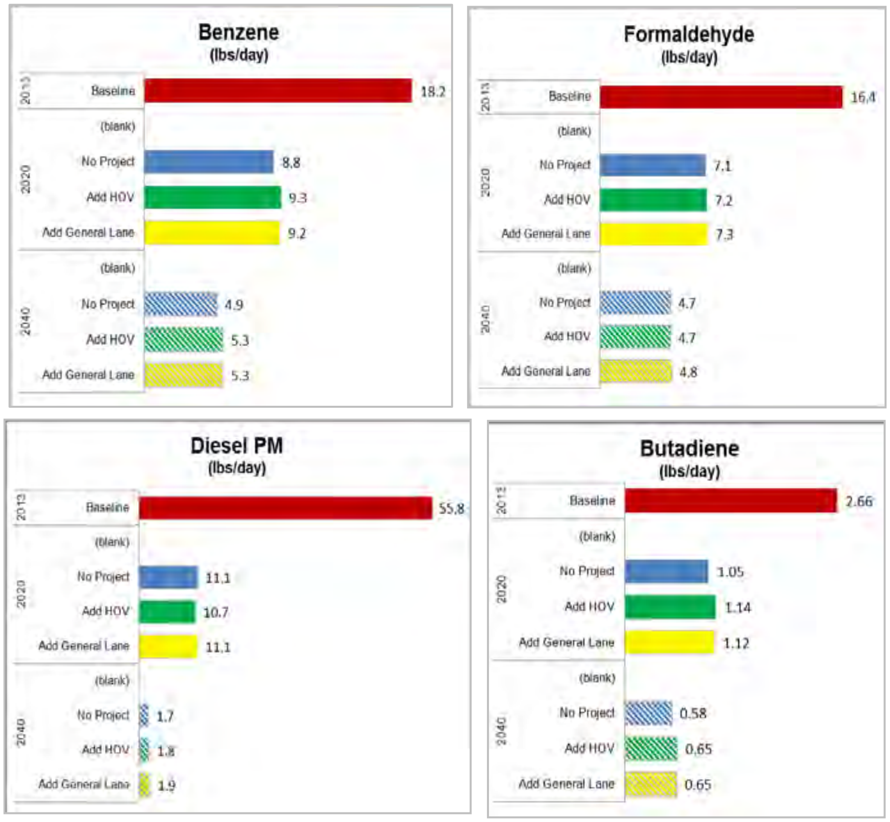
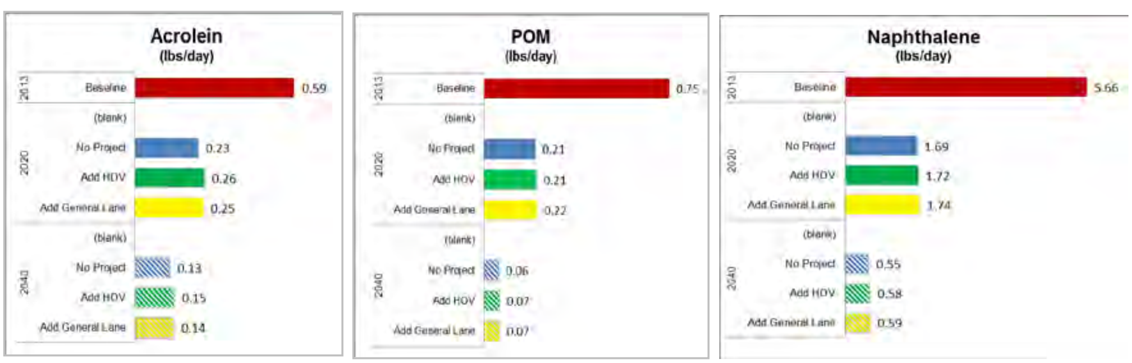


Figure 2-5. Estimated Emissions of Priority MSATs Acrolein, and Polycyclic Organic Matter (POM), and Naphthalene for Alternatives 1 and 2 and Scenarios: Base Year (2013), Opening Year (2020) and Horizon Year (2040)



The change in MSAT emission levels associated with Alternatives 1 and 2 from Alternative 4 would be less than 5% for all MSATS except for benzene. For diesel PM, Alternatives 1 and 2 in the opening year (2020) would result in slight decreases from Alternative 4, while Alternative 3 would result in a net increase from the Alternative 4. In the horizon year (2040), Alternatives 1, 2 and 3 would result in net increases of diesel PM emissions from Alternative 4. Benzene emissions associated with Alternatives 1 and 2 would range from 5% to 9% higher than Alternative 4 in opening (2020) and horizon years (2040). Under Alternative 3, benzene emissions would only increase approximately 0.3% and 2% from Alternative 4 in opening (2020) and horizon (2040) years, respectively.

It should be noted that the considerable decrease in DPM data is due to the fact that the EMFAC2014 model has incorporated revisions in PM emissions (and emission factors) based on the projected increase in use of clean cars and PM filters (that have been found to be more effective than originally projected in EMFAC2011) into the future years' emission estimations.

Furthermore, as discussed above, the study of mobile source air toxics, dose-response effects, and modeling tools are currently in a state where accurate information is unavailable or incomplete. This is relevant to making a viable prediction of any reasonably foreseeable adverse effects on the human environment. Studies are currently being conducted to clarify some of these unknowns; however, the information is not yet available.

Construction Impacts

Under NEPA, for projects having a construction schedule less than 5 years, air emissions are considered temporary with no potential adverse effect. Based on this criterion, quantitative estimation of construction emissions is not required by Caltrans and FHWA for the proposed project, which has an estimated construction schedule of approximately 15 months. However, for the purposes of full disclosure, a quantitative analysis of construction emissions was conducted to demonstrate the project CEQA impact.

Construction Emissions

Construction of the project has the potential to create temporary air quality impacts through the use of heavy-duty construction equipment within the construction site, and through vehicle trips generated from haul trucks and construction workers traveling to and from the project site. In addition, fugitive dust emissions would result from earthwork (e.g., grading, excavation) and on-site construction activities. Off-road (on-site) mobile source emissions, primarily NOx and CO, would result from the use of construction equipment such as excavators, bulldozers, and loaders. During paving operations asphalt application would release reactive organic compounds. Construction emissions can vary substantially from day to day, depending on the level of activity; the specific mix of construction equipment; and, for dust, the prevailing weather conditions.

Construction-related emissions of criteria pollutants were estimated using the *Road Construction Emission Model, Version 7.1.5.1* (the latest updated version, which was released in December 2013). The model was developed for the SMAQMD and approved by the CARB. Table 2-37 summarizes the calculated mass daily emissions (in pounds per day) and the annual emissions (in tons) for comparison with the SMAQMD limits on pollutant emission levels from projects construction activities. As shown in Table 2-37, the maximum daily emissions of pollutants from construction activities do not exceed the SMAQMD's standard levels.

Construction activities will not last for more than 5 years at one general location, so construction-related emissions do not need to be included in regional and project-level conformity analysis (40 CFR 93.123(c)(5)).

Table 2-37 Estimated Construction Emissions								
	Construction Daily Emissions (pounds/day)							
				PM_{10}		**$PM_{2.5}$**		
Construction Stage (Duration)	**ROG**	**CO**	**NO_x**	**Exhaust**	**Total**	**Exhaust**	**Total**	**CO_2**
Grubbing/ Land Clearing *(1.5 months)*	1.4	11.0	14.2	0.7	18.2	0.6	4.2	2,482
Grading/Excavation *(6.75 months)*	7.6	42.5	82.8	4.0	21.5	3.6	7.2	10,281
Drainage/Utilities/Sub-grade *(4.5 months)*	5.1	30.0	45.9	2.7	20.2	2.4	6.0	6,177
Paving/ Finish Work *(2.25 months)*	2.0	15.7	16.7	1.1	1.1	1.0	1.0	3,609
Maximum Daily	7.6	42.5	82.8	4.0	21.5	3.6	7.2	10,281
SMAQMD Standard Levels (lbs/day)	-	-	*85*	-	*80*	-	*82*	-
	Construction Emissions (tons/Construction Period)							
Tons per Construction Duration (15 months)	0.9	5.2	9.1	0.5	2.9	0.4	0.9	1,080*
Tons per Year	0.7	4.2	7.3	0.4	2.3	0.3	0.7	864*
SMAQMD Standard Levels (tons/year)	-	-	-	-	*14.6*	-	*15*	*1,100**

ROG – Reactive Organic Gases; CO – Carbon Monoxide; NOx – Nitrogen Oxides; PM_{10} – Particulate Matter less than 10 microns in diameter; $PM_{2.5}$ – Particulate Matter less than 2.5 microns in diameter.

Emissions were estimated using Road Construction Model, version 7.1.5.1 (SMAQMD, 2013).

- *No values indicate that no standard level is set in those units (e.g., NOx levels are set for maximum daily emissions and not for annual construction emissions).*
- *CO_2 data with (*) are in metric tons.*

Source: Analysis/modeling performed by AECOM, 2015

Avoidance and Minimization Measures

Construction (Short-Term) Impacts

Project alternatives would comply with the requirements of Caltrans requirements and SMAQMD rules and Best Management Practices (BMPs), which would further reduce emissions during construction activities. The project would implement the following practices during construction:

- Construction contractors would comply with Caltrans Standard Specification Provisions which uses newer/retrofit engines for construction equipment;
- Comply with District's Rule 403 for fugitive dust emissions;
- Prohibit truck idling in excess of 5 minutes, whenever practical;
- Use only well-maintained equipment;
- Utilize proper planning to reduce rework and multiple handling of earth materials.

Operations (Long Term) Impacts

Based on the above analysis, there would be no adverse effect from the project operational emissions at the regional level. No minimization measures would be required for project operational emissions.

CEQA Considerations

The project alternatives would not conflict with or obstruct implementation of the applicable air quality plan, 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, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors affecting a substantial number of people. As discussed above, the project would not have a significant impact regarding CO concentrations, PM hot spot, or MSAT. The proposed project alternatives would conform to the requirements of CAA and SIP, and would be considered less than significant.

Climate Change

The Council on Environmental Quality (CEQ) released *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Reviews* (August 1, 2016) This final guidance provides a framework for federal agencies to consider both the effects of a proposed action on climate change, as indicated by its estimated greenhouse gas emissions, and the effects of climate change on a proposed action. Climate change is discussed in Section 2.19 of this document. As the CEQ guidance aligns with the analysis required by the state of California under CEQA, the analysis in Section 2.19 will be used to inform the NEPA decision for the project.

2.16 Noise

Regulatory Setting

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

California Environmental Quality Act

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

National Environmental Policy Act and 23 CFR 772

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

Table 2-38. Activity Categories and Noise Abatement Criteria (23 CFR 772)

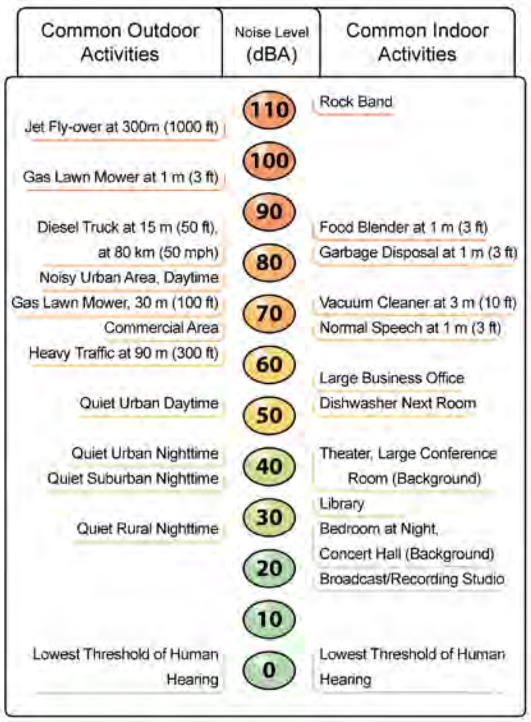
Category	Activity Leq[h][1]	Evaluation Location	Description of Activities
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67	Exterior	Residential.
C[2]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.

D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F			Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G			Undeveloped lands that are not permitted.

1 The Leq(h) activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).
2 Includes undeveloped lands permitted for this activity category.

Figure 2-6 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

Figure 2-6: Noise Levels of Common Activities



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

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

Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. As defined in Section 772.5 of the regulation, reasonableness is the combination of social, economic, and environmental factors considered in the evaluation of a noise abatement measure. The overall reasonableness of noise abatement is determined by the noise reduction design goal, the cost of noise abatement, and the viewpoints of the benefited receptors (including property owners and residents of the benefited receptors). If any of these factors are not met, then noise abatement is not considered reasonable to construct and therefore the noise abatement will not be eligible for federal funding. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents' acceptance and the cost per benefited residence.

If during final design conditions have substantially changed, noise abatement may not be necessary. The final decision to include sound walls in the proposed project design must consider reasonableness factors, such as cost-effectiveness, as well as other feasibility considerations including topography, access requirements, other noise sources, safety, and information developed during the design and public review process.

Affected Environment

Caltrans completed the Noise Study Report in September 2006 and updated the report in April 2015. In order to validate the noise measurements data collected in 2005 and 2006 for the 2006 noise report, Caltrans staff conducted additional noise measurements throughout the entire project limit on three consecutive days during the week of September 17-19, 2014 from Watt Avenue to Alhambra Boulevard. Staff tried to duplicate the locations of the noise sensitive receptors and the time of day that noise measurements were taken in year 2005 and 2006. Additional short term noise measurements were performed on November 8-9, 2014 and February 17-18, 2015 from Alhambra Boulevard to the US 50/I-5 interchange.

A copy of the Noise Study Report is available from Caltrans upon request. Methodology used to measure and analyze noise impacts is included in the Noise Study Report.

Existing Environment and Noise-Sensitive Land Use

The existing noise environment throughout the project corridor varies by location, depending on site characteristics such as proximity to U.S. 50 and other noise sources, the relative highway and local elevations and terrain, and any intervening structures or barriers. There is a mix of single-family and multi-family residential, commercial, and industrial land-uses throughout the project area. Category B-E land uses (Table 2-38), in the form of single-family and multi-family residential land uses, open space such as parks, public areas such as churches, and hotels and motels, border a large percentage of the project.

Existing Barriers

Eleven existing barriers were identified in the study area and summarized below. The table provides a name identifier for each barrier, and lists the location, construction material, height, and current condition. The location of each barrier can be found on the study-area maps in Appendix D of the Noise Study Report. Each barrier was assigned with a current condition of good, fair, or poor. Barriers considered to be in good condition appeared to be structurally and acoustically solid, with no gaps between barrier materials or at the base of the barrier. Fair condition barriers were found to be structurally sound and to provide some acoustical attenuation, but contained gaps that lowered the acoustical effectiveness of the barrier. Poor condition barriers were found to be structurally damaged and falling down in areas, resulting in poor acoustical properties.

Ten of the eleven existing barriers are constructed of masonry block, all of which appear to be in good condition. Barrier J consists of concrete sprayed onto plywood that is anchored to chain-link fence to form a 5 to 6 foot high wall. The wall is in generally good condition, but it is cracked in some locations and possibly beginning to separate from the fence.

Table 2-39. Existing Sound Walls

Wall ID	Location	Construction Material	Height, feet	Condition
G -1	Watt Ave. to Occidental Dr.	Masonry	12 to 14 ft	Good
G -2	Occidental Dr. to Howe Ave.	Masonry	12 to 14 ft	Good
H	43rd St. to 37th St.	Masonry	10 ft	Good
I	39th St. to 43rd St.	Steel on 10 ft high berm	5 to 6 ft	Fair
J	61st St. to 63rd St.	Concrete spray on chain-link fence, on 3 to 12 ft berm	5 to 6 ft	Good
K	Howe Ave. to Marquette	Precast concrete	8 ft	Good
L-1	Marquette Dr. to Occidental Dr.	Masonry	13 to 14 ft	Good
L-2	Occidental Dr. to Watt Ave.	Masonry	12 to 14 ft	Good
Q-1	46th St. to 47th St.	Masonry	10 ft	Good
Q-2	47th St. to 48th St.	Masonry	10 ft	Good
Q-3	48th St. to 51st St.	Masonry	12 ft	Good

Receivers and Noise Measurement Sites

There were 49 short-term measurements and 9 long-term measurements taken along the project alignment to document the baseline noise environment. The measurement locations were chosen to accurately represent areas of Category B-E land uses that would potentially benefit from lower future noise levels. The sites were also selected to minimize interference from outside noise sources. Appendix D of the Noise Study Report shows the locations of the field noise measurements and the modeled receivers.

Existing Noise Levels at Receivers

The estimated loudest-hour noise levels were based on daytime measurement data, peak-hour traffic data, and trends in hourly noise levels measured at representative 24-hour measurement locations. The results of the long- and short-term field measurements are summarized below.

Segment 1: Westernmost Project Limit (I-5 I/C) to Alhambra Boulevard

U.S. 50 is elevated approximately 16 to 33 feet above sensitive receivers located north and south of the highway and is the predominant source of environmental noise at nearby receiving land uses. There are no existing sound walls along the elevated highway structure. However, 1- to 2-foot-high safety barriers are located at the edge of the structure for both the eastbound and westbound directions throughout most of this segment. These barriers, in combination with the edge of the elevated structure, provide partial shielding of traffic noise generated along the highway. Local vehicular traffic along W Street, X Street, and 9th Street to 28th Street, as well as highway on-ramps and off-ramps, also contribute to the ambient noise environment at nearby sensitive land uses. Two long-term noise measurements and twelve short-term noise measurements were made in this area to quantify existing worst-hour noise levels at Category B receiver locations. Loudest-hour noise levels ranged from 72 to 76 dBA L_{eq} (h) at first-row receivers and from 64 to 69 dBA L_{eq} (h) at second-row receivers. First-row receivers and some second-row receivers have noise levels that approach or exceed the NAC (67 dBA L_{eq} (h)).

Segment 2: Alhambra Boulevard to 65th Street

Category B-E receivers are located north and south of U.S. 50 and include single- family residences, Faith Bible Church, and the Lighthouse Childcare Center. The majority of receivers in this segment are partially shielded from traffic noise generated along the highway by the edge of the elevated structure or by existing noise barriers ranging from 6 to 12 feet in height (Barriers H, I, J, Q-1, Q-2, and Q-3). The profile of U.S. 50 transitions from above the receivers to below the receivers near 43rd Street and to above the receivers again near 52nd Street. Residential receivers to the north between Stockton Boulevard and 59th Street are also affected by intermittent light rail trains, but are currently shielded by an 8 to 10 foot high sound wall (Barrier Q). Four long-term noise measurements and twenty-one short-term measurements were made at representative receiver locations along this portion of the project. Loudest-hour noise levels ranged from 62 to 73 dBA L_{eq} (h) at first-row receivers and from 62 to 70 dBA L_{eq} (h) at second-row receivers. First-row and some second-row receivers located in unshielded areas approach or exceed the noise abatement criteria (67 dBA L_{eq} (h)). In addition, existing traffic noise levels at first-row receivers located behind Barriers I and J also approach or exceed the noise abatement criteria (67 dBA L_{eq} (h)).

Segment 3: 65th Street to Howe Avenue
Land uses within this segment of U.S. 50 are primarily non-noise-sensitive commercial and industrial uses. Calvary Church, which does not include any outdoor activity areas, is located south of U.S. 50, west of Folsom Boulevard. California State University, Sacramento baseball fields are located to the north of U.S. 50, west of Hornet Drive. Motels are located north and south of U.S. 50 near Howe Avenue. The highway is located at an elevation of approximately 13 to 33 feet above adjacent land uses. One long-term noise measurement (LT-6) and one series of short-term noise measurements (Site 28) were made at CSUS baseball fields. Loudest-hour noise levels were approximately 72 to 73 dBA L_{eq} (h).

Segment 4: Howe Avenue to Watt Avenue
Noise-sensitive land uses in this segment of U.S. 50 include single- and multi-family residences, Thomas Jefferson Elementary School, and open space areas. Existing noise barriers, ranging in height from 8 to 14 feet, are located both north and south of the highway throughout this segment (Barriers G, K, and L). Long-term noise measurements were made north and south of U.S. 50 in open space areas. In addition, fifteen short-term noise measurements were made at Category B receiver locations north and south of U.S. 50. Although sound walls shield receivers along this segment, existing loudest-hour noise levels at first-row residences were about 66 to 72 dBA L_{eq} (h), approaching or exceeding the noise abatement criteria (67 dBA L_{eq} (h)). Loudest-hour noise levels at second-row receivers ranged from 61 to 65 dBA L_{eq} (h).

Environmental Consequences

The following noise impact analysis and conclusions apply to all build alternatives.

Future Traffic Data Assumptions and Site Geometry
Once the traffic noise model was calibrated, existing, future no-project, and future with project loudest-hour traffic noise levels were calculated. Traffic volume inputs for the noise model were taken from the project traffic projections provided by Caltrans Traffic Operations. Peak hour a.m. and p.m. traffic volumes were provided by Caltrans for each of the following conditions:

- Year 2004
- Year 2030 Build and No Build
- Year 2040 Build and No Build

The noisiest hour is not necessarily the hour with peak traffic volumes. Congestion results in slower speeds, which substantially reduces traffic noise levels. The loudest hour is typically an hour where traffic flows freely at or near capacity conditions. Peak-hour (a.m. or p.m.) traffic conditions were assumed to be at Level of Service C to reflect conservative loudest-hour noise levels for each condition (a summary of volumes is provided in Appendix A of the Noise Study Report).

Traffic mix was based on the average of traffic counts reported in the *2004 Annual Average Daily Truck Traffic on the California State Highway System* report (Caltrans, August 2005). This mix was similar to that counted during the noise measurement survey by Illingworth & Rodkin, Inc. (I&R) on November 1-10, 2005, although the I&R traffic mix included about 6 percent more trucks than the Caltrans report in the downtown section. This is likely due to the time of day and season when the I&R counts were conducted. Table 2-40 shows the vehicle mix. The I&R traffic counts were used to calibrate the traffic model. The reported Caltrans truck percentages were used to calculate Year 2004, Year 2040 No Build, and Year 2040 Build traffic noise levels.

Table 2-40. Vehicle Mix for US 50

	I & R Counts			2004 Truck Volumes		
Count Location	**Light-duty**	**Medium Trucks**	**Heavy Trucks**	**Light-duty**	**Medium Trucks**	**Heavy Trucks**
Watt Avenue	94%	4%	3%	96%	2%	2%
Howe Avenue	96%	2%	2%	96%	2%	2%
Alhambra Boulevard	92%	4%	4%	97%	2%	1%
20th Street	92%	4%	3%	98%	1%	1%

Free-flow traffic speeds observed in the field during the noise monitoring survey were approximately 65 mph for light-duty vehicles and medium-duty trucks and 60 mph for heavy-duty trucks.

Noise Level Predictions

Noise levels were predicted within the four receiver segments discussed below. There are no NAC Category C-E land uses in the project area that are considered to have outdoor activity areas with frequent human usage that would benefit from a lower noise level. Consequently, a detailed assessment of traffic noise impacts and abatement is not considered at Category C-E land uses in the project area. Noise levels discussed in this section are based on the adjusted modeled results, using traffic volumes for the a.m. and p.m. peak hours for Year 2004, Year 2030 No Build, and Year 2030 Build, Year 2040 No Build, and Year 2040 Build.

Segment 1: Westernmost Project Limit (I-5 I/C) to Alhambra Boulevard

Two long-term measurements and twelve short-term measurements were made within this section, with nine additional modeled receiver locations (MR-1.1 through MR-1.9). There are no existing noise barriers within this segment. The loudest-hour Leq (h) for the Year 2004 condition ranges from 62 to 72 dBA at first-tier residences and from 62 to 73 dBA at second-tier residences. Under Year 2030 and Year 2040 No Build conditions, noise levels at receiver locations are expected to range from 62 to 72 dBA at first-tier residences and from 62 to 73 dBA at second-tier residences.

The Year 2030 and Year 2040 Build condition is anticipated to increase the loudest- hour Leq (h) noise levels in this segment by 0 to 1 decibels, resulting in noise levels of 63 to 72 dBA at first-tier residences and from 62 to 74 dBA at second-tier residences. This increase in noise levels is a result of an increase in traffic volumes. The noise level increase is not enough to be considered a substantial increase. However, most first- and second-tier residences are predicted to experience noise levels that approach or exceed the NAC. Noise abatement in the form of sound barriers on structure was considered throughout this area.

Segment 2: Alhambra Boulevard to 65th Street

Four long-term measurements and twenty-one short- term measurements were taken within this segment, and there are thirty-three additional modeled receiver locations. There are six existing sound walls within this section of roadway (Barriers H, I, J, Q-1, Q-2, and Q-3).

In unshielded locations, Year 2004 loudest-hour Leq (h) noise levels ranged from 62 to 74 dBA at first-tier residences and from 61 to 68 dBA at second-tier residences. Loudest-hour noise levels ranged from 57 to 65 at first- and second-tier residences under Year 2004 conditions in areas that were shielded from roadway noise by Barrier H, and from 58 to 63 dBA at receivers located behind Barriers Q-1, Q-2, and Q-3. At receivers located behind Barrier I, Year 2004 loudest-hour Leq (h) noise ranged from 65 to 70 dBA at first- and second-tier residences. Year 2004 loudest- hour Leq (h) noise levels ranged from 62 to 68 dBA at first- and second-tier residences with the shielding provided by Barrier J.

Under Year 2030 and Year 2040 No Build conditions, modeled noise levels are expected to vary from about -1 to +1 decibels as compared to the Year 2004. The resulting loudest-hour Leq (h) noise levels would range from 61 to 74 dBA at first- and second-tier residences in unshielded areas, 57 to 65 dBA with the shielding provided by Barrier H, 58 to 64 dBA with the shielding provided by Barriers Q-1, Q-2, and Q- 3, 65 to 70 dBA with the shielding provided by Barrier I, and 62 to 68 dBA with the shielding provided by Barrier J.

The Year 2040 Build condition is anticipated to increase the noise levels at modeled locations by 0 to 1 decibel. Resulting loudest-hour Leq (h) noise levels range from 61 to 74 dBA at first- and second-tier residences in unshielded areas, 58 to 65 dBA with the shielding provided by Barrier H, 59 to 64 dBA with the shielding provided by Barriers Q-1, Q-2, and Q-3, 65 to 71 dBA with the shielding provided by Barrier I, and 62 to 69 dBA with the shielding provided by Barrier J.

The noise level increase anticipated under the Year 2040 Build condition is not enough to be considered a substantial increase. However, predicted noise levels approach or exceed the NAC in most first- and second-tier residences that are located in unshielded areas and at first-tier residences located behind Barriers I and J, which are in fair condition.

Segment 3: 65th Street to Howe Avenue
One long-term measurement and one short-term measurement were taken within this region, and there are two additional modeled receiver locations. There are no sound walls within this segment. The loudest-hour Leq (h) noise levels under Year 2004 conditions range from 55 to 71 dBA. Under Year 2030 and Year 2040 No Build conditions, noise levels at modeled locations are expected to decrease between 0 and 1 decibel to range from 55 to 70 dBA.

The Year 2030 Build condition will increase the noise levels at modeled locations by 0 to 1 decibels to range from 55 to 71 dBA. This increase in noise levels is a result of the increase in traffic volumes. The noise level increase is not enough to be considered a substantial increase. The church parking areas are not considered to be areas of frequent human use that would benefit from a lowered noise level. The baseball field was analyzed for feasibility and reasonableness; however, it did not meet FHWA criteria. Therefore, no noise abatement is considered for this area.

Segment 4: Howe Avenue to Watt Avenue
Two long-term measurements and fifteen short-term measurements were taken within this region, and there are 21 additional modeled receiver locations. Existing sound walls (Barriers G-1, G-2, K, L-1, and L-2) provided acoustical shielding to all measured and modeled receivers in this segment. The loudest-hour Leq (h) for the Year 2004 conditions ranges from 62 to 72 dBA at first- tier residences and from 59 to 66 dBA at second-tier residences. Under Year 2030 No Build conditions, noise levels at modeled locations are expected to increase by less than 1 decibel to range from 62 to 72 dBA at first-tier residences and from 59 to 66 dBA at second-tier residences.

The Year 2030 and Year 2040 Build condition will increase noise levels at modeled locations by 0 to 1 decibels. Resulting noise levels are anticipated to be 63 to 72 dBA at first-tier residences and 60 to 66 dBA at second-tier residences. This increase in noise levels is a result of the increase in traffic volumes. The noise level increase would not be considered a substantial increase. However, many first-row receivers would continue to approach or exceed the NAC of 67 dBA; therefore, noise abatement, in the form of increasing the existing wall heights in the area, was considered for this region.

Avoidance, Minimization, and/or Abatement Measures

Noise abatement, in the form of sound walls, was assessed for sensitive receptors that approached or exceeded the NAC. Sound wall heights were evaluated in 2 foot increments ranging in height from 6 feet to16 feet. Replacement sound walls were assessed for noise barriers that were in fair to poor condition and for those that potentially did not break the line of sight between residents in the area and traffic on U.S. 50. The replacement wall of equal height to the existing wall would not be anticipated to change the noise environment behind the wall, therefore, the insertion loss was calculated based on wall height increases over the existing wall height.

A full assessment of noise impacts and abatement options is included in the Noise Study Report.

Segment 1: Westernmost Project Limit (I-5 I/C) to Alhambra Boulevard
There are currently no barriers in this segment. The predicted Year 2040 Build loudest-hour noise levels within this segment range from 62 to 74 dBA, with 17 Category B receivers approaching or exceeding the NAC of 67 dBA. Caltrans evaluated barriers throughout this segment to mitigate these potential impacts, SWWB1 and SWEB1. The barriers would reduce noise levels by 2 to 11 decibels at 150 affected receivers. A minimum barrier height of 8 ft would break the line of sight between a 3.5 m (11.5 ft)-high truck stack and a 5 ft high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from $6,105,000 to $9,655,000.

As shown in Table 2-41, SW WB1 and SW EB1 met the design noise goal reduction of 7 dBA; but the construction cost exceeds the federal reasonable allowances. Therefore, these barriers are not considered Reasonable to build with regard to cost and they are not eligible for federal funds. However, if these sound walls have public support and local funding then some or all of these sound walls can be constructed.

Segment 2: Alhambra Boulevard to 65th Street
There are currently seven barriers in this segment: Barriers H, I, Q-1, Q-2, Q-3, Q-4, and J. Barriers I and J are in fair condition but may not break the line of sight between receivers, and traffic on U.S. 50 and Barriers H, Q-1, Q-2, Q-3, and Q-4 are in good condition. The predicted Year 2040 Build loudest-hour noise levels within this segment range from 58 to 74 dBA, with 27 Category B receivers approaching or exceeding the NAC of 67 dBA Leq (h).

Caltrans considered seven barriers throughout this segment: SW WB2, SW EB2/2A, SW EB3, SW EB4, SW EB5, SW EB6 and SW EB7/7A. Table 2-41 shows reasonable allowances for all barriers.

SW WB2 would reduce noise levels by 5 to 9 decibels for up to 25 sensitive receptors. A minimum barrier height of 10 ft would break the line of sight between an 11.5 ft high truck stack and a 5 ft high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol is $1,775,000.

SW EB2-2A would reduce noise levels by 5 to 10 decibels for 58 sensitive receptors. A minimum barrier height of 8 ft would break the line of sight between an 11.5 ft high truck stack and a 5 ft high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol ranges from $355,000 to $3,763,000.

SW EB3: Raising the existing sound wall height to 16 ft would not provide the required 5-dBA reduction; therefore, this barrier is not considered. Replacing this barrier with a taller barrier was considered. However, under the FHWA protocol, it is not feasible or reasonable to replace SW EB3 with a taller barrier; replacement would require local funding if it becomes available.

SW EB4 would reduce noise levels by 5 to 7 decibels for 2 sensitive receptors. A minimum barrier height of 8 ft would break the line of sight between an 11.5 ft high truck stack and a 5 ft high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol is $142,000.

SW EB5 will reduce noise levels by 6 to 12 decibels for 7 sensitive receptors. A minimum barrier height of 6 ft would break the line of sight between an 11.5 ft high truck stack and a 5 ft high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol is $497,000, for this barrier.

SW EB6 would reduce noise levels by 5 to 9 decibels for 26 sensitive receptors. A minimum barrier height of 6 ft would break the line of sight between an 11.5 ft high truck stack and a 5 ft high receiver in the first row of residences. The reasonable allowance calculated in accordance with the Protocol is $1,491,000.

SW EB7A-7B is comprised of two parts, the new barrier construction and the barrier height extension for existing Barrier J. A minimum barrier height of 6 ft would break the line of sight between an 11.5 ft high truck stack and a 5 ft high receiver in the first row of residences. The new barrier construction would reduce noise levels by 5 to 7 decibels for 4 sensitive receptors, and the reasonable allowance calculated in accordance with the Protocol is $284,000. For Barrier J height extension, raising the existing sound wall height to 16 ft would not provide the required 5-dBA reduction; therefore, this portion of the barrier is not considered to be feasible.

The reasonable allowance for all of these sound walls was less than the construction costs; these sound walls are not eligible for federal re-imbursement. However, these sound walls have support from the adjacent community. If local funding is identified, some or all of these sound walls can be constructed.

Segment 3: 65th Street to Howe Avenue
There are no Category B-E receivers in this segment that approach or exceed the NAC of 67 dBA. Therefore, no barriers are proposed for this segment.

Segment 4: Howe Avenue to Watt Avenue
There are three existing barriers in this segment: Barriers G, K, and L. Barrier K is in fair condition and barriers G and L are considered to be in good condition. The predicted Year 2040 Build loudest-hour noise levels within this segment range from 60 to 72 dBA, with 24 Category B receivers approaching or exceeding the NAC of 67 dBA. The only proposed barrier in this segment is barrier SWEB8, which is the height extension for Barrier K. Raising the existing sound wall height to 16 ft would not provide the required 5-dBA reduction; therefore, this barrier is not considered to be feasible and no abatement measures are recommended for this segment of the project.

If during final design conditions have substantially changed, noise abatement may not be necessary. The final decision to include sound walls in the proposed project design must consider reasonableness factors, such as cost-effectiveness, as well as other feasibility considerations including topography, access requirements, other noise sources, safety, and information developed during the design and public review process.

Table 2-41. Reasonable Allowances for All Barriers

Sound Wall Designation*	Description	H (ft)	L (ft)	Total Reasonable Allowance	Estimated Construction Cost	Meet Reasonable Criteria?**
SW WB1	WB 7th St. to 13th St.	8	2,464	$9,655,000	$19,125,000	No
	WB 13th St. to 16th St.	8	1,112			
	WB 16th St. to 18th St.	8	936			
	WB 18th St. to 26th St.	8	4,276			
SW WB2	WB 50-51 Connector	10	1,090	$1,775,000	$2,098,000	No
	WB on Elmhurst Viaduct	10	347			
SW EB1A	EB 9th St. to 13th St.	8	1,710	$6,105,000	$18,048,000	No
	EB 13th St. to 16th St.	8	1,066			
	EB 16th St. to 18th St.	8	872			
	EB 18th St. to EB50-SB99 connector	8	4,418			
SW EB2	NB99-EB50 connector-Elmhurst Viaduct	10	1,242	$3,763,000	$8,791,000	No
	EB Elmhurst Viaduct to Stockton Blvd	10	1,860			
SW EB2A	EB Stockton on-ramp to 39th St	10	1,223	$355,000	$987,000	No
	39th St Undercrossing	8	135			
SW EB3 (existing Barrier I)+	39th St to 41st St	10	1002	$0	$1,375,000	No
	EB 41st St to 45th St	10	1302			
SW EB4	EB 45th St to 48th St	10	978	$142,000	$1,138,000	No
SW EB5	EB 48th St to 51st St	10	1,153	$497,000	$1,322,000	No
SW EB6	EB 51st St to 59th St	8-10	2,563	$1,491,000	$3,161,000	No
SW EB7A	EB 59th St to 62nd St	12	1,574	$284,000	$781,000	No
SW EB7B	EB 62nd St to 65th St	10	1,058	$0	$490,000	No
		Total	32,381	$24,067,000	$57,616,000	

Notes: *The project sound wall designation column is required for distinguishing between sound wall on structure or original ground.

**Even though these sound walls are not eligible for federal re-imbursement, these sound walls have support from the adjacent community and if local funding is identified, some or all of these sound walls may be constructed.

+Barrier I extends from the east side of the 39th Street undercrossing to approximately 43rd Street.

Construction Noise Impact

No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans Standard Specifications Section 14.8-02. Construction noise would be short-term, intermittent, and overshadowed by local traffic noise.

CEQA Considerations

When determining whether a noise impact is significant under CEQA, comparison is made between the baseline noise level and the build noise level. The CEQA noise analysis is completely independent of the NEPA-23 CFR 772 analysis discussed above, which is centered on noise abatement criteria. Under CEQA, the assessment entails looking at the setting of the noise impact and then how large or perceptible any noise increase would be in the given area. Key considerations include: the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected and the absolute noise level.

Design year noise levels are predicted to be between 1 and 2 dBA higher than existing noise levels for all receivers. This 1-2 dBA increase between existing noise levels and predicted noise levels under proposed project would be barely perceptible to the human ear and is therefore less than significant under CEQA.

2.17 Biological Environment

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 California Department of Fish and Wildlife (CDFW) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.18 below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

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

State laws and regulations relevant to wildlife include the following:

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

Affected Environment

Caltrans biological staff completed a Natural Environment Study No Effects Memorandum in August 2014 and updated in May 2015. The project area is located in urban or semi-urban areas which consists primarily of asphalt, concrete and weedy ruderal vegetation surrounded mainly by older homes and businesses. The project does not affect any animal species.

Original biological surveys were completed in 2005. New surveys were conducted on March 12 and July 16, 2014. The same biological resources were identified in 2014 as were originally identified in 2005: cliff swallows nesting and bats roosting within 11 structures, all of which have weep holes.

Environmental Consequences

All work will be done from the roadway. Cliff swallows could potentially nest within the Brighton Overhead Crossing. Under Alternatives 1 and 2, birds could potentially nest within all 11 structures, all of which have weep holes. Bats are also known to roost within the joints of the Camellia Viaduct structure. All 11 structures have areas where bats could potentially roost. No other biological resources were identified. In addition, no wetlands or other waters of the U.S. will be affected. No permits are required.

Alternatives 3 and 4 would not affect nesting bird or roosting bats at the structures.

Avoidance and Minimization Measures

The contractor will install and maintain exclusionary devices for birds and bats in the joints and weep holes of 11 structures. (Elmhurst Viaduct, Brighton Overhead, Folsom Blvd. Undercrossing, and State College Undercrossing, Southside Park, 9th Street, 10th Street, Riverside Blvd., 15th-16th Streets, 18th Street- 24th Streets (Camellia City Viaduct) and 26th Street)

If any work on structures suitable for bird nesting or bat roosting will occur between February 1st and August 31st, the construction crews shall take such measures as necessary to prevent bird nesting or bat roosting on portions of the structures that will cause a conflict between performing necessary work and nesting birds or roosting bats. Prior to February 1st, existing nests shall be removed and exclusionary devices such as netting or one-way doors shall be used to prevent migratory species from occupying said structures.

Daily scraping, between February 1st and September 1st, of partially completed bird nests on structures is permitted to discourage nesting. If new nests are built or existing nests become occupied, then any work that would interfere with or discourage birds from returning to their nests will not be permitted in the area. If day roosting bats are found during biological surveys, Caltrans shall consult with CDFW to and implement CDFW recommended measures to comply with provisions of the Fish and Game Code of California.

2.18 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 Federal Highway Administration (FHWA), are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) 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 California Endangered Species Act (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. The California Department of Fish and Wildlife (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

Caltrans biological staff completed a Natural Environment Study No Effects Memorandum in August 2014 and updated in May 2015. Appendix I includes the U.S. Fish and Wildlife Service Federal Threatened and Endangered Species list, the California Department of Fish and Wildlife California Natural Diversity Database, and the NOAA Fisheries list for five quadrangles. These lists were created in January 2017.

Environmental Consequences

A no effect determination has been made for all species on the FWS and NOAA Fisheries lists in Appendix I.

CEQA Considerations

Project alternatives will not 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, 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, have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act, conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, or conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

During construction, following the avoidance and/or minimization measures regarding excluding birds and bats reduces the impact to these animals. This is a less than significant impact.

2.18 Cumulative Impacts

Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

CEQA Guidelines Section 15130 describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts, under NEPA, can be found in 40 CFR, Section 1508.7 of the CEQ Regulations.

Cumulative Impacts Area

This analysis considers the overall cumulative effects of the proposed project when taken together with past, present, and reasonably foreseeable future projects. For resources not affected by the project no cumulative impact assessment was performed, as the project could not contribute to a cumulative impact. The following resources are not discussed in this section because no impacts resulting from the proposed project were identified, the resources are in generally good health, the project would result in beneficial impacts, or impact would be avoided, minimized or mitigated. Please note that climate change is not addressed in this section. For a comprehensive discussion of climate change, please see Chapter 3.

- Land Use and Planning
- Farmland/Timberland
- Growth
- Community Impacts
- Cultural Resources
- Energy
- Geology/Soils/Seismic/Topography
- Hydrology/Floodplain
- Utilities
- Pedestrian and Bicycle Facilities
- Recreational Facilities
- Wetlands, Other Waters
- Natural Resources (plants and animals)

Resources discussed in this section include air quality, water quality, and traffic/transportation. The area for cumulative impacts evaluation related to major transportation projects was the Study Area corridor around US 50 between downtown Sacramento and Watt Avenue, including portions of US 50, SR 99, a I-80. A larger area encompassing Rancho Cordova was used for evaluating the cumulative impacts related to major development projects. These areas were selected because they would be most influenced by projects on US 50 and would rely on US 50 as a major transportation link.

Projects Considered in the Cumulative Impacts Evaluation

Table 2-42 at the end of this section lists the projects that have been included in the cumulative impacts evaluation. These projects were largely taken from the SACOG 2016 MTP/SCS. Additional projects were included from city and county websites. A total of 29 major transportation projects and 10 major development projects are included in the cumulative impact analysis.

Potential Cumulative Impacts

For a cumulative impacts analysis to be effective, it must be limited to the effects that can be evaluated meaningfully. While there is no universally accepted approach to preparing a cumulative impacts analysis, Caltrans guidelines state that a cumulative impact analysis should focus only on 1) those resources adversely impacted by the project and 2) those resources in poor or declining health or at risk (Caltrans 2005). Quantifiable impacts are generally not available for some of the proposed projects listed in Table 2-42, because these projects are still in the planning phase and environmental studies have not been completed. However, a qualitative cumulative impacts assessment can be completed based on anticipated and known impacts from other, similar transportation and development projects that have been completed.

The proposed project has potential impacts to circulation, access, and traffic safety. However, measures put in place would reduce impacts. These impacts are discussed further in terms of their cumulative effects below. In addition, the project would have less than significant impacts to air, water quality, hazardous materials, and visual resources. The cumulative effects of these impacts are discussed below as well.

Alternative 1

Air Quality

Air quality in the study areas has been steadily improving over the last several decades, due primarily to improved air quality emissions of mobile sources and regulations that have mandated reduced emission levels. Data from the California Air Resources Board (CARB) show that the levels of ozone, PM2.5, and PM 10 have fallen over the past 17 years (1999 to 2015). Please go to the CARB website to access the air quality summary tables for the monitoring station on T Street in Sacramento (www.arb.ca.gov/adam/trends/trends1.php).

The project conforms to regional and project-level conformity requirements of CAA and its Transportation Conformity Rule. The project-specific traffic-related operational emissions would also be below the standard levelss recommended by the SMAQMD for project compliance with CEQA requirements. The project area is currently designated (based on national and/or state standards) as a nonattainment area for O_3, PM_{10} and $PM_{2.5}$, and as an attainment/maintenance area for CO.

Transportation projects, such as the proposed HOV lane project and those listed in Table 2-42, must be included in the SACOG MTP and Metropolitan Transportation Improvement Plan (MTIP), which conform to the State Implementation Plan (SIP). Before adopting the MTP and MTIP, SACOG performed a quantitative analysis to determine if implementation of the set of projects included in these documents would result in violations of the ozone and PM_{10} air quality standard. Based on this analysis, SACOG has concluded that the set of projects included in the MTP and MTIP would not result in a violation of the ozone standard and would result in reduction of PM_{10} emissions. Cumulative impacts to air quality are not anticipated.

Water Quality

Storm water from the project area indirectly runs into the American River. The reach of the American River within the project area is listed under Clean Water Act section 303(d) as impaired for water quality. The pollutants are listed as mercury and an unknown toxicity.

In 2012, the SWRCB issued "NPDES Permit, Statewide Storm Water Permit and Waste Discharge Requirements (WDRs) for Caltrans Order No. 2012-0011-DWQ, NPDES No. CAS00003" (Caltrans Statewide Permit) that covers Caltrans' highways, highway-related properties, facilities, and activities, such as maintenance stations, roadside rest areas, weigh stations, park-and-ride lots, and construction sites. In addition, the Caltrans Statewide Permit covers both wet- and dry-weather discharges from storm water conveyance systems. Caltrans is required to reduce pollutants in storm water discharges to the maximum extent practicable. For discharges from a construction site, toxic pollutants must be reduced using the best available technology that is economically achievable, and conventional pollutants must be reduced using the best conventional technology.

For construction activities that disturb greater than 1 acre of soil, Caltrans shall obtain coverage under the "NPDES General Permit, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity Order No. 2009-0009-DWQ, NPDES No. CAS000002"

(Construction General Permit) once a Notice of Construction has been filed for a specific project. The Construction General Permit is incorporated by reference into the Caltrans Statewide Permit.

For projects that will disturb 1 acre or more (0.4 hectares) of soil during construction, the Construction General Permit requires that an effective SWPPP be developed and implemented in order to reduce construction effects on receiving water quality.

Adherence to NPDES permits and SWPPP preparations are standard measures for all projects. No cumulative impacts to water quality are anticipated.

Circulation and Access

In general, the traffic within the study area has been getting steadily worse over the years. For example, the Annual Average Daily Traffic (AADT) at US 50 and Stockton Boulevard in 1993 was approximately 184,000 vehicles; in 2014, the AADT at this location was approximately 210,000 vehicles. For more traffic data within the project limits, please access Caltrans Traffic Operations website at www.dot.ca.gov/trafficops/census/.

The project would provide greater connectivity and accessibility to the existing HOV lane system and other projects planned on US 50, SR 99, I-80, and I-5. The project would directly connect to an existing HOV lane on US 50 from Sunrise Boulevard to east of the Sacramento-El Dorado County line. The Oak Park and I-5 Interchange projects (Table 2-42) would connect the US 50 HOV lane to HOV lanes on SR 99 and I-5, respectively. Additional projects would link HOV lanes on I-5 with those on I-80 from Sacramento into Placer County.

Overall, the cumulative impact of this project as well as the transportation projects listed in Table 2-42 would be beneficial to circulation and access. There are several projects that would lead to greater connectivity of the road and highway network and increase road capacity. These projects would reduce congestion.

Noise

Noise generated from construction activities may intermittently dominate the noise environment in the immediate area of construction.

Equipment involved in construction is expected to generate noise levels ranging from 70 dB to 90 dB at a distance of 50 ft. Noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance. No substantial noise impacts from construction are anticipated because construction activity would be conducted in accordance with Caltrans' standard specifications Section 14-8.02, "Sound Control Requirements", and would be short-term, intermittent, limited in physical extent, and in most cases dominated by local traffic noise. Standard specifications Section 14-8.02 state that noise levels generated during construction shall comply with applicable local, state, and federal regulations, and that all equipment shall be fitted with adequate mufflers according to the manufacturers' specifications.

Construction Related Traffic Impacts

While project construction is not anticipated to have any adverse impacts to traffic, construction is scheduled at the same time as several other road and highway improvement projects. Table 2-42 lists the transportation projects that are programmed between 2006 and 2015. The projects listed are those within the vicinity of the Study Area for which a schedule was available; there are several other road projects, both within the Study Area vicinity and throughout the Sacramento region, that are planned for the same time period. Further, many of the development projects listed in Table 2-42 will be under construction during this period as well.

There are number of major projects scheduled to take place simultaneously on US 50, SR 99, I-5, and I-80. There are also several extension and widening projects that are anticipated for the major roads within or intersecting the Study Area, including a series of downtown road network improvements to improve access to Sacramento's central business district.

Cumulative impacts related to the construction of these projects could include temporary road and lane closures, which could lead to traffic delays and impaired access to local businesses, commercial and tourist destinations, public recreational areas, and private residences. Temporary impacts may occur throughout the US 50/SR 99/I-5/I-80 highway network, as well as in downtown Sacramento and throughout the Study Area. These temporary impacts could adversely impact the provision of emergency services, public transportation, school buses, and other services dependent on the road and highway network. However, transportation projects develop transportation management plans (TMPs). A TMP is a program of activities for alleviating or minimizing work-related traffic delays by applying traditional traffic handling practices and innovative strategies including public awareness campaigns, motorist information, demand management, incident management, system management, construction methods and staging, and alternate route planning. TMP strategies also strive to reduce overall duration of work activities where appropriate. Cumulative traffic impacts associated with construction activities are not anticipated.

Paleontology

This project may encounter paleontological resources during the excavations of new columns at the W-X freeway, Brighton overhead, and Elmhurst Viaduct. However, each project where potential paleontological resources were identified are required to prepare and implement a paleontological mitigation plan that will reduce impacts. No cumulative impacts to paleontological resources are anticipated.

Hazardous Materials

This project may encounter soil containing aerially deposited lead from vehicle emissions, asbestos and lead-based paint on bridge structures, soil and groundwater contamination due to leaking underground storage tanks, railroad operations, and abandoned or existing service stations. However, laws for the management of hazardous materials are designed to protect human health and the environment. Each project is required to remove exposed hazardous waste and follow disposal regulations. Hazardous materials/waste cumulative impacts are not anticipated.

Public Services

This project would not adversely impact parks, utilities, schools, or other public services. The HOV lane is anticipated to reduce traffic congestion along US 50, which would improve emergency response times for police, fire, and medical first responders. As a result, this project would have a beneficial cumulative impact to public services.

The transportation and development projects listed in Table 2-42 would increase the demand for public facilities and services including parks, utilities, schools, and emergency services. As community development plans typically require the provision of these services relative to the potential demand of any new development, the cumulative impact to public services may be beneficial for the region.

While the cumulative effect of the transportation projects in Table 2-42 is expected to be beneficial in terms of reducing congestion and increasing connectivity, emergency response times could be temporarily affected if multiple projects are constructed concurrently along emergency response routes. However, emergency responders would be notified in advance of any construction plans and schedules. As a result, no cumulative impacts to public services are expected.

Visual Resources

The project impacts to visual resources will be low and temporary. Measures to reduce impacts include use of compatible materials for sound wall construction, restoration of disturbed areas, and development of a highway planting plan.

The development projects may change the character of the landscape from agricultural or undeveloped land to that of residential, mixed use, and commercial areas. Certain transportation projects would widen and add roads where none existed before. These projects would be subject to design guidelines, public processes, and other measures to ensure that any impact to visual resources would be minimal. In addition, several of these projects may have positive impacts to visual resources, such as those that improve streetscapes or redevelop abandoned industrial areas.

Alternative 2

Alternative 2's footprint and features are the same as Alternative 1. Potential cumulative impacts will be the same as well.

Alternative 3

Alternative 3's temporary and construction related cumulative impacts are similar to, but less than, the temporary and construction-related impacts of Alternative 1 for traffic/transportation, visual resources, water quality, hazardous materials, air quality, public services, and noise. Alternative 3 does not involve new columns on the W-X freeway; no cumulative paleontological impacts are anticipated.

Alternative 4

The No Build Alternative would not involve construction; therefore, this alternative would not result in any temporary, construction-related, or permanent cumulative impacts.

CEQA Considerations

The project will include standard project features typical of large transportation projects. These features include Transportation Management Plans (TMPs), Water Quality and Hazardous Waste best management practices included in the project and its contract specifications, coordination with emergency service providers, incorporate standard specifications, and implement landscape planting plans. The project is not anticipated to result in a considerable contribution to cumulative water quality, hazardous materials, public/emergency services, noise, visual resources, and construction related traffic impacts. Therefore, for the reasons discussed above, cumulative impacts to water quality, hazardous materials, public/emergency services, noise, visual resources, and construction related traffic impacts are anticipated to be less-than-significant.

Air Quality

As the SACOG analysis considered all planned and programmed transportation projects included in the MTP and MTIP, the transportation projects listed in Table 2-42 have been analyzed and found not to contribute to a cumulatively considerable impact to air quality. Therefore, the impact of the project on regional air quality is considered to be less-than significant.

In addition, the development projects in Table 2-42 are also subject to air quality permitting requirements. Projects that are in conformance with the regional air quality plan and that meet regional air pollutant budgets (based on air quality models and analyses) would not be expected to have a negative cumulative impact.

The proposed project would not exceed federal or state ambient air quality standards for project level (localized) emissions of CO and would not generate PM_{10} and $PM_{2.5}$ hot spots.

The project would not expose receptors to significant levels of MSATs and would not have an adverse health effect to sensitive receptors.

Project construction would not expose sensitive receptors to significant levels of toxic air contaminants, or objectionable odors.

Temporary construction-related dust and vehicle emissions would occur during site preparation and project construction. During construction, the proposed project would be subject to Caltrans and SMAQMD rules that require best available fugitive dust control measures to be incorporated into construction practices. Construction of the project would take approximately 15 months to complete and the impacts would not have any adverse effect with incorporation of best management practices and the applicable rules requirements. However, both fugitive dust and equipment emissions would be short-term and transitory in nature. Caltrans Standard Specifications are a required part of all construction contracts and should effectively reduce and control emission impacts during construction, as do local air district controls. As all transportation construction activity within the study area would be subject to these specifications and controls, the cumulative construction impacts to air quality for the projects listed in Table 2-42 would be less than significant.

Table 2-42. Cumulative Impacts Project List: Major Transportation and Development Projects 2010-2025

Project	Status	Location	Completion Year	Description	Potentially Affected Resources in Common With Proposed Project
Road and Highway					
Caltrans					
Interchange reconstruction including bus/carpool connectors	Planned, SACOG 2016 MTP/SCS	Oak Park Interchange	2036	Interchange reconstruction including bus/carpool connectors.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services • Paleontology
Construct transition lanes	Planned, SACOG 2016 MTP/SCS	Northbound Howe Ave. on-ramp to southbound Howe Ave. on-ramp	2036	Northbound Howe Ave. on-ramp to southbound Howe Ave. on-ramp.	• Air quality • Noise • Traffic • Hazardous materials • Emergency services
Construct auxiliary lanes	Planned, SACOG 2016 MTP/SCS	US 50, Bradshaw Road to Mather Field Road.	2036	Construct auxiliary lanes from Bradshaw Road overcrossing to Mather Field Road overcrossing.	• Air quality • Noise • Traffic • Hazardous materials • Emergency services
Interchange modification	Planned, SACOG 2016 MTP/SCS	US 50, Mather Field Road	2036	Modify the Mather Field Road interchange.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services
65th Street to Sunrise rehabilitation, US 50	Planned	Sacramento County	2020	In Sacramento County, from 65th St. to .03 mile west of Watt Ave. and 0.3 mile east of Sunrise Blvd. to 1.6 miles west of Hazel Avenue - Rehabilitate roadway.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services
Camellia City Viaduct	Completed	US 50 in downtown Sacramento	2015	In the City and County of Sacramento, on Sac-50, at Camellia City Viaduct - Rehab bridge decks.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services

Project	Status	Location	Completion Year	Description	Potentially Affected Resources in Common With Proposed Project
US 50 Westbound HMA Overlay	Completed	US 50 from Watt Ave. to Sunrise Blvd.	2014	RHMA (open-graded) overlay.	• Air quality • Noise • Traffic • Emergency services
Oak Park Interchange MBGR	Planned	Oak Park Interchange, Sacramento		Replace metal beam guard rail (MBGR) at the Oak Park Interchange (US 50 – SR 99).	• Traffic • Hazardous materials
Fort Sutter Viaduct	Planned	SR 51, Sacramento	2017	Overlay deck of the Fort Sutter Viaduct along SR 51 in downtown Sacramento.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services
Bridge deck rehabilitation	In construction	I-5, US 50 at the West End Viaduct and Sacramento River Viaduct	2016	In Sacramento and West Sacramento, rehabilitate the decks of the West End and Sacramento River viaducts.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services
Replace Portland Cement Concrete Pavement (PCCP), place hot mix asphalt (HMA), widen bridges and construct sound walls	In construction	I-80 in Yolo and Sacramento counties	2016	In Yolo and Sacramento Counties in and near West Sacramento and Sacramento from the I-80/SR84 Separation to Watt Avenue Overcrossing.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services
Eastbound US 50 ramp metering	Planned	Sacramento County	2020	In Sacramento County at various locations, from the Stockton Blvd. Undercrossing to the Natoma Overhead - Install ramp metering.	• Air quality • Traffic • Hazardous materials
I-5 HOV Lanes	Planned	Sacramento County	2020	I-5, from Pocket Road to US 50 in Downtown Sacramento: Construct HOV (high occupancy vehicle) lanes; construct sound walls in various locations.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services • Paleontology
System Management/Traffic Operations System on SR 51 between U.S. 50 and I-80	Planned	Sacramento County	2020	Operational Improvements: traffic monitoring stations, closed circuit television, highway advisory radio, changeable message signs, and other system management infrastructure.	• Traffic • Hazardous materials

Project	Status	Location	Completion Year	Description	Potentially Affected Resources in Common With Proposed Project
US 50 Rehab	Planned	Oak Park I/C to Howe Ave.	2020	Pavement rehabilitation of US 50 from the Oak Park interchange to Howe Ave. Project is within the project limits of the Sac 50 HOV Project.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services
Install Fiber Optic Cable	Planned	Sacramento River to Watt Ave.	2020	Install fiber optic cable within the State right of way of US 50 from the Sacramento River to Watt Ave. Project is within the project limits of the Sac 50 HOV Project.	• Traffic
Hornet Drive Ramp Widening	Planned	Hornet Drive, US 50	2020	Widen Hornet Drive eastbound off ramp. Project is within the project limits of the Sac 50 HOV Project.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services
HM-3 Treat Decks of 10 Bridges	Planned	Four bridges are along US 50	2020	Remove existing thin chip seal overlay from deck; clean and treat bridge deck with methacrylate resin to seal crack; replace joint seals and replace pavement delineations. Project includes 4 bridges on US 50 (9th Street, Folsom Blvd., Mayhew, and Routier Road.	• Air quality • Noise • Traffic • Hazardous materials • Emergency services
City of Sacramento					
I-5 Riverfront Reconnection Project (Bridging I-5)	Construction begun in 2015	Sacramento	2017	Improve access to Sacramento Riverfront from Downtown from O St to Capitol Mall	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services
J St & Folsom Blvd 4 to 3 Lanes Conversion	Planned	Sacramento	Unknown	J St (42 to 56) & Folsom (34 to 47), 4 to 2 lane Conversion with bike lanes and left turn lane	• Air quality • Noise • Traffic • Emergency services
14th Avenue Extension	Planned	Sacramento	2020	Four-lane extension of 14th Avenue from Power Inn Rd to Watt Ave.	• Air quality • Noise • Traffic • Visual • Hazardous materials

Project	Status	Location	Completion Year	Description	Potentially Affected Resources in Common With Proposed Project
Ramona Avenue Extension	Planned	Sacramento	2020	Extend Ramona Avenue to the north to connect to Folsom Blvd.	• Air quality • Noise • Traffic • Visual • Hazardous materials
City of Rancho Cordova					
Douglas Road Phase II, Rancho Cordova Parkway to Americanos Blvd	Planned	Rancho Cordova	2020	Two lanes north of ultimate centerline and a median generally from Rancho Cordova Parkway to Borderlands Drive. A full fine lane improvement would extend to Americanos Blvd. The final striping will be installed allowing three eastbound lanes and two westbound lanes. New signals will be installed at the intersections of Rancho Cordova Parkway, Timberlands Drive and an interim signal at Americanos Blvd.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services • Paleontology
Easton Valley Pkwy Phase 1	Planned	Rancho Cordova	2020	Construct Easton Valley Parkway as a new 6-lane road from Rancho Cordova Parkway to the City Limits including intersection improvements at Rancho Cordova Parkway.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services • Paleontology
Femoyer Road	Planned	Rancho Cordova	2021-2036	Femoyer Road, from Mather Blvd. to Peter A McCuen Road: reconstruct and widen from 2 to 4 lanes and connect to Air Park Drive. The roadway section will include bike lanes, medians and/or turn pockets, landscape and sidewalk.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services • Paleontology
Rancho Cordova Parkway, Douglas Road to Chrysanthy Boulevard	Planned	Rancho Cordova	2020	Construct a new four lane road Rancho Cordova Parkway, from Douglas Road to Chrysanthy Boulevard.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services • Paleontology
Sacramento County					

Project	Status	Location	Completion Year	Description	Potentially Affected Resources in Common With Proposed Project
South Watt Avenue Widening	Planned	Sacramento County	By 2020	Widen South Watt Avenue from Elder Creek to Route 16 from 2 to 4 lanes	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services • Paleontology
U.S. 50 / Watt Ave. Interchange Modification	Completed	Sacramento County	2015	In Sacramento County: at U.S. 50 and Watt Ave., modify the freeway interchange. On Watt Ave., from Folsom Blvd. to La Riviera Dr., construct multimodal improvements. Project will construct a dedicated transit way for Bus Rapid Transit and dedicated bicycle and pedestrian pathways through the interchange.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services
Hazel Ave Widening	Planned	Sacramento County	2020	In Sacramento County, Hazel Ave, between Folsom Boulevard and US Highway 50: multi-modal corridor improvements and interchange improvement.	• Air quality • Noise • Traffic • Visual • Hazardous materials • Emergency services
Bradshaw Landing US 50 On Ramp Widening	Approved	Sacramento County	2016	Westbound on ramp widening.	• Air quality • Noise • Traffic • Hazardous materials • Emergency services
Development					
CITY OF SACRAMENTO					
Curtis Park Village	In construction	Sacramento	Ongoing	70-acre mixed use development; approximately 335-365 units	• Air quality • Noise • Traffic • Visual • Hazardous materials
McKinley Village	In construction	Sacramento	Ongoing	The McKinley Village project application is requesting entitlements to subdivide approximately 48.8 acres for the construction of 336 single family homes.	• Air quality • Noise • Traffic • Visual • Hazardous materials

Project	Status	Location	Completion Year	Description	Potentially Affected Resources in Common With Proposed Project
Stockton and T Street	Planned	Sacramento	2025	The proposed project, located at 3675 T Street, would remove the existing 120,000-square foot (sf) vacant office building (formerly AT&T) and associated parking lot, and subdivide the property for construction of a mixed-use residential (a 214-unit, five-story, multi-family housing complex and approximately 24 single-family homes) and commercial development. The project site consists of approximately 4.9 acres (213,444 sf).	• Air quality • Noise • Traffic • Visual • Hazardous materials
Sacramento Entertainment and Sports Center	In construction	Sacramento	2016	The proposed project, located in downtown Sacramento between J Street, L Street, 3rd Street, and 5th Street, includes a 17,500-seat regional sports and entertainment center and up to 1.5 million square feet of retail, restaurant, office, hotel, and residential space.	• Air quality • Noise • Traffic • Visual • Hazardous materials
Aspen 1 New Brighton	Planned/Approved	Sacramento	2025	The proposed project, a 232-acre project located near Jackson Road and Watt Ave., includes 1,365 housing units	• Air quality • Noise • Traffic • Visual • Hazardous materials
Totals for City of Sacramento				**356 acres / 2,304 units**	
RANCHO CORDOVA					
Westborough Specific Plan	Planned	Rancho Cordova	Pending	1,695-acre mixed use development; approximately 6,078 units located south of US 50 and north of White Rock Road.	• Air quality • Noise • Traffic • Visual • Hazardous materials
Arboretum-Waegell Specific Plan	Planned	Rancho Cordova	Pending	1,349 acres that will provide a diversity of housing types, retail and commercial opportunities, and public uses. The completed project will provide 5,037 dwelling units. Sunrise Boulevard to the west, Jackson Highway to the south, Keifer Road, and Grant Line Road to the east	• Air quality • Noise • Traffic • Visual • Hazardous materials
Totals for Rancho Cordova				**3,044 acres / 11,115 units**	

Project	Status	Location	Completion Year	Description	Potentially Affected Resources in Common With Proposed Project
SACRAMENTO COUNTY					
West Jackson		Sacramento County	By 2025	17,893 dwelling units on 5,900 acres and is generally bounded on the west by Watt Avenue, on the north by Jackson Highway, on the east by Excelsior Road and on the south by Elder Creek Road.	• Air quality • Noise • Traffic • Visual • Hazardous materials
Jackson Township Specific Plan		Sacramento County	By 2025	1,328 acres with 1,271 dwelling units, bounded by Excelsior Road on the west, both sides of Keifer Blvd on the north, and Jackson Highway on the south.	• Air quality • Noise • Traffic • Visual • Hazardous materials
NewBridge Specific Plan		Sacramento County	By 2025	1,150 acres with 2,975 dwelling units, bounded by Kiefer Avenue on the north, Sunrise Blvd and the Folsom South Canal on the east, and Jackson Highway on the south.	• Air quality • Noise • Traffic • Visual • Hazardous materials
Mather Specific Plan		Sacramento County	By 2025	1,271 dwelling units on 850 acres bounded on the west by Zinfandel Drive, north of Kiefer Blvd, west of the Folsom South Canal, and south of Douglas Road.	• Air quality • Noise • Traffic • Visual • Hazardous materials
Totals for Sacramento County				**9,228 acres / 23,410 units**	
Grand total for development				**12,396 acres / 35,464 units**	

Sources: Caltrans, SACOG, County of Sacramento, Sacramento Transportation Authority, City of Sacramento, and the City of Rancho Cordova

2.19 Climate Change

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 CO_2, 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)[6].

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. [7]

Regulatory Setting

This section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California has been innovative and pro-active in addressing GHG emissions and climate change.

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

Executive Order S-3-05 (EO) (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 the 2020, and 3) 80

[6] http://climatechange.transportation.org/ghg_mitigation/
[7] http://www.fhwa.dot.gov/environment/climate_change/mitigation/

percent below the year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and SB32 in 2016.

Assembly Bill 32 (AB 32), Chapter 488, 2006 Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 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." The Legislature also intended that that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gases beyond 2020 (Health and Safety Code Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

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 ten percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 greenhouse gas reduction goals.

Senate Bill 97 (SB 97) Chapter 185, 2007, Greenhouse Gas Emissions: required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (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 California Air Resources Board (CARB) to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization (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.

Executive Order B-16-12 (March 2012) orders State entities under the direction of the Governor including ARB, the Energy Commission, and Public Utilities Commission to support the rapid commercialization of zero emission vehicles. It directs these entities to achieve various benchmarks related to zero emission vehicles, Executive Order B-30-15 (April 2015), establishes an interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050. It further orders that all state agencies with jurisdiction over sources of greenhouse gas emissions to implement measures, pursuant to statutory authority, to achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO2e). Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, Safeguarding California, every three years, and to ensure that its provisions are fully implemented.

Senate Bill 32 (SB32) Chapter 249, 2016, this legislation codifies the greenhouse gas reduction targets to achieve a mid-range goal of 40 percent below 1990 levels by 2030 established in EO B-30-15

Federal

Although climate change and GHG reduction are a concern at the federal level; to date no national standards have been established for nationwide mobile source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Council on Environmental Quality (CEQ) released final guidance (Aug1, 2016) for Federal agencies on how to consider the impacts of their actions on global climate change in their National Environmental Policy Act (NEPA) reviews. This final guidance provides a framework for agencies to consider both the effects of a proposed action on climate change, as indicated by its estimated greenhouse gas emissions, and the effects of climate change on a proposed action. The final guidance applies to all types of proposed Federal agency actions that are subject to NEPA analysis and guides agencies on how to address the greenhouse gas emissions from Federal actions and the effects of climate change on their proposed actions within the existing NEPA regulatory framework.

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 being addressed through various efforts at the federal level to improve fuel economy and energy efficiency.
The Energy Policy Act of 1992 (102nd Congress H.R.776.ENR, abbreviated as EPACT92) was passed by Congress and set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. The Act consists of twenty-seven titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993.The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020

Energy Policy Act of 2005(**109th Congress H.R.6 (2005-2006)** Sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Energy Policy and Conservation Action of 1975 and Corporate Average Fuel Standards The Energy Policy and Conservation Act of 1975 (42 USC Section 6201 [1975]) establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy (CAFE) program on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance 74 *Federal Register* 52117 (October 8, 2009). The Executive Order set sustainability goals for federal agencies and focuses on making improvements in their environmental, energy, and economic performance. Instituted policy of the United States that Federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities.

Executive Order 13653 *Preparing the United States for the Impacts of Climate Change (78 Federal Register 66817,November 6, 2013)* Builds on a previously released (and since revoked) EO I3514 Federal Leadership in Environmental Energy, and Economics Performance to establish direction for federal agencies on how to improve on climate preparedness and resilience strategies.

President Obama's Climate Action Plan June 2013, President Obama announced a comprehensive plan for action to cut carbon pollution, prepare the Nation for the impacts of climate change, and lead international efforts to address climate change as a global challenge. The Plan builds on the work of the 13 USGCRP member agencies, the USGCRP National Climate Assessment program, and the Interagency Climate Change Adaptation Task Force.

Executive Order 13693 *Planning for Federal Sustainability (80 Federal Register 15869, March 2015).* Reaffirms the policy of the United States that Federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities. Sets sustainability goals for all agencies to promote energy conservation, efficiency, and management while by reducing energy consumption and GHG emissions. Builds on the adaptation and resiliency goals in EO 13693 to ensure agency operations and facilities prepare for impacts of climate change. Revokes EO 13514.

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 NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010[1] and significantly increased the fuel

[1] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

economy of all new passenger cars and light trucks sold in the United States. The standards set a requirement to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules' long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and the California Air Resources Board (CARB) will decide on CAFE and GHG emissions standard stringency for model years 2022-2025. Standards for model years 2022 through 2025 have not been formally adopted by NHTSA.

NHTSA and EPA issued a Final Rule for "Phase 2" for medium and heavy duty vehicles to improve fuel efficiency and cut carbon pollution. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO2 emissions by up to 1.1 billion metric tons over the lifetimes of model years 2018-2029 vehicles.

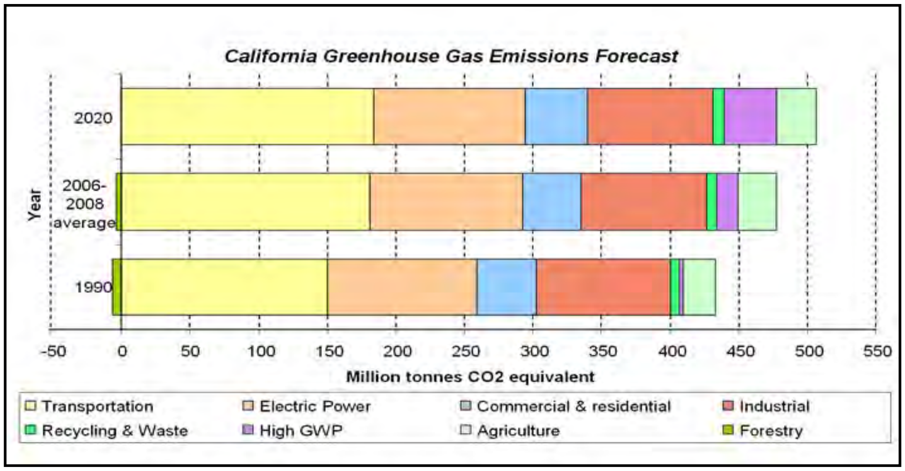
Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.[8] 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. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

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

Figure 2-7. California Greenhouse Gas Forcast



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

The Department and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.[9]

One of the main strategies in the Department's Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide (CO_2) from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0-25 miles per hour (see Figure 2-8 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.

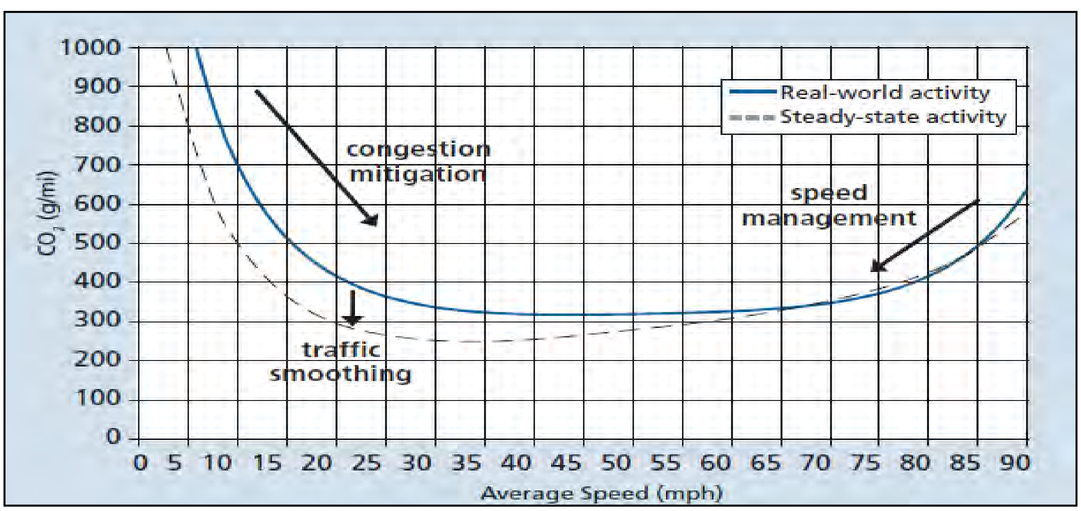


Figure 2-8. Possible Effect of Traffic Operation Strategies in Reducing On-Road CO2 Emissions

[9] 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

The purpose of the proposed project is to construct a transportation facility, although the project itself would not generate additional traffic as a land use development project would, but rather is intended to accommodate projected regional growth while maintaining acceptable roadway operations. However, it is anticipated that as a result of the increased vehicle flow, some vehicles would divert their routes from local roadways to the project's segments of US 50. As determined in the traffic study, the proposed project could result in an average 4.4% increase in mainline ADT volumes on US 50 in 2040 compared to No Build alternative. Alternative 1 with 4.3%, Alternative 2 with 4.4%, and Alternative 3 with -0.6%, respectively. Under current conditions, the ADT is approximately 15% more than the proposed project and 19% more than the No Build alternative.

According to Caltrans *Climate Action Program* (Caltrans 2006), one of the main strategies in the program for reducing 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 to 25 mph) and speeds over 55 mph (see Figure 2-8). 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.

Pursuant to the Climate Action Program, the proposed project would improve road operations by reducing traffic congestion on the segments of US 50 along the project corridor (increase of 4.3% and 4.4% with Alternatives 1 and 2, decrease of 0.6% with Alternative 3). The potential also exists for vehicles that currently qualify to use the HOV lanes but drive in the general-purpose lanes to transfer to the more efficient HOV lanes, which would also allow the general-purpose lanes to operate more efficiently. In addition, as described above, the vehicles that would divert their route from local roadways (where stop-and-go speeds are the primary flow of traffic) to US 50 would reduce GHG emissions by operating at more efficient speeds. Hence, the proposed project would contribute to reducing fuel consumption from idling vehicles by minimizing stop-and-go activity and allowing smoother traffic flow on HOV and general-purpose lanes of the US 50 project segment. Although it is projected that certain project segments of US 50 could experience additional traffic, it is anticipated that there will be increased efficiency of vehicles on the project segments of US 50 compared with Alternative 4.

The project also includes the bicycle and pedestrian improvemments on 65th Street (plaese refer to the rpoject description at the fron of this document).

Project-related GHG emissions were calculated using the emission factors from EMFAC2014 Model, with project-specific total VMT by speed bin distribution. The quantitative analysis was performed following the guidelines outlined in the GHG Protocol (Greenhouse Gas Analysis Protocol for Transportation Projects), and separate model runs were conducted for existing conditions as well as the opening year and horizon year for the build and no-build alternatives. The results are presented in Table 2-43. Table 2-43 compares the add a lane alternatives. Table 2-43 indicates that:

- The annual operational emissions of CO_2 in 2020 would decrease under the No Project alternative and Alternative 3, and slightly increase under Alternatives 1 and 2, compared with the base year 2013, even with increase in VMT.
- The horizon year (2040) GHG emissions for all alternatives will decrease compared with the existing conditions (2013). This is due to the statewide implementation of the control measures to comply with the goal of state regulations such as AB-32 and AB-1493 (Pavley I), low carbon fuel standard, and Low-Emission Vehicle (LEV III GHG) standards11F11F[10]. EMFAC2014 incorporates these changes in calculation of emission factors for future years.

[10] Clean Car Standard (Pavley I) – reduces GHG emissions in model years 2009 through 2016 passenger vehicles;

- While the VMTs in the project area increased under Alternatives 1 and 2 for the horizon year 2040, total CO_2 emission would also increase due to more traffic and better operational efficiency with high speed bins over 65+ mph with the following VMTs: Alternative 1 with 117,456, Alternative 2 with 50,303, Alternative 3 with 16,007, and Alternative 4 with 0 (Table 2-23 and Fig 2-6).

Table 2-43. Annual CO_2 Emissions for Existing Conditions (2013) and Future No Build and Alternatives 1 and 2 (Opening Year [2020] and Horizon Year [2040]

Year	Scenario	VMT (miles)		CO_2 Emission (metric tons/year)	% Change from 2013 emission
		Daily	Annual		
2013	Base Year	1,979,279	722,436,780	312,292	-
Opening Year 2020	Alternative 4 (no build)	2,216,162	808,899,013	302,005	-3.3%
	Alternative 1	2,282,138	832,980,538	320,096	2.5%
	Alternative 2	2,285,628	834,254,111	317,995	1.8%
	Alternative 3	2,202,424	803,884,636	305,356	-2.2%
	Change from No-Build (Emission Increment and % change)				
	Alternative 1			18,091 (6%)	
	Alternative 2			15,990 (5.3%)	
	Alternative 3			3,351 (1.1%)	
Horizon Year 2040	Alternative 4 (no build)	2,617,566	955,411,725	257,671	-17.5%
	Alternative 1	2,730,769	996,730,601	279,731	-10.4%
	Alternative 2	2,733,443	997,706,779	280,298	-10.2%
	Alternative 3	2,602,167	949,790,970	262,169	-16.1%
	Change from No-Build (Emission Increment and % change)				
	Alternative 1			22,060 (8.6%)	
	Alternative 2			22,627 (8.8%)	
	Alternative 3			4,498 (1.7%)	

EMFAC2014 was used in combination with the VMT speed distribution and daily and Annual VMTs, and model default for fleet mix in Sacramento County.
Source: AECOM, 2015.

As Table 2-43 shows, for future studied years the build alternatives' annual GHG operational emissions show a relatively small increase compared with Alternative 4, ranging from approximately 5 to 9 percent increases for the following alternatives: Alternative 1 (6%) and Alternative 2 (5.3%) in the opening year 2020, and Alternative 1 (8.6%) and Alternative 2 (8.8%) in the horizon year 2040. This increase is due to the proposed new additional lanes causing an increase in traffic volumes and VMT along the project corridor.

Alternative 3 also results in a net increase in annual GHG emissions compared to Alternative 4 in the 2020 opening year and 2040 horizon year. When compared to Alternative 1, Alternative 3 would result in a 4.6% and 6.3% reduction in annual GHG emissions in year 2020 and 2040, respectively.

The SACOG 2016 MTP/SCS estimated regional GHG emissions to demonstrate that the plan meets the SB 375 targets set by ARB. The SB 375 emission reduction targets are 7 percent below 2005 emissions levels by 2020 and 16 percent below 2005 levels by 2035. The 2012 MTP/SCS estimated that the per capita emissions for the region would be 10 percent below

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Low Carbon Fuel Standard (LCFS) – calls for a reduction of at least 10% of the carbon intensity of California's transportation fuels by year 2020; and

Third stage of Low-Emission Vehicle standards (LEV III GHG) – reduces GHG emissions in model years 2017 through 2025 passenger vehicles.

2005 emissions levels in 2020 from 2005, and 16 percent below 2005 emissions levels in 2035. The design concept and scope of the proposed project is consistent with the project description in the MTP and the GHG analysis. Therefore, although the project could result in a slight increase in GHG emissions compared with the No-Project scenario, the effect of the proposed project has been accounted for by SACOG when determining if the region will meet SB 375 GHG reduction targets. Because SACOG has determined in its current 2016 MTP/SCS that it would meet its GHG reduction targets and accounts for the proposed project, the proposed project would not impede regional GHG reduction goals.

Limitations and Uncertainties with Modeling

EMFAC

Although EMFAC can calculate CO2 emissions from mobile sources, the model does have limitations when it comes to accurately reflecting changes in CO2 emissions due to impacts on traffic. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008) and a 2009 University of California study[11], brief but rapid accelerations, such as those occurring during congestion, can contribute significantly to a vehicle's CO2 emissions during a typical urban trip. Current emission-factor models do not distinguish the emission of such modal events (i.e., acceleration, deceleration) in the operation of a vehicle and instead estimate emissions by average trip speed. It is difficult to model this because the frequency and rate of acceleration or deceleration that drivers chose to operate their vehicles depend on each individual's human behavior, their reaction to other vehicles' movements around them, and their acceptable safety margins. Currently, the EPA and the CARB have not approved a modal emissions model that is capable of conducting such detailed modeling. This limitation is a factor to consider when comparing the model's estimated emissions for various project alternatives against a baseline value to determine impacts.

Other Variables

With the current understanding, project-level analysis of greenhouse gas emissions has limitations. Although a greenhouse gas analysis is included for this project, there are numerous external variables that could change during the design life of the proposed project and would thus change the projected CO2 emissions.

First, vehicle fuel economy is increasing. The EPA's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012,"[12] which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy improves each year with a noticeable rate of change beginning in 2005. Corporate Average Fuel Economy (CAFE) standards remained the same between model years 1995 thru 2003 and subsequently increasing to higher fuel economy standards for future vehicle model years. The EPA estimates that light duty fuel economy rose by 16% from 2007 to 2012. Table 2-44 shows the increases in required fuel economy standards for cars and trucks between Model Years 2012 and 2025 as available from the National Highway Traffic Safety Administration for the 2012-2016 and 2017-2025 CAFE Standards.

[11] Matthew Bartha, Kanok Boriboonsomsin. 2009. *Energy and emissions impacts of a freeway-based dynamic eco-driving system.* Transportation Research Part D: Transport and Environment
Volume 14, Issue 6, August 2009, Pages 400–410

[12] http://www.epa.gov/oms/fetrends.htm

Table 2-44. Average Required Fuel Economy (mpg)

	2012	2013	2014	2015	2016	2018	2020	2025
Passenger Cars	33.3	34.2	34.9	36.2	37.8	41.1-41.6	44.2-44.8	55.3-56.2
Light Trucks	25.4	26	26.6	27.5	28.8	29.6-30.0	30.6-31.2	39.3-40.3
Combined	29.7	30.5	31.3	32.6	34.1	36.1-36.5	38.3-38.9	48.7-49.7
Source: EPA 2013, http://www.epa.gov/fueleconomy/fetrends/1975-2012/420r13001.pdf								

Second, new lower emissions and zero emissions vehicles will come into the market within the expected design life of this project. According to the 2013 Annual Energy Outlook (AEO2013):

> "LDVs that use diesel, other alternative fuels, hybrid-electric, or all-electric systems play a significant role in meeting more stringent GHG emissions and CAFE standards over the projection period. Sales of such vehicles increase from 20 percent of all new LDV sales in 2011 to 49 percent in 2040 in the AEO2013 Reference case."[13]

The greater percentage of lower emissions and zero emissions vehicles on the road in the future will reduce overall GHG emissions as compared to scenarios in which vehicle technologies and fuel efficiencies do not change.

Third, California has recently adopted a low-carbon transportation fuel standard in 2009 to reduce the carbon intensity of transportation fuels by 10 percent by 2020. The regulation became effective on January 12, 2010 (codified in title 17, California Code of Regulations, Sections 95480-95490). Beginning January 1, 2011, transportation fuel producers and importers must meet specified average carbon intensity requirements for fuel in each calendar year.

Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

Construction GHG emissions include emissions produced as a result of onsite construction equipment, material delivery and haul trucks trips, construction worker vehicles, and 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. Project construction emissions of CO_2 were estimated to result in 1,080 tons for the 15 month duration of construction. Estimates were calculated using the SMAQMD's Road Construction Model (Version 7.1.5.1, December 2013) and the results are presented in Table 2-37. Furthermore, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction would even be lower than the estimated values in Table 2-37.

[13] http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf

CEQA Conclusion

As discussed above, in 2020 all build alternatives show an increase in CO_2 emissions, except for the no build and Alternative 3 which show a decrease in emissions In 2040, all build and no build alternatives show a decrease in CO_2 emissions . In addition, as discussed above, there are also limitations with EMFAC and with assessing what a given CO_2 emissions increase means for climate change. Therefore, it is Caltrans determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding significance of the project's direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following section.

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 Department is using to help meet the targets in AB 32 come from Former 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 2-10: The Mobility Pyramid.

Figure 2-10. The 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. Caltrans also 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 on-going 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 (CTP) 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 2-45 summarizes the Department and statewide efforts that it is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Table 2-45. Climate Change/CO_2 Reduction Strategies						
Strategy	**Program**	**Partnership**		**Method/Process**	Estimated CO_2 Savings Million Metric Tons (MMT)	
		Lead	**Agency**		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	.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)[14] provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

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

- Caltrans and the California Highway Patrol are working with regional agencies to implement intelligent transportation systems (ITS) to help manage the efficiency of the existing highway system. ITS is commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system. ITS include ramp meters, fiber optic cable, CCTV, EMSs, and CMSs. All on-ramps within the projects limits have operational ramp meters. A fiber optic communication system project is programmed for the 2014 SHOPP within the project limits.
- In addition, the Sacramento County of Governments provides ridesharing services and park-and-ride facilities to help manage the growth in demand for highway capacity. Numerous park and ride facilities serve the US 50 corridor (please refer to the Traffic and Transportation/Pedestrian and Bicycle Facilities section). No additional park and ride facilities are planned for this project.
- The City of Sacramento's 65th Street improvements includes several bicycle and pedestrian features, including bicycle lanes, pedestrian pork chop islands at the 65th Street / WB US 50 off-ramp intersection, wider sidewalks within the 65th Street / WB US 50 interchange vicinity, and new raised sidewalks with railings under the US 50 undercrossing structure. These features improve safety for pedestrians and bicyclists using 65th Street from the 65th Street Light Rail Station in the north to 4th Avenue in the south. These features will be constructed by the City of Sacramento.
- Landscaping reduces surface warming, and through photosynthesis, decreases CO2. The project proposes planting in the intersection slopes, drainage channels, and seeding in areas next to frontage roads as well as planting a variety of different-sized plant material and scattered skyline trees where appropriate but not to obstruct the view of the mountains. The Department has committed to planting at least 40 trees. These trees will help offset any potential CO2 emissions increase.
- The project will utilize energy efficient lighting, which will be defined during final design.

Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on California'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, storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damaging roadbeds by 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. Economic and strategic ramifications may result from these types of impacts to the transportation infrastructure.

[14] http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy, and the National Oceanic and Atmospheric Administration, released its interagency task force progress report on October 28, 2011[15], 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, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop The California Climate Adaptation Strategy (Dec 2009)[16], 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[17] 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.

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15 http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation
16 http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF
17 Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future (2012), available at http://www.nap.edu/catalog.php?record_id=13389.

- 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 Academies Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

All projects that have filed a Notice of Preparation as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, 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 impacts, 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, Caltrans will be able to review its current design standards to determine what changes, if any, may be warranted in order 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. Caltrans is an active participant in the efforts being conducted in response to Executive Order S-13-08 and is mobilizing to be able to respond to the National Academy of Science report on Sea Level Rise Assessment.

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Chapter 4 – Comments and 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 Project Development Team (PDT) meetings, interagency coordination meetings, and presentations to neighborhood groups. This chapter summarizes the results of the Department's efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

Consultation and coordination with public agencies

- In January 2016, Caltrans met with the City of Sacramento public works department and city council staff to discuss project scope and anticipated local traffic impacts. Caltrans staff identified two local streets that will require detours and several other local streets that will have traffic handling plans during structure construction.

- Caltrans staff have met with City of Sacramento staff on various occasions to discuss elements of the project, such as sound walls, traffic detours, and emergency services. This dialog is continuing.

- Caltrans right-of-way staff have met with the City of Sacramento and the California Department of Motor Vehicles (current leases of the parking areas under the W-X freeway) to discuss temporary relocation options. Discussions are on-going.

- Caltrans continues to meet with Regional Transit and UPRR regarding construction over the light rail line and railroad tracks at 20th Street and Brighten OH.

Public participation

- In January 2016, Caltrans staff attended a public outreach meeting in the Land Park community on 1/13/16 as an informal information sharing. The public was generally receptive to the project.

- On several occasions in 2012, Caltrans staff met with members of the Elmhurst neighborhood and their city council member to discuss sound walls.

- Caltrans right of way staff met with the storage unit tenant under the W-X freeway between 15th and 16th Streets to discuss options regarding continued operations at their current location, including moving the current entrance on 15th Street to W or X Street.

Public Workshops Conducted During the 2016 Circulation of the Draft Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment with Finding of No Significant Impact

On September 28, 2016, Caltrans and FHWA released a Draft Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment with Finding of No Significant Impact for the Sac 50 Phase 2 High Occupancy Vehicle Lanes Project. The public review period extended for 30 days, from September 28 to October 28, 2016. Caltrans sent a public notice of the availability of the Draft IS/EA to various agencies, neighborhood associations, other interested parties, and five public libraries (see Chapter 6 for a list). The notice also appeared in the Sacramento Bee on September 28, 2016.

There were two public open house workshops, one on October 17, 2016 at the Caltrans' Farmer's Market Building and the other on October 18, 2016 at Isador Cohen Elementary School. Approximately 8 members of the public attended the workshops.

Overall, Caltrans received 4 comment letters, and 6 comment emails. Copies of these comment emails and letters are included in Appendix M; Caltrans responses to comments are included in Appendix N.

Email comments:

1. Deborah Cregger, Comments DC1 to DC5
2. Dominique Ritter, Comments DR1to DR24
3. Eric and Marsha Boemer, Comment EB1
4. Kim Maun, Comments KM1 and KM2
5. Mary Mahler, Comments MM1 and MM2
6. Mike Tentis, Comments MT1 and MT2

Letter comments:

1. Sacramento Metropolitan Air Quality Management District, Comments AQMD1 to AQMD11
2. Environmental Council of Sacramento, Comments ECOS1to ECOS28
3. Elmhurst Neighborhood Association, Comments ENA1 to ENA5
4. Central Valley Regional Water Quality Control Board, Comments WB1 and WB12

Chapter 5 – List of Preparers

The following Caltrans and consultant staff contributed to the preparation of this Initial Study.

Rajive Chadha, Environmental Engineer, Hazardous Waste/Materials; Contribution: Initial Site Assessment (ISA)

Jason Lee, Transportation Engineer, Air Quality; Contribution: Air Quality Assessment

Joan Fine, Associate Environmental Planner, Cultural Resources; Contribution: Cultural Resources Studies

Soka Soka, Hydraulics Engineer; Contribution: Floodplain Hydraulic Study

Kathleen Grady, Associate Landscape Architect; Contribution: Visual Impact Assessment (VIA)

Sean Cross, NPDES Coordinator; Contribution: Water Quality Assessment Report

Ken Lastufka, Associate Environmental Planner; Contribution: Environmental document preparation, Community Impact Assessment (CIA)

Richard Olson, Associate Environmental Planner, Cultural Resources; Contribution: Cultural Resources Studies

Mark Rayback (Wood Rogers), Transportation Engineer; Contribution: Traffic Study

Michele Lukkarila, Associate Environmental Planner, Natural Resources; Contribution: Natural Environment Study (NES)

Saeid Zandian, Transportation Engineer, Noise; Contribution: Noise Assessment

Chapter 6 – Distribution List

Federal, State, and Local Agencies

National Marine Fisheries Service
United States Army Corps of Engineers
United States Environmental Protection Agency
United States Fish and Wildlife Service
United States Department of the Interior
California Air Resources Board
California Department of General Services
California Department of Housing and Community Development
California Department of Toxic Substances Control
California Department of Water Resources
California Department of Fish and Game
California Department of Parks and Recreation
California Energy Commission
California Highway Patrol
California Department of Resources Recycling and Recovery (CalRecycle)
California Office of Historic Preservation
California Public Utilities Commission
California Natural Resources Agency
California Transportation Commission
California Department of Motor Vehicles
Central Valley Regional Water Quality Control Board
California State University, Sacramento
Native American Heritage Commission

Local Agencies

City of Sacramento
Sacramento County
City of West Sacramento
City of Rancho Cordova
Sacramento Air Quality Management District
Sacramento Regional Transit
El Dorado County Transit Authority
Sacramento Transportation Authority
Paratransit
Sacramento Area Council of Governments
Sacramento Housing and Redevelopment Agency
Sacramento Metropolitan Chamber of Commerce
Sacramento Sheriff's Department
Sacramento City Police Department
Sacramento City Fire Department
Sacramento Metro Fire District
Sacramento Regional Sanitation District
Sacramento Area Flood Control Agency
Los Rios Community College District

Sacramento City Unified School District

Neighborhood Associations, Organizations, Other

Southside Park Neighborhood Association
East Sacramento Improvement Association
East Sacramento Chamber of Commerce
Sierra Curtis Neighborhood Association
Land Park Community Association
Sacramento Old City Association
Boulevard Park Neighborhood Association
Capitol Area Development Association
Capitol Area R Street Association
Greater Broadway Partnership Business Improvement District
Sierra Oaks Neighborhood Association
Newton Booth Neighborhood Association
Beverly Way Neighborhood Association
R Street Sacramento Partnership
Richmond Grove Neighborhood Association
River Park Neighborhood Association
River City Commons
Upper Land Park Neighbors
Oak Park Neighborhood Association
Oak Park Business Association
Elmhurst Neighborhood Association
Midtown Neighborhood Association
Midtown Business Association
Folsom Blvd. Alliance
Medical Center Neighborhood Association
Campus Commons Homeowners Association
Downtown Sacramento Partnership
Old Sacramento Business Association
Environmental Council of Sacramento
Downtown Min-Storage

Federal Government

Senator Barbara Boxer
501 I Street, Suite 7-600
Sacramento, CA 95814

Senator Diane Feinstein
331 Hart Senate Office Building
Washington DC 20510

Rep. Doris Matsui
501 I Street, Suite 12-600
Sacramento, CA 95814-7305

State Government

State Senator Richard Pan
State Capitol, Room 4070
Sacramento, CA 95814

Assembly Member Kevin McCarty
State Capitol
P.O. Box 942849
Sacramento, CA 94249-0007

Assembly Member Ken Cooley
State Capitol
P.O. Box 942849
Sacramento, CA 94249-0008

Government Representatives

Sacramento Council Member Jay Schenirer
Sacramento Council Member Jeff Harris
Sacramento Councilmember Steve Hansen
Sacramento Councilmember Eric Guerra

Sacramento County Supervisor Phil Serna
Sacramento County Supervisor Susan Peters
Sacramento County Supervisor Don Nottoli

Native American Tribes

Ione Band of Miwok Indians
Shingle Springs Band of Miwok Indians
Nashville-El Dorado Miwok
Sierra Native American Council
Wilton Rancheria
United Auburn Indian Community of the Auburn Rancheria

Libraries

Central
E.K. McClatchy
McKinley
Rancho Cordova
Colonial Heights

APPENDICES

Appendix A. CEQA Checklist

Supporting documentation of all CEQA checklist determinations is provided in Chapter 2 of this Initial Study/Environmental Assessment (IS/EA). Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
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:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

VI. GEOLOGY AND SOILS: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
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:

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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
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?				X
) 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?				X

XIII. POPULATION AND HOUSING: Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

XIV. PUBLIC SERVICES:

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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:			X	
Fire protection?			X	
Police protection?			X	
Schools?				X
Parks?				X
Other public facilities?				X

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XV. RECREATION:				
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
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

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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 B. Resources evaluated relative to the requirements of Section 4(f)

Section 4(f) of Department of Transportation Act of 1966, codified in federal law at 49 USC 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) specifies that the Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- there is no prudent and feasible alternative to using that land; and
- the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f). If historic sites are involved, then coordination with the State Historic Preservation Officer (SHPO) is also needed.

This section of the document discusses parks, recreational facilities, wildlife refuges and historic properties found within or next to the project area that do not trigger Section 4(f) protection because either: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, 4) the project does not permanently use the property and does not hinder the preservation of the property, or 5) the proximity impacts do not result in constructive use.

Parks
The following five parks are publically-owned and adjacent to the proposed project:

- ***O'Neil Field***: O'Neil Park is at 715 Broadway and includes a full-sized soccer field and two softball fields.
- ***Southside Park***: Southside Park is a 19 acre parl at 6th and W street and includes a swimming pool, wading pool, three-quarter mile jogging trail, Southside Clubhouse, lake with fishing piers, accessible playground, par course with four fitness stations, amphitheater, and picnic areas.
- ***Coloma Park:*** Coloma Park, located on T Street south of US 50, is a three acre park that includes basketball courts and a play area. It's part of the Coloma Community Center.
- ***Oki Park:*** Oki Park is located south of US 50 on Wissemann Drive, is 14 acres, and includes a swimming pool, picnic areas, basketball courts, and soccer fields.
- ***Glenbrook Park:*** Glenbrook Park is located on La Rivera Drive north of US 50, is approximately 19 acres, and includes picnic areas, a ball field, soccer fields, tennis courts, and play areas.

Coloma Park
Coloma Park is part of the Coloma Community Center located at 4623 T Street in Sacramento. A sound wall may be constructed along the northern boundary of the Coloma Community Center in the existing US 50 right-of-way. Temporary construction easements in

the parking lot may be required for the construction of a sound wall. The TCE will involve using several parking spaces during sound wall construction. According to 23 CFR 774, a Section 4(f) evaluation must be prepared when a project will require the use of land from a publicly owned recreational facility (among other categories of land). This use may include temporary occupancy. However, Section 4(f) does not apply to temporary occupancy when the following five conditions are met:

1. Duration (of the occupancy) must be temporary, i.e., less than the time needed for construction of the project, and there should be no change in ownership of the land;
2. Scope of the work must be minor, i.e., both the nature and the magnitude of the changes to the 4(f) resource are minimal;
3. There are no anticipated permanent adverse physical impacts, nor will there be interference with the activities or purpose of the resource, on either a temporary or permanent basis;
4. The land being used must be fully restored, i.e., the resource must be returned to a condition which is at least as good as that which existed prior to the project; and
5. There must be documented agreement of the appropriate Federal, State, or local officials having jurisdiction over the resource regarding the above conditions.

No park facilities will be affected. No other parks or recreational facilities will be affected by any project alternatives. Temporary occupancy has been meet. The construction of the sound wall will take less time than the project as a whole and there will be no change in ownership; the scope of the work will be minor; there are no permanent adverse impacts or interference with Coloma Park; any damage to the parking lot will be repaired to a condition as good or better than before the project; and the City of Sacramento has concurred that the project would not have an adverse effect on this property (Caltrans received this concurrence on June 28, 2016; see Appendix C). As a result, 4(f) does not apply to Coloma Park.

Historic Properties

Two historic properties are either within or adjacent to the project: (1) the Sacramento Valley Railroad, which crosses under the project east of 65th Street, and (2) the Coloma Community Center, a former school building located at 4623 T Street in Sacramento. Both of these resources are protected under Section 4(f).

Sacramento Valley Railroad (SVRR)

The SVRR (Primary No. 34-455, trinomial CA-SAC-428H) was previously determined eligible for National Register listing in 1993. The railroad meets National Register criteria A and B, as the state's first passenger railroad and for its association with Theodore Judah. It is also California Historical Landmark number 526.

The SVRR segment within the project area, now part of Union Pacific Railroad, was also determined to be a contributor to the First Transcontinental Railroad, a resource eligible for National Register listing under criterion A for its importance in American history. A longer portion of the transcontinental railroad, which includes the segment in the project area, was previously recorded as CA-SAC-478H (P-34-505). It is also California Historical Landmark 780-8. The railroad segment passes under Interstate 80 at the eastern end of the project area, with bridges 24-0193L and 24-0193R carrying the freeway over the railroad. The two bridges were both constructed in 1970 and are not contributors to the historic railroad.

US 50 crosses over the historic alignment of the SVRR at three locations, one being the Brighton OH structure located east of 65th Street, which is in the proposed project limits. At the Brighton OH structure, under Alternatives 1 and 2, the highway will be widened in the median and where it crosses over the SVRR will be widened on the inside, in the gap between two structures. New columns for the widened structure will be added in the same alignment as the existing columns, and the SVRR will not be altered or affected in any way. This project will not alter the historic railroad or diminish the qualities that make it eligible for listing in the NRHP. Section 4(f) does not apply.

<u>Coloma Community Center</u>
The Coloma Community Center (formerly Elmhurst School), located within the boundary of Coloma Park at 4623 T Street in Sacramento, meets NRHP criterion C, at the local level of significance, for its architectural distinction and as a significant example of the work of prominent Sacramento architectural firm of Dean and Dean.

A proposed sound wall along eastbound US 50 in the Elmhurst Neighborhood will extend along the northern property boundary of the Coloma Community Center. The proposed sound wall will require a temporary construction easement (TCE) extending approximately ten feet onto a parking lot on the northern end of the Coloma Community Center property. The sound wall at this location would block the view north from the first floor windows at the rear end of the CCC and from the rear grounds of the property. However, this view was altered substantially in the 1970s by highway construction and has been determined to not be an important characteristic of the property's setting (Hope 2006). The TCE would extend only onto the northernmost row of parking spaces in the paved parking lot, which is considered a modern, non-contributing feature of the property. The TCE will have no effect on the characteristics that qualify the CCC for the NRHP. Construction of a sound wall along the northern property boundary will not have an effect on this historic property, as it will not diminish any of the qualities that qualify the property for the NRHP. Section 4(f) does not apply to the Coloma Center.

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

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June 16, 2016

Mr. Chris Conlin
Director
City of Sacramento, Parks and Recreation Department
915 I Street, 3rd Floor
Sacramento, CA 95814

Dear Mr. Conlin:

Caltrans is proposing eastbound and westbound High Occupancy Vehicle (HOV) lanes in the median of US Highway 50 (US 50) between the Sacramento River and Watt Avenue. As a result of this project, a sound wall may be built along eastbound US 50 adjacent to Coloma Park. The proposed sound wall may require a temporary construction easement (TCE) extending approximately ten feet onto a parking lot on the northern end of the Coloma Community Center property. The area would be used for construction equipment and materials related to the sound wall. It's anticipated that the TCE would be necessary for one (1) construction season. The TCE would extend only onto the northernmost row of parking spaces in the paved parking lot; up to 15 spaces may be affected. The small locked fenced area in the northeast corner used for storage may also need to be temporarily relocated. The parking lot would be restored to its pre-existing condition following construction of the sound wall, if constructed. The TCE would not affect any park or recreational facilities.

The proposed project is an action that is subject to the U.S. Department of Transportation Act of 1966 (49 USC 303 and 23 USC 138). Section 4(f) of this legislation seeks to protect publicly owned public parklands, recreation areas, waterfowl and wildlife refuges, and historic sites from impacts—the "use" of these resources—by the US Department of Transportation actions. After the evaluation of the impacts of an action upon Section 4(f) resources, a finding must be made.

According to 23 CFR 771, a Section 4(f) evaluation must be prepared when a project will require the use of land from one of the aforementioned categories. This use may include temporary occupancy.

However, Section 4(f) does not apply to temporary occupancy when the following conditions are met:

a) duration (of the occupancy) must be temporary, i.e., less than the time needed for construction of the project, and there should be no change in ownership of the land;
b) scope of the work must be minor, i.e., both the nature and the magnitude of the changes

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to the 4(f) resource are minimal;

c) there are no anticipated permanent adverse physical impacts, nor will there be interference with the activities or purpose of the resource, on either a temporary or permanent basis;
d) the land being used must be fully restored, i.e., the resource must be returned to a condition which is at least as good as that which existed prior to the project; and
e) there must be documented agreement of the appropriate Federal, State, or local officials having jurisdiction over the resource regarding the above conditions.

The proposed project complies with each of these criteria. As such, Caltrans requests that City of Sacramento Park and Recreation Department provide its concurrence that the proposed HOV lane project constitutes a temporary occupancy and does not require a Section 4(f) evaluation. Please sign below and send the original to the following address:

DEPARTMENT OF TRANSPORTATION
ATTN: Ken Lastufka
District 3, Sacramento Area Office
2379 Gateway Oaks Drive, Suite 150
Sacramento, CA 95833

If you would like to discuss this issue further, please feel free to call Ken Lastufka at (916) 274-0586 or myself at (916) 274-0621.

Sincerely,

Kendall Schinke

KENDALL SCHINKE, Environmental Branch Chief

By signature below, the City of Sacramento Parks and Recreation Department concurs that the proposed project complies with CFR 771.135 regarding temporary construction use and does not require a Section 4(f) evaluation.

Print Name: U.S. Bureau of Reclamation Staff, Title

Director, Parks & Recreation 6/28/16

Signature Date

STATE OF CALIFORNIA – THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
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calshpo@ohp.parks.ca.gov
www.ohp.parks.ca.gov

June 15, 2006

Reply To: FHWA060426A

Jeremy Ketchum, Chief
North Region Environmental Management, Branch S1
Department of Transportation, District 3
PO Box 911
Marysville, CA 95901

Re: Determinations of Eligibility for the U.S. Highway 50 HOV Lane Project, Sacramento County, CA

Dear Mr. Ketchum:

Thank you for consulting with me about the subject undertaking in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (PA).

The California Department of Transportation (Department) is requesting my concurrence, pursuant to Stipulation VIII.C.5 of the PA, in its determination that the Coloma Community Center located at 4623 T Street in Sacramento is eligible for the National Register of Historic Places (NRHP) at the local level of significance under criterion C as an example of a Spanish Eclectic school building in Sacramento county. The building is also eligible under criterion C as an important example of the work of prominent Sacramento architects Charles and James Dean. Throughout the 1920s, Dean and Dean designed numerous important buildings in Sacramento, favoring an eclectic use of the Spanish and Mediterranean styles.

Pursuant to Stipulation VIII.C.5 of the PA, the Department has also determined that the following properties are not eligible for the NRHP:

- 3320 T Street
- 3330 T Street
- 1935 Stockton Boulevard
- 1840 40th Street
- 1840 43rd Street
- 1841 44th Street
- 1844 45th Street
- 1841 47th Street
- 1841 48th Street

- 1841 51st Street
- 1840 52nd Street
- 1817 53rd Street
- 5325 S Street
- 5333 S Street
- 5341 S Street
- 5349 S Street
- 5401 S Street
- 5409 S Street
- 1909 55th Street

Based on review of the submitted documentation, I concur with the foregoing determinations.

Thank you for taking historic properties into account as part of your project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 654-0631 or e-mail at nlind@ohp.parks.ca.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

Appendix D. Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY — EDMUND G. BROWN Jr., Governor

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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

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Appendix E. Avoidance, Mitigation, and/or Minimization Summary

Resources Requiring Mitigation Measures

Paleontology

- The presence or absence of paleontological resources usually cannot be known until construction excavation for the project is underway. Due to the presence of sensitive rock formations within the project limits, a Preliminary Paleontological Mitigation Plan was prepared to address potential discoveries during construction of the proposed project (Appendix F).   A final Paleontological Mitigation Plan will be prepared by a qualified paleontologist near completion of the final design. The plan will be implemented during project construction. Please refer to Appendix F for specific measures.

Resources Requiring Avoidance/Minimization Measures

Land Use

- Phased construction in the W-X freeway section will be examined as a possible strategy to reduce impacts to the airspace lease tenants beneath US 50. This would involve constructing one viaduct segment at a time, so that not all the uses would be affected concurrently.

Utilities/Emergency Service

- Coordinate with utility companies regarding relocating utilities affected by the project prior to construction
- Coordinate with RT to relocate the light rail line wire east of 65th Street prior to construction.
- Coordinate with all emergency public services, such as medical services, law enforcement agencies, fire departments, and local ambulance services prior to construction.
- Caltrans will prepare Transportation Management Plan (TMP) in order to minimize disruptions to traffic and to emergency services during construction. A TMP is a program of activities for alleviating or minimizing work-related traffic delays by applying traditional traffic handling practices and innovative strategies including public awareness campaigns, motorist information, demand management, incident management, system management, construction methods and staging, and alternate route planning. TMP strategies also strive to reduce overall duration of work activities where appropriate. Typical components of a TMP can include measures such as the implementation of staging, traffic handling, and detour plans; restricting construction work to certain days and/or hours to minimize impacts to traffic and pedestrians; coordination with other construction projects to avoid conflicts; and the use of portable changeable message signs to inform the public of construction activities.
- A public participation plan will be formulated, involving public workshops, press releases, project website, construction updates, etc.

Traffic and Transportation/Pedestrian and Bicycle Facilities

- Caltrans will prepare a Transportation Management Plan (TMP) in order to minimize disruptions to traffic and to emergency services during construction. A TMP is a program of activities for alleviating or minimizing work-related traffic delays by applying traditional traffic handling practices and innovative strategies including public awareness campaigns, motorist information, demand management, incident management, system management, construction methods and staging, and alternate route planning. TMP strategies also strive to reduce overall duration of work activities where appropriate. Typical components of a TMP can include measures such as the implementation of staging, traffic handling, and detour plans; restricting construction work to certain days and/or hours to minimize impacts to traffic and pedestrians; coordination with other construction projects to avoid conflicts; and the use of portable changeable message signs to inform the public and emergency vehicles of construction activities.

- Caltrans will continue coordination with Regional Transit regarding the temporary relocation of bus stops within the project area. Bus stop relocation would be temporary; in most cases, relocation would last six months or less.
- Caltrans will also continue coordinating with Regional Transit regarding the temporary suspension of light rail service during construction at US 50 at 19th Street and the Brighton Overhead. The suspended service would be temporary and would occur at night to minimize disruption of light rail operations.

Visual/Aesthetics

- Use materials, treatments, and/or color similar to those incorporated into other sound walls along the project corridor in order to provide visual continuity with the existing sound walls along the corridor.
- Transparent sound barriers may be considered for the viaduct section of US 50. If the transparent sound barriers are used in these areas, motorists would continue to have elevated views of the city and surrounding residential and commercial areas. Consideration of this concept is predicated by cost and acceptance by the City of Sacramento and the general public.
- All areas of ground disturbance used for staging, access or other construction related activities will be restored to its original condition. This can best be accomplished by contour grading the area and applying a hydro-seed consisting of an indigenous, native seed mix. This will help to blend these areas to the surrounding typography.
- Limit vegetation removal for sound wall construction.
- Develop highway planting and irrigation plans to replace highway planting and irrigation removed during construction activities in order to better bland the roadside into the surrounding community, hide visually unappealing roadside elements and beautify the corridor.

Cultural Resources

- If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.
- If buried archaeological deposits are revealed at the column installation locations, further review by a Caltrans PQS Archaeologist is required to assess and evaluate the nature of the find.
- If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendent. At this time, the person who discovers the remains will contact the project's District environmental construction liaison and cultural resources specialist so that they may work with the Most Likely Descendent, when designated, on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Water Quality and Storm Water Runoff

Adherence to the following (in addition to other items not listed) is recommended to prevent receiving water pollution as a result of construction activities and/or operations related to this project:

- All temporary equipment and material storage areas on State property must be accounted for and included in the total disturbed soil area (DSA) estimate, unless a stabilization method has been implemented, reviewed, and approved by NPDES or Storm Water staff.
- Caltrans' SWMP, Project Planning and Design Guide Section 4, and Evaluation Documentation Form provide detailed guidance in determining if a specific project requires the consideration of permanent Treatment BMPs. Line Item BMPs may be required during the PS&E phase of the project.
- The project shall adhere to the conditions of the Caltrans Statewide NPDES MS4 Permit CAS No. 000003 (Order No. 2012- 0011-DWQ).
- Projects with DSA equal to or exceeding 1 acre must adhere to the compliance requirements of the NPDES Construction General Permit CAS No. 000002 (Order No. 2009-0009-DWQ) for General Construction Activities (see special considerations within the SWDR). Under certain conditions, a rainfall erosivity value can be calculated to determine if a project qualifies for a waiver and exemption from CGP requirements. In which case, a SWPPP would not be necessary and the project could be covered under a WPCP. Both of these (SWPPP and WPCP) specify the level of temporary pollution control measures required for a project.
- Follow all applicable guidelines and requirements in the 2015 Caltrans Standard Specifications (2015 CSS), Section 13, regarding water pollution control and general specifications for preventing, controlling, and abating water pollution in streams, waterways, and other bodies of water.
- Attention and focus (by the Contractor and field staff) should be given to 2015 CSS, Section 13-4 (Job Site Management), to control and manage potential sources of water pollution, such as material pollution, waste products and non-storm water related pollutants before they encounter storm water conveyance systems or receiving waters within the project limits.
- Additional scrutiny should also include 2015 CSS, sections 13-9.02C and 13-9.02D (when and where applicable) for requirements related to the handling and disposal of concrete waste during construction operations.
- The Contractor prepared and Department approved SWPPP (or WPCP, if a CGP exemption is pursued) shall incorporate and describe appropriate strategies to address the effective implementation, handling, storage, use and disposal practices of temporary construction site BMPs during the course of construction operations and project activities.
- Shoulder backing areas should be stabilized by temporary construction site BMPs, or rolled and compacted in place, by the end of each day and prior to the onset of any precipitation.
- Existing drainage facilities should be identified and protected by the application of appropriate construction site BMPs.

Hazardous Waste/Materials

- Groundwater and soil contamination:
  Potential hazardous materials in soil and groundwater will be avoided to the extent feasible by design provisions. If infeasible soil and groundwater will be controlled and discharged pursuant to regulatory and permit requirements during construction.
- Treated wood waste:
  The project will be designed to avoid removal of metal beam guard rail posts and other treated wood and otherwise minimize the quantity requiring removal. Any metal beam

guardrail posts and other treated wood removed will be disposed consistent with Caltrans Standard Special Provision 14-11.09 (Treated Wood Waste). The quantity will be determined during design.

- Asbestos Containing Material (ACM):
  ACM will be avoided to the extent practicable. Any ACM on bridges requiring removal will be removed and disposed by a licensed and certified asbestos abatement contractor implementing an Asbestos Compliance Plan to prevent or minimize exposure to asbestos. Non-Standard Special Provisions addressing ACM will be included in the project specifications.
- Aerial Deposited Lead (ADL):
  The quantity of ADL soil requiring special handling will be minimized during design by identifying and restricting special handling areas to those above regulatory limits. Any ADL soil requiring removal will be managed pursuant to Standard Special Provision 7-1.02K(6)(j)(iii) when non-hazardous or SSP 14-11.03 when hazardous.
- Yellow Traffic Stripes
  Grindings (which consist of the roadway material and the yellow color traffic stripes) will be removed and disposed of in accordance with Caltrans Standard Special Provision 15-1.03B (Residue Containing High Lead Concentration Paints). Non-hazardous levels of lead are known to exist in the white traffic striping. As such, these grindings shall be removed and disposed of in accordance with the same specification.

Air Quality

Project alternatives would comply with the requirements of Caltrans requirements and SMAQMD rules and Best Management Practices (BMPs), which would further reduce emissions during construction activities. The project would implement the following practices during construction:

- Construction contractors would comply with Caltrans Standard Specification Provisions which uses newer/retrofit engines for construction equipment;
- Comply with District's Rule 403 for fugitive dust emissions;
- Prohibit truck idling in excess of 5 minutes, whenever practical;
- Use only well-maintained equipment;
- Utilize proper planning to reduce rework and multiple handling of earth materials.

Noise

- Noise abatement, in the form of sound walls, may be constructed at the following locations:

  Westernmost Project Limit (I-5 I/C) to Alhambra Boulevard
  SWWB1 and SWEB1 would reduce noise levels by 2 to 11 decibels at 150 affected receivers.

  Alhambra Boulevard to 65th Street:

  SWWB2 would reduce noise levels by 5 to 9 decibels for up to 25 sensitive receptors.
  SWEB2-2A would reduce noise levels by 5 to 10 decibels for 58 sensitive receptors.
  SWEB3: Raising the existing sound wall height to 16 ft would not provide the required 5-dBA reduction; therefore, this barrier is not considered. However, replacing this barrier with a taller barrier is being considered depending on funding and final project design.
  SWEB4 would reduce noise levels by 5 to 7 decibels for 2 sensitive receptors.
  SWEB5 will reduce noise levels by 6 to 12 decibels for 7 sensitive receptors.
  SWEB6 would reduce noise levels by 5 to 9 decibels for 26 sensitive receptors.
  SWEB7A-7B would reduce noise levels by 5 to 7 decibels for 4 sensitive receptors.

The reasonable allowance for all of these sound walls was less than the construction costs; these sound walls are not eligible for federal re-imbursement. However, these sound walls have support from the adjacent community. If local funding is identified, some or all of these sound walls can be constructed.

- No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans Standard Specifications Section 14.8-02. Construction noise would be short-term, intermittent, and overshadowed by local traffic noise.

Biological Resources

- The contractor will install and maintain exclusionary devices for birds and bats in the joints and weep holes of all 11 structures [Elmhurst Viaduct, Brighton Overhead, Folsom Blvd. Undercrossing, and State College Undercrossing, Southside Park, 9th Street, 10th Street, Riverside Blvd., 15th-16th Streets, 18th Street- 24th Streets (Camellia City Viaduct) and 26th Street].
- If any work is anticipated on structures suitable for bird nesting or bat roosting that occurs between February 1st and August 31st, the construction crews shall take such measures as necessary to prevent bird nesting or bat roosting on portions of the structures that will cause a conflict between performing necessary work and nesting birds or roosting bats. Prior to February 1st, existing nests shall be removed and exclusionary devices such as netting or one-way doors shall be used to prevent migratory species from occupying said structures.
- Daily scraping, between February 1st and September 1st, of partially completed bird nests on structures is permitted to discourage nesting. If new nests are built or existing nests become occupied, then any work that would interfere with or discourage birds from returning to their nests will not be permitted. If day roosting bats are found during biological surveys, Caltrans shall consult with CDFW to and implement CDFW recommended measures to comply with provisions of the Fish and Game Code of California.

Appendix F. Preliminary Paleontological Mitigation Plan

Evaluation of Site-Specific Impact Potential
Caltrans will retain a qualified paleontologist to prepare the final Paleontological Mitigation Plan. They will evaluate the potential for impacts on paleontologically sensitive strata including strata that may be present in the subsurface in areas with strata of Holocene age exposed at the surface. The evaluation will be based on available geologic and geotechnical information; project design; proposed construction and/or maintenance methods, including anticipated depth of disturbance; and existing site conditions, including pre-existing disturbance, if any.

Preconstruction Meeting and Worker Awareness Training
Caltrans will provide a time for paleontological resources awareness training for all construction personnel prior to the start of site preparation and construction activities. Construction personnel involved with earthmoving activities will be informed of the possibility of encountering fossils; the types of fossils likely to be seen during construction activities (based on finds in the Riverbank and Modesto Formations in Sacramento County) and their appearance; and proper procedures in the event fossils are encountered.

Worker training will be prepared and presented by a qualified paleontologist or other appropriate personnel (e.g., California licensed professional geologist with appropriate experience) experienced in teaching non-specialists. It may be delivered at the same time as other planned construction worker education, or it may be presented separately.

Paleontological Monitoring
Full-time paleontological monitoring will be conducted for portions of the proposed project that have the potential to affect significant paleontological resources (i.e., all activities involving excavation or other ground disturbance in native substrate materials of Pleistocene age).
A trained paleontological monitor will oversee all ground-disturbing activities that affect native or potentially native substrate materials of Pleistocene age or older, including vegetation removal, site preparation, and construction grading and excavation. Paleontological monitoring will consist of observing operations and periodically inspecting disturbed, graded, and excavated surfaces. Under the direction of the Resident Engineer, the monitor will have authority to divert grading or excavation away from exposed surfaces temporarily in order to examine disturbed areas more closely, and/or recover fossils. The paleontologist will be responsible for coordinating with the Caltrans Resources Specialist and Construction Resident Engineer to ensure that monitoring is thorough but does not result in unnecessary delays.

Construction Contract Specifications
Caltrans Standard Specifications Section 14-7.04 Paleontological Resources Mitigation will be included in the construction contract to alert the construction contractor that mitigation activities will occur and coordination will be necessary.

Fossil Recovery
If fossil materials are discovered during project-related activities, the paleontologist will be responsible for determining whether recovery and curation are warranted. All materials warranting recovery will be stabilized on the site and then salvaged consistent with currently accepted procedures and the prevailing standard of care for paleontological materials collection. The paleontologist will be responsible for coordinating with the Caltrans Resources Specialist and Construction Resident Engineer to ensure that specimen recovery proceeds in a timely manner.

Fossil Preparation and Analysis
Recovered fossils will be prepared for identification consistent with currently accepted procedures and the prevailing standard of care. They will be identified by the paleontologist and additional

competent specialists if necessary. If possible, identification will include genus, species, and, if applicable, subspecies. If species-level identification is not feasible, the maximum feasible level of specificity will be provided. A faunal list will be developed.

Curation of Specimens
The Paleontological Mitigation Plan will include a curation agreement with an appropriate facility, approved by Caltrans, which will make specimens found available for later study by qualified individuals.

Preparation of Final Report
The paleontologist will prepare a final report that includes at least the following components:

- Information on site geology and stratigraphy, including a stratigraphic column;
- A description of field and laboratory methods;
- A faunal list, with stratigraphy ranges/occurrences for each taxon;
- A concise discussion of the significance of the site and its relationship to other nearby and/or similar fossil localities;
- A list of references consulted during the project, including published geologic maps for the site and vicinity; and
- A complete set of field notes, field photographs, and any new geologic maps developed for or during the project.

Appendix G: List of Acronyms and Abbreviations

AADT: average annual daily traffic
AASHTO: American Association of State Highway and Transportation Officials
ACM: Asbestos containing materials
ACP: Asbestos Compliance Plan
ADA: Americans with Disabilities Act
ADL: aerially deposited lead
ADT: average daily traffic
APCD: Air Pollution Control District
APE: Area of Potential Effects
AQMD: Air Quality Management District
AQMP: Air Quality Management Plan
BMP: Best Management Practice
BP: Before past
CalEPA: California Environmental Protection Agency
CAA: Clean Air Act
CAAQS: California Ambient Air Quality Standard
CARBH: California Air Resources Board
CCAA: California Clean Air Act
CCR: California Code of Regulations
CCRD: California Historical Landmark
CCTV: Closed circuit television
CDFW: California Department of Fish and Wildlife
CEQ: Council on Environmental Quality
CEQA: California Environmental Quality Act
CERLA: Comprehensive Environmental Response, Compensation, and Liability Act
CESA: California Endangered Species Act
CFR: Code of Federal Regulations
CGP: Construction general permit
CGS: California Geological Survey
CH_4: methane
CHRIS: California Historical Resources Information System
CIDH: cast-in-drilled-hole
CO: carbon monoxide
CO_2: carbon dioxide
CSS: Caltrans standard specifications
CTP: California Transportation Plan
CWA: Clean Water Act
dBA: A-weighted decibel
dBA Leq: A-weighted noise level
DOT: Department of Transportation
DPM: Diesel particulate matter
DSA: Disturbed Soil Area
EA: Environmental Assessment [NEPA}
EB: East bound
EDF: Evaluation documentation form
EJ: Environmental Justice
EMS: Extinguishable message sign
EO: Executive Order
ESA: Environmentally Sensitive Area
ESA: Endangered Species Act
FESA: Federal Endangered Species Act
FHWA: Federal Highway Administration
FOE: Finding of Effect
FONSI: Finding of No Significant Impact
GHG: greenhouse gas

HAP: Hazardous air pollutant
HCP: Hydrofluorocarbon
HEI: Health Effects Institute
HOV: High-Occupancy Vehicle
HPSR: Historic Property Survey Report
HOV: Hydrologic sub-area
IC: Interchange
IPCC: Intergovernmental Panel on Climate Change
IRRS: Interregional Road System
IS: Initial Study [CEQA]
ISA: Initial Site Assessment
ITS: Intelligent Transportation System
LOS: Level of Service
LCP: Lead Compliance Plan
mph: miles per hour
MPO: Metropolitan Planning Organization
MSA: Metropolitan Statistical Area
MSAT: Mobile Source Air Toxics
MTP: Metropolitan Transportation Plan
MTIP: Metropolitan Transportation Improvement Program
NAAQS: National Ambient Air Quality Standards
NAC: Noise Abatement Criteria
NCIC: North Central Information Center
NHS: National Highway System
ND: Negative Declaration [CEQA]
NEPA: National Environmental Policy Act
NESHAP: National Emissions Standards for Hazardous Air Pollutants
NHPA: National Historic Preservation Act
NHTSA: National Highway Traffic Safety Administration
NOA: naturally occurring asbestos
NO_2: nitrogen dioxide
N_2O: nitrus oxide
NOx: nitrogen oxide
NPDES: National Pollutant Discharge Elimination System
NRHP: National Register Historic Places
NSSP: Nonstandard Special Provision
O_3: ozone
OC: Overcrossing
OGAC: Open grade asphalt-cement
OH: Overhead
OSHA: Occupational Safety Hazard Administration
Pb: lead
PCC: Portland Cement Concrete
pcplpm: Passenger cars per lane mile of roadway
PGandE: Pacific Gas and Electric
PM: particulate matter
PM: post mile
PM_{10}: particulate matter less than 10 microns in diameter
$PM_{2.5}$: particulate matter less than 2.5 microns in diameter
POAQC: Project of Air Quality Concern
PPDG: Project Planning and Design Guide
ppm: parts per million
PRC: [California] Public Resources Code
PS&E: Plans, Specifications, and Estimates
RCRA: Resource Conservation and Recovery Act of 1976
RM: Ramp meter
ROG: Reactive organic gas
ROW: right-of-way

RT: Regional Transit
RWQCB: Regional Water Quality Control Board
SACOG: Sacramento Area of Council of Governments
SACSIM: Sacramento Activity-Based Travel Simulation Model
SAFCA: Sacramento Area Flood Control Agency
SCS: Sustainable Communities Strategy
SER: Standard Environmental Reference
SHPO: State Historic Preservation Officer
SIP: State Implementation Plan
SMAQMD: Sacramento Metropolitan Air Quality Management District
SMFO: Single mode fiber optic
SMUD: Sacramento Municipal Utility District
SO_2: sulfur dioxide
SOV: Single occupant vehicle
SR: State Route
SSP: Standard Special Provision
STIP: Statewide Transportation Improvement Program
SVAB: Sacramento Valley Air Basin
SVP: Society of Vertebrate Paleontology
SVRR: Sacramento Valley Railroad
SWMP: Storm Water Management Plan
SWPPP: Storm Water Pollution Prevention Plan
SWRCB: State Water Resources Control Board
TAC: Toxic air contaminant
TASAS: Traffic Accident Surveillance and Analysis System
TCE: Temporary construction easement
TCM: Transportation control measures
TDM: Transportation Demand Management
TMDL: Total Maximum Daily Load
TMP: Traffic Management Plan
TMS: Traffic monitoring stations
TOS: Traffic Operations System
UC: Undercrossing
UPRR: Union Pacific Railroad
US: United States
USDOT: United States Department of Transportation
USEPA: United States Environmental Protection Agency
USACE: United States Army Corps of Engineers
USC: United States Code
USFWS: United States Fish and Wildlife Service
VMT: Vehicle Miles of Travel
WB: West bound
WDR: Waste Discharge Requirement
WPCP: Water Pollution Control Program
WQP: Water Quality Planning

Appendix H: List of Technical Studies

Below is a list of the technical studies used to prepare this document. A copy of these reports are available by contacting Ken Lastufka at ken_lastufka@dot.ca.gov or (916) 274-0586.

- Air Quality Technical Report, Revised September 2016
- Community Impact Assessment, March 2015
- Floodplain Hydraulics Study, September 2014
- Historic Property Survey Report, Revised August 2016
- Initial Site Assessment, June 2015
- Natural Environment Study No Effects Memorandum, August 2015
- Noise Study Report, Revised August 2016
- Paleontological Evaluation Report for the US Highway 50 High Occupancy Lane and Community Enhancements Project, March 2006
- Traffic Report, Revised August
- Visual Impact Assessment, Revised August 2016
- Water Quality Assessment, Revised August 2016

Appendix I: Threatened and Endangered Species Lists (Created in January 2017)

IPaC Information for Planning and Conservation **U.S. Fish & Wildlife**

IPaC resource list

Location

Sacramento County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and should not be used for planning or analyzing project level impacts.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Review section in IPaC or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by creating a project and making a request from the Regulatory Review section.

Listed species[1] are managed by the Endangered Species Program of the U.S. Fish and Wildlife Service.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

The following species are potentially affected by activities in this location:

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/2076	Threatened

Birds

NAME	STATUS

Least Bell's Vireo Vireo bellii pusillus There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/5945	Endangered

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp Branchinecta conservatio There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp Branchinecta lynchi There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp Lepidurus packardi There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/2246	Endangered

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/321	Threatened

NAME	STATUS
Steelhead Oncorhynchus (=Salmo) mykiss There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/1007	Threatened

Flowering Plants

NAME	STATUS
Sacramento Orcutt Grass Orcuttia viscida There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/5507	Endangered
Slender Orcutt Grass Orcuttia tenuis There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/1063	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. http://ecos.fws.gov/ecp/species/7850	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake Thamnophis gigas **No critical habitat** has been designated for this species. http://ecos.fws.gov/ecp/species/4482	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location, not a list of every bird species you may find in this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram Tools and Other Bird Data Resources.

NAME	SEASON(S)
Bald Eagle Haliaeetus leucocephalus http://ecos.fws.gov/ecp/species/1626	Year-round
Burrowing Owl Athene cunicularia http://ecos.fws.gov/ecp/species/9737	Year-round
Fox Sparrow Passerella iliaca	Wintering
Least Bittern Ixobrychus exilis http://ecos.fws.gov/ecp/species/6175	Breeding
Lesser Yellowlegs Tringa flavipes http://ecos.fws.gov/ecp/species/9679	Wintering
Lewis's Woodpecker Melanerpes lewis http://ecos.fws.gov/ecp/species/9408	Wintering
Loggerhead Shrike Lanius ludovicianus http://ecos.fws.gov/ecp/species/8833	Year-round
Long-billed Curlew Numenius americanus http://ecos.fws.gov/ecp/species/5511	Wintering
Marbled Godwit Limosa fedoa http://ecos.fws.gov/ecp/species/9481	Wintering
Mountain Plover Charadrius montanus http://ecos.fws.gov/ecp/species/3638	Wintering
Nuttall's Woodpecker Picoides nuttallii http://ecos.fws.gov/ecp/species/9410	Year-round
Oak Titmouse Baeolophus inornatus http://ecos.fws.gov/ecp/species/9656	Year-round

Peregrine Falcon Falco peregrinus http://ecos.fws.gov/ecp/species/8831	Wintering
Short-eared Owl Asio flammeus http://ecos.fws.gov/ecp/species/9295	Wintering
Swainson's Hawk Buteo swainsoni http://ecos.fws.gov/ecp/species/1098	Breeding
Tricolored Blackbird Agelaius tricolor http://ecos.fws.gov/ecp/species/3910	Year-round
Western Grebe aechmophorus occidentalis http://ecos.fws.gov/ecp/species/6743	Year-round
Williamson's Sapsucker Sphyrapicus thyroideus http://ecos.fws.gov/ecp/species/8832	Year-round
Yellow-billed Magpie Pica nuttalli http://ecos.fws.gov/ecp/species/9726	Year-round

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore

Atlantic Coastal region to date. NOAANCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the Northeast Ocean Data Portal. The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAANCCOS models: the models were developed as part of the NOAANCCOS project: Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf. The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the Northeast Ocean Data Portal, which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The Avian Knowledge Network (AKN) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest,survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the Migratory Bird Programs AKN Histogram Tools webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North, Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the

Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAANCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Query Criteria: Quad IS (Carmichael (3812153) OR Folsom (3812162) OR Folsom SE (3812151) OR Sacramento East (3812154) OR Sacramento West (3812155))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Candidate Endangered	G2G3	S1S2	SSC
Ammodramus savannarum grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Archoplites interruptus Sacramento perch	AFCQB07010	None	None	G2G3	S1	SSC
Ardea alba great egret	ABNGA04040	None	None	G5	S4	
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Astragalus tener var. ferrisiae Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Cicindela hirticollis abrupta Sacramento Valley tiger beetle	IICOL02106	None	None	G5TH	SH	
Clarkia biloba ssp. brandegeeae Brandegee's clarkia	PDONA05053	None	None	G4G5T4	S4	4.2
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Dumontia oregonensis hairy water flea	ICBRA23010	None	None	G1G3	S1	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Elderberry Savanna Elderberry Savanna	CTT63440CA	None	None	G2	S2.1	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eryngium pinnatisectum Tuolumne button-celery	PDAPI0Z0P0	None	None	G2	S2	1B.2
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Navarretia myersii ssp. myersii pincushion navarretia	PDPLM0C0X1	None	None	G2T2	S2	1B.1
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Northern Volcanic Mud Flow Vernal Pool Northern Volcanic Mud Flow Vernal Pool	CTT44132CA	None	None	G1	S1.1	
Oncorhynchus mykiss irideus steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Oncorhynchus tshawytscha chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	G5	S1	
Oncorhynchus tshawytscha chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5	S1	
Orcuttia viscida Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	G1	S1	1B.1
Phalacrocorax auritus double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	SSC
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	

Record Count: 55

NOAA Species Lists

Quad Name **Carmichael**

Quad Number **38121-E3**

ESA Anadromous Fish

SONCC Coho ESU (T) -

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) - **X**

SRWR Chinook Salmon ESU (E) - **X**

NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) - **X**

Eulachon (T) -

sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat -

CVSR Chinook Salmon Critical Habitat -

SRWR Chinook Salmon Critical Habitat -

NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat - **X**

Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Folsom**
Quad Number **38121-F2**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Folsom SE**

Quad Number **38121-E1**

ESA Anadromous Fish

SONCC Coho ESU (T) -

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) - **X**

SRWR Chinook Salmon ESU (E) -

NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) - **X**

Eulachon (T) -

sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat -

CVSR Chinook Salmon Critical Habitat -

SRWR Chinook Salmon Critical Habitat -

NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat -

Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Sacramento East**

Quad Number **38121-E4**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) - **X**

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat - **X**
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat - **X**

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH - **X**
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Sacramento West**
Quad Number **38121-E5**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) - **X**

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat - **X**
SRWR Chinook Salmon Critical Habitat - **X**
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat - **X**

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH - **X**
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Appendix J: Project in Regional Transportation Plan (MTP/SCS) and Transportation Implementation Program (MTIP) Project Listings

MTP/SCS 2016 Listing

Appendix A1: 2016 MTP/SCS Project List

Projects listed as "Project Development Only" are anticipated to begin early stages of development including project planning, design, preliminary engineering, environmental clearance, and ROW acquisition by 2036. These projects remain eligible to seek federal and state funding, but under the financial constraint requirements for projecting revenues, the construction phase is not included in the DPS. If/when additional revenues for these projects become available to cover full construction costs, these projects can be considered as part of an amendment to the MTP/SCS following a technical analysis and consistency with plan requirements. While total costs are shown for these projects, for budgeting purposes, no more than 10% of the total project costs are anticipated to be captured within the MTP/SCS planning period. Year of expenditure costs are not provided since construction of these projects is not part of the financially constrained project list.

Project ID	Included in DPS	COUNTY	LEAD AGENCY	CATEGORY	TITLE	PROJECT DESCRIPTION	Completion Timing	TOTAL COST (2015 Dollars)	YEAR OF EXPENDITURE COST
CAL20551	Yes	Sacramento	Caltrans D3	G- System Management, Operations, and ITS	US 50 Fiber Optics	In Sacramento, on SR 50, from Yolo County line to 0.2 mile west of Watt Avenue Overcrossing [PM L0.0/R5.1] - Install fiber optic cable [CTIPS ID 107-0000-1005] (Toll credits for PE, ROW, CON)	Completion by 2020	$9,500,000	$9,500,000
CAL18838	Yes	Sacramento	Caltrans D3	B- Road & Highway Capacity	US 50 HOV Lanes (I-5 to Watt Ave.)	US 50 HOV Lanes - Construct High Occupancy Vehicle (HOV) lanes on US 50 [project covers PE: from I-5 to 0.8 mile east of Watt Avenue (PM L0.2/R6.1) and CON: from 0.3 mile west of SR 99 to 0.8 mile east of Watt Avenue (PM L2.2/R6.1)]	2021-2036	$70,251,000	$70,251,000
CAL20488	Yes	Sacramento	Caltrans D3	C- Maintenance & Rehabilitation	US 50 Maintenance - Watt Ave. to Sunrise Blvd.	In Sacramento County, US 50, from Watt Ave. to Sunrise Blvd., WB Lanes - Maintenance Asphalt Overlay (Sac-50-5.3/12.8) [HM1 - Pavement Preservation (Fed-Funded)] (Toll credits for CON)	Completion by 2020	$4,556,500	$4,556,500
CAL20484	Yes	Sacramento	Caltrans D3	D- Programs & Planning	US 50 Plantings	Sacramento County, in and near Rancho Cordova, along US 50, from Bradshaw Rd. to Sunrise Blvd.: Improve, enhance and establish planting along designated HOV lane(s) as a continuation of plant establishment period for US 50 HOV Watt Ave. to Sunrise Blvd. project. [03-44161/CAL16790] (PM R07.4/R12.2)	Completion by 2020	$1,250,000	$1,250,000
CAL20549	Yes	Sacramento	Caltrans D3	G- System Management, Operations, and ITS	US 50 RTMC Video Display Upgrade	In Rancho Cordova at the Regional Transportation Management Center (RTMC) [PM 12.5] - Replace and upgrade video monitor and the supporting control system for US 50 within Sacramento County. [CTIPS ID 107-0000-1002]	Completion by 2020	$1,820,000	$1,820,000
CAL20648	Project Development Only	Sacramento	Caltrans D3	B- Road & Highway Capacity	US 50 Transition and Auxiliary Lane	In Sacramento County on US 50, construct an eastbound transition lane from the Folsom Blvd slip off ramp to the Prairie City Rd slip off ramp, and construct an auxiliary lane from the Prairie City Rd slip on ramp to the Folsom Blvd slip off ramp	Completion after 2036	$5,000,000	
CAL20641	Project Development Only	Sacramento	Caltrans D3	B- Road & Highway Capacity	US 50 Transition Lane	US 50 Westbound Transition Lane from Stockton Blvd off-ramp to Rt-51 connector on-ramp. Realign and add acceleration taper to Stockton loop off ramp	Completion after 2036	$6,000,000	
VAR56138	Yes	Sacramento	Caltrans D3, City of Rancho Cordova, Sacramento County	B- Road & Highway Capacity	Auxilary Lane	Auxiliary lane from Rancho Cordova Parkway to East of Folsom	2021-2036	$3,000,000	$4,692,000
CAL20435	Yes	Sacramento	Caltrans Division of Rail	E- Transit Capital (Major)	Sacramento Layover and Maintenance Facility	Building Construction: new layover and servicing facility in Sacramento area for San Joaquin & Capitol Corridor trainsets. Project will be coordinated with Sacramento Station Rail Realignment.	Completion by 2020	$110,000,000	$115,379,000
CAL20559	Yes	Sacramento	Caltrans HQ	E- Transit Capital (Vehicles)	FTA 5310 - Asian Community Center Expansion Minivans	Purchase four minivans to expand the ACC Rides Service that provides transportation to the ACC Rides Service client base of seniors and their caregivers to medical appointments and other activities of daily living. Transportation Development Credits/Toll Credits are being used as match, and as allowable under FTA Section 5310 federal funds will fund 100% of this project.. Toll Credits for CON	Completion by 2020	$192,000	$192,000

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MAIN MENU | LOGOUT | SACOG

SACTrak

Sacramento Area Council of Governments

AMEND THIS PROJECT

PROJECT TITLE: US 50 HOV Lanes (I-5 to Watt Ave.)

SACOG ID: CAL18838 **VERSION:** 7 **MTIP:** 17-00 - UPDATE **STAUS:** Programmed **COMP YEAR:** 2030 **TOTAL COST** $70,251,000

LAST MODIFIED BY: Jose Luis **LAST MODIFIED DATE:** 4/8/2016 LAST MODIFIED HISTORY EXPORT THIS VERSION (PDF) ALL VERSION(S)

TIP PROGRAMMING | **FED OBLIGATION** | **MAP** | **PROJECT IDS** | **PROJECT DOCUMENT** | **PREV VER**

THIS IS READ-ONLY

[CLICK HERE TO ENABLE FIELDS TO COPY TEXT]

THIS PROJECT VERSION IS PENDING APPROVAL.*
PLEASE CLICK HERE TO SEE THE LATEST FEDERALLY APPROVED VERSION .

PROJECT ALTERNATE IDS

FTA GRANT#:	EA #:	PPNO:	FEDERAL ID:	EFIS ID:	LOCAL PROJECT ID:	BRIDGE NUMBER:	CTIPS ID:
	3F360	3301		0312000216			20700001167

PROJECT INFO

PROJECT TITLE
US 50 HOV Lanes (I-5 to Watt Ave.)

MTIP
17-00

PROJECT DESCRIPTION / LIMITS - GUIDELINES
US 50 HOV Lanes - Construct High Occupancy Vehicle (HOV) lanes on US 50 [project covers PE: from I-5 to 0.8 mile east of Watt Avenue (PM L0.2/R6.1) and CON: from 0.3 mile west of SR 99 to 0.8 mile east of Watt Avenue (PM L2.2/R6.1)]

LEAD AGENCY
Caltrans D3

COUNTY

PRIMARY CONTACT (Optional) PHONE (10-DIGIT) EMAIL

Show this contact on public web site

PROJECT TYPE
Expansion

% BIKE/PED

TCM
No

EXEMPT CATEGORY
Non-Exempt

LUMP SUM LUMP SUM NAME
No

TRANS SYSTEM ROUTE NOT MAPPABLE
State 50

PROGRAMMING & SCHEDULE INFORMATION ($0) [GRAPH REVENUES] [HISTORICAL REVENUES]

COMPLETION YEAR (Jan-Dec)
2030

STIP / SHOPP

TOLL CREDIT

FFY (Oct-Sept)	FUND TYPE (PROGRAMMED REVENUE SOURCE)	PA&ED / PS&E	ROW / SUP	CON / SUP	TOTAL	
2013	Local - Sacramento Co Measure A	$1,138,000	$0	$0	$1,138,000	X
2014	Local - Sacramento Co Measure A	$1,707,000	$0	$0	$1,707,000	X
2015	Local - Sacramento Co Measure A	$1,776,000	$930,000	$0	$2,706,000	X
2016	Local - Sacramento Co Measure A	$1,785,000	$1,064,000	$0	$2,849,000	X
2017	Local - Sacramento Co Measure A	$1,785,000	$930,000	$0	$2,715,000	X
2018	Local - Sacramento Co Measure A	$1,200,000	$736,000	$0	$1,936,000	X
2027	Future Need - Unfunded Need (outside MTIP)	$222,000	$0	$56,978,000	$57,200,000	X
					$0	
					$0	
					$0	
					$0	
					$0	
	FFY 2013	$1,138,000	$0	$0	$1,138,000	
	FFY 2014	$1,707,000	$0	$0	$1,707,000	
	FFY 2015	$1,776,000	$930,000	$0	$2,706,000	
	FFY 2016	$1,785,000	$1,064,000	$0	$2,849,000	
	FFY 2017	$1,785,000	$930,000	$0	$2,715,000	
	FFY 2018	$1,200,000	$736,000	$0	$1,936,000	
	FFY 2027	$222,000	$0	$56,978,000	$57,200,000	
	Local - Sacramento Co Measure A	$9,391,000	$3,660,000	$0	$13,051,000	
	Future Need - Unfunded Need (outside MTIP)	$222,000	$0	$56,978,000	$57,200,000	
	ALL YEARS GRAND TOTAL -	$9,613,000	$3,660,000	$56,978,000	$70,251,000	

EMISSION REDUCTIONS (kg/day)

ROG	CO	NOx	PM 10	PM 2.5	COST EFFECTIVENESS ($/LB)
					$

CHANGE REASON - HISTORICAL COMMENTS - HISTORICAL DENIED/APPROVED COMMENTS

- COMPLETED PROJECT
- DELAY PROJECT
- DELETE PROJECT
- CARRY OVER FROM 15-06 MTIP

PROJECT CHANGES (FROM PREVIOUS VERSION):

--
Total project cost stays the same $70,251,000

SPONSOR COMMENTS (Required)
4/1/16 - Carry Over for 2017 MTIP; no comments/revisions received from project manager. -plb

3.14s 1200 EMAIL SACTRAKHELP@ECOINTERACTIVE.COM

Appendix K: Project of Air Quality Concern (POAQC) Determination Email

From: Jose Luis Caceres [mailto:JCaceres@sacog.org]
Sent: Thursday, April 28, 2016 4:17 PM
To: sspaethe@fraqmd.org; Wright Molly (mwright@airquality.org); Heather.Phillips@arb.ca.gov; sharon.tang@dot.ca.gov; douglas.coleman@dot.ca.gov; shalanda_christian@dot.ca.gov; Lee Jason (jason.lee@dot.ca.gov); rodney.tavitas@dot.ca.gov; alexander.fong@dot.ca.gov; jbarton@edctc.org; dave.johnston@edcgov.us; Ungvarsky.John@epa.gov; oconnor.karina@epa.gov; Joseph.Vaughn@dot.gov; lmcneel-caird@pctpa.net; AGreen@placer.ca.gov; Renee DeVere-Oki; Jose Luis Caceres; CAnderson@airquality.org; ALETA KENNARD; pphilley@airquality.org; mjones@ysaqmd.org
Cc: Unger, Petra; pam.brunnmeier@dot.ca.gov; Paukovits, Jason; Lu, George
Subject: FW: POAQC: US 50 HOV Lanes, NOT a POAQC

Project Level Conformity Group,

The PLCG has determined that Caltrans D3's **US 50 HOV Lanes I-5 to Watt Ave., CAL18838, is not a Project of Air Quality Concern (POAQC).**

EPA concurred on April 20th and FHWA concurred on April 25th.

Thank you everyone.

Sincerely,

José Luis Cáceres
Transportation Planner, SACOG
(916) 340-6218

From: Joseph.Vaughn@dot.gov [mailto:Joseph.Vaughn@dot.gov]
Sent: Monday, April 25, 2016 10:14 AM
To: Jose Luis Caceres; oconnor.karina@epa.gov; rodney.tavitas@dot.ca.gov; shalanda_christian@dot.ca.gov; sharon.tang@dot.ca.gov
Subject: RE: POAQC: US 50 HOV Lanes, Comments/Questions DUE 5/2

FHWA concurs that that this project is not a project of air quality concern.

Joseph Vaughn
Environmental Specialist
FHWA, CA Division
(916) 498-5346

Appendix L: FHWA Air Quality Conformity Determination

U.S. Department of Transportation
Federal Highway Administration

Federal Highway Administration
California Division

650 Capitol Mall, Suite 4-100
Sacramento, CA 95814
(916) 498-5001
(916) 498-5008 (fax)

December 8, 2016

In Reply Refer To:
HDA-CA

Mr. Amarjeet S. Benipal
District Director, California Department of Transportation District 3
703 B Street
Marysville, CA 95901

Attention: Jason Lee

SUBJECT: Project Level Conformity Determination for the US 50 Phase 2 High Occupancy Vehicle (HOV) Lanes Project (SACOG ID: CAL18838)

Dear Mr. Benipal:

On November 18, 2016, the California Department of Transportation (Caltrans) submitted to the Federal Highway Administration (FHWA) a complete request for a project level conformity determination for the US 50 Phase 2 High Occupancy Vehicle (HOV) Lanes Project. The project is in an area that is designated Non-Attainment or Maintenance for Ozone, Carbon Monoxide and Particulate Matter (PM 2.5, PM 10).

The project level conformity analysis submitted by Caltrans indicates that the project-level transportation conformity requirements of 40 CFR Part 93 have been met. The project is included in the Sacramento Area Council of Governments' (SACOG) current Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP), as amended. The design concept and scope of the preferred alternative have not changed significantly from those assumed in the regional emissions analysis.

As required by 40 CFR 93.116 and 93.123, the localized PM analyses are included in the documentation. The analyses demonstrate that the project will not create any new violations of the standards or increase the severity or number of existing violations.

Based on the information provided, FHWA finds that the US 50 Phase 2 High Occupancy Vehicle (HOV) Lanes Project conforms with the State Implementation Plan (SIP) in accordance with 40 CFR Part 93.

If you have any questions pertaining to this conformity finding, please contact Joseph Vaughn at (916) 498-5346 or by email at Joseph.Vaughn@dot.gov.

Sincerely,

For: Vincent P. Mammano
Division Administrator

Appendix M: Public Comments Received on Draft Initial Study/Environmental Assessment

Email comments:

1. Deborah Cregger, Comments DC1 to DC5
2. Dominique Ritter, Comments DR1to DR24
3. Eric and Marsha Boemer, Comment MB1
4. Kim Maun, Comments KM1 and KM2
5. Mary Mahler, Comments MM1 and MM2
6. Mike Tentis, Comments MT1 and MT2

Letter comments:

1. Sacramento Metropolitan Air Quality Management District, Comments AQMD1 to AQMD11
2. Environmental Council of Sacramento, Comments ECOS1to ECOS28
3. Elmhurst Neighborhood Association, Comments ENA1 to ENA5
4. Central Valley Regional Water Quality Control Board, Comments WB1 and WB12

From: deborah cregger
Sent: Tuesday, November 01, 2016 8:33 PM
To: Lastufka, Ken G@DOT

Subject: Comment to Sac 50 Phase 2 HOV Lanes Project Draft Initial Study and Environmental Assessment

Hello, Ken. Thank you for allowing me a short time extension in which to provide comments to the Sac 50 Phase 2 High Occupancy Vehicle (HOV) Lanes Project (Project) Draft Initial Study and Environmental Assessment prepared by Caltrans. And, thank you for updating figure 1-3 in the Initial Study and confirming SW-EB3 starts east of the 39th Street undercrossing.

I live in the Elmhurst neighborhood that fronts eastbound Highway 50 from Stockton Boulevard to 57th Street and our household is directly impacted by the noise from Highway 50 and the Project. I am generally in support of the Project but request, at a minimum, *that all proposed soundwalls in the Elmhurst neighborhood be included as necessary mitigation/abatement measures in the Mitigated Negative Declaration for this Project.*

Even if the sound walls do not meet the federal funding criteria, the vast majority of the proposed soundwalls in the Elmhurst neighborhood are *feasible* as they would, if constructed, result in a minimum 5 decibel noise reduction e.g., sound walls EB2, EB2A, EB4, EB5 and EB6 (p.126-127 of the Initial Study). Several of these sound walls would reduce noise levels up to 9 to 12 decibels and will break the line of sight between the noise source and neighborhood homes (Ibid). These sound walls will result in a quantifiable traffic noise reduction in our residential neighborhood and including the proposed Elmhurst sound walls as necessary mitigation/abatement measures will assist in efforts to secure state and local funding to ensure they are constructed as part of this Project. **DC1**

Although SW EB3 does not seem to reach a 5 decibel noise reduction (p. 127 of the Initial Study), the existing old metal structure, while it provides some level of noise abatement, is not in good condition and requires replacement. **DC2** In addition, as you may be aware, this part of Elmhurst has been negatively impacted by increased traffic noise since a sound wall was constructed on the "East Sac" or westbound side of Highway 50 a dozen or so years ago. The East Sac sound wall has unfairly resulted in an increased baseline traffic noise level in Elmhurst; it is time to correct and equalize the uneven sound wall situation along this stretch of Highway 50. **DC3**

Lastly, given the clarification that SW EB2A includes the 39th Street undercrossing, with SW EB3 beginning east of the 39th Street undercrossing, it appears the reasonable allowance and estimated cost of construction information on pages 126-127 and Table 2-41 in the Initial Study will need to be modified accordingly. **DC4**

I look forward to working with Caltrans and Elmhurst's elected officials to move forward on this Project, with sound walls for Elmhurst, and to secure necessary funding. **DC5**

Deborah Cregger

From: Dominique Ritley
To: Ken Lastufka
Sent: Wednesday, November 2, 2016 12:35 AM
Subject: Public Comment: US 50 HOV Lane Project

Dear CalTrans Project Staff:
Thank you for the opportunity to comment on and ask questions about the proposed extension of the HOV lane on U.S. 50. There is a great deal of information and very little time to digest it --especially for the public who do not hold subject matter expertise in environmental review law or the study of noise, air pollution, etc. Please bear with my novice questions and my disjointed presentation as this is a little overwhelming!

Of utmost concern to the Elmhurst neighborhood are the current effects of Hwy 50, the future effects of the *construction* of an HOV lane, and any resulting negative changes brought by an HOV lane in terms of noise and air pollution. Due to our region's growth over the last 20 years, the natural consequence of increased traffic on US 50 has negatively impacted the livibility of Elmhurst. The most noticeable effects are increased air pollution and noise. As you know, several years ago a sound wall was built on the north side of US 50, but no corresponding wall on the south side along the Elmhurst neighborhood was constructed. After some research, it appears that this type of CalTrans project, where a single sound wall is built along one side of a highway that bifurcates a well-established neighborhood, is highly irregular in both the north and south state. Since the north wall was built, Elmhurst homes and families have been harmed by increased noise bouncing from the north wall into our yards and homes; this is not unprecedented (https://www.minnpost.com/cityscape/2015/02/mixed-blessing-freeway-noise-walls). **DR1**

General Project Questions

1. Why is this project designated as a MND and not undergoing a full EIR? Who makes that decision? In plain speak, what does the initial study mean when it says: "Under CEQA, if no unmitigable significant adverse impacts are identified, Caltrans will prepare a Negative Declaration (ND) or Mitigated ND. Similarly, if Caltrans determines the action does not significantly impact the environment, Caltrans, as assigned by the Federal Highway Administration (FHWA), will issue a Finding of No Significant Impact (FONSI) in accordance with the National Environmental Policy Act (NEPA)." **DR2**
2. Who makes the final decision regarding which Alternative project is selected? Does that entity have the right to modify the selected Alternative (and will there be another opportunity for public input on that revised project?) **DR3**
3. Are noise and air pollution impacts to Elmhurst and East Sacramento considered mitigatable based on this report? How do affected neighborhoods know that the noise and other environmental tests were correctly administered and the results are accurate? No offense is meant to CalTrans, but it is a fair question to ask as there are competing goals between the primary parties: CalTrans is obligated to build a lane and that goal competes with the goal of a neighborhood to protect itself from further pollution encroachment. **DR4**
4. The environmental study limit (ESL) lines on the photos in the initial study report appear to extend only to what I assume to be the CalTrans ROW? What does the ESL mean--why would you not consider the neighborhoods in the environmental study limits for noise and air pollution? **DR5**

Noise Mitigation: Sound Walls and Improved Road Pavement

1. This HOV lane project has the potential to help correct the sound wall oversight, but my reading of the initial study documents tells me that there is no guarenteed funding through the CalTrans HOV project for sound walls. Is this true? Please explain thoroughly why or why not? ***DR6***
2. The FHWA says "There are no special or separate Federal funds for highway traffic noise abatement. State transportation departments include the costs of noise barriers in their proposed Federal-aid highway projects. The Federal share is the same as that for the highway system on which the project is located. Noise barriers are sometimes constructed without using Federal funds - for example, using only State, local, or private funds. The costs of noise barriers are sometimes shared by governmental agencies and individual homeowners." Can CalTrans include the cost of the soundwall in the overall project cost? ***DR7***
3. In addition to the noise mitigation effects, is there evidence of the effectiveness of sound walls in mitigating particulate matter from settling in surrounding neighborhoods? Such evidence might assist in obtaining funding from certain sources. ***DR8***
4. Technology has improved, and surely pavement options must have improved too? What options are there for including state-of-the art noise-abating pavement at least for those areas of the highway where homes are nearby (unlike the commercial/industrial corridor near 65th Street)? ***DR9***
5. Please send me a copy of the noise study referenced on page 121. I would like all noise measurements from all years referenced in the 5th paragraph of pg 121. CalTrans placed a noise meter in my backyard in 2006, but I was not approached for this updated noise measurement. I would like another measure taken from my yard. ***DR10***
6. With regard to the actual construction process, the report states: "Construction Noise Impact - No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans Standard Specifications Section 14.8-02. Construction noise would be short-term, intermittent, and overshadowed by local traffic noise." However, our neigborhood was significantly impacted by CalTrans roadwork conducted several years ago at night. The incessant back-up noise made by trucks during our sleeping hours was a perfectly awful invasion and very disruptive to our sleep. So, I am not sure exactly what that Section specifies, but either it is useless or was not adhered to during that last construction project. Hopefully the HOV lane work will be conducted during (close to) business hours. ***DR11***
7. What funding sources are available for sound walls? ***DR12***
8. Throughout this process, how do we ensure that the proper (most effective) sound walls are built? We do not want to be penny-wise and pound-foolish. ***DR13***
9. I'd like to request that Elmhurst have a representative participate in the deliberations about the type of sound walls installed, their locations, and timing of installation. ***DR14***
10. Why are sound walls not considered mandatory for at least the construction process? This will be a multi-year, noisy, dusty process that will disrupt our neighborhood for quite sometime and having sound walls up before road construction commences will help mitigate that harm. ***DR15***
11. As an aside, I commend CalTrans for including efforts to minimize vegetation removal during construction; I encourage a sound commitment from CalTrans to plant more trees with irrigation along the right-of-ways to facilitate the effectiveness of sound walls and help reduce ambient air pollution. ***DR16***
12. I would like to see more discussion about optimal pavement options for noise and pollution reduction. A scan of the document found only 1 or 2 comments about noise abatement properties of pavement compounds. ***DR17***

I request that CalTrans include in its project planning (for whichever Alternative is selected):

- a minimum of 10 ft high sound walls constructed of material with maximum effectiveness in decibel reductions; **DR18**
- that construction on the Elmhurst sound wall be completed before road construction begins; **DR19**
- that trees (with irrigation) are planted along the sound walls; and **DR20**
- that the state-of-the-art noise reduction pavement be used in this project at least where neighborhoods are immediately adjacent to US 50. **DR21**

Which Project Alternative Will Be Chosen --What if it is "None-of-the-Above"?
As an (important) aside, I have grave concerns that we are being asked to comment on a possible project that may change significantly--what opportunities are there for the public to comment on changes to the proposed project? Specifically, I am very concerned that the HOV lane would stop just before or after the Hwy 99 interchange. This is an unacceptable stopping point because the traffic will be idling during rush hour, like a parking lot, with fumes spilling into two well-established historic neighborhoods (our summers are only getting hotter and longer). **DR22** We know how awful the HOV lane endings are on I-80 around Roseville, Davis, Fairfield, and even on Capital Freeway-North between H and CalExpo. The same thing will happen if the HOV lane does not extend to I-5. Elmhurst will suffer tremendously with a truncated HOV lane; we are not located by farmland or a commercial corridor where such idling may be more acceptable. (I bet a review of the ambient air quality in those areas consistently exceed My fear stems from CalTrans' unsuccessful effort several years ago to convince the downtown neighborhoods to accept an HOV lane west of Hwy 99. To that end, I am also concerned that even if the project plans to extend to I-5, that it will be in "stages" and years will go by before an HOV lane reaches I-5. What guarantee does Elmhurst and East Sacramento have that the HOV lane will extend to I-5 and that it be completed as a single project? **DR23**

If for some reason the HOV lane cannot extend to I-5, the project should be halted or the lane must stop just before the 65th Street ramp. Idling traffic across the bridge would have the least impact since that is a commercial/industrial corridor there. **DR24**

Thank you again for the opportunity to comment. I look forward to working with our government representatives, CalTrans, and Elmhurst neighbors to see a successful Alternative 1, 2 or 3 project implemented that includes 1) completion of the HOV lane to I-5; 2) the implementation of the most effective noise mitigation technology to maintain or improve our historic Elmhurst neighborhood; and 3) implementation of the aforementioned bullet points above.

Sincerely,

Dominique Ritley

Ken:
My name is Eric Boemer and my wife is Marsha Boemer and we reside in elmhurst neighborhood. We have been living here for 20 years. We chose this neighborhood because of the house location, and also because of the beautiful trees in our area. We looked at homes in River Park, and that would have been good except the fact of the busy trains, going behind our future house. The freeway was noisy at that time and is noisier now, because of the traffic on highway 50. We are happy with our neighborhood, but feel that if there was a wall next to our house on S street it would make our lives better.

We are in favor of the DOT building a sound barrier. We have been waiting for a long time and the time is ripe to build one. Surely there must be some funds to build the wall, as it would improve our neighborhood tremendously. ***MB1***

Eric and Marsha Boemer

Kim Maun
Thu 10/27/2016 6:47 PM

Many years ago CalTrans added a lane on the south side on the way to the 59th Street exit. Lots of dirt was removed and therefore the noise level went way up as I live at 4201 T Street Sacramento CA 95819.

The freeway is two blocks from my house. Now I love the idea of a HOV lane but the metal sound wall on the south side is not enough when another lane is added.

KM1

I went just after the north side sound wall was fine and CalTrans said they had no plan for the south side sound wall and it was the last of the 50 improvement/sound wall projects that was 20 years in the making to finish.

So without a sound wall not sure if I want any more cars on 50.

Plus a read a story in the Bee I think years ago and it said with each new lane within a couple of years we're back to the same congestion the road had before lane was added. It means it allows more people to move in and fill the new lane. **KM2**

Thanks for all your hard work from another state employee.

Kim Maun

From: Mary Ellen Mahler
Sent: Friday, October 28, 2016 10:21 PM
To: Lastufka, Ken G@DOT
Subject: Highway 50 soundwall

Dear Mr Lastufka,
In the interest of comfort, the Elmhurst neighborhood residents would appreciate the construction of the sound wall prior to the Development of the HOV lane on Highway 50. I live 3 blocks from the freeway, on U street, and there are plenty of times that the freeway noise outside seems as if the freeway were only one yard over, rather than it' s 3 block distance. I always find it interesting when I visit at friend's homes outside, how quiet their neighborhoods seem to be, largely due to the constant rumble we hear from the freeway in Elmhurst. Even early Sunday morning the sound of trucks and freeway traffic floats over the neighborhood. It wasn't like that 30+ years ago when we moved to this neighborhood, largely because of it's lovely homes, walkable and tree lined streets. The increase in traffic, and the construction of the sound wall on the north side of the freeway have created a rather noisy neighborhood and the additional construction will be a further nuisance to the residents of Elmhurst. I am looking forward to having a sound wall built on our side of the freeway so the the sound will hopefully bounce over the neighborhood, instead of into it.
Thank you for your attention to this.
Mary Ellen Mahler

MM1

MM2

From: MIKE TENTIS
Sent: Friday, October 28, 2016 5:13 PM
To: Lastufka, Ken G@DOT
Subject: Highway 50 HOV lane - Sound Wall in Elmhurst

Ken,

I'm writing in strong support of the idea that an `early' sound wall is built prior to the construction of the HOV lane on Highway 50. **MT1**

We live on the corner of 50th and S directly adjacent to Highway 50. Attached is the view of ten glorious lanes of Highway 50 from my 3rd floor office window.

The reality is that this home will receive limited value from the sound wall up here on the second and third floor, my hope is that on the first floor and outside in the garden there will be some noise mitigation. Being outside here is not pleasant, it's loud… **MT2**

Thanks for the consideration.

Mike

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

Larry Greene
AIR POLLUTION CONTROL OFFICER

October 28, 2016

SENT VIA E-MAIL

Kendall Schinke, Environmental Branch Chief
ATTN: Ken Lastufka, Associate Environmental Planner
California Department of Transportation, Environmental Planning
2379 Gateway Oaks Drive, Suite 150, Sacramento, CA 95833

Subject: Sac 50 Phase 2 High Occupancy Vehicle (HOV) Lanes Project

Dear Ms. Schinke:

Thank you for providing the Sacramento Metropolitan Air Quality Management District (SMAQMD) with the opportunity to review the Draft Initial Study with Proposed Mitigated Negative Declaration / Environmental Assessment with Finding of No Significant Impact (IS/EA) for this project. We have reviewed the project in a manner consistent with the California Health and Safety Code Section 40961 requirement that SMAQMD "represent all the citizens of the Sacramento District in influencing the decisions of other public and private agencies whose actions may have an adverse impact on air quality." Staff comments follow.

Construction Analysis
These comments concern the air quality analysis for project construction:

1. We recommend including all air quality modeling runs to fully disclose the analysis, including the Road Construction Emissions Model (RCEM), CALINE, and EMFAC. Since the RCEM run was not included in the IS/EA, we cannot fully assess the adequacy of the construction analysis, especially timing and duration of phases and equipment and truck hauling assumptions. ***AQMD1***

2. We recommend that CEQA review follow guidance in SMAQMD's Guide to Air Quality Assessment in Sacramento County (CEQA Guide), including determining significance according to SMAQMD thresholds and using SMAQMD's recommended construction mitigation measures (attached). The NOx emissions reported in Table 2-37 for the grading/excavation phase are very close to SMAQMD's NOx threshold. If other construction phases are performed at the same time or the actual project equipment differs from the RCEM analysis, NOx construction emissions could exceed the SMAQMD threshold. We recommend Caltrans follow all construction mitigation measures, including the "Enhanced Exhaust Control Practices," to ensure that project construction does not negatively impact air quality. ***AQMD2***

777 12th Street, 3rd Floor • Sacramento, CA 95814-1908
916/874-4800 • 916/874-4899 fax
www.airquality.org

3. Avoidance and minimization measures include "Prohibit truck idling in excess of 10 minutes, whenever practical." Please note that the California Code of Regulations, Title 13, Sections 2449 and 2485, both prohibit idling in excess of 5 minutes. ***AQMD3***

4. The IS / EA project description says "An agreement made between the City of Sacramento and Caltrans in 2012 involved including the scope of the City of Sacramento's 65th Street Bicycle/Pedestrian Improvement Project in the environmental approval of this project." Please clarify whether construction emissions associated with the 65th Street improvements are included in the IS/EA construction analysis. ***AQMD4***

Greenhouse Gas Significance

The climate change analysis does not make a significance determination regarding project greenhouse gas emissions, asserting instead that "it is too speculative to make a determination regarding significance of the project's direct impact and its contribution on the cumulative scale to climate change." We respectfully disagree with this assertion.

There is ample information and criteria available to make a significance determination. The IS/EA quantifies greenhouse gas emissions and there are established, defensible criteria for greenhouse gas significance. SMAQMD provides a threshold of significance for greenhouse gases in its CEQA Guide, for example. Additionally, the Caltrans website references the California Air Pollution Control Officers (CAPCOA) guidance, CEQA & Climate Change, which provides guidance on determining significance. Further, the California Code of Regulations guidelines for CEQA implementation includes factors for consideration in assessing the significance of impacts from greenhouse gas emissions on the environment (14 CCR § 15064.4). Please make a significance determination, with all feasible mitigation as necessary. ***AQMD5***

High Occupancy Toll (HOT) Lane Alternative

CEQA calls for a description of the full range of reasonable project alternatives that would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project. HOT lanes can reduce congestion, while efficiently managing vehicle miles traveled (VMT) and associated emissions.

Research suggests that HOT lanes on Interstate 15 in San Diego County had a positive effect on carpooling.[1] In contrast, while California has expanded its HOV lane system to over 1,400 miles, carpooling as a mode share has fallen in California according to US Census journey to work data. It is not clear that HOV lanes promote carpooling and associated emissions reductions as efficiently as HOT lanes. ***AQMD6***

The IS/EA should incorporate a HOT lane alternative. We recommend a HOT lane alternative with one HOT lane built and one HOT lane taken from existing lanes, for each direction.

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[1] Golob, Jacqueline, and Golob, Thomas (2000). Studying Road Pricing Policy with Panel Data Analysis: The San Diego I-15 HOT Lanes. Retrieved from University of California Transportation Center, http://www.its.uci.edu/its/publications/papers/ITS/UCI-ITS-WP-02-5.pdf and http://webcache.googleusercontent.com/search?q=cache:Olkr50folR0J:www.its.uci.edu/its/publications/papers/ITS/UCI-ITS-WP-02-5.pdf+&cd=2&hl=en&ct=clnk&gl=us

The San Diego County HOT lanes provide a feasible model, with two HOT lanes in each direction. If Caltrans adopted a build-a-lane and take-a-lane approach for each direction, there would be four congestion management lanes to address traffic free flow concerns while minimizing idling emissions. Moreover, tolls could be adjusted to more efficiently manage traffic and associated emissions; and toll revenues could help fund avoidance and minimization measures, or mitigation measures as necessary, such as transit. ***AQMD7***

Induced Demand

According to the California Air Resources Board policy brief Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions, "Any induced travel that occurs reduces the effectiveness of capacity expansion as a strategy for alleviating traffic congestion and offsets any reductions in GHG emissions that would result from reduced congestion."[2] Especially due to the potential for induced demand to offset emissions reductions, a clear, thorough analysis of induced demand and associated traffic and emissions estimates is essential to a clear, thorough climate change or air quality analysis.

The IS/EA induced demand analysis does not clearly demonstrate that there are no significant impacts related to induced demand. The induced demand analysis should include a discussion of significance for induced VMT and associated emissions, with clear supporting evidence including clearly labeled tables. ***AQMD8***

The IS/EA traffic and emissions estimates show that VMT for constructing an additional lane exceed those of the no-build alternative, and indicate that the induced demand increases over time. The induced demand discussion, however, does not present clear criteria for determining significance of impacts related to induced demand, including increases over time. Additionally, the table in the induced demand discussion is unclear because it is not fully labeled (for example, it should include a year and a time measurement unit), and percentages do not seem to correspond to tables in the IS/EA traffic report addendum.

Mobile Source Air Toxics

Project alternatives would widen a roadway passing through residential uses, and associated mobile source air toxics (MSATs) could adversely impact those uses. The IS/EA's MSAT analysis uses the federal perspective primarily. State and local protocols can also help to inform the public and decision makers about the relative risks posed by a project.

The MSAT analysis should include near-roadway health risk quantification practices in California, which are commonly performed to satisfy CEQA's requirement that environmental impacts be identified, assessed, and avoided or mitigated (as possible) if significant. While it does not address roadway expansions per se, the California Air Pollution Control Officers Association's (CAPCOA) Health Risk Assessments for Proposed Land Use Projects provides guidance on near-roadway risk characterization for CEQA purposes including emissions modeling, dispersion modeling, exposure modeling, and determination of cancer risk due to diesel particulate matter. These are all concepts that can be applied to this project. Note that this methodology focuses ***AQMD9***

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[2] Handy, Susan, and Boarnet, Marlon (2014). Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions. Retrieved from http://www.arb.ca.gov/cc/sb375/policies/hwycapacity/highway_capacity_brief.pdf

on diesel particulate matter, since the cancer risk posed by this pollutant is more significant than the other carcinogenic MSATs.

The analysis should also include acute and chronic health impacts, such as asthma and exacerbated cardiovascular conditions. *A thorough MSAT analysis is especially important for this project because it includes elevated roadways that are directly adjacent residential uses, and studies suggest that elevated roadways promote significantly higher MSAT concentrations in nearby uses.*[3,4] **AQMD10**

General Comments

All projects are subject to SMAQMD rules and regulations in effect at the time of construction. The attached rules and regulations statement describes SMAQMD rules which may apply to this project whether or not air quality impacts are significant. If you have any questions regarding these comments, please contact me or SMAQMD staff member Molly Wright. My contact information is lgreene@airquality.org or (916) 874-4800, and Molly's contact information is mwright@airquality.org or (916) 874-4207. **AQMD11**

Sincerely,

Larry F. Greene
Executive Director
Sacramento Metropolitan Air Quality Management District

Attachments (4)

Cc: Paul Philley, Program Coordinator, SMAQMD

[3] Baldauf, R., Cahill, T., Khylstov, A., Zang, K., Cook, R., Cowherd, C. and Bowker, B. (2009). Can Roadway Design be used to Mitigate Air Quality Impacts from Traffic? Retrieved from https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=203764&fed_org_id=770&SIType=PR&TIMSType=&showCriteria=0&address=nerl&view=citation&sortBy=pubDateYear&count=100&dateEndPublishedPresented=12/31/2009.

[4] Baldauf, R., Heist, D., Isakov, V., Perry, S., Hagler, G., Kimbrough, S., Shores, R., Black, K., Brixey, L. (2013). Air quality variability near a highway in a complex urban environment. Retrieved from http://www.sciencedirect.com/science/article/pii/S1352231012009259.

Enhanced Fugitive PM Dust Control Practices

Soil Disturbance Areas

- Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.
- Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.
- Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.

Unpaved Roads (Entrained Road Dust)

- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.
- Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The SMAQMD phone number shall also be visible to ensure compliance.

ENHANCED EXHAUST CONTROL PRACTICES

1. The project representative shall submit to the lead agency and District a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project.
The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment.

- The project representative shall provide the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.
- This information shall be submitted at least 4 business days prior to the use of subject heavy-duty off-road equipment.
- The District's Equipment List Form can be used to submit this information.
- The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs.

2. The project representative shall provide a plan for approval by the lead agency and District demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOX reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average.

- This plan shall be submitted in conjunction with the equipment inventory.
- Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.
- The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.

3. The project representative shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour.

- Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately.
- Non-compliant equipment will be documented and a summary provided to the lead agency and District monthly.
- A visual survey of all in-operation equipment shall be made at least weekly.
- A monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.

4. The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation shall supercede other District, state or federal rules or regulations.

Basic Construction Emission Control Practices

The following practices are considered feasible for controlling fugitive dust from a construction site. Control of fugitive dust is required by SMAQMD Rule 403 and enforced by SMAQMD staff.

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

The following practices describe exhaust emission control from diesel powered fleets working at a construction site. California regulations limit idling from both on-road and off-road diesel powered equipment. The California Air Resources Board enforces the idling limitations.

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.

Although not required by local or state regulation, many construction companies have equipment inspection and maintenance programs to ensure work and fuel efficiencies.

- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Lead agencies may add these emission control practices as Conditions of Approval (COA) or include in a Mitigation Monitoring and Reporting Program (MMRP).

SMAQMD Rules & Regulations Statement (revised 3/12)

The following statement is recommended as standard condition of approval or construction document language for ***all*** *development projects within the Sacramento Metropolitan Air Quality Management District (SMAQMD):*

All projects are subject to SMAQMD rules in effect at the time of construction. A complete listing of current rules is available at www.airquality.org or by calling 916.874.4800. Specific rules that may relate to construction activities or building design may include, but are not limited to:

Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact the SMAQMD early to determine if a permit is required, and to begin the permit application process. Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc.) with an internal combustion engine over 50 horsepower are required to have a SMAQMD permit or a California Air Resources Board portable equipment registration. Other general types of uses that require a permit include, but are not limited to dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions.

Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earth moving activities, storage or any other construction activity to prevent airborne dust from leaving the project site.

Rule 414: Water Heaters, Boilers and Process Heaters Rated Less Than 1,000,000 BTU PER Hour. The developer or contractor is required to install water heaters (including residence water heaters), boilers or process heaters that comply with the emission limits specified in the rule.

Rule 417: Wood Burning Appliances. This rule prohibits the installation of any new, permanently installed, indoor or outdoor, uncontrolled fireplaces in new or existing developments.

Rule 442: Architectural Coatings. The developer or contractor is required to use coatings that comply with the volatile organic compound content limits specified in the rule.

Rule 460: Adhesives and Sealants. The developer or contractor is required to use adhesives and sealants that comply with the volatile organic compound content limits specified in the rule.

Rule 902: Asbestos. The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of asbestos containing material.

Naturally Occurring Asbestos: The developer or contractor is required to notify SMAQMD of earth moving projects, greater than 1 acre in size in areas "Moderately Likely to Contain Asbestos" within eastern Sacramento County. Asbestos Airborne Toxic Control Measures, Section 93105 & 93106 contain specific requirements for surveying, notification, and handling soil that contains naturally occurring asbestos.

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

ECOS
ENVIRONMENTAL
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OF SACRAMENTO

Post Office Box 1526 • Sacramento, CA • 95812 • (916) 444-00222

November 4, 2016

Kendall Schinke, Environmental Branch Chief
ATTN: Ken Lastufka, Associate Environmental Planner
Department of Transportation, Environmental Planning
2379 Gateway Oaks Drive, Suite 150
Sacramento, CA 95833
Email: ken_lastufka@dot.ca.gov

RE: Sac 50 Phase 2 High Occupancy Vehicle Lanes Project
Draft Initial Study [with Proposed Mitigated Negative Declaration]/
Environmental Assessment

Mr. Schinke,

Thank you for the opportunity to comment on the Draft Initial Study [with Proposed Mitigated Negative Declaration]/Environmental Assessment with Finding of No Significant Impact (Draft IS/EA) for the "Sac 50 Phase 2 High Occupancy Vehicle Lanes Project". The Environmental Council of Sacramento (ECOS) is a coalition of environmental and social organizations working for social equity, public health and environmental sustainability in the Sacramento region, through land use planning, transportation planning, and habitat and agricultural preservation. We appreciate the one-week extension of the deadline for comments.

In general, ECOS is greatly concerned that this Initial Study does not adequately analyze the potential impacts of the project, and strongly recommends that a full EIR be conducted. A full EIR could then be combined with an EIS under NEPA which will be necessary anyway for the Project to be eligible for federal funding. The regulatory environment in California has evolved since this project was conceived, and the alternatives should be fully analyzed within the new regulatory context.

In the first phase of this project, the California Superior Court found that the environmental review was not adequate in a number of areas, and it is not clear to ECOS that these inadequacies have been adequately addressed in this Initial Study, particularly for impacts associated with air quality and climate change. Further, the critical segment of the proposed project between I-5 and SR 99 was not covered in that initial environmental review, which also warrants further attention.

Finally, ECOS questions the justification for any Alternative other than Alternative 3. We question the claim that there is less than significant growth inducement risk posed by this project, and the validity of the methodology used to analyze induced demand. Yet, if these analyses are accepted as valid, then the volumes projected do not indicate a need for the extra lane proposed by Alternative 1 and 2. The "take a lane" Alternative 3 outperforms Alternatives 1 and 2 in almost every category presented, meets the congestion relief goals of the project--while reducing VMT--and would obviously be the most economical solution. If the Mitigated Negative Declaration is accepted and Phase 2 moves forward, Alternative 3 is the only acceptable alternative that meets state and regional goals.

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1. There is insufficient justification for the "need" for this Project in the "Need and Purpose" statement (page 1).

Detailed arguments in support of the need for increased capacity on US 50 surely rely on data cited in Section 2.6 "Traffic and Transportation ..." (p. 47 ff). Tables 2-23 and 2-25 compare peak-hour performance for the four alternatives, and show a significant increase in vehicle volume only for Alternatives 1 and 2 in the case WB US 50 in PM peak compared to the "no-build" alternative. This analysis does not support need for an additional EB lane. ***ECOS1***

As discussed in Section 2.19 "Climate Change", AB 32 and subsequent legislation mandate major reductions in GHG emission by 2050, and state agencies (chiefly the Air Resources Board) are currently working on strategies for meeting 2030 GHG emission goals. As the DIS/EA discusses, there is still much uncertainty about how the goals will be achieved, but current ARB AB32/SB32 Scoping Plan analysis indicates that major reductions in VMT will be necessary in addition to vehicle technology improvements, to meet 2030 GHG goals. The goal of substantially reducing VMT makes highway capacity expansion much less logical in many cases, and such projects as this will certainly be more difficult to justify under the new standards. ***ECOS2***

In any event, Caltrans is seeking environmental clearance for the Project well in advance of need based on traffic growth, and the decision to build HOV lanes on US 50 could very well be deferred for at least another ten years. ***ECOS3***

2. The history of this Project is not adequately reviewed; in particular, the DIS/EA does not explain that the eastern portion (Watt Ave. to SR 99) was previously evaluated in the EIS/EIR prepared for Phase 1 in 2007 and eventually issued in January 2009.

Phase 1 of this Project in 2007 included the section from Watt Ave. to the SR 99 interchange, and this section has previously been covered by the earlier Phase 1 EIS/EIR. ECOS and Neighborhood Advocating Sustainable Transportation (NAST) filed a legal challenge to the adequacy of the EIR in California Superior Court, which went to trial and concluded with the Judge's ruling in favor of the petitioners in a number of important respects:

"In conclusion, the petition is granted in respect to Petitioners' claims the EIR is inadequate in the following respects:

- the EIR fails to adequately disclose and analyze the Project's operational and construction-related air quality impacts;
- the EIR fails to adequately disclose and analyze the Project's potential impacts on GHG emissions and climate change; ***ECOS4***
- the EIR fails to adequately disclose and analyze the possible effects of the identified community enhancements;
- the EIR fails to consider a reasonable range of potentially feasible alternatives; and
- the Findings are inadequate and not supported by substantial evidence."

(ECOS vs. Caltrans, Minute Order dated 7/15/2008, page 16).

Subsequent to this Ruling, Caltrans offered additional mitigation which the petitioners accepted and withdrew their challenge. Nevertheless, the Judge's ruling remains a valid opinion that the EIR was deficient in several respects, and Caltrans is morally (if not legally) obligated to demonstrate that these deficiencies have been rectified in future environmental assessments for the US 50 HOV Project, including the proposed Phase 2.

Point (d) is addressed by adding two alternatives -- extra mixed flow lanes (Alternative 2) and "take-a-lane" (Alternative 3) -- to the single alternative of HOV lanes considered in the Phase 1 DEIR (here Alternative 1). Caltrans, however, has failed to adequately address the other items in the Judge's Ruling, particularly in regard to impacts from this Project on the local air quality, land use, and climate change impacts from greenhouse gas (GHG) emissions. **ECOS5**

Court settlement of ECOS vs. Caltrans effectively gave environmental clearance to the entire Phase 1 Project, including the segment from Watt Ave. to SR 99 which Caltrans chose not to build as part of Phase 1 and has now included in Phase 2. Caltrans didn't build the Watt-to-SR 99 segment using the Phase 1 EIS/EIR which is apparently out of date, so Caltrans is now including this segment in the current DIS/EA. It would be helpful if Caltrans would clarify the relationship between the earlier EIR and the current DIS/EA. **ECOS6**

3. The regulatory environment has changed significantly since 2007 when the Phase 1 DEIR for the US 50 HOV Project was issued, and ECOS does not believe that the current Initial Study fully reflects the implications of these regulatory changes.

Recent legislative mandates include California Senate Bill 375, SB 743, and SB 32, the later two of which are not even referenced in the document at all. **ECOS7**

Greenhouse gas (GHG) reduction targets for passenger automobiles and light trucks--primarily through Vehicle miles traveled (VMT) reduction strategies--have been established since 2010, and are currently being revised by the CA Air Resources Board (ARB). SB 32, which codifies the extension of the GHG reduction goals mandated by Assembly Bill 32 beyond 2020 was recently passed in August, 2016. The ARB's current AB 32/SB 32 Scoping Plan analysis has determined that conversion to clean vehicles alone will not meet the long-term GHG reduction targets, and that improved land use and significant VMT reduction will be absolutely necessary to meet these mandated goals. And it is clear that the new SB 375 targets imposed on the Sacramento region, scheduled for adoption in 2017, will almost certainly be much stronger. As congestion reduction strategies represented by Alternatives 1 and 2 both increase overall VMT, and apparently rely solely on presumptions about vehicle technology innovation to meet long term GHG reduction goals, it is unclear how these alternatives will perform under these strengthened standards. The project should be fully reviewed under CEQA to consider this new regulatory context. **ECOS8**

SB 743 establishes the mandate that a new methodology be developed to replace how Level of Service (LOS) is currently analyzed. The new VMT-oriented methodology is in its final stages of development, and will certainly change how road capacity expansion proposals are to be reviewed, for the better, particularly with respect to the reduction of VMT and meeting State GHG reduction goals. Again, this project should be reviewed in this new regulatory context. **ECOS9**

4. There are insufficient grounds for issuing a "Finding of No Significant Impact" for this Project.

The list of potential environmental impacts given in Table S-1 are entirely temporary impacts, save for the final item "Cumulative Impacts," so very little mitigation is deemed necessary beyond dealing with construction impacts. As discussed below, there are a number of long-term impacts from increased traffic induced by Alternatives 1 and 2 that are not fully accounted for in the IS/EA, and a "finding of no significant impact" is not appropriate for these alternatives. **ECOS10**

5. There is inadequate analysis of the impact on local air quality in neighborhoods adjacent to the W-X section between SR 99 and I-5.

This two-mile section of US 50 between W and X Streets in Sacramento is an elevated highway passing through largely residential neighborhoods which will be subjected to spill-over air pollution from

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increased traffic induced by additional lanes (Alternatives 1 and 2). The Environmental Assessment clearly states these alternatives are likely to produce an increase in air pollution, noise, other problems in a dense community. Additional consideration should be given to the existing health impacts associated with the existing freeway. This project will further exacerbate a pressing public health issue in a densely populated community. **ECOS11**

6. The analysis of impacts on air quality from emissions of PM10 is inadequate and the conclusions drawn from reliance on U.S. Environmental Protection Agency and Federal Highway Administration screening prescriptions do not satisfy the requirements of the California Environmental Quality Act.

Data presented in Section 2.14 (Air Quality) of the Draft Initial Study/Environmental Assessment (DIS/EA) reveal that emissions of particulate matter smaller than 10 microns in aerodynamic diameter (PM10) will increase above 2013 baseline levels for all project Alternatives and all milestone years, and that emissions of Alternatives 1, 2, and 3 will be higher than those of Alternative 4 (No Build) in all milestone years with the single exception of those of Alternative 3 (Take-a-Lane) in the 2020 Opening Year (Table 2-31, p. 104). **ECOS12**

PM10, by virtue of its larger size and density with respect to molecules of gaseous criteria pollutants, tends to settle out of transporting airflows within hundreds of yards of groundlevel emissions areas such as roadway surfaces. As a result, air quality impacts from such emissions are typically much higher at residences, workplaces, and gathering locations of sensitive individuals such as schools and day care centers closest to the project right-of-way boundary than would be measured at locations more distant from project travel lanes. Highway 50 traffic emissions constitute the largest source of PM10 within a radius of 2,000 feet of the Air Resources Board 13th and T Street air quality monitoring station, the nearest to the project. As a result, measurements recorded at this station some 1,500 feet from the northern edge of travel lanes will underrepresent PM10 concentrations found at residences as close as 180 feet from baseline traffic. **ECOS13**

PM10 concentrations at the 13th and T Street station are shown in the DIS/EA to have increased between 2010 and 2014, at least on a maximum 24-hour average basis (Table 2-29, p. 99). The relevant PM10 data in this table are shows to be:

Annual Average PM10 Concentration at ARB's 13th & T Street Air Quality Monitoring Station (μg/m³)					
Year	2010	2011	2012	2013	2014
Max. 24-Hr. Avg.	53.9	42.2	36.7	92.3	106.4

The same increasing trend can be seen in annual average PM10 concentrations at this site, as displayed on the California Air Resource Board's historical air quality website (https://www.arb.ca.gov/adam/index.html). That site returns the following annual average PM10 concentrations at the 13th & T Street station between 2010 and 2014 to be:

Annual Average PM10 Concentration at ARB's 13th & T Street Air Quality Monitoring Station (μg/m³)						
Year	2010	2011	2012	2013	2014	2015
Ann. Avg.*	17.2	18.4	17.2	14.4	21.6	22.6

*Calculated using the U.S. EPA protocol prescribed prior to December 2006; accessed on October 25, 2016.

Table 2-29 in the DIS/EA reports the 2014 maximum PM10 concentration to be 106.4 μg/m³ – 24 hour average. A residence eight times closer to the largest PM10 source impacting the 13th and T Street monitor will be exposed to higher PM10 concentrations than are recorded at the monitoring station. If that fractional increase in PM10 concentration exceeds 30%, the residence is being exposed to concentrations exceeding the National Ambient Air Quality Standard (NAAQS) for PM10 which 150 μg/m³ – 24 hour average. If these most proximate residences are exposed to PM10 concentrations **ECOS14**

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currently exceeding federal standards, any increase in PM10 emissions from the project will exacerbate NAAQS violations at these residences and interfere with attainment of the NAAQS in the absence of a corresponding reduction in PM10 emissions from other nearby sources.

The DIS/EA provides no evidence that PM10 impacts at the residences closest to the proposed project were assessed. Rather, evaluation of the significance of increasing PM10 emissions is truncated after completing a prescriptive review of emissions endorsed by two federal agencies, the U.S. Environmental Protection Agency and the Federal Highway Administration. These agencies are not bound by the requirements of the California Environmental Quality Act (CEQA) and, thus, compliance with this endorsed prescription does not confer compliance with CEQA on the project's PM10 emissions. ***ECOS15***

The Draft Initial Study/Environmental Assessment should evaluate the impacts of baseline and project PM10 emissions at downwind residences using an appropriate U.S. EPA-approved air quality dispersion model. Because of the uncertainties in these models with respect to plume downwash – the formation of eddies downwind from elevated structures such the elevated sections of Highway 50 within project boundaries – this assessment should include the use of more than one approved dispersion model in order to quantify the impacts of these uncertainties. ***ECOS16***

7. Alternatives 1 and 2 fails to responsibly meet GHG emission reduction goals mandated by AB32 and SB32, including stringent limitations on VMT currently under consideration by ARB to meet 2030 GHG reduction targets.

The California ARB has identified three main strategies to meet 2030 GHG emission reduction goals in the transportation sector: improve vehicle efficiency, switch to alternative fuels, and reduce VMT. Since technology advances in fuel efficiency and conversion to low-carbon electric vehicles are expected to be insufficient to meet the emission reduction goals, reductions in VMT will be necessary (See materials presented at the recent Public Workshop held on 9/14/2016 <https://www.arb.ca.gov/cc/scopingplan/meetings/meetings.htm>). Expansion of highway capacity is manifestly inconsistent with the goal of substantially reducing VMT, and such projects as this one will certainly be more difficult to demonstrate the required performance needs under the new standards. Alternative 3 ("take-a-lane") is the only acceptable alternative to meet State VMT reduction goals. In any event, it is in Caltrans' interest under AB 32/SB 32 (and to some extent under SB 375) to independently limit GHG emissions by foregoing highway expansion, at least until ARB has developed its 2030 GHG reduction plan. ***ECOS17***

8. Compatibility with the regional MTP for 2020 and beyond is doubtful, and inclusion in the current MTP should not be used to demonstrate regional approval.

SACOG, which is responsible for preparing the MTP for the Sacramento region, has made it clear that the 2016 MTP is a modest update of the 2012 version. A major revision is planned for the 2020 MTP, which will have to accomodate much more stringent regional GHG targets currently being developed by ARB (point 7 above). Federal and state funding for this Phase of the US 50 HOV Project is not yet secure, and it is unlikely to start construction before 2020 even if environmental clearance is achieved. Highway capacity expansion will therefore have to meet much higher performance standards in relation to the rest of the system to be admitted into future MTPs. This project deserves to be fully reviewed under CEQA within this forward-looking context, rather than the past. ***ECOS18***

9. The EA fails to demonstrate that the off ramps and arterials in downtown Sacramento can handle the additional vehicles due to the additional capacity provided by the HOV lanes, or to consider the additional danger of quick lane changes for motorists entering and exiting the highway.

An additional lane in each direction whether dedicated to HOVs (Alternative 1) or allow mixed traffic (Alternative 2) represents an increase in highway capacity and will surely induce more traffic than "take a lane" (Alternative 3) or no-build. The IS/EA fails to show how existing downtown offramps and arterials will be able to handle increased traffic volumes induced by the extra traffic lanes on US 50.

An increase in the safety of the freeway to all modes of transportation is also an important matter. As indicated in the traffic study, many motorists are expected to exit at Downtown exits in a concentrated fashion, not dispersed across many exits. The justification that this project would increase the safety for drivers is based upon the HOV project between Watt and Sunrise, which has a much more dispersed travel pattern and more through-traffic compared to the section from SR-99 to I-5. Additional consideration and analysis should be conducted on the potential increase in accidents due to quick lane changes (up to seven lanes for the 16th St exit westbound on US-50) on lanes with a high speed differential due to the higher speed of carpool lanes and the interchanges in the area. ***ECOS19***

10. The EA fails to demonstrate that additional transit cannot accommodate increased SOV volumes induced by an additional lane.

The additional lanes provided by Alternatives 1 and 2 will allow for an increase in SOV volume of less than 1,500 per hour in each direction which could easily be accommodated by additional commuter buses and/or additional light rail trains on the Gold Line (roughly 30 buses or two trains or a mix of these modes). It is clear that some provision for transit on US 50 will be necessary to accommodate more commuter buses in the future, so Alternative 3 ("take-a-lane") should remain as a viable option. But the environmental impacts of additional commuter buses is surely minimal, and a Mitigated Negative Declaration would be appropriate in this eventuality. An additional alternative might include a "transit only" lane adjacent to an Alternative 3 lane. This project would meet the goals of SACOG's MTP and still provide a balance of transportation investments and alternatives for travelers. ***ECOS20***

11. "Congestion" is never given a scientific definition or metric within the context of the environmental analysis.

Congestion can be defined on many levels and over different time periods. The goal of the EA is clearly stated as "reducing congestion", but there is no metric given or a means of considering if this goal has ever been achieved. If congestion is defined as cumulative total hours of traffic spent, this project is very likely to increase congestion. Also, a time period should be established upon which this metric would be analyzed. If the metric is vehicle speed in 30 years, we also doubt this project would reduce congestion. ***ECOS21***

12. Induced demand in housing in not adequately analyzed.

The Environmental Assessment claims to look at induced housing demand. It states "The areas next to the project are already built-out, with little opportunity for new development. Thus, the proposed build alternatives, including Alternative 1, are not expected to have a growth-inducing impact on the study area or its surrounding communities." Additional justification is needed for this statement. An assessment for induced housing should not examine induced housing at the ends and immediate vicinity of this project, but on a region-wide scale. Based on historical evidence within the area, the more capacity that is added to freeways in the region, the more growth occurs at the periphery of the metropolitan area. This growth tends to be "greenfield development" and is characteristically low density, auto-centric housing with long commutes. For the HOV project, it is expected to further enable commutes from areas such as El Dorado Hills to Downtown Sacramento. This type of growth is discouraged by region-wide and local land use plans (such as SACOG's MTP/SCS), and many state goals and publications. ***ECOS22***

13. Elimination of soundwalls due to cost considerations should be reconsidered.

The federal metric for the financial viability of soundwalls is on a per mile basis. Realistically, this should be considered on a per resident/per mile basis. Before further design takes place for the project, additional sources for funding at the local, state, and federal level should be considered. A soundwall within the downtown area alone would have the potential to improve the livability of the area for a daytime population greater than anywhere else in the region. ***ECOS23***

14. Alternative 3 was given unfair bias within the report

Within the report, the bias of Caltrans for Alternatives 1 and 2 was made clear throughout the report. Even the name "take a lane" is intended to produce community uproar and concern that Alternative 3 would be "taking" rather than "giving" something to the community. Future analysis should include a different, less biased, name such as "Inner Lane Conversion." Additionally, alternative 3 was not fully considered in all analysis (such as CO modeling on table 2-32, etc). ***ECOS24***

At this time, Alternative 3 seems to best meet the goals of the community by providing the following: ***ECOS25***

1. Continuity in the HOV network for the SACOG area
2. An increase in peak hour capacity (persons served) on a person/mile basis based on analysis from Caltrans that concluded "HOV lanes generally carry more people in fewer vehicles"
3. Reduce travel time throughout the area

In addition, Alternative 3 has the following benefits Alternatives 1 and 2 do not: ***ECOS26***

1. Much lower price due to less required structural work, allowing budget for community improvements (such as sound walls) or other items within the Metropolitan Transportation Plan (MTP).
2. Meeting state, regional, and local goals of reducing VMT.
3. Reducting certain pollutants compared to no build (e.g. CO on page 107

15. This Draft IS/EA provided an inadequate comment period and an insufficient community outreach effort

Caltrans hosted only two community workshops in the area directly impacted by this Project. These meetings were announced as a Caltrans Press Release (dated October 12th) only a few days before the meetings took place and less than two weeks before the comment period closed on October 28th. This has not allowed enough time for the community to become aware of this Project, read the environmental analysis, and voice an opinion or submit comments. Multiple community associations are only just becoming aware of the Project and more comments will be submitted if the deadline is extended. ***ECOS27***

Conclusion

While Alternative 3 is clearly the environmentally and socially preferable alternative of those presented in this initial study, further analysis is warranted for this project. ECOS feels that a Mitigated Negative Declaration cannot be found for all of the alternatives presented, and strongly recommends that a full Environmental Impact Report be conducted.

Thank you again for this opportunity to comment.

John E Deeter

John Deeter
Co-chair, Transportation, Air Quality & Climate Change Committee
Environmental Council of Sacramento

- ELMHURST NEIGHBORHOOD ASSOCIATION -

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October 28, 2016

To: Mr. Ken Lastufka
Environmental Coordinator
California Department of Transportation
1120 N Street, MS 49
Sacramento, CA 95814
ken.lastufka@dot.ca.gov

Dear Mr. Lastufka:

Founded in 1908, the historic Elmhurst Neighborhood of Sacramento is defined by U.S. Highway 50 to the north, Stockton Boulevard to the west, 57th Street to the east, and V Street and Second Avenue to the south. The main thoroughfare through Elmhurst is T Street, a charming, beautiful, and functional tree-lined corridor that provides car, bicycle, and pedestrian access to the neighborhood. Our neighborhood newsletter is circulated quarterly to approximately 1,300 households. Our neighborhood is known for its large elm, ash, and oak trees that provide a shady canopy for its residents, businesses, and visitors. For many years, our neighborhood has lived with the increasing noise pollution from U.S. Highway 50. About five years ago, the California Department of Transportation ("Caltrans") built only one sound wall along the north side of the highway, leaving the south side, Elmhurst, with no protection as indicated in the map below. As a result, increased noise has subsequently been bouncing into Elmhurst.

We enthusiastically welcome the Caltrans proposal to build a sound wall along the south side of the highway as part of the proposed high occupancy vehicle ("HOV") lane on U.S. Highway 50, our neighborhood's northern border. However, our residents have concerns about air and noise pollution produced by the highway construction. A significant number of our residents own homes along our northern border that will be directly impacted by construction. Furthermore, homes further south of U.S. Highway 50, such as those on T Street, would also see a significant reduction in their quality of life if a substantial sound wall is not built before work the highway expansion is initiated. It is for that reason our Elmhurst Neighborhood Association ("ENA") Board of Directors ("Board") has voted to support the construction of an effective sound wall *before* the beginning of any additional highway construction. Our Board's specific requests are listed below.

HOV Project Timeline. ENA respectfully requests that the sound wall be the highest and first priority in any and all project timelines on the HOV lane on U.S. Highway 50. We ask that the wall and vegetation plantings be completed before road work commences. ***ENA1***

Quality of Wall. ENA respectfully requests that wall be made of high quality, noise-abating materials to mitigate the potential nuisance construction of a HOV lane on U.S. Highway 50 will cause, including noise and air pollution. Based on the very disruptive highway maintenance construction that stretched over several months in 2014, residents believe that ***ENA2***

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erecting a sound wall prior to road preparation and construction will help lessen the inevitable impacts new construction noise and dust will have on Elmhurst.

Length of Wall. To protect our entire neighborhood, the ENA respectfully requests that the wall extend from at least Stockton Boulevard to 57th Street, our neighborhood's western and eastern boundaries. While we recognize that the wall may be built in sections, we request that there be no gaps between sections. Studies show that the effectiveness of sound walls in mitigating noise and particulate matter is compromised if there are gaps, even small ones, between wall sections. ***ENA3***

Additional Meetings. Unfortunately, not all Elmhurst residents received notification for the recent public meetings on this topic. ENA respectfully requests that your office work with its partners to host a meeting in the Elmhurst neighborhood for residents and key Caltrans staff to discuss any questions or concerns regarding this project. Notice is best provided at the email address listed below. ***ENA4***

Involvement of ENA. Lastly, our association respectfully requests inclusion in any meetings regarding this topic, with enough notice to meaningfully participate. ***ENA5***

The construction of an HOV lane on U.S. Highway 50 is a project that deeply impacts the Elmhurst neighborhood, residents, businesses, and guests. Our Board asks for your office's strong support in prioritizing the creation of a sound wall barrier ***before*** any highway construction abutting our neighborhood's northern boundary commences. We are happy to answer any questions you may have.

Sincerely,

Amreet Sandhu, J.D.
President
Elmhurst Neighborhood Association
Phone: 971.334.3868
Email: President@ElmhurstNA.com
Website: www.ElmhurstNA.com

The Elmhurst neighborhood is outlined in red.

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EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

20 October 2016

Kendall Schinke
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CERTIFIED MAIL
91 7199 9991 7035 8421 5371

COMMENTS TO REQUEST FOR REVIEW FOR THE MITIGATED NEGATIVE DECLARATION, SAC 50 PHASE 2 HIGH OCCUPANCY VEHICLE LANES PROJECT, SCH# 2016092060, SACRAMENTO COUNTY

Pursuant to the State Clearinghouse's 28 September 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 Sac 50 Phase 2 High Occupancy Vehicle Lanes Project, located in Sacramento 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. **WB1**

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.*

WB2

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

WB3

(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. ***WB4***

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. ***WB5***

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 ***WB6***

[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. ***WB7***

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. ***WB8***

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. ***WB9***

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.

WB10

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.

WB11

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

NPDES Permit

If the proposed project discharges waste that could affect the quality of the waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. ***WB12***

For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/centralvalley/help/business_help/permit3.shtml

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

Appendix N: Response to Comments

Responses to Email Comments

Response DC1:

All the sound walls evaluated for this portion of the project are considered feasible and will reduce noise for some areas. However, construction of the proposed sound walls would depend on the availability of funds. Please refer to Responses DR6 and DR12.

Response DC2:

Even though the noise study has determined that replacing SW EB3 with a taller barrier is not feasible, Caltrans agrees that it makes sense to replace this barrier with a newer taller barrier. Construction of this sound wall would depend on the availability of funds.

Response DC3:

According to the noise study report, the increase in noise levels from construction of the HOV lanes is 1 dBA. Human ear can barely perceive a change of 3 dBA in noise levels; a 5 dBA change is more readily perceptible. As for barrier on westbound US 50, since there are no noise level data available for this location from before the construction of the sound wall, it would be difficult to estimate the increase in noise from this barrier. The complex nature of noise barrier reflections makes it difficult in measuring them. Project terrain, topography, wind speed, wind direction, temperature gradients, and humidity plays a role in determining the increase in noise from a single-barrier. Generally, the complaints of large increases in noise came from residents living far from the highway and were actually from changes in meteorology such as wind and temperature.

Response DC4:

Table 2-41 in the Initial Study has been updated.

Response DC5:

Caltrans is looking forward to working with the community to identify potential funding sources for the project, especially for sound walls. Please also refer to Response DR6 and DR12.

Response DR1:

According to noise study report, construction of the project would increase existing noise levels by 1 dBA. This increase in noise is not considered substantial; a healthy human ear can barely perceive a 3 dBA change in noise levels.

Please refer to Response DC3 regarding the westbound US 50 sound wall. Please refer to Responses DR4 and DR8 regarding air quality concerns.

Response DR2:

Under CEQA, an Initial Study (IS) is prepared to determine the relative environmental impacts associated with a proposed project. The IS is designed as a measuring mechanism to determine if a project will have a significant effect on the environment, thereby triggering the need to prepare a full Environmental Impact Report (EIR). It also functions as an evidentiary document containing information which supports conclusions that the project will not have a significant environmental impact or that the impacts can be mitigated to a "Less Than Significant" or "No Impact" level. The CEQA Checklist (Appendix A) was used to identify physical, biological, social and economic factors that might be affected by the proposed project.

Caltrans is the lead agency who has decided to prepare a IS/MND based on the results of the technical studies and being able to mitigate to a less than significant level.

If there is no substantial evidence, in light of the whole record before the agency (including environmental studies prepared by Caltrans staff and consultants), that the project may have a significant effect on the environment, the agency prepares a Negative Declaration (ND). If the IS identifies potentially significant effects, but: (1) revisions in the project plans or proposals would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and (2) there is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment, then a Mitigated Negative Declaration (MND) is prepared. A MND is the appropriate CEQA document for this project.

Since 2007, Caltrans has performed NEPA duties under the program known as NEPA Assignment, pursuant to two Memoranda of Understanding (MOU) signed by the FHWA. A Finding of No Significant Impact, or FONSI, is a public decision document that briefly describes why the project will not have any significant environmental effect and will not require the preparation of an Environmental Impact Statement. Caltrans, as NEPA Lead Agency, has determined that a FONSI is the appropriate NEPA document.

Response DR3:

Caltrans is the CEQA and NEPA lead agency and responsible for selecting the preferred alternative. Selection is based on comments received during the circulation period/evidence in the record and only substantial changes would require recirculation of the environmental document.

The preferred alternative is approved with the Project Report approval by the District Director after selection by the project development team (PDT) and recommendation of the project manager. The selected alternative could be modified, prior to project approval, based on the review by the District Director. Recirculation of the draft environmental document would be dependent on the degree of the change to the project. If the changes were minor, then recirculation would not be required pursuant to NEPA and CEQA. If substantial changes were made, then recirculation of the document would occur.

Response DR4:

The air and noise impacts for the project were not considered significant, so mitigation is not required. Avoidance and minimization measures, as detailed in the environmental document, were proposed to reduce air and noise impacts.

Caltrans hired a private consulting company to conduct the noise study and prepare the noise impact report in accordance with FHWA's Noise Protocol. The company, AECOM, has many years of experience with conducting noise study analysis for Caltrans and other State and Local agencies.

All environmental studies conducted to determine project impacts, including air quality and the noise, used detailed methodology in determining potential impacts. These methodologies are accepted analytical tools utilized by government, universities, and private industry. Studies are available on the project website.

Caltrans is obligated to follow both State and Federal law/regulations.

<u>Response DR5:</u>

The ESL refers to the Environmental Study Limits and was used to determine impacts to various resources (it does extend to the State right of way). However, the limits to determine the impacts to air and noise extended farther than the ESL shown on Figure 1.3. All land use within 500 feet of the noise source is evaluated for noise impacts as defined by State and Federal regulations. Noise impacts were determined by monitoring sensitive noise receptors near the proposed project. The location of these receptors are included in Appendix D of the noise study (and added to Figure 1.3). As you can see, nearly all of these receptors are located outside the ESL.

The California Air Resources Board and Sacramento Metropolitan Air Quality Management District maintain a network of monitoring stations throughout the air basin to effectively monitor source-receptor areas in the region. The nearest air monitoring station to the project site is the Sacramento T Street Station, which is located at 1309 T Street, approximately 0.26 miles (414 meters) north of the project corridor. The criteria pollutants monitored at this station include O3, NO2, PM10 and PM2.5. The nearest station where CO monitored data are available from, is the El Camino & Watt Station, located at 3535 El Camino Street, approximately 3.4 miles north of the project's eastern terminus. These monitoring locations are also located outside the project ESL.

<u>Response DR6:</u>

The construction cost of the sound walls exceed the maximum federal allowances; therefore, construction of sound walls are not considered reasonable with regard to cost. For this reason, federal funds cannot be utilized for their construction. However, Caltrans will work with State and local agencies to identify funds to construct the sound walls along the Elmhurst community.

<u>Response DR7:</u>

The cost of the noise abatement cannot be combined with the total cost of the project. Noise abatement and cost analysis must be evaluated independently. Please refer to Response DR6 and DR12.

<u>Response DR8:</u>

FHWA has initiated studies regarding sound walls and vegetation mitigation strategies that would reduce PM2.5 near roadways. These studies are on-going.

Response DR9:

Rubberized Hot Mix Asphalt (open grade overlay), a noise reduction pavement, is recommended for this project. Pavements are not the best noise reduction strategies since they are only effective for a couple of years in maintaining smoothness characteristics.

Response DR10:

Caltrans sent the information requested to the commenter on November 4, 2016. Note that the existing data is sufficient to address noise impacts.

Response DR11:

As correctly stated, construction noise is regulated under Caltrans Standard Specifications Section 14.8-02, which limits construction noise to 86 dBA (Lmax) at 50 feet away of the job site from 9 PM to 6 AM. Efforts will be made through various methods to minimize the noise exposure from equipment to adjacent land use, such as rescheduling the nosiest operation during day time if deemed feasible.

Response DR12:

There are no funding sources identified for sound wall construction at present. However, Caltrans is working with Sacramento Transportation Authority (STA) to identify potential future funding from the Sacramento Measure A local tax revenue. Please refer to Response DR6.

Response DR13:

The public meetings were intended to allow the locals to provide their comments and input for this project. There was no opposition to the basic sound wall concepts proposed at the public meetings. Sound walls are masonry block (split face) that are reinforced with steel and concrete to attain the longest service life of any other material. This is the same material used to construct most of the existing sound walls within the corridor. All sound walls would be placed in a spot suitable for optimum noise reduction and be constructed to meet State and Federal standards. It should be noted that the residents along the State right of way that will have a sound wall along the back of property will be able to provide additional input prior to sound wall construction. Caltrans will work with State and local agencies to identify funds to construct the sound walls.

Response DR14:

Caltrans is looking forward to working with the community.

Response DR15:

Caltrans will consider this request and will make every effort to construct the sound walls before major construction activities begin on the HOV project. If local funding is identified allowing sound wall construction, then the contract language will include clauses that state that the sound wall will begin concurrent to the bridge work and be completed before the mainline cold plane and overlay work commences.

Response DR16:

Caltrans will replace and enhance the existing vegetation within the project limits. This includes tree and shrub planting and a water efficient irrigation system. Pursuant to Caltrans policy, this planting will more than likely take place as a separate project within a year of the completion of the roadway contract.

Response DR17:

Please refer to Response DR9.

Response DR18:

Sound wall height depends on breaking the line of sight between the receivers (homes) and source of noise (US 50). This will result in optimum noise reduction from the proposed barrier.

Response DR19:

Please refer to Response DR15.

Response DR20:

Tree and shrub planting is currently proposed as part of all build alternatives. Please also refer to Response DR16.

Response DR21:

Please refer to Response DR9.

Response DR22:

Caltrans analyzed three different termination points in case this project is phased due to construction funding. The first termination point is at Stockton Blvd, the second is at 26th Street, and the third at I-5. The traffic analysis performed by Wood Rogers indicated these are the best termination points with minimal impact.

Traffic analysis found that terminating the HOV lanes near Stockton Boulevard or 26th Street would not lead to increased congestion on US 50 between Stockton Boulevard and 59th Street (i.e. the Elmhurst area). Most HOV traffic is projected to merge out of the HOV lane before reaching the actual lane terminus to use the off-ramps to downtown.

Response DR23:

The decision regarding construction phasing will be made based on the availability of funding. Caltrans has every intention to build the HOV all the way to I-5.

Traffic analysis was performed to determine the best locations where the project could be terminated if it is not extended to I-5 all at once. The analysis found that terminating the HOV lanes at 26th Street would generally lead to less congestion on US 50 than experienced under No Build conditions. US 50 HOV lanes are planned to extend further to the west in the future, towards Davis, as part of Sacramento's overall planned freeway HOV network.

Response DR24:

The HOV striping would end ¼ mile before the HOV lane terminus and most HOV users are projected to exit the lane before it terminates to utilize off-ramps to downtown. Please refer to Responses DR22 and DR23.

Response MB1:

As detailed in previous responses, Caltrans will work with State and Local agencies to identify funds to construct the sound walls along Elmhurst community. These sound walls will be kept with the project and designed as community enhancements.

Response KM1:

Please refer to Responses DC2 and DC3.

Response KM2:

Overall traffic on US 50 is projected to increase in future years. As stated in the US 50 High Occupancy Vehicle Lane Project Traffic Report (Wood Rodgers, May 2015), traffic increase with the project could be from a variety of sources, including diverted traffic that previously took other routes, rescheduled traffic that previously used the modified facility at a different time, etc. These trips should not be considered "new" trips since they comprise of existing trips that have been rerouted to use the modified facility during analyzed time periods. Furthermore, as discussed in Appendix G of the Traffic Report Addendum (Wood Rodgers, dated 10/7/2016, located on the project website at www.dot.ca.gov/dist3/Projects/00216/prjindex.htm), construction of the HOV Lanes alternative results in a 5% reduction of VMT per person as compared to the No-Build alternative.

Response MM1:

Bridge work will be the first order of work. An order of work clause could be added to the construction contract so that sound walls will be built concurrent to the bridge construction. The remaining roadway work would occur after the sound walls were completed.

Response MM2:

Please refer to Responses DC2 and DC3.

Response MT1:

Caltrans will consider this request and will make every effort to construct the sound walls before major construction activities begin on the HOV project. Please refer to Response DR 19 and MM1.

Response MT2:

The purpose of sound wall is to create a quitter exterior environment. If sound walls are constructed at this location it will result in a lower noise levels.

Responses to Letter Comments

Response AQMD1:

The air quality modeling runs is an appendix to the air quality technical study (Appendix D) and has been added to the project website (www.dot.ca.gov/d3/projects/subprojects/00216/index.html). A copy of Appendix D was also sent to Molly Wright in your office on December 12.

Response AQMD2:

Caltrans will implement all construction measures accordingly.

Response AQMD3:

The reduction of idling from 10 to 5 minutes will be included in the contract language as a non-standard special provision. All contractors will be trained and required to turn off the engines so as to not exceed 5 minutes of idling for their construction equipment.

Response AQMD4:

The 65th Street improvements and the Sac 50 HOV Lanes project will be included in one construction package, and as such the construction emissions analysis included the 65th street bicycle/pedestrian improvements.

Response AQMD5:

CEQA requires a lead agency to make a good faith effort to identify impacts and gives the lead agency discretion on the approach to analyze impacts. Caltrans has used the best available modeling data (EMFAC 2014) to analyze greenhouse gas emissions related to the projects and have disclosed those projected emissions for both construction and operations activities within the draft document. While it is challenging to link the direct impacts of the proposed project to the global greenhouse gas effects on a cumulative scale to climate change, Caltrans is committed to reducing GHG emissions as outlined in the climate change section of the Initial Study (Section 2.19).

Response AQMD6:

Data collected from HOV lanes constructed on SR 99 in Sacramento (Appendix G of the Traffic Report Addendum (Wood Rodgers, 10/7/2016, located on the project website at www.dot.ca.gov/dist3/Projects/00216/prjindex.htm)) shows that addition of HOV lanes leads to an increase in ridesharing and that existing HOV lanes in the Sacramento area are heavily utilized during peak commute hours. A previous analysis of the proposed US 50 bus/carpool lanes in Sacramento concluded that HOT lanes would be infeasible (US-50 High Occupancy Toll (HOT) Lane Strategy Evaluation, Dowling Associates, 2005). This study analyzed HOT lanes that would be barrier or buffer-separated facilities with limited access points to perform toll collection and enforcement. It was found that the limited access points would prevent HOVs from using the HOT lanes as easily as they would use HOV lanes, and that the barrier separated design would likely lead to right-of-way impacts, higher construction costs, and higher collision rates. Note that per 15126.6 of the CEQA guidelines the document is not required to consider alternatives which are infeasible.

Projected congestion in the US 50 corridor through the year 2030 will not be great enough to generate the toll rates and revenues necessary to generate a positive cost/benefit ratio. The limited access points for the HOT lanes (necessary for toll collection and enforcement purposes) resulted in the diversion of many potential HOV users of the HOT lanes to the mixed flow lanes. The resultant increase in congestion in the mixed flow lanes could not be outweighed by the benefits recouped by allowing single occupant vehicles to pay a toll to access the HOT lanes.

Response AQMD7:

Please refer to Response AQMD6.

Response AQMD8:

As stated in the US 50 High Occupancy Vehicle Lane Project Traffic Report (Wood Rodgers, May 2015), induced demand could be from a variety of sources, including diverted traffic that previously took other routes, rescheduled traffic that previously used the modified facility at a different time, etc. These trips should not be considered "new" trips since they comprise of existing trips that have been rerouted to use the modified facility during analyzed time periods. Furthermore, as discussed in Appendix G of the Traffic Report Addendum (Wood Rodgers, 10/7/2016, located on the project website at www.dot.ca.gov/dist3/Projects/00216/prjindex.htm), construction of the HOV Lanes alternative results in a 5% reduction of VMT per person as compared to the No-Build alternative.

Response AQMD9:

To determine the long term health impact of MSATs it is not necessary to include a dispersion model because this project will not induce a significant number of diesel trucks based on the traffic analysis. The decision that this project is not "a Project of Air Quality Concern" was concurred upon through Interagency Consultation involving the USEPA, FHWA, SACOG, and Caltrans.

The proposed project is within a federal nonattainment area for fine particulate matter ($PM_{2.5}$) and attainment/maintenance area for respirable particulate matter (PM_{10}). In March 2006, the USEPA issued the final Transportation Conformity Rule (40CFR 51.390 and Part 93) that addresses local air quality impacts in PM_{10} and $PM_{2.5}$ nonattainment and maintenance areas. The final rule requires a hot spot analysis to be performed for a project of local air quality concern (POAQC) or any other project identified by the $PM_{2.5}$ and PM_{10} State Implementation Plan (SIP) as a POAQC. Further, in November 2013, USEPA released its updated guidance document: *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas.* The rule and the guidance documents provide criteria and procedures to ensure that such projects will not cause or contribute to new violations, increase the frequency or severity of any existing violations, or delay timely attainment of the relevant NAAQS as described in 40 CFR $93._{10}1$.

Section 40 CFR 93.123(b)(1) of the Transportation Conformity Rule defines types of projects that are considered a POAQC including the following:

- New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
- Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
- Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
- Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ or PM_{10} applicable implementation plan or implementation plan submission, as sites of violation or possible violation.

In addition, the *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* also describes projects that are not considered a local air quality concern under 40 CFR 93.123(b)(1)(i) and (ii). The project would be consistent with the following definition:

- Any new or expanded highway project that primarily services gasoline vehicle traffic (i.e., does not involve a significant number or increase in the number of diesel vehicles), including such projects involving congested intersections operating at LOS D, E, or F.

The US 50 HOV project falls within the category of new or expanded highway projects that do not involve a significant number or increase in the number of diesel vehicles. The previous 2006 *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* defined significant diesel volumes as being 8% of annual average daily traffic. The 2040 horizon year average annual daily traffic (AADT), along some segments of US 50 Highway within the project limits are projected to be above 150,000 average daily traffic. The average diesel truck percentage along segments of US 50 within the project limit range from 3.4% to 7.5% in 2040. This is less than the percentage of diesel trucks (i.e., 8%) considered to be significant pursuant to the PM Guidance. Furthermore, the projected fleet mix will not change significantly through the horizon year.

Implementation of the proposed project is anticipated to increase VMT on the affected portion of US 50; however, the roadway projects such as the proposed project would not generate more diesel truck traffic and segments would operate at a higher LOS. The proposed project is not a land use that would require additional diesel truck traffic as part of its operation. Therefore, the proposed project is not considered to have a significant amount of diesel truck traffic and would not increase diesel truck traffic along the affected portions of US 50.

According to the PM Guidance, the proposed project would not be a POAQC and would not increase the potential for a PM hot spot. The project will also affect several intersections with LOS E and F; however, there is not considerable LOS change between No Project and the project build alternatives.

Implementation of the proposed project would not degrade intersections to LOS D, E, or F with a significant number of diesel vehicles. In addition, the proposed project does not include the construction of a new bus or rail terminal, nor expand an existing bus or rail terminal. Lastly, the proposed project is not located within and would not affect sites that are identified as sites of possible $PM_{2.5}$ violations pursuant to the $PM_{2.5}$ applicable implementation plan.

Based on the information provided above, the proposed project is not expected to introduce significant amount of diesel truck traffic, and is in compliance with the SIP and MTIP. Therefore the project would be considered “Not a POAQC” based on the definition contained in 40 CFR 93.123(b)(1).

<u>Response AQMD10:</u>

The project creates new travel lanes within 500 feet of homes, schools, business, and other populated area that may increase concentrations of MSAT at those locations relative to the no build alternative. Despite the potential increases of MSATs close to the sensitive receptors, USEPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with USEPA’s MOVES model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050, while vehicle-miles of travel are projected to increase by over 100 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project. Please refer to Table 2-36 that identifies reductions in MSATs versus current levels.

<u>Response AQMD11:</u>

Caltrans will follow SMAQMD rules and regulations at the time of construction. All contractors will be trained to construct this project under the applicable rules and regulation.

Response ECOS1:

As shown in Table 2-23 of the IS/EA, eastbound US 50 experiences slight increases in mainline speeds and up to 1,400 more persons served with construction of the HOV lane (Alternative 1) when compared to No Build (Alternative 4) under Year 2040 peak period conditions. Tables 2-23 and 2-25 show relative traffic levels, but all alternatives including the no build will have increased traffic volumes according to the traffic projections. Also, please refer to Response ECOS25.

Response ECOS2:

Caltrans is aware of recent legislation and will be monitoring statewide initiatives, such as the update of the Scoping Plan occurring by direction of the California Air Resources Board, and will continue to collaborate with our regional partners to implement their GHG reduction targets. The SACOG 2016 MTP/SCS estimated regional GHG emissions to demonstrate that the plan meets the SB 375 targets set by ARB. The SB 375 emission reduction targets are 7 percent below 2005 emissions levels by 2020 and 16 percent below 2005 levels by 2035. The 2012 MTP/SCS estimated that the per capita emissions for the region would be 10 percent below 2005 emissions levels in 2020 from 2005, and 16 percent below 2005 emissions levels in 2035.

The design concept and scope of the proposed project is consistent with the project description in the MTP and the GHG analysis. Therefore, although the project could result in a slight increase in GHG emissions compared with the No-Project scenario, the effect of the proposed project has been accounted for by SACOG when determining if the region will meet SB 375 GHG reduction targets. Because SACOG has determined in its current 2016 MTP/SCS that it would meet its GHG reduction targets and accounts for the proposed project, the proposed project would not impede regional GHG reduction goals.

Response ECOS3:

The current HOV lanes on US 50 start/end at Watt Avenue Interchange. From this point, public transit from Folsom and El Dorado County and carpool vehicles then travel to downtown Sacramento on mixed flow lanes for the remaining 7 miles, resulting in additional delays. Extending the current HOV lane to I-5 will encourage commuters to use public transit and carpools due to better travel time and reliability of travel on this corridor.

Traffic operations within the corridor would improve with construction of HOV lanes under year 2020 conditions. The proposed project would increase study area persons served by approximately 13,000 during the year 2020 PM peak period and increase average westbound project area travel speeds by approximately 5 miles per hour during year 2020 PM peak hour.

HOV lanes have been included in SACOG's MTOP since 1996. This project was included in the 2012 MTP. It takes multiple years to develop a project of this magnitude, involving complicated coordination activities with the City of Sacramento (detour/traffic handling on local roads), Union Pacific Railroad (widening of bridges above multiple active railroad tracks), and Sacramento Rapid Transit (bridge widening above active tracks at several locations in this corridor). These coordination activities can take approximately two to three years and are usually initiated after a draft engineering design is complete. Engineering design starts once the project receives environmental approval. Furthermore, this project officially initiated in November 2012. It will take six years to complete environmental approval, design, and contract plans, plus at least two years for construction. Deferring this project only increases user costs in lost time and increased collisions due to congestion.

Response ECOS4:

Comment noted.

Regarding the second bullet, the amendments to the CEQA Guidelines implementing SB 97 became effective on March 18, 2010. The environmental document for the phase 1 project pre-dated this guidance. The draft environmental document for phase 2 includes a quantitative disclosure and analysis of operational and construction GHG emissions anticipated from this project.

Response ECOS5:

Please refer to the air quality, land use, and climate change sections in this document. Also please refer to Response AQMD5.

Response ECOS6:

Caltrans considers the current project a separate, stand-alone project.

Response ECOS7:

The climate change section of the IS/EA has been updated. Implementing guidelines for SB743 have not yet been finalized by OPR. However Caltrans is aware and has taken these factors into account.

Response ECOS8:

SACOG is currently implementing the 2016 MTP/SCS. The proposed project has been included in this regional plan that has demonstrated to California Air Resources Board (ARB) that the selection of projects included in the plan will assist the region in meeting its prescribed GHG reduction targets. The SACOG 2016 MTP/SCS estimated regional GHG emissions to demonstrate that the plan meets the SB 375 targets set by ARB. The SB 375 emission reduction targets are 7 percent below 2005 emissions levels by 2020 and 16 percent below 2005 levels by 2035. The 2012 MTP/SCS estimated that the per capita emissions for the region would be 10 percent below 2005 emissions levels in 2020 from 2005, and 16 percent below 2005 emissions levels in 2035. Caltrans will continue to work with our regional partners to achieve their emissions reduction targets prescribed by ARB.

Response ECOS9:

VMT analysis for each proposed alternative is discussed in the Traffic Report Addendum (Wood Rodgers, 10/7/2016). This report has been added to the project website. Also, please refer to Response ECOS7.

Response ECOS10:

Please see responses below.

Response ECOS11:

The increase in existing noise levels due to construction of the proposed project is 1 dBA. This is not considered substantial. The project meets all air quality conformity requirements. Within the environmental consequences section of the document (after Table 2-3), a discussion regarding air quality analysis and health effects is included in the air quality section of the document, under "Incomplete or Unavailable Information for Project Specific MSAT Health Impact Analysis." Please refer to Appendix L.

Response ECOS12:

Traffic volumes increased for the future years because the project is on a main highway corridor in the Sacramento Region. As a result, PM_{10} would increase due to the higher traffic volume with all the alternatives compared to the no-build. Note that the project meets all air quality conformity requirements. Please refer to Appendix L.

Response ECOS13:

The project would potentially increase PM10 concentrations to sensitive receptors, such as homes, schools, and other populated areas. It should be noted that Alternative 4 would increase PM_{10} in the horizon year 2040 about 16.5% (676-580 base/580 base) compared to a 3-4% increases between the Alternatives 1 and 2 versus Alternative 4 in the horizon 2040 as shown in Table 2-31. In other words, PM_{10} could be gradually increased without this project; the California Air Resources Board (CARB) 13th and T Street monitoring station is representative of long-term change of PM_{10} in the project area. CARB's air quality monitoring program collects accurate real-time measurements of ambient level pollutants at over 40 sites located throughout the state. There are numerous stations near the project site; Caltrans selected the one most relevant to the project. The data generated are used to define the nature and severity of pollution in California; determine which areas of California are in attainment or non-attainment; identify pollution trends in the state; support agricultural burn forecasting; and develop air models and emission inventories. Please refer to Response AQMD9.

Response ECOS14:

The Sacramento area is in Federal attainment for PM10. The project is not a Project of Air Quality Concern" (POAQC) by EPA, SACOG, and FHWA. Please refer to Response AQMD9 for a detail discussion regarding POAQC.

Response ECOS15:

Caltrans has analyzed CEQA impacts and has determined that there is a low chance of impacts. The project meets all air quality conformity requirements. See Appendix L for the FHWA Project Level Conformity Determination. The project is not a “Project of Air Quality Concern". Please refer to Response AQMD9 and Appendix K. The Project Level Conformity Group also includes SACOG and the California Air Resources Board along with the federal agencies; thus, PM10 was considered from a state and regional perspective. We considered your comment and Question D under III. Air Quality of the CEQA checklist has been changed from “No impact” to “Less than significant impact.”

Response ECOS16:

To determine the long term health impact of MSATs it is not necessary to include a dispersion model because this project will not induce a significant number of diesel trucks based on the traffic analysis. Please refer to Response AQMD9.

Response ECOS17:

As shown in Table 2-26, Alternatives 1 and 2 are projected to experience a higher percentage of VMT at higher speeds. In general, freeway facilities are able to serve more vehicles with fewer emissions when they are operating at higher speeds. Furthermore, as discussed in Appendix G of the Traffic Report Addendum (Wood Rodgers, 10/7/2016, located on the project website at www.dot.ca.gov/dist3/Projects/00216/prjindex.htm), Alternative 1 results in a 5% less VMT per person as compared to Alternative 4 and 2.5% less VMT per person than Alternative 3. Further discussion regarding VMT is included in Section 2.6 of the environmental document.

In 2008, California passed the Sustainable Communities and Climate Protection Act, Senate Bill 375 (SB 375). This law requires MPOs, such as SACOG, to develop a Sustainable Communities Strategy (SCS) as part of the Metropolitan Transportation Plan (MTP), which identifies policies and strategies to reduce greenhouse gas emissions from passenger vehicles to targets set by the California Air Resources Board

(ARB). The project is listed in SACOG's current 2016 MTP/SCS and thus has been analyzed for regional VMT and is consistent with the regional plan to reduce VMT/GHG.

Response ECOS18:

CEQA doesn't require Caltrans to anticipate what will be adopted in future MTP cycles, only what is current.

Response ECOS19:

The increase in traffic on the project segment of US 50 due to "induced traffic" from the increase in freeway capacity under Alternatives 1 and 2 is projected to be very minor compared to the overall future traffic growth projected to be experienced on US 50 due to buildout of the region. As stated in the US 50 High Occupancy Vehicle Lane Project Traffic Report (Wood Rodgers, May 2015), induced demand could be from a variety of sources, including diverted traffic that previously took other routes, rescheduled traffic that previously used the modified facility at a different time, etc. These trips should not be considered "new" trips since they consist of existing trips that have been rerouted to use the modified facility during analyzed time periods. Furthermore, as discussed in Appendix G of the Traffic Report Addendum (Wood Rodgers, Oct. 7, 2016), construction of the Alternative 1 results in a 5% reduction of VMT per person as compared to Alternative 4. Ramp operations were quantified in Appendix Exhibits 3A through 3H in the US 50 High Occupancy Vehicle Lane Project Traffic Report. As shown in those exhibits, project segment freeway ramps are projected to experience little to no change in operations performance measures between all alternatives. As a result, any deficiencies that may occur on ramps and connectors in the future would be due to overall traffic growth, not induced traffic. The traffic study is located on the project website (www.dot.ca.gov/dist3/Projects/00216/prjindex.htm).

As discussed in the "HOV Lane Safety data" subsection of the Traffic section of the IS, recently collected data from a nearby segment of US 50 did not show a clear link between the construction of HOV lanes and an increase in collisions or change in collision types. Additional HOV segments in the Sacramento Area, including Business 80 through Downtown Sacramento, were previously analyzed in terms of safety in the I-5 Bus/Carpool Lanes Traffic Report (Fehr & Peers, September 30, 2009) which found that collision rates are sensitive to traffic congestion whether the freeway has HOV lanes or not and that no clear differences were found in collision types or causes before and after the installation of HOV lanes, which again showed no link to HOV lanes and a change in collision rates.

Response ECOS20:

Future year traffic forecasts used for the US 50 HOV Lanes Traffic Report were obtained from a version of SACOG's SACSIM model which included future expansion of the Sacramento transit system. Even with an expanded transit system, the future forecasts projected transit to be operating at or near capacity, and increased vehicular capacity was needed to meet the increased travel demand. Light rail transit can only accommodate so many train cars at a time due to constraints of block width, headway, etc. Additionally, construction of the HOV lanes would benefit buses by adding more capacity on the freeway for buses and better travel times for bus passengers.

Response ECOS21:

As described in the IS/EA, reduced congestion corresponds to increased average speeds and decreased average density. As stated in the Traffic Report Addendum (located on the project website www.dot.ca.gov/dist3/Projects/00216/prjindex.htm), under Year 2040 conditions, Alternative 1 is generally shown to have similar, and sometimes better, speeds and densities throughout the project corridor in addition to serving more persons and providing some decreased travel times compared to Alternative 4.

Response ECOS22:

Growth in the Sacramento region will occur whether this project is built or not. Regardless if the HOV lanes are constructed, there are various approved and proposed housing developments near the US 50 and the project limits (please refer to Table 2-42 in the IS):

- Aspen 1 New Brighton (approved): 232-acre development with 1365 housing units
- West Jackson Highway Master Plan (in progress): approximately 5,900 acres in size with 2,356 acres of residential land uses (varies from very low density to high density and mixed use)
- Mather Specific Plan (in progress): approximately 391.8 acres of low-density residential
- Mather South Master Plan (in progress): approximately 3,545 dwelling units including a mixed use commercial/residential center, three neighborhood parks, and two elementary schools
- Jackson Township Specific Plan (in progress): approximately 1,391 acres in size. Proposed uses include approximately 6,143 housing units; including 2 million square feet of commercial, office and mixed use developments; schools; parks; and open space
- New Bridge Specific Plan (in progress): Approximately 989.9 acres in size. Some of proposed uses include low density residential (471.2 acres); medium density residential (45 acres); and commercial and office (48.8 acres)

Areas outside the project limits are also proposing new housing developments. For example, the City of Folsom adopted the Folsom Plan Area Specific Plan (FPASP) in 2011, and area south of US 50 covering 3,500 acres and 10,800 housing units. This plan is going forward irrespective of the Sac 50 HOV project.

Regarding the comment about regional land use plans and greenfield development, even though such development is discouraged in these plans, this project is incorporated into regional land use plans, including the SACOG's current MTP/SCS and Regional Blueprint (please refer to Section 2.1 of the IS). These plans realize that this project will help alleviate the increased congestion caused by approved and proposed developments within the US 50 corridor.

Caltrans implementation of this project is one part of the larger plan. It is up to local governments with land use control to decide whether to follow other elements of the plan related to land use.

Response ECOS23:

The calculation of federal allowances is based on number of benefited receivers (homes). Each land use that benefits from an abatement will receive $71K worth of federal funds toward the construction of the barrier. If construction cost of the barrier exceeds the federal allowances, then abatement does not meet the reasonableness criteria. Caltrans' Design estimates the construction cost of the noise barriers. Sound walls in downtown along the W-X freeway were considered; however, including these sound walls would depend on available funding and approval from the City of Sacramento (in the past the City has expressed concerns over sound walls on the elevated W-X freeway). Please refer to Responses DR6 and DR12.

Response ECOS24:

Changing the name from “Take-a-Lane” to “Inner Lane Conversion” during the development of this project would be confusing to public when reviewing past and future scoping documents for this project. By changing the name, references would still be required for “Take-a-Lane” for continuity. This consideration could occur on future projects. Also note that the "Take-a-Lane" label has been used for other HOV projects in the region, including I-80 Across the Top and I-5 from Downtown Sacramento to Elk Grove.

Response ECOS25:

We disagree that Alternative 3 provides continuity in the HOV network. No existing HOV lanes on US 50, I-80, or I-5 were constructed as Take-A-Lane alternatives; all were built as new HOV lanes. As described in the IS/EA, converting an existing mixed flow lane between Watt Avenue and the Sacramento River on US 50 would create traffic issues not only on US 50, but also on adjacent local roadways as well.

As shown in Table 2-23 of the IS, under Year 2040 conditions, Alternative 1 is projected to serve 1,400 more persons in the eastbound project corridor than Alternative 4 (No Build) under peak period conditions (AM and PM peak hour), while Alternative 3 is projected to serve 850 less eastbound persons than Alternative 4 under peak period conditions. As shown in Table 2-25 of the IS, under Year 2040 conditions, Alternative 1 is projected to serve 2,000 more persons in the westbound project corridor than Alternative 4 (No Build) under peak period conditions (AM and PM peak hour), while Alternative 3 is projected to serve 1,200 less westbound persons than Alternative 4 under peak period conditions. As shown in Table 2-24, westbound travel times under Alternatives 1 and 2 are shown to decrease by up to 7 and 9.5 minutes, respectively, compared to Alternative 4 during the PM peak period. Additionally, Alternative 3 experience additionally delay due to vehicles having to wait in queues outside the project corridor and the increased bottlenecks that form when converting an existing lane to HOV.

Response ECOS26:

You are correct regarding the reduced cost of Alternative 3 over Alternatives 1 and 2. However, it is up to the Sacramento Transportation Authority (STA) as to if and where the additional savings will be spent.

As shown in Table 2-26 of the IS, Alternatives 1 and 2 are projected to experience a higher percentage of VMT at higher speeds. In general, freeway facilities are able to serve more vehicles with fewer emissions when they are operating at higher speeds. Furthermore, as discussed in Appendix G of the Traffic Report Addendum (located on the project website www.dot.ca.gov/dist3/Projects/00216/prjindex.htm), Alternative 1 results in a 5% less VMT per person as compared to Alternative 4 and 2.5% less VMT per person than Alternative 3.

Response ECOS27:

Public participation is considered an essential part of the CEQA process and reflects a belief that citizens can make important contributions to environmental protections and notions of balanced decision making through wide public involvement. To comply with CEQA and the CEQA Guidelines, Caltrans must provide a notice of intent to adopt a negative declaration or mitigated negative declaration to the public, responsible agencies, trustee agencies, and the county clerk of each county within which the proposed project is located, sufficiently prior to adoption by the lead agency of the negative declaration or mitigated negative declaration to allow the public and agencies the 30 day review period. Caltrans must give notice of intent to adopt a negative declaration or mitigated negative declaration by at least one of the following procedures to allow the public the 30 day review period:

- Publication at least one time in a newspaper of general circulation in the area affected by the proposed project.
- Posting of notice on and off site in the area where the project is to be located.
- Direct mailing to the owners and occupants of contiguous property shown on the latest equalized assessment roll.

The negative declaration was posted with the Sacramento County clerk’s office from October 4 to November 2, 2016. A public notice regarding the release of the draft environmental document was published in the Sacramento Bee on September 28, 2016. The public notice was also mailed on September 28, 2016, to 29 adjacent and nearby neighborhood associations and groups, including ECOS. Please refer to Chapter 6 in the environmental document for a list of agencies, organizations and libraries that received a copy of the public notice. Also, ECOS requested, and was granted, a one week extension to submit comments. Caltrans complied with the CEQA noticing requirements.

Response ENA1:

Bridge work will be the first order of work. An order of work clause could be added to construct the sound walls concurrent to the bridge construction if sound wall funding is secured. The remaining roadway work would occur after the sound walls were completed. Also please refer to Responses DC5, DR12, and DR16.

Response ENA2:

Sound walls are masonry block (split face) that are reinforced with steel and concrete to attain the longest service life of any other material. Please refer to Response DR13.

Response ENA3:

There are no gaps proposed for contiguous sound walls. There are several locations where sound walls will overlap; overlapping does not reduce the effectiveness of sound walls. Please refer to Responses DC5 and DR12.

Response ENA4:

Caltrans staff, along with Representative Kevin McCarthy, City Councilmember Eric Gueera, and STA Executive Director Jeffrey Spencer, conducted an additional public meeting for the Elmhurst community at the Coloma Center on November 17, 2016. Approximately 20 residents attended.

Response ENA5:

Caltrans looks forward to continue working with the community.

Response WB1:

Thank you for your comment. The first few paragraphs appear to be regulatory information that provides a background to explain the roles and responsibilities of the agency, rather than a direct question posed.

Response WB2:

The Porter-Cologne Water Quality Control Act defines water quality objectives (WQOs) as "...the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area". The Contractor is required to adhere to conditions of Caltrans MS4 Permit and the Construction General Permit (CGP) in order to protect receiving waters and ground water resources. Under the CGP, the contractor is required, and not limited, to implement monitoring and reporting requirements, document findings, report on discharges and inform Caltrans when incidents occur, and document corrective and mitigation resolution measures. Ensuring with 100% accuracy and confidence, and to forecast into the future that no incidents will occur (for this or any project), is impossible. Caltrans and the Contractor are required by law to follow the conditions of all applicable NPDES and Storm Water permits (mentioned in this study) and all associated and applicable regulatory compliance documents referenced. If the CGP permit conditions and provisions are followed to the maximum extent practicable, then it is unlikely that impacts to groundwater will occur and any threat posed (considering the scope of work anticipated) is more than likely to be de minimis

Groundwater Quality Objectives/Standards and Beneficial Uses:
The existing beneficial uses of the underlying groundwater within the Central Valley Region includes municipal and domestic water supply, agricultural supply, industrial service and industrial process supply. Moreover, as described in the Basin Plan, groundwater within the Central Valley Region is subject to narrative and quantitative WQOs for bacteria, chemical constituents, radioactivity, tastes and odors. With that understanding, and considering the likely construction operations for the proposed project, impacts to groundwater are not anticipated.

Avoidance and Minimization Measures:
To prevent potential impacts to receiving waters as a result of construction activities and/or operations related to this project, temporary and permanent measures would be implemented in accordance with applicable storm water regulations and standards. Short-term temporary measures would focus on implementing construction BMPs, aimed at reducing erosion and subsequent sediment transport. Long-term permanent measures would consider factors such as permanent stabilization of disturbed soil and natural storm water quality treatment. These regulations and applicable measures are listed below.

Sediment and erosion-control BMPs should be implemented in compliance with the Caltrans' programmatic documents (previously mentioned) and outlined in the Caltrans approved Water Pollution Control Program (WPCP). Anticipated temporary sediment and erosion control measures for this project should include, and not be limited to, the following:

- Fiber rolls and/or silt fences;
- Gravel bag berm;
- Rolled erosion-control product (e.g., netting);
- Designated construction entrance/exit;
- Re-establishment of vegetation or other stabilization measures (hydroseeding, mulch) on disturbed soil areas and newly constructed slopes; and
- Wind erosion control.

<u>Response WB3:</u>

Thank you for your comment. The first few sentences appear to be standard, regulatory language that provides a background information to explain the roles and responsibilities in regards to permitting requirements, rather than a direct question posed.

Projects with a land disturbance equal to or exceeding 1 acre must adhere to the compliance requirements of the NPDES Construction General Permit (CGP) CAS No. 000002 (Order No. 2009-0009-DWQ) for General Construction Activities. Project specifics and details at this time indicates that the project will be subject to the conditions and requirements of the CGP. Therefore, Caltrans and the Contractor will be required to comply with all the applicable CGP provisions. However, the need for an Industrial Permit has not been identified nor discussed in the supporting Water Quality Assessment technical study and its relevance is unknown at this time. Similar types of projects (in the past) have encountered situations during construction, which has required an Industrial Permit. But currently, it is unknown if the Contractor will be conducting activities that support the need for this specialized permit. If a specific roadside operation (i.e. rock crushing or similar) is necessary, the Contractor will need to coordinate with both Caltrans and the Regional Board for Industrial Permit obtainment.

<u>Response WB4:</u>

The project lies within Sacramento County's Urban Municipal Separate Storm Sewer Systems (MS4) Phase I permitted area and must comply with the requirements of this permit and Caltrans' MS4 Permit.

In addition, depending on the quantity of new impervious area anticipated for the project and other factors, treatment BMPs may require consideration. LID and hydromodification components are also considered based on applicable criteria within Caltrans' MS4 Permit and implemented accordingly.

Caltrans' Storm Water Design functional unit determines and documents decisions made with respect to the implementation of LID/Post Construction BMPs for the project, and does so, in accordance with the provisions and conditions of Caltrans' MS4 Permit and associated programmatic documents.

Response WB5:

Thank you for your comment. Please refer to Response WB3.

Response WB6:

The project will not discharge dredged or fill material into navigable waters or wetlands. A USACE Section 404 permit is not required. A 1602 Streambed Alteration Agreement is not required.

Response WB7:

Thank you for your comment. Comment noted.

Response WB8:

The project does not affect non-jurisdictional waters of the State.

Response WB9:

Avoidance and Minimization Measures:
Dewatering may be required, but specifics relating to this activity have not yet been determined. Each RWQCB has unique permitting requirements and may have specific WDRs to regulate dewatering. NPDES and Storm Water staff may need to coordinate with RWQCB staff prior to the start of construction, to discuss and determine how to permit this activity.

Response WB10:

This appears to be typical regulatory language for commercially irrigated agriculture and doesn’t apply to this project. The project/property will not be used for commercially irrigated agriculture.

Response WB11:

Avoidance and Minimization Measures:
Dewatering may be required, but specifics relating to this activity have not yet been determined. Each RWQCB has unique permitting requirements and may have specific WDRs to regulate dewatering. NPDES and Storm Water staff may need to coordinate with RWQCB staff prior to the start of construction, to discuss and determine how to permit this activity.

Lastly, considering the construction operations anticipated and the typical dewatering operations that may be necessary for the proposed work, it is unlikely that a Dewatering and Discharge to Water Permit will be needed or pursued.

Response WB12:

The project adheres to the Caltrans Statewide NPDES MS4 Permit and the NPDES Construction General Permit CAS No. 000002.

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

MEMORANDUM

REVISION

Serious drought.
Help Save Water!

To: JOHN MARTIN
Design Engineer
Department of Transportation

Attention: MICHAEL SULLIVAN
Project Engineer

Date: March 24, 2017

File: 03-SAC-50-P.M L0.2/R6.1
EFIS No.: 03 1200 0216
EA: 3F360

From: JANEL D. WILSON
Assistant Chief
North Region Right of Way
Marysville

Subject: CURRENT ESTIMATED RIGHT OF WAY COSTS

Project Description: Construct HOV lanes on Route 50 in Sacramento County between the Sacramento River Viaduct and Watt Avenue.

We have completed an estimate of the right of way costs for the above referenced project based on information received from you on March 9, 2017.

Right of Way Lead Time will require a minimum of 32 months after receipt of appraisal maps, utility conflict maps, environmental clearances (HMDD) and Certificate of Sufficiency (COS). A minimum of 29 months prior to certification will be required from submittal of the last map or revision. Shorter lead times may require additional support resources and may adversely affect delivery of Right of Way Certification.

Attachment:
Right of Way Data Sheet

cc. Sutha Suthahar

California State Transportation Agency
RIGHT OF WAY DATASHEET

EA: 3F360
PROJECT NO.: 03 1200 0216
LOCATION: 03-SAC-50-P.M L0.2/R6.1
Description: Construct HOV lanes on Route 50 in Sacramento County between the Sacramento River Viaduct and Watt Avenue.
DATE: 3/24/2017
Datasheet Type: Revision - RxR and Clr/Demo

1. Right of Way Cost Estimate:

	Current Value Future Use	Escalation Rate	Escalated Value
A. Total Acquisition Cost	$4,115,298	5%	$4,315,868
B. Appraisal Fees Estimate	$75,000	N/A	$75,000
C. Mitigation Acquisition & Credits	$131,250	5%	$137,647
D. Project Development Permit Fees	$10,000	5%	$10,487
Subtotal	$4,331,548		$4,539,002
E. Utility Relocation (State's Share)	$550,000	5%	$576,806
(Owner's Share: $160,000)			
F. Relocation Assistance (RAP)	$120,000	5%	$125,849
G. Clearance/Demolition	$250,000	5%	$262,184
H. Title & Escrow	$0		$0
I. Total Estimated Right of Way Cost	$5,251,548	**Rounded**	**$5,504,000** *
J. Phase 4 estimated expenses			
Railroad	$810,000		
Construction Contract Work	$0		

2. Current Date of Project Approval (PA&ED) March 1, 2017

Current Date of Right of Way Certification March 15, 2018

3. Parcel Data:

Type		Dual/Appr	Utilities		Railroad	
X	0		U4 - 1	5	C&M Agreement	3
A	7		- 2	0	Service Contract	8
B	19		- 3	2	Easements	2
C	0	0	- 4	0	Rights of Entry	4
D	0	0	U5 - 7	16	Clauses	2
RR	2		- 8	0		
Total	**28**		- 9	7		

Excess 0

Areas:		Mitigation		Misc. R/W Work	
R/W	N/A	Impacts	2	RAP Displacees	6
TCE	5.15 AC	Parcels	0	Clear/Demo	1
Excess	N/A	Credits	0	PTE Construct	N/A
Mitigation	N/A	Env PTE	0	Condemnation	6
				USA Involvement	No

Attachment G

4. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.).

The following requirements are anticipated: Permits to Enter, Temporary Construction Easements (TCEs) and Railroad Right of Entries (ROEs). Nine airspace locations will be affected. One TCE appears to impact the City of Sacramento and will require their parking area to be temporary relocated during the project. Four Residential TCEs require 50% of land from the parcel, request for full take and condemnation risk are high.

5. Are any properties acquired for this project expected to be rented, leased, or sold?

Yes ______ No __X__

6. Are RAP displacements required?

Yes __X__ No ______

No. of single family __4__ No. of business/nonprofit __2__
No. of multi-family __0__ No. of farms __0__

Based on Draft/Final Relocation Impact Statement/Study dated August 15, 2016

______ Sufficient replacement housing will be available without last resort housing.

______ Sufficient replacement housing will not be available without last resort housing.

7. Is there an effect on assessed valuation?

Yes ______ No __X__ Not Significant ______

8. Are there any items of Construction Contract Work?

Yes ______ No __X__

There is no Construction Contract Work associated with the project.

9. Are utility facilities or rights of way affected?

Yes __X__ No ______

Names of Utility Companies requiring verification only.

AT&T, California American Water, Consolidated Comm., Sac Area Sewer District, Sac County Water Agency, Sac Regional County Sanitation District (Regional San), Integra Telecom, Kinder Morgan, Verizon Business, Zayo Group, Office of Technology, Sac Area Suburban Water District, Owest, TW Telecom, XO Comm.

Names of Utility Companies requiring involvements.

SMUD, City of Sac Utilities Department, Comcast Cable, AT&T, and XO Communications, Zayo

Additional information concerning Utility Involvement on this project.

Project proposes to overlay US 50 and restripe to create Bus/HOV lane. Additional work will include widening of four structures required for the new lanes, widening of ramps, landscaping, and installation of soundwalls. PE stated no significant change to final grade. However, PE indicated equipment to widen median structures will interfere with overhead lines; potential conflicts include, Gas, Electric, Sewer, Water, Cable, Telephone, and fiber optic lines. SMUD/Comcast joint poles. Number of poles in conflict estimated at 8 poles. PE also stated installation of soundwalls will more than likely require relocation of underground utilities, as will decking of the Viaduct. As-built mapping identifies numerous underground facilities, mostly abandoned, but info is outdated. Updated facility maps from utility owners are currently being reviewed. Extensive PH will be necessary for soundwall footing installations, and additional columns for structure work.

10. Are railroad facilities or rights of way affected?

Yes __X__ No ______ Phase 4 Capital **$810,000**

The Camellia City Viaduct and Brighton OH have Union Pacific Railroad Co (UPRR) and Sacramento Regional Transit (SCRT) tracks that will be affected by work. C&M Agreements, ROE's, Flagging and Preliminary Engineering Agreements will be required for UPRR and SCRT at each crossing. A Railroad Clearance Memo with Long RxR Clauses will be issued to OE with the RW Cert.

11. Are USA Lands or Rights Affected?

Yes ______ No __X__ Phase 4 Capital **$0**

Agencies Involved:

US Forest Service ______ BLM ______ Army Corps of Engineers ______
National Parks ______ BIA ______ Veterans Administration ______
US Fish & Wildlife ______ GSA ______ ______

Rights or Permissions to acquire:

Easement ______ Special Use Permit ______ Courtesy Letter ______
Right of Way Grant ______ Cooperative Work Agreement ______ Cost Recovery ______
Mineral Agreement ______ Letter of Concurrence ______ Timber Sale ______

There are no Federal Lands on this project.

12. Is an RE Office required for the project?

Yes ______ No __X__

Attachment G

13. Were any previously unidentified sites with hazardous waste and/or material found?

Yes ______ None Evident __X__

14. Are there material borrow and/or disposal sites required?

No __X__ Optional ______ Mandatory ______

15. Are there potential relinquishments and/or abandonments?

Yes __X__ No ______

There may be some R/W relinquishement and maintenance agreements required for the soundwall work.

16. Are there any existing and/or potential airspace sites?

Yes __X__ No ______

Nine airspace locations will be impacted. One site is a dirt lot. Seven tenancies in effect will be temporarily stopped, premises vacated and no rent costs charged during construction. The eighth tenancy is the Mini Storage business to be terminated permanently and structures demolished.

17. What type of mitigation is required for the project?

Environmental Studies are not yet completed. Regarding mitigation costs, these are preliminary since we haven't circulated the DED yet (and the costs may change) Permit and estimated PTEs (Permits to Enter) and their associated costs are for planning purposes only.

18. Is it anticipated that Caltrans will perform all Right of Way work?

Yes __X__ No ______

19. Indicate the anticipated Right of Way schedule and lead time requirements.

Right of Way Lead Time will require a minimum of **32** months after we receive first appraisal maps, utility conflict maps, necessary environmental clearances and freeway agreements have been approved and obtained. Additionally a minimum of **29** months will be required after receiving the last appraisal map to Right of Way for certification.

20. Assumptions and limiting Conditions: (Check boxes that apply.)

- ☑ Design will secure necessary encroachment permits from local agencies, Reclamation Districts, Central Valley Flood Protection Board, etc. in advance of construction.
- ☑ TCEs will be required for approximately 44 months, from the date of R/W Cert 3/2018 until Contract Is Accepted 11/2021.
- ☑ This estimate is based off Cost Estimate Maps dated 3/11/2016
- ☑ Extensive Railroad and Utility involvement are included in this project.
- ☑ Utility lead time begins after PA&ED is met and we have received facility maps.
- ☑ Four residential parcels have a high risk of requesting full take. Estimate does not reflect this as Design is currently aware and attempting to correct TCE areas.
- ☑ Risk to condemnation increased due to TCEs on certain residential parcels.
- ☑ RAP costs are estimated due to possible personal property located on multiple TCEs.
- ☑ Right of Way Certification is at risk. The current project schedule does not provide Right of Way with sufficient lead time.

Evaluation Prepared By:

Right of Way: Wendy Ratajczak Date 3/24/17

WENDY RATAJCZAK
Associate Right of Way Agent

Recommended: Jennifer Wisniewski Date 3/24/17

JENNIFER WISNIEWSKI
Acting Senior Right of Way Agent
Project Delivery Branch
North Region

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 to be complete and current.

Janel D. Wilson Date 3-24-17

JANEL D. WILSON
Assistant Chief
North Region Right of Way
Marysville

Reviewed By

RW Planning & Management: Paul Date 3/24/17

PAUL SLOULIN

Attachment G

M e m o r a n d u m

Serious drought.
Help Save Water!

To: Sullivan Mike
Project Engineer

Date: June 1, 2015

File: 03-3F360
03-Sac-50-PM-
L0.2/R6.1

From: Nhan Bui
TMP Coordinator
D3-Transportation Management Planning Office

Subject: **Transportation Management Plan (TMP) Data Sheet**

Background

This project is located on a multi-lane highway, with a daily peak-hour volume (in both directions) of 20,500 vph. The project proposes to extend contiguous high occupancy (HOV) lanes 7.8 miles west from the existing HOV facility in Sacramento County at the Watt Avenue Interchange (I/C) to the Sacramento River Viaduct (I-5 I/C) in downtown Sacramento.

- 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 (both directions combined) (vph)	% Truck Traffic	AADT (vpd)
03-Sac-50 PM L0.2/R6.1	Multi-lane	20,500 vph	4.4%	227,000

Recommendations

- On US 50, no Lane or ramp closures will be allowed during daytime and peak commutes hours on weekdays.
- On multilane roadway, a minimum of one paved traffic lane, not less than 11 feet wide, shall be open in each direction of travel.
- Lane closures on multilane roadways will be performed in accordance with Standard Plan Sheet T10, “Traffic Control System for Lane Closure on Freeways and Expressways”.
- Ramp closures will be performed in accordance with Standard Plan Sheet T14, “Traffic Control System for Ramp Closure”.
- The maximum length of any lane closure shall be limited to 1 mile

- Portable changeable message signs (PCMS) will be required in direction of traffic during construction for each lane or shoulder closure.
- No lane closures, shoulder closures, or other traffic restrictions will be allowed on Special Days, designated legal holidays and the day preceding designated legal holidays, and when construction operations are not actively in progress.
- Work at these locations may require the assistance of COZEEP, but a full time COZEEP presence is not anticipated.
- Coordination with projects within, or nearby the project limits will be required to avoid conflicts.
- Lane closure charts will have to be developed prior to P&E

Cost

- For estimating purposes, use $2,500 per working day to estimate the costs that are required for the Traffic Management Plan (TMP) items. These items include Traffic Control System, Portable Changeable Message Signs, Maintain Traffic, and TMP-Public Information.
- COZEEP is estimated at $1,000 per working day and $2,000 per working night whenever CHP involvement is needed during construction. COZEEP estimate should include 2 officers per vehicle when performing night work.
- If there is a change in the scope of the project or the order of work (schedule), please advise the TMP unit, as this may affect the TMP estimate.

P & E Requirement

To complete a TMP for this project, please provide the following to the Office of Traffic Management Planning at least three months prior to P&E: project description, title sheet, typical cross sections, layout sheets, stage construction and traffic handling plans, detour plans, construction cost estimates, number of traffic controlling days, project schedule, and a contact person.

List of Attachments:

- TMP Checklist

PROGRAMMING SHEET

04/03/2017

EFIS ID: 0312000216 EA:03-3F360 County: SAC Route: 050 PostMile: L0.20/R6.10

Project Manager:	SUTHAHAR, NADARAJAH	PM Assistant:	PEREZ, LACEY C	Project Nickname:	SAC 50 HOV (I-5 to Watt Ave)		
Project Description - Long:	In Sacramento from I-5 to 0.8 mile east of Watt Avenue						
Work Description - Long:	High Occupancy Vehicle Lane Addition						
PPNO: 3301	Program: other-local	RTP: No	Funding Candidate: No	PROGRAM YR:		Working Days:	460
Open for Time: Yes	Subprogram: Measure A Funds	CT Status: APL	RMP:	RMP Date:			
10 Yr SHOPP: No	AADD: Yes	Dist Category: REIMBURSED		FED Aid Eligible: n/a			

MS	MS Description	MS Date	
M000	ID NEED	07/01/2007	(A)
M015	PROG PROJ	11/01/2012	(A)
M020	BEGIN ENVIRO	11/01/2012	(A)
M040	BEGIN PROJ	11/01/2012	(A)
M120	CIRC DPR & DED EXT	09/28/2016	(A)
M200	PA & ED	05/15/2017	(T)
M221	RECEIVE COMPLETE BRIDGI	07/06/2015	(A)
M224	R/W REQTS	08/18/2015	(A)
M225	REGULAR R/W	03/11/2016	(A)
M275	GENERAL PLANS	05/04/2016	(A)
M310	DESIGN SAFETY REVIEW	09/08/2017	(T)
M377	PS&E TO DOE	10/08/2017	(T)
M378	DRAFT STRUC PS&E	09/01/2017	(T)
M380	PROJ PS&E	08/01/2018	(T)
M410	R/W CERT	10/01/2018	(T)
M460	RTL	10/07/2018	(T)
M470	FUND ALLOCATION	12/07/2018	(T)
M480	HQ ADVERT	01/07/2019	(T)
M490	BIDS OPEN	03/07/2019	(T)
M495	AWARD	04/07/2019	(T)
M500	APPROVE CONTRACT	05/07/2019	(T)
M600	CONTRACT ACCEPT	11/01/2021	(T)
M700	FINAL REPORT	11/01/2022	(T)
M800	END PROJ EXP	11/01/2023	(T)
M900	FINAL PROJ CLOSEOUT	08/01/2025	(T)

Capital Cost Estimates

	Amount $k	EST Date
Roadway	43,800	02/10/17
Structures	55,600	02/10/17
Const Total	99,400	
ROW	5,504	03/24/17
Total	104,904	

Env Doc: EA, IS,

Funding Info ($k)

Fund Source	PA&ED	PS&E	ROW	CON	ROW Cap	CON CAP
2010400.100	**5,900**	**6,550**	**1,000**	**0**	**0**	**0**
2020400.100	**0**	**0**	**0**	**0**	**800**	**5,980**
Grand Total:	**5,900**	**6,550**	**1,000**	**0**	**800**	**5,980**

Capital Cost Estimates

	2018
CC Escalation %:	3.50%
CC Escalated $:	102,879
ROW CAPITAL:	5,504
TOTAL:	108,383

PROJECT SUPPORT COSTS

Phase Escalation Rate	PRIOR ACT $	2017 FTC	2018 (3.00%)	2019 (3.00%)	2020 (3.00%)	2021 (3.00%)	Future (3.00%)	Total	Sup/Cap
0	**5,779**	**0**	**0**	**0**	**0**	**0**	**0**	5,779	5.33%
1	**5,745**	**2,120**	**3,043**	**185**	**0**	**0**	**0**	11,093	10.24%
2	**68**	**272**	**901**	**323**	**333**	**341**	**542**	2,780	2.57%
3	**0**	**0**	**0**	**4,065**	**5,907**	**6,053**	**2,667**	18,692	17.25%
							TOTAL SUPPORT COSTS:	38,344	35.38%
							TOTAL PROJECT COSTS:	146,727	

PROJECT SUPPORT PYs

	Division	PRIOR ACT PYs	2017 FTC PYs	2018 FTC PYs	2019 FTC PYs	2020 FTC PYs	2021 FTC PYs	Future FTC PYs	Total PYs
		1.75	0.00	0.00	0.00	0.00	0.00	0.00	1.75
	TOTALS:	1.75	0.00	0.00	0.00	0.00	0.00	0.00	1.75
03	ESR	0.62	0.07	0.07	0.00	0.00	0.00	0.00	0.76
03	ADMN	0.03	0.02	0.09	0.11	0.10	0.10	0.24	0.69
03	CONS	0.09	0.10	0.34	7.90	11.11	11.08	4.25	34.87
03	ENVM	3.03	0.05	0.28	0.03	0.02	0.02	0.02	3.44
03	ESRV	0.69	0.29	0.56	0.04	0.01	0.01	0.02	1.62
03	MTCE	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.07
03	PPM	0.65	0.18	0.73	0.46	0.27	0.27	0.56	3.12
03	PRJD	4.36	1.59	2.73	0.36	0.37	0.36	0.12	9.90
03	RWLS	1.05	1.44	4.37	1.41	1.38	1.38	2.01	13.04
03	SURV	6.56	0.27	1.21	0.91	1.22	1.22	0.70	12.09
03	TO14	0.00	0.05	0.08	0.01	0.00	0.00	0.00	0.14
03	TO57	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.19
03	TO6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03	TO95	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.05
03	TPLN	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.21
03	TROP	0.86	0.17	0.30	0.16	0.23	0.23	0.19	2.16
03	**TOTALS:**	18.42	4.25	10.79	11.37	14.73	14.69	8.11	82.35
59	TO	0.43	1.00	0.70	0.00	0.00	0.00	0.00	2.13
59	GS	3.57	1.64	1.49	0.37	0.53	0.52	0.20	8.32
59	METS	0.16	0.06	0.09	0.66	0.91	0.91	0.33	3.11
59	OE	0.00	0.00	0.05	0.12	0.00	0.00	0.00	0.17
59	PPM	0.17	0.01	0.05	0.02	0.01	0.01	0.01	0.29
59	SCON	0.05	0.13	0.35	4.70	6.62	6.60	2.78	21.23
59	SDSN	14.24	2.22	2.60	0.51	0.62	0.62	0.38	21.19
59	SP&I	1.20	0.30	0.30	0.06	0.08	0.08	0.03	2.04

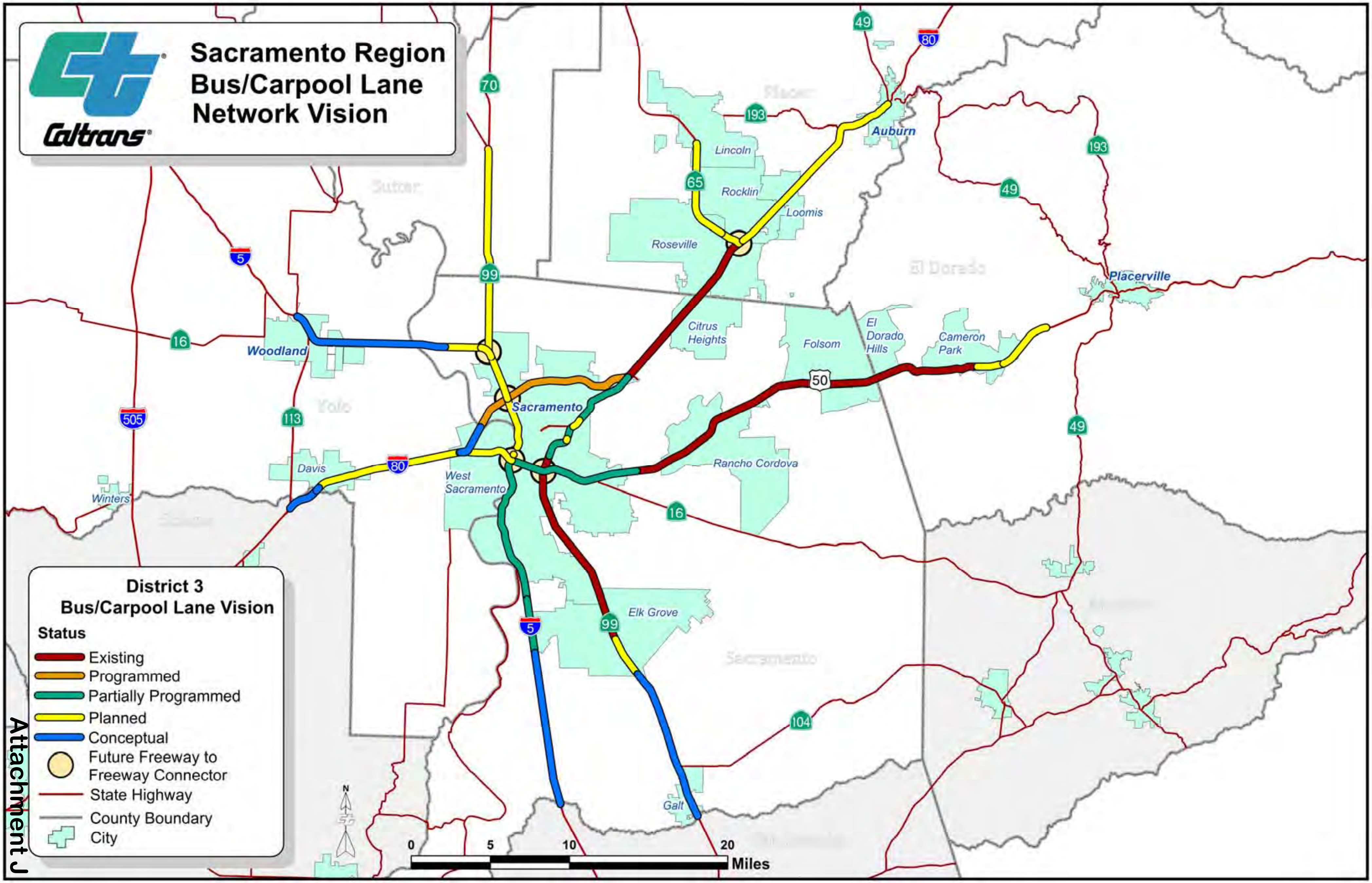
Attachment I

EFIS ID: 0312000216 EA:03-3F360 County: SAC Route: 050 PostMile: L0.20/R6.10

Division		PRIOR ACT PYs	2017 FTC PYs	2018 FTC PYs	2019 FTC PYs	2020 FTC PYs	2021 FTC PYs	Future FTC PYs	Total PYs
59	TO94	0.00	0.30	0.21	0.00	0.00	0.00	0.00	0.51
59	**TOTALS:**	19.82	5.65	5.84	6.45	8.76	8.73	3.74	59.00
PROJECT TOTALS:		**39.99**	**9.90**	**16.63**	**17.82**	**23.48**	**23.42**	**11.85**	**143.10**

Comments:

Attachment I



Attachment J

STATE OF CALIFORNIA – DEPARTMENT OF TRANSPORTATION

RISK REGISTER CERTIFICATION (ACCOUNTABILITY CHECKPOINTS)

Form PM-0001 (Rev. 3/2014)

The risk register is to be approved and signed-off by the district deputies* listed below for all scalability levels. By signing this form, you are certifying that you have reviewed the risks documented in the register and agree that they have been managed to the extent possible by the PDT.

Project Information	■ Capital Project ☐ Major Maintenance Project (Check One)
Project ID/District-EA	031200021 / 03-3F360
Project Description	US-50 HOV Lanes I-5 to Watt Ave
Project Manager (PM)	Sutha Suthahar
Project Risk Manager (for Risk Level 3 Projects)	

☐ No Risk Register Certification Required -- Sign below and submit this form with PID, PA&ED, PS&E submittal, and RE Handoff File (as applicable).

Project Manager Signature ____________________ Date: ________

PID (Required for Capital Projects Only excluding Minor Projects)		Date
Project Manager		
Deputy District Director, Planning		
Deputy District Director*, Design**		
Deputy District Director*, Construction		
Deputy District Director*, Right of Way		
Deputy District Director*, Environmental		
Deputy District Director*, Maintenance & Operations		
Deputy District Director, Project Management		

PA&ED (Required for Capital Projects Only)		Date
Project Manager	[signature]	8/19/16
Deputy District Director, Planning	[signature]	9/2/16
Deputy District Director*, Design**	[signature]	9/20/16
Deputy District Director*, Construction	[signature]	9/21/16
Deputy District Director*, Right of Way	[signature]	9/14/16
Deputy District Director*, Environmental	[signature]	8-19-16
Deputy District Director*, Maintenance & Operations	[signature]	9/15/16
Deputy District Director, Project Management**	[signature]	9/22/16

Prior to PS&E (Required for Capital Projects and Major Maintenance Projects)		Date
Project Manager		
Deputy District Director, Planning		
Deputy District Director*, Design		
Deputy District Director*, Construction		
Deputy District Director*, Right of Way		
Deputy District Director*, Environmental		
Deputy District Director*, Maintenance & Operations		
Deputy District Director, Project Management		

RE File Hand-off (Recommended for Capital Projects and Major Maintenance Projects)		Date
Project Manager		
Deputy District Director*, Design		
Deputy District Director*, Construction		
Deputy District Director*, Environmental		
Deputy District Director, Project Management		

*or the respective Project Delivery Division Chief signatures in the North Region

Attachment K

03-3F360 I-5 to Watt Ave HOV - ACTIVE RISK REGISTER

RBS: DES Liquefaction Potential

Risk Type & ID: Risk 004 Status: Active Date Retired: Updated: 8-22-2016 Owner: Daniel Adams

Description: As a result of liquefiable soil layers in the bridge foundation, liquefaction potential is high during earthquake at the sites of Sacramento River Viaduct and Southside Park Viaduct.

Response Options: Include the necessary retrofit cost into the construction estimate. This estimate could be revised based on Geotechnical Services' determination on potential for liquefaction.

Risk Rating (Lvl 1):

Event Probability: Certain (From 100% to 100%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	
Support Cost:	$ 1,013,000		$ 2,025,000	
Development Delay:	0 Days		0 Days	
Construction Delay:	0 Days		0 Days	

Assumptions / Current Status: 1. The HOV lane was terminated early to reduce the widening at the Southside Park Viaduct to mitigate this risk.
2. Field investigations are being conducted now by Geotechnical Services to determine the potential for liquefaction.

Assessment Notes:

RBS: Design Underground Utilities

Risk Type & ID: Risk 002 Status: Active Date Retired: Updated: 8-12-2016 Owner: John Martin

Description: Since the project crosses multiple city streets, underground utilities are not always identified in as-builts, Caltrans pothole effort may not find all of the underground utilities. As a result, unanticipated utility conflicts may occur during construction, which would lead to delays.

Response Options: Avoid, but add supplemental funds as contingency if they find during construction.

Risk Rating (Lvl

Attachment K

1):

Event Probability: Low (From 10% to 19%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	L
Support Cost:	$ 1,013,000		$ 2,025,000	M
Development Delay:	0 Days		0 Days	
Construction Delay:	30 Days		50 Days	M

Assumptions / Current Status:

Assessment Notes:

RBS: Design Deteriorated Concrete

Risk Type & ID: Risk 007 Status: Active Date Retired: Updated: 8-12-2016 Owner: John Martin

Description: Due to delay in project funding, the concrete pavement may further deteriorate, resulting in rehabilitation of additional concrete slabs prior to placing the planned HMA lane, which would lead to additional project cost.

Response Options: 1) Include contingency in cost estimate.
2) Combine project with pavement rehabilitation project 03-0H800.

Risk Rating (Lvl 1):

Event Probability: High (From 40% to 59%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	M
Support Cost:	$ 203,000		$ 1,013,000	M
Development Delay:	0 Days		0 Days	M

Attachment K

Construction Delay:	0 Days		0 Days	
Assumptions / Current Status:				
Assessment Notes:				

RBS: Design Buried Objects

Risk Type & ID: Risk 012 Status: Active Date Retired: Updated: 8-12-2016 Owner: Mike Sullivan

Description: There will be substantial Cast-in-Drilled placed piles and sound wall foundations. Areas around the railroad and viaducts could be host to unknown buried objects.

Response Options: Extensive potholing is being done to locate unknown objects to reduce the risk.

Risk Rating (Lvl 1):

Event Probability: Moderate (From 20% to 39%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	L
Support Cost:	$ 203,000		$ 1,013,000	L
Development Delay:	0 Days		0 Days	L
Construction Delay:	15 Days		30 Days	L
Assumptions / Current Status:				
Assessment Notes:				

RBS: Design Railroad Utility

Risk Type & ID: Risk 014 Status: Active Date Retired: Updated: 8-12-2016 Owner: Mike Sullivan

Description: Encroachment permits for utilities in RR property do not come through Caltrans Encroachment Permits Office since we are under permit to own and operate our facilities in their R/W. This can complicate the utility verification process since Caltrans does not see the encroachment permits being issued and is required to submit a request for facility plans in the area of interest. When a project takes several years to RTL, new encroachment permits could be issued without

Attachment K

Caltrans knowing.

Response Options: Setup checkpoints during project development to verify encroachment permits issued in the area of interest.

Risk Rating (Lvl 1):

Event Probability: Moderate (From 20% to 39%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	L
Support Cost:	$ 203,000		$ 1,013,000	L
Development Delay:	0 Days		0 Days	L
Construction Delay:	30 Days		50 Days	M

Assumptions / Current Status: Observed on another project where underground fiber line was constructed in UPRR property crossing a proposed bridge foundation (found in construction).

Assessment Notes:

RBS: R/W Railroad Flagging

Risk Type & ID: Risk 015 Status: Active Date Retired: Updated: 9-15-2016 Owner: Douglas Bortz

Description: As a result of unfunded construction, the begin construction date is unknown, it is possible that the two railroad companies may not enter into agreements with Caltrans, which would prevent Right of Way Certification being achieved on schedule and may cause a delay to project schedule.

Response Options:
A) Develop special "interim" agreements that will allow certification and an agreed upon re-start at a later dated.
B) Work with HQ to allow for Certification 3W.
C) Allow for sufficient time between Construction Programming and R/W Certification.
D) Assume construction dates for agreements.

Risk Rating (Lvl 1):

Event Certain (From 100% to 100%)

Attachment K

Probability:

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	
Support Cost:	$ 203,000		$ 1,013,000	
Development Delay:	0 Days		0 Days	
Construction Delay:	0 Days		0 Days	

Assumptions / Current Status:

Assessment Notes:

RBS: R/W Possible Condemnation

Risk Type & ID: Risk 016 Status: Active Date Retired: Updated: 9-15-2016 Owner: Douglas Bortz

Description: As a result of the current design requiring 50% of 4 residential parcels for a period of 44 months, the chances of condemnation is high, which could delay the Right of Way Certification and may cause a delay to project schedule.

Response Options: A) Re-design TCE's for a more minimal impact.
B) Narrow the need for the TCE's within the construction period.

Risk Rating (Lvl 1):

Event Probability: Very Low (From 0% to 9%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	L
Support Cost:	$ 203,000		$ 1,013,000	L
Development Delay:	0 Days		0 Days	L
Construction Delay:	0 Days		0 Days	

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Assumptions / Current Status: Identify alternative method of construction from state R/W.

Assessment Notes:

RBS: R/W Schedule

Risk Type & ID: Risk 017 Status: Active Date Retired: Updated: 9-15-2016 Owner: Douglas Bortz

Description: As a result of the current schedule provides less lead time than what was estimated for Right of Way in order to clear airspace leases, acquire parcels, clear occupants under RAP, coordinate utility relocations and railroad agreements there is a risk of not meeting the schedule for Right of Way Certification. If Right of Way Certification date is not met, which may cause a delay to project schedule.

Response Options:
A) Complete Design earlier
B) Complete Environmental studies earlier
C) Allow for sufficient time for Right of Way Certification
D) Request early acquisition
E) Terminate airspace leases

Risk Rating (Lvl 1):

Event Probability: Moderate (From 20% to 39%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	
Support Cost:	$ 203,000		$ 1,013,000	L
Development Delay:	0 Days		0 Days	M
Construction Delay:	0 Days		0 Days	

Assumptions / Current Status:

Assessment Notes:

Attachment K

RBS: R/W Utilities

Risk Type & ID: Risk 018 Status: Active Date Retired: Updated: 9-15-2016 Owner: Douglas Bortz

Description: As a result of the high number of utilities and the reduced duration for regular right of way activities, if utility conflict maps are not provided early enough utility clearances are at greater risk of not being completed by the Right of Way Certification date which may cause delays to the project schedule.

Response Options: Design to provide utility conflict maps by end of October 2016, which provides 17 months.

Risk Rating (Lvl 1):

Event Probability: Low (From 10% to 19%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	
Support Cost:	$ 203,000		$ 1,013,000	L
Development Delay:	0 Days		0 Days	M
Construction Delay:	0 Days		0 Days	

Assumptions / Current Status:

Assessment Notes:

RBS: R/W Right of Way Funding

Risk Type & ID: Risk 019 Status: Active Date Retired: Updated: 9-15-2016 Owner: Douglas Bortz

Description: As a result of Right of Way not being fully funded, there is an increased risk of not being able to complete all right of way activities in time for certification, which may cause a delay to project schedule.

Response Options: A) Right of Way Capital will be allocated as needed from available funds in other phases.
B) If funds are not available then provide sufficient time from Right of Way Capital Programming to Right of Way Certification.

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Risk Rating (Lvl 1):

Event Probability: Low (From 10% to 19%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	
Support Cost:	$ 1,013,000		$ 2,025,000	M
Development Delay:	0 Days		0 Days	H
Construction Delay:	0 Days		0 Days	

Assumptions / Current Status:

Assessment Notes:

RBS: R/W Environmental Estimates

Risk Type & ID: Risk 020 Status: Active Date Retired: Updated: 9-15-2016 Owner: Douglas Bortz

Description: As a result of estimates for environmental permits and mitigation were not known at the time of Right of Way estimate there is a risk of Right of Way Capital being under-programmed, which would lead to the need for additional Right of Way Capital funds.

Response Options: A) Environmental unit to complete an estimate of Right of Way Capital needed for permits and mitigation by PA&ED.
B) Program additional funds if needed for permits and mitigation costs.

Risk Rating (Lvl 1):

Event Probability: Low (From 10% to 19%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	M
Support Cost:	$ 0		$ 0	
Development Delay:	0 Days		0 Days	L
Construction	0 Davs		0 Davs	

Attachment K

Delay:

Assumptions / Current Status:

Assessment Notes:

RBS: R/W RW Airspace Lease - Mini Storage

Risk Type & ID: Risk 006 Status: Active Date Retired: Updated: 9-15-2016 Owner: Wendy Ratajczak

Description: As a result of the Mini-Storage Airspace Lease expiring July 2019 and the project is scheduled to RTL March 2018 the project may fail to achieve Right of Way Certification on schedule, which may cause a delay to project schedule.

Response Options: Work with HQ RW and FHWA early to allow Certification 3W

Risk Rating (Lvl 1):

Event Probability: Low (From 10% to 19%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	M
Support Cost:	$ 203,000		$ 1,013,000	L
Development Delay:	0 Days		0 Days	L
Construction Delay:	0 Days		0 Days	

Assumptions / Current Status: Demo of mini-storage will be handled by R/W service contract, paid by project.

Assessment Notes:

Attachment K

03-3F360 I-5 to Watt Ave HOV - RETIRED RISK REGISTER

RBS: R/W Acquisition

Risk Type & ID: Risk 013 Status: Retired Date Retired: 8-12-2016 Updated: 8-12-2016 Owner: Wendy Ratajczak

Description: Property owners may object to appraisal findings or they may resist acquisition. Condemnation may be required which could delay the project.

Response Options: Make contact with grantors and make First Written Offer's as soon as possible to give plenty of time to work through any concerns or issues that may arise.

Risk Rating (Lvl 1):

Event Probability:

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:				
Support Cost:				
Development Delay:				
Construction Delay:				

Assumptions / Current Status: It's assumed that R/W will be able to appraise and acquire all the needed R/W with the current schedule.

Assessment Notes:

RBS: Design Sound Wall Design / Aesthetics

Risk Type & ID: Risk 011 Status: Retired Date Retired: 8-12-2016 Updated: 8-12-2016 Owner: Mike Sullivan

Description: The proposed sound walls are located in neighborhoods with influential and active home owners associations. Coordinating the sound wall designs will be important for schedule and costs.

Response Options: Hold public meetings.

Risk Rating (Lvl 1):

Event Probability: Moderate (From 20% to 39%)

Attachment K

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	L
Support Cost:	$ 203,000		$ 1,013,000	L
Development Delay:	0 Days		0 Days	L
Construction Delay:	15 Days		30 Days	L

Assumptions / Current Status:

Assessment Notes:

RBS: Design Project Coordination

Risk Type & ID: Risk 010 Status: Retired Date Retired: 8-12-2016 Updated: 8-12-2016 Owner: Mike Sullivan

Description: There are several projects that overlap and directly affect the HOV project development. Poor coordination may result in increased costs due to rework and construction delays. Projects include the Rehab project, Street Car Project and Art project (Bright Underbelly) at Camellia City Viaduct, Hornet Dr Off-Ramp, Ramona Ave Extension, and Fiber Installation.

Response Options: Currently tracking projects and will acquire base mapping and as-builts accordingly. Will evaluate adding supplemental funds as contingency.

Risk Rating (Lvl 1):

Event Probability: Low (From 10% to 19%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	L
Support Cost:	$ 203,000		$ 1,013,000	L
Development Delay:	0 Days		0 Days	M
Construction Delay:	30 Days		50 Days	M

Attachment K

Assumptions / Current Status:

Assessment Notes:

RBS: R/W Regional Transit Light Rail

Risk Type & ID: Risk 009 Status: Retired Date Retired: 8-12-2016 Updated: 8-12-2016 Owner: Edwardo Estrada

Description: Light rail will require temporary/permanent relocation of messenger lines while UPRR requirements is mainly meeting horizontal clearance for final design and construction.

Response Options: Need approximately $150k for RT contract. UP is working on contract.

Risk Rating (Lvl 1):

Event Probability: High (From 40% to 59%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:				
Support Cost:				
Development Delay:				
Construction Delay:				

Assumptions / Current Status:

Assessment Notes:

RBS: R/W R/W Utilities - Potholing

Risk Type & ID: Risk 008 Status: Retired Date Retired: 8-12-2016 Updated: 8-12-2016 Owner: Tony Small

Description: As a result of numerous underground utilities in the project area, extensive potholing may occur, which may lead to delay in R/W Certification and Project schedule.

Response Options: Potholing during Phase 0 will identify utility conflicts early in the design process, allowing Design more time to mitigate utility conflict during Phase 1

Attachment K

(Final Design).

Risk Rating (Lvl 1): Moderate

Event Probability: High (From 40% to 59%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	H
Support Cost:	$ 153,000		$ 306,000	H
Development Delay:	0 Days		0 Days	H
Construction Delay:	0 Days		0 Days	H

Assumptions / Current Status: Construction can work around underground utilities to avoid costly relocation costs. Risk same as Risk #2, so retired risk.

Assessment Notes:

RBS: Environmental Bats & Birds

Risk Type & ID: Risk 005 Status: Retired Date Retired: 8-12-2016 Updated: 8-12-2016 Owner: Ken Lastufka

Description: Bats get through netting put in place to keep them out of structure. If nets need to go over tracks, RW needs to know to speak to RR company.

Response Options:

Risk Rating (Lvl 1):

Event Probability: Low (From 10% to 19%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:				
Support Cost:				
Development Delay:				
Construction Delay:				

Assumptions / Current Status:

Attachment K

Assessment Notes:

RBS: R/W Railroad Risk

Risk Type & ID: Risk 001 Status: Retired Date Retired: 8-12-2016 Updated: 8-12-2016 Owner: Wendy Ratajczak

Description: When coordinating with Railroads, they will not review/coordinate without a complete package.

Response Options: Open 1 phase early to make sure that plans are complete and sent to railroads early.

Risk Rating (Lvl 1):

Event Probability: High (From 40% to 59%)

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone
Capital Cost:	$ 0		$ 0	H
Support Cost:	$ 306,000		$ 612,000	H
Development Delay:	0 Days		0 Days	H
Construction Delay:	0 Days		0 Days	H

Assumptions / Current Status: When working with Railroads on other projects the process is time consuming and can delay the cert process.

Assessment Notes:

RBS: Design Brighton Light Rail

Risk Type & ID: Risk 003 Status: Retired Date Retired: 5-16-2016 Updated: 5-16-2016 Owner: Michael Cullen

Description: Footings need to be installed at T St & 34th. Hinges may encroach on 34th & 35th.

Response Options:

Risk Rating (Lvl 1):

Event Probability:

Range:	Optimistic	Most Likely	Pessimistic	Risk Priority Zone

Attachment K

IMPLEMENTATION ACTION MEMO

Date: October 13, 2104

To: Nadarajah Suthahar, Project Manager

CC: Kevin Espinoza, North Region VA Coordinator
Richel Espinoza-Noss, Caltrans HQ

From: Fred Kolano, CVS-Life, VA Study Team Leader

Subject: **D-3 *SAC 50 HOV Lanes*** (Task Order No. 903)
PN: 0312000216

Value Management Strategies, Inc. is pleased to transmit this Implementation Action Memo for the referenced project, sponsored by Caltrans District 3 and facilitated by Value Management Strategies, Inc. The subject of the study was SAC 50 HOV Lanes in Sacramento County. The VA study was conducted August 25-29, 2014 in Caltrans District 3 offices in Marysville, CA.

The memo has been issued to reflect the comments and decisions made at the Implementation Meeting, held on October 10, 2014 at Caltrans District 3 offices, Marysville, California. The results of this meeting are summarized below. Once the final disposition of the three conditionally accepted alternatives has been made, the *Final Value Analysis Study Report* will be edited to reflect the results of the VA study and the final report will be submitted to you.

If you have any questions or comments concerning this Implementation Action Memo, please contact me at (970) 216-1739 or fred@vms-inc.com.

ACTION ITEMS

The following table delineates any action required for a final disposition to be made on the three conditionally accepted VA alternatives, as determined by participants at the Implementation Meeting.

Alternative No. & Description	Action Item	Responsibility/ Organization	Review Date
1.0 End the HOV striping between the 59th Street on-ramp and Stockton Boulevard off-ramp in the westbound direction (Station 120+00 to 210+00 or ~9,000 feet)	Determine if this alternative is feasible as proposed, including how it would work with a proposed extension of the project approximately 2 miles to the west. Also, validate the ending location that is proposed in the VA alternative is appropriate.	Sutha Suthahar	December 15, 2014

Attachment L

Alternative No. & Description	Action Item	Responsibility/ Organization	Review Date
5.0 Add an auxiliary lane between the westbound SAC 50 off-ramp to Stockton Boulevard and the SAC 50 on-ramp from Stockton Boulevard with viaduct widening	Determine if the traffic flows will be improved as proposed in the alternative.	Sutha Suthahar	December 15, 2014
6.1 Realign the eastbound SAC 50 off-ramp to Hornet Drive, add a second lane into a 90 degree signalized "T" intersection (about 100 feet)	Determine if the traffic flows will be improved as proposed in the alternative.	Sutha Suthahar	December 15, 2014

VA STUDY RESULTS

At the Implementation Meeting, the results of the VA study were discussed among the attendees.

Summary of Accepted Value Analysis Alternatives

Alternative No. & Description	Validated Initial Cost Savings	Validated LCC Savings	Validated Change in Schedule	Validated Performance Change	Validated Value Change
4.0 Use panel soundwalls in lieu of CMU construction	$2,020,000	---	No change	-2 %	+1 %

Net Effect of Accepted Value Analysis Alternatives

Accepted Alternatives	Initial Cost Savings	LCC Savings	Change in Schedule	Performance Change	Value Change
4.0	$2,020,000	---	No change	-2 %	+1 %

REJECTED VA ALTERNATIVES – Reason for Rejection

2.0 Eliminate soundwalls on the Elmhurst Viaduct and connector ramp from northbound SR 99 to eastbound SAC 50

The Elmhurst community liked the proposed project and they desire the soundwalls. There was a concern about the effectiveness of the soundwalls and if it would meet Federal soundwall noise reduction requirements. It is noted that the soundwalls would result in a reduction of approximately 4db. The suggestion was make that if the soundwalls in these locations do not meet Federal soundwall reduction requirements, then discussions with locals is needed to acquire funding.

3.0 Leave the existing walls at 65th and 59th Streets and do not install new soundwalls

The walls are on State property. These walls were experimental walls built by Caltrans. The walls will likely soon require additional maintenance and their service life is near its end. However, if these walls are desired to be replaced by the local residents, funding would have to be acquired.

6.2 Realign the eastbound SAC 50 off-ramp to Hornet Drive into a 90 degree signalized "T" intersection

This VA alternative is rejected in favor of VA Alternative 6.1.

7.0 Add a free right-turn pocket from Hornet Drive to College Town Drive

Right-of-way takes would be needed. It would be difficult to obtain the land from a local bank to provide room for the additional lane. However, this concept may be considered at a future time as a way to reduce congestion at the Hornet Drive and College Town Drive intersection. Further study would be needed.

NORTH REGION
LANDSCAPE ARCHITECTURE ASSESSMENT SHEET
03-LAND-0002 (Rev. x/xx)

TO: Michael Sullivan **FROM:** Jane Donohoe **Unit/Senior:** 0381 **Project Manager:** Sutha Suthahar	**DISTRICT:** 03 **DATE:** 03/24/15 **EA:** 03-3F360 **EFIS ID#** 0312000216	**CO:** SAC	**RTE:** 50	**PM:** L0.2/R5.3

CONTRACT SEPARATION:

☒ Roadside work as part of roadway work EA

☐ Roadside work for roadway project to follow under separate EA

(See: http://www.dot.ca.gov/hq/LandArch/policy/pdf/separate_contract_policy.pdf for Separate Contract Policy

PROJECT: Construct HOV lanes between Sac River Viaduct & Watt Ave

FUNDING SOURCE: Measure A

PROJECT MILESTONE: ☐ PID ☒ PA&ED ☐ PS&E

PROJECT COST :

DISTRICT $51,462,000 **STRUCTURES** $46,841,000

PROJECT DESCRIPTION

Construct HOV lanes between the I-5 Interchange and Watt Avenue. This work will be achieved by a HMA overlay and lane restriping to add HOV lanes on existing structural section. Median Decking (widening) 12 structures are required for the new lanes (The Sacramento Viaduct requiring one span to be widened). Soundwalls, drainage, landscaping, and misc ITS are also included. EA 03-0H080 is a 3R project that may be included with this project if funding becomes available for the HOV construction. It should be noted that scope is pending the Noise & Traffic Study results due in May. Proposed sound wall along the R/W and Elmhurst neighborhood will be a key feature since the sound wall will replace the R/W fence and several backyard fences. Irrigation and landscaping will consequently need to be replaced due to construction access.

SCENIC HIGHWAY STATUS ☐ Officially Designated ☐ Eligible ☒ Not Designated
(See: http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm for Scenic Highway Mapping System)

HIGHWAY PLANTING/IRRIGATION BACKGROUND INFORMATION

LANDSCAPE FREEWAY STATUS	☒ Yes	☐ No	
WARRANTED HIGHWAY PLANTING	☒ Yes	☐ No	
(E) H2O & POWER AVAILABLE	☒ Yes	☐ No	Where: _____
(E) IRRIGATION IMPACTED	☒ Yes	☐ No	Where: _____
COOP. MAINT. AGREEMENTS	☒ Yes	☐ No	
ADJ. TO OUTDOOR ADVERTISING	☒ Yes	☐ No	
REPLACEMENT	☒ Yes	☐ No	

280 trees, 435 shrubs & 850 ground cover/ vine

AREA (Ft^2/ACRE) FOR HIGHWAY PLANTING: _____

EROSION CONTROL BACKGROUND INFORMATION

SOIL DISTURBANCE	☒ Yes	☐ No
CONCENTRATED FLOW AREAS	☒ Yes	☐ No
SLOPE LOCATIONS	☒ Yes	☐ No
SLOPES > 2:1	☒ Yes	☐ No

AREA (Ft^2/ACRE) FOR EROSION CONTROL: Within 15' of SWs 281,000 SF (31,250 CY)

MITIGATION BACKGROUND INFORMATION

PROJECT BIOLOGIST	Michele Lukkarila		Contact Date: 03/12/15
BIOLOGICAL REVEG. REQUIRED	☐ Yes	☒ No	Applicable Permits: _____
VISUAL IMPACT MIT. REQUIRED	☒ Yes	☐ No	
UNIT TASKED w/ BIO. REVEG.	☒ Landscape Architecture	☐ Stewardship	

PLANT COUNT FOR MITIGATION PLANTING:

Attachment M

NORTH REGION
LANDSCAPE ARCHITECTURE ASSESSMENT SHEET
03-LAND-0002 (Rev. x/xx)

ROADSIDE MAINTENANCE SAFETY NEEDS

☐ Paving of Extended Gore Areas
☐ Paving of Narrow Areas
☐ Maintenance Vehicle Pullouts (MVPs)
☐ Other _____

(See: http://www.dot.ca.gov/hq/LandArch/policy/pdf/design_for_safety.pdf for Roadside Paving Design Memo)

ROADSIDE VEGETATION MANAGEMENT TREATMENT NEEDS

☐ Guardrails and Signs
☐ Side Slopes/Embankment Slopes

(See: http://www.dot.ca.gov/hq/LandArch/roadside/index.htm for potential treatment measures)

CONTEXT SENSITIVITY

☒ It is determined that the project may involve consideration of community and local involvement.
☐ No foreseen issues with community and local involvement

(See: http://www.dot.ca.gov/hq/oppd/context/index.htm for Context Sensitive Solutions guidance)

CONSIDER ADDITIONAL AESTHETIC TREATMENT FOR:

☒ Sound Wall:
☐ Retaining Wall
☐ Bridge Structure
☐ Other _____

NORTH REGION
LANDSCAPE ARCHITECTURE ASSESSMENT SHEET
03-LAND-0002 (Rev. x/xx)

REPLACEMENT PLANTING COST INFORMATION:
To restore existing highway planting impacted.

☒ Estimated vegetation replant	$ 58,950
☒ Irrigation replacement	$ 850,440
☒ 1-year Plant Establishment@$75,000/yr	$ 75,000
☐ Inert Materials	$
HIGHWAY PLANTING SUBTOTAL	**$ 984,390**

EROSION CONTROL COST INFORMATION:

☒ Soil Stabilization (BFM, Hydroseed, Compost, etc.) 281,000 SFx$6 (31,250CY)@7/YD	$ 218,750
☒ Sediment Control (RECP, Fiber Rolls, etc.)	$ 20,000
☐ Soil Building (Incorporate Materials, Duff, etc.)	
☐ Steep Slope (Wire Blanket, Cellular Confinement, etc.)	$
EROSION CONTROL SUBTOTAL	**$ 238,750**

MITIGATION PLANTING COST INFORMATION:

☐ Landscape Architecture Tasked Biological Reveg.	$
☐ Visual Impact Mitigation Planting	$
MITIGATION SUBTOTAL	**$**
TOTAL	**$ 1,223,140**

SOUNDWALL AESTHETIC TREATMENT:

Aesthetic treatment on a standard Masonry Block wall @ $3/SF- Aesthetic treatment on Acrylite (Elevated section) @ $6/SF

1,333,668 (Option "A") 2,046,996 (Option "B")

Total with Option "A" **$ 2,556,808**
Total with Option "B" **$ 3,270,136**

Note:
Meeting with Mike Hodel Landscape Mtce (916)859-7811), Stephen Weber Highway Mtce (916) 859-7816 Sunrise region Supervisors on 03/19/15 - Requested planting outside of construction area be fenced and protected during construction.

PREPARED BY: DATE: 04/01/15

CONCURRED BY: DATE: 04/01/15
(Project Manager)

APPROVED BY: DATE: 4-14-2015
(Landscape Architecture or Engineering Services Branch Chief)

Attachment M

Table 7-42: Reasonable Allowances for All Barriers

Sound Wall ID	Approximate Stationing	Type of Analysis[1]	Barrier Height	Predicted Noise Reduction, dBA	Number of Benefited Receivers	Reasonable Allowance Per Benefited Receptor	Total Reasonableness Allowance
SW WB-1	WB, Station 51+50 to 134+70	New Wall	6 ft	5 to 6	72	$71,000	$5,112,000
			8 ft**	5 to 7	136	$71,000	$9,656,000
			10 ft	6 to 9	136	$71,000	$9,656,000
			12 ft	5 to 10	136	$71,000	$9,656,000
			14 ft	5 to 10	150	$71,000	$10,650,000
SW WB-2	WB, Station 149+80 to 164+40	New Wall	6 ft	5	7	$71,000	$497,000
			8 ft	5 to 6	25	$71,000	$1,775,000
			10 ft[2]	6 to 7	25	$71,000	$1,775,000
			12 ft	5 to 8	25	$71,000	$1,775,000
			14 ft	5 to 9	25	$71,000	$1,775,000
SW EB-1	EB, Station 58+00 to 133+80	New Wall	6 ft	5	33	$71,000	$2,343,000
			8 ft[2]	5 to 7	86	$71,000	$6,106,000
			10 ft	6 to 9	86	$71,000	$6,106,000
			12 ft	5 to 10	112	$71,000	$7,952,000
			14 ft	5 to 11	112	$71,000	$7,952,000
SW EB-2	EB, Station 144+30 to 175+50	New Wall	6 ft	5 to 6	31	$71,000	$2,201,000
			8 ft[2]	5 to 6	47	$71,000	$3,337,000
			10 ft	5 to 8	53	$71,000	$3,763,000
			12 ft	6 to 10	53	$71,000	$3,763,000
			14 ft	6 to 10	53	$71,000	$3,763,000
SW EB-2A	EB, Station 174+12 to 186+44	New Wall	6 ft	5 to 6	5	$71,000	$355,000
			8 ft[2]	5 to 6	5	$71,000	$355,000
			10 ft	5 to 8	5	$71,000	$355,000
			12 ft	6 to 10	5	$71,000	$355,000
			14 ft	6 to 10	5	$71,000	$355,000
SW EB-3	EB, Station 186+45 to 199+00	Increase Assessment (I)	16 ft	<5	0	$71,000	$0
SW EB-4	EB, Station 199+00 to 214+23	New Wall	8 ft[2]	5	2	$71,000	$142,000
			10 ft	6	2	$71,000	$142,000
			12 ft	6	2	$71,000	$142,000
			14 ft	7	2	$71,000	$142,000
			16 ft	5 to 7	7	$71,000	$497,000
SW EB-5	EB, Station 214+84 to 226+64	New Wall	6 ft[2]	6 to 8	7	$71,000	$497,000
			8 ft	7 to 9	7	$71,000	$497,000
			10 ft	7 to 9	7	$71,000	$497,000
			12 ft	8 to 10	7	$71,000	$497,000
			14 ft	9 to 11	7	$71,000	$497,000
			16 ft	9 to 12	7	$71,000	$497,000
SW EB-6	EB, Station 227+22 to 252+98	New Wall	6 ft[2]	5	9	$71,000	$639,000
			8 ft	6	9	$71,000	$639,000
			10 ft	5 to 7	21	$71,000	$1,491,000
			12 ft	6 to 7	21	$71,000	$1,491,000
			14 ft	6 to 8	21	$71,000	$1,491,000
			16 ft	7 to 9	26	$71,000	$1,846,000
SW EB-7A	EB, Station 254+02 to 260+38	New Wall	6 ft[2]	5	4	$71,000	$284,000
			8 ft	6	4	$71,000	$284,000
			10 ft	6	4	$71,000	$284,000
			12 ft	7	4	$71,000	$284,000
			14 ft	7	4	$71,000	$284,000
			16 ft	7	4	$71,000	$284,000
SW EB-7B	EB, Station 260+38 to 270+96	Increase Assessment	16 ft	<5	0	$71,000	$0

[1]-Analysis Type: New Wall = New wall

Increase Assessment= Increase in height of existing wall of substandard height

[2]-Minimum feasible barrier height, which breaks line of sight between 11.5-ft, truck stack and 5-ft-high receiver in the first row of residences.

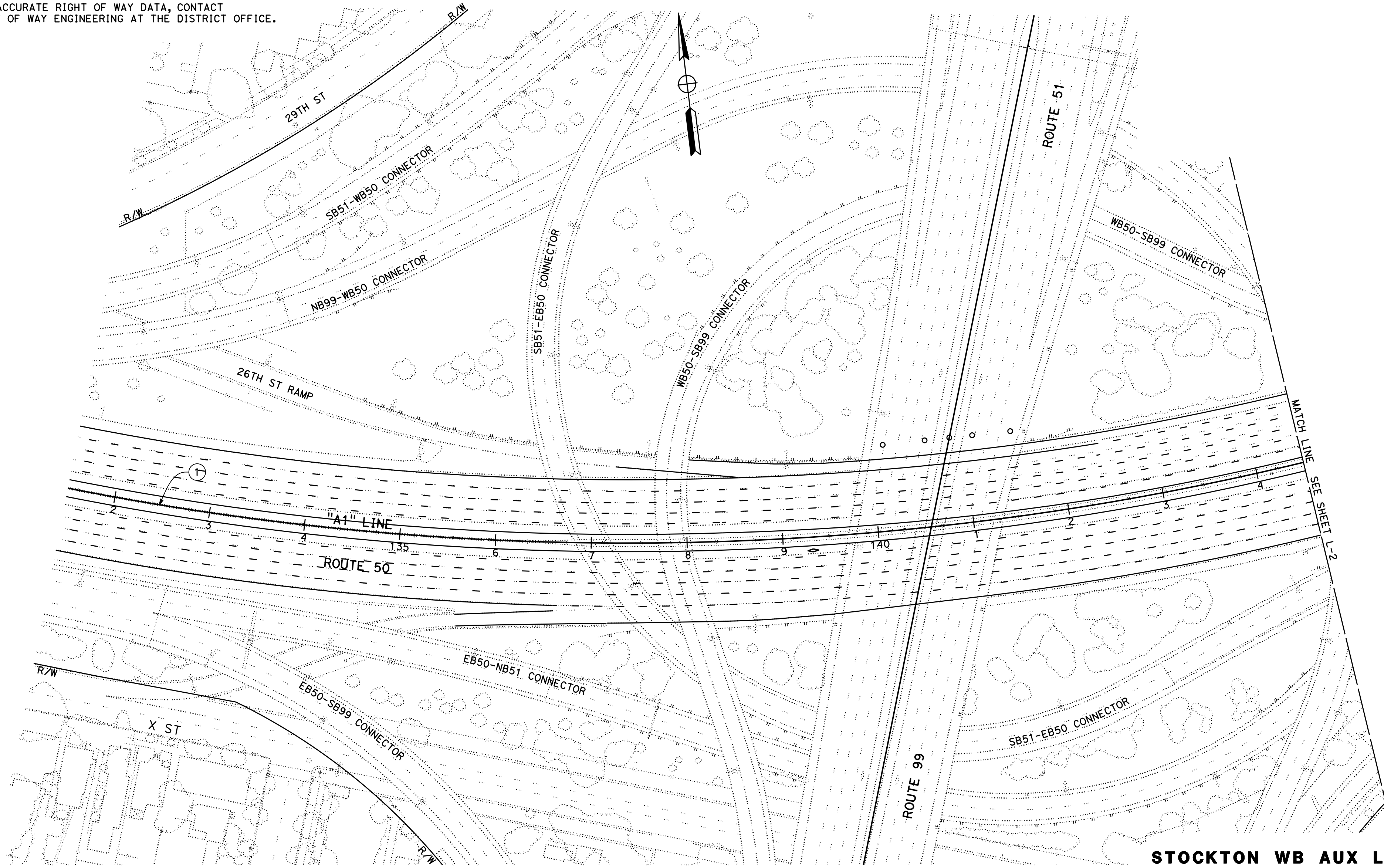
US 50 Auxiliary Lane Statistics

	Locations	Status/Requirements
EASTBOUND	I-5 connector-15th St slip off-ramp	Existing
	Riverside Blvd slip on-ramp-99/51 connector ramps	Widen 0.6 miles on mainline including widening the Camellia City Viaduct.
	16th St slip on-ramp-99/51 connector ramps	Existing
	26th St slip on-ramp-34th St slip off-ramp	Existing
	99/51 connector ramps-59th St slip off ramp	Existing
	Stockton Blvd slip on-ramp-59th St slip off ramp	Widen 1.1 miles on mainline.
	65th St loop on-ramp-Hornet/Howe slip off-ramp	Widen 0.7 miles on mainline.
	65th St slip on-ramp-Hornet/Howe slip off-ramp	Existing
	Howe Ave loop on-ramp-Watt Ave slip-off ramp	Widen 1.0 miles on mainline connecting to existing auxiliary lane at “A1” 385+00.
	Howe Ave slip on-ramp-Watt Ave slip-off ramp	Widen 0.7 miles on mainline connecting to existing auxiliary lane at “A1” 385+00.
WESTBOUND	Watt Ave loop on-ramp-Howe slip off-ramp	Widen 1.3 miles on mainline.
	Watt Ave slip on-ramp-Howe slip off-ramp	Existing
	Howe Ave loop on-ramp-65th St slip off-ramp	03-1F190 Auxiliary Lane project planned for the 2014 SHOPP.
	Howe Ave slip on-ramp-65th St slip off-ramp	Existing
	Hornet Dr slip on-ramp-65th St slip off-ramp	Widen 0.4 miles on mainline that includes structure widening.
	65th St loop on-ramp-Stockton Blvd slip – off ramp	Widen 1.8 miles on mainline.
	65th St slip on-ramp-Stockton Blvd slip off-ramp	Widen 1.6 miles on mainline.
	59th St slip on-ramp-Stockton Blvd slip off-ramp	Existing
	59th St slip on-ramp-WB50/NB51 connector	Auxiliary Lane was recommended in the HOV VA Report, analyzed in the Traffic Model, being evaluated for feasibility.
	Stockton Blvd slip on-ramp- WB50/NB51 connector	Existing
	Stockton Blvd slip on-ramp- WB50/SB99 connector	Widen 0.4 miles on mainline that includes Elmhurst Viaduct outside widening.
	Stockton Blvd slip on-ramp-26th St slip off-ramp	Widen 0.6 miles on mainline that includes Elmhurst Viaduct outside widening.
	NB99/WB50 connector-16th St slip off-ramp	Widen 0.7 miles on mainline that includes Camellia City Viaduct outside widening.
	SB51/WB50 connector-16th St slip off-ramp	Existing
	15th St slip on-ramp-I5 connector ramps	Existing

Attachment O

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



CURVE DATA

No. ⊕	R	Δ	T	L
1	3000'	36°22'10"	985.46'	1904.30'

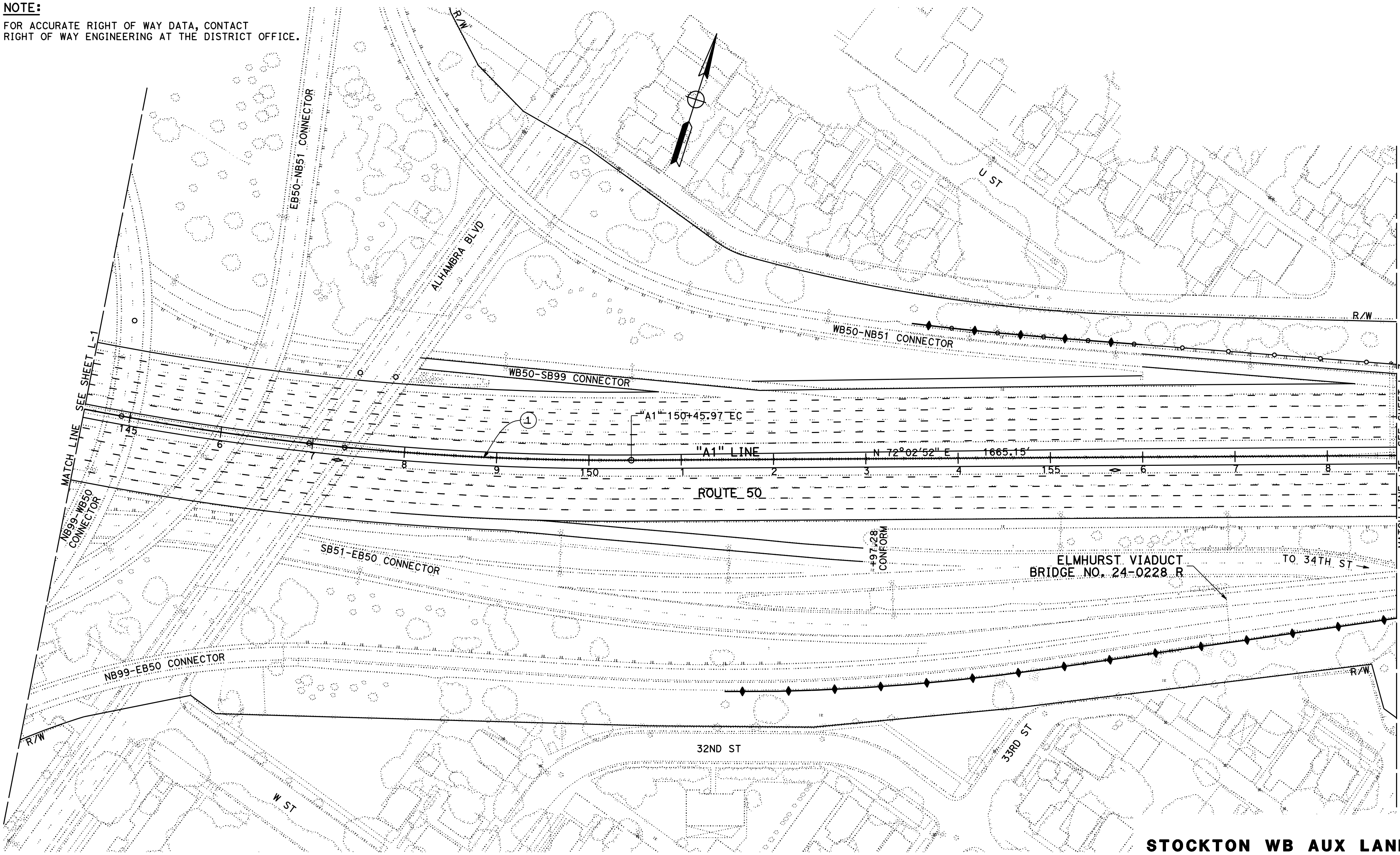
STOCKTON WB AUX LANE
ALTERNATIVE 1
ATTACHMENT E
LAYOUT
SCALE: 1" = 50'

L-1

Attachment P

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



CURVE DATA

No. #	R	Δ	T	L
1	3000'	36°22'10"	985.46'	1904.30'

STOCKTON WB AUX LANE
ALTERNATIVE 1
ATTACHMENT E
LAYOUT

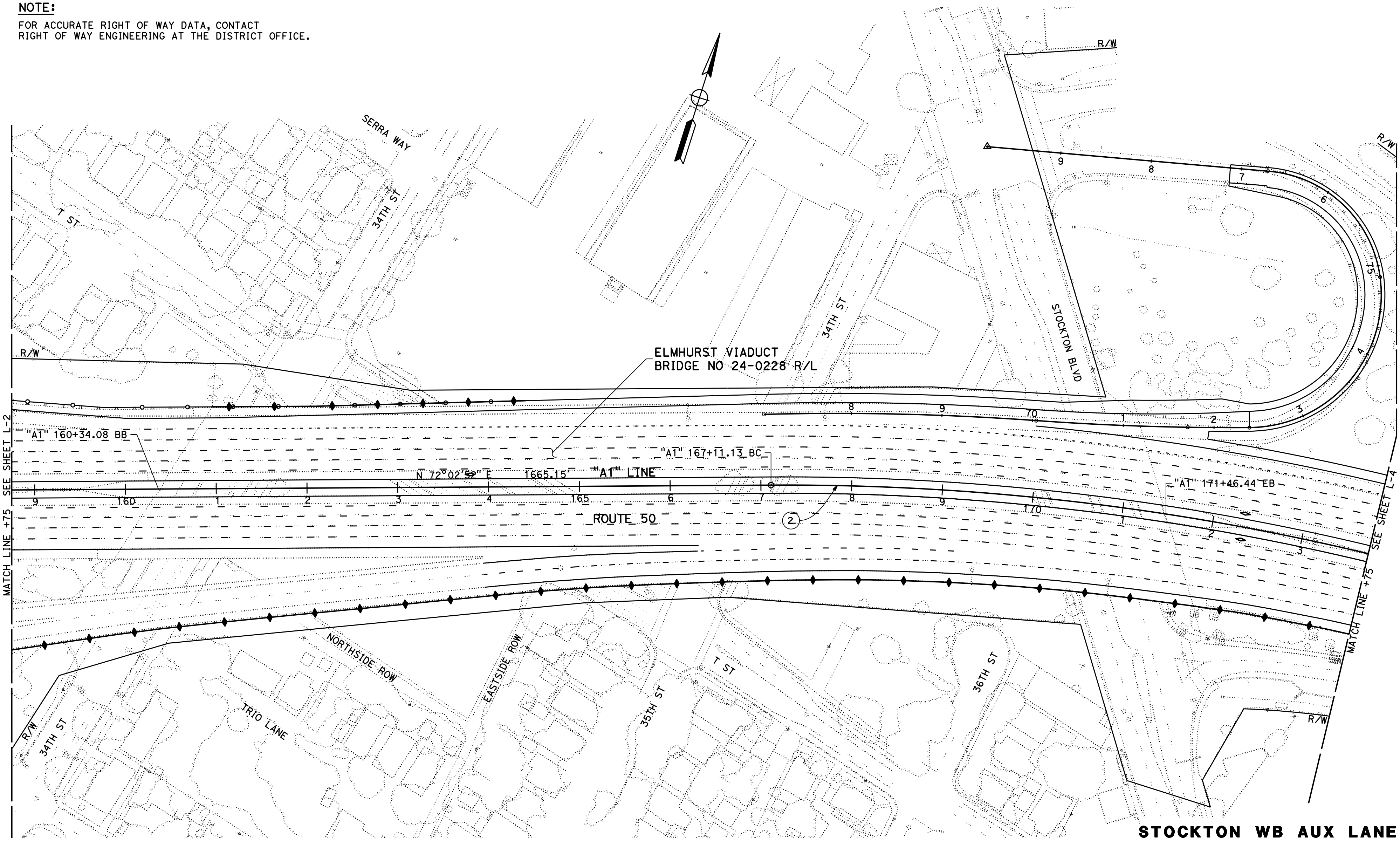
SCALE: 1" = 50'

L-2

Attachment P

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



CURVE DATA

No. #	R	Δ	T	L
2	2750'	36°54'29"	917.68'	1771.46'

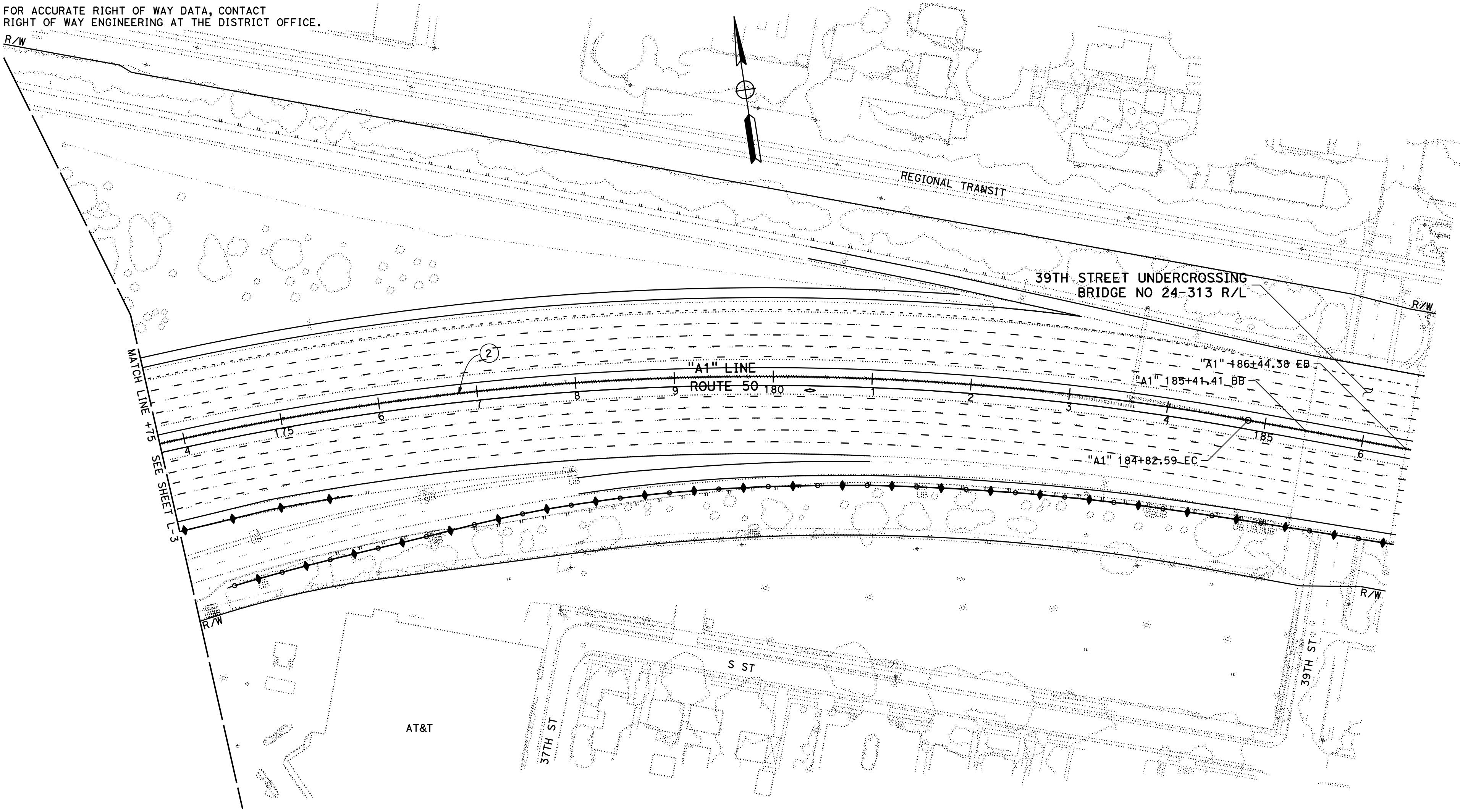
STOCKTON WB AUX LANE
ALTERNATIVE 1
ATTACHMENT E
LAYOUT
SCALE: 1" = 50'

L-3

Attachment P

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



CURVE DATA

No. #	R	Δ	T	L
2	2750'	36°54'29"	917.68'	1771.46'

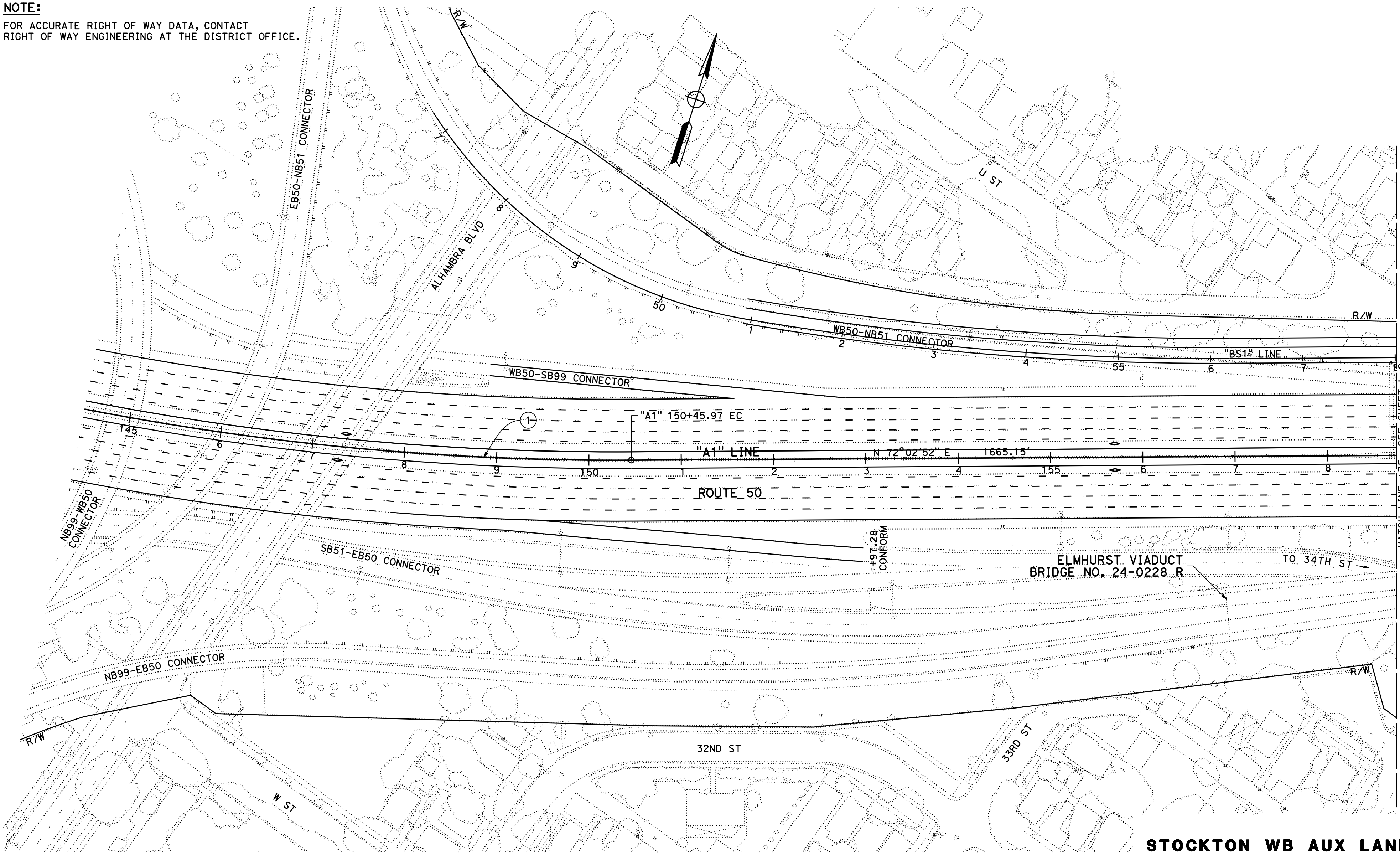
STOCKTON WB AUX LANE
ALTERNATIVE 1
ATTACHMENT E
LAYOUT
SCALE: 1" = 50'

L-4

Attachment P

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



CURVE DATA

No. #	R	Δ	T	L
1	3000'	36°22'10"	985.46'	1904.30'

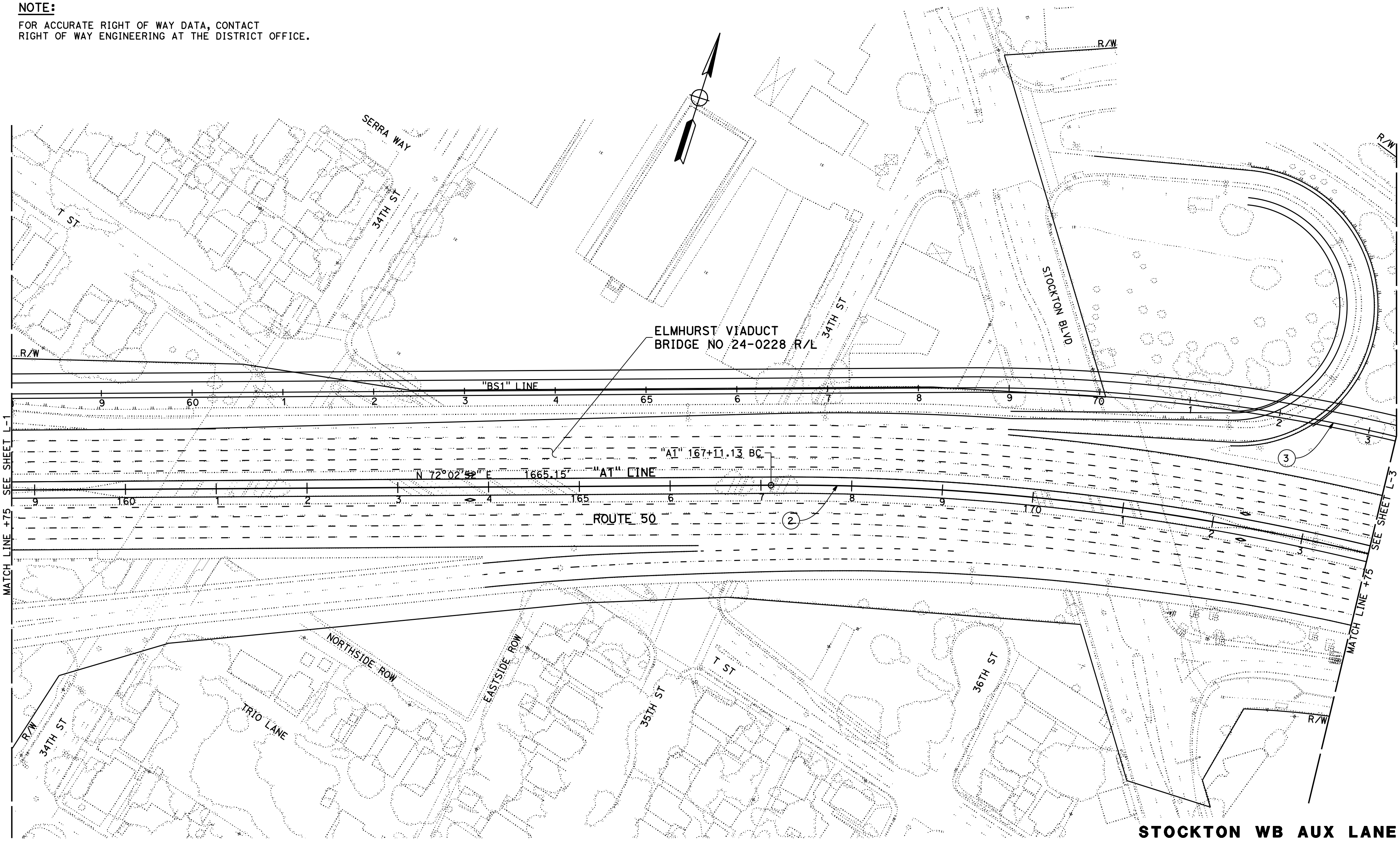
STOCKTON WB AUX LANE
ALTERNATIVE 2
ATTACHMENT F
LAYOUT
SCALE: 1" = 50'

L-1

Attachment Q

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



CURVE DATA

No. (#)	R	Δ	T	L
2	2750'	36°54'29"	917.68'	1771.46'
3	2000'	36°54'29"	667.41'	1288.33'

STOCKTON WB AUX LANE
ALTERNATIVE 2
ATTACHMENT F
LAYOUT

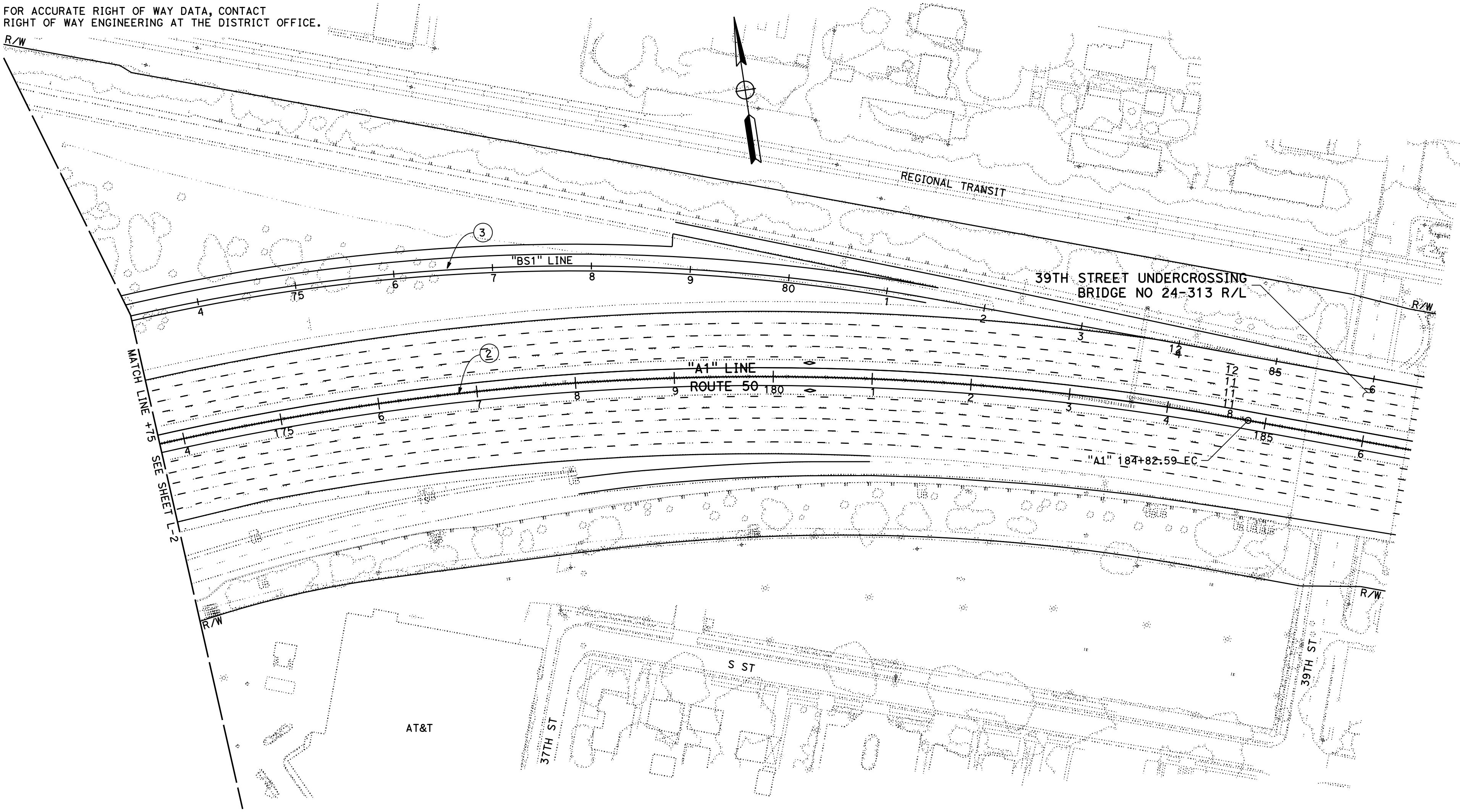
SCALE: 1" = 50'

L-2

Attachment Q

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



CURVE DATA

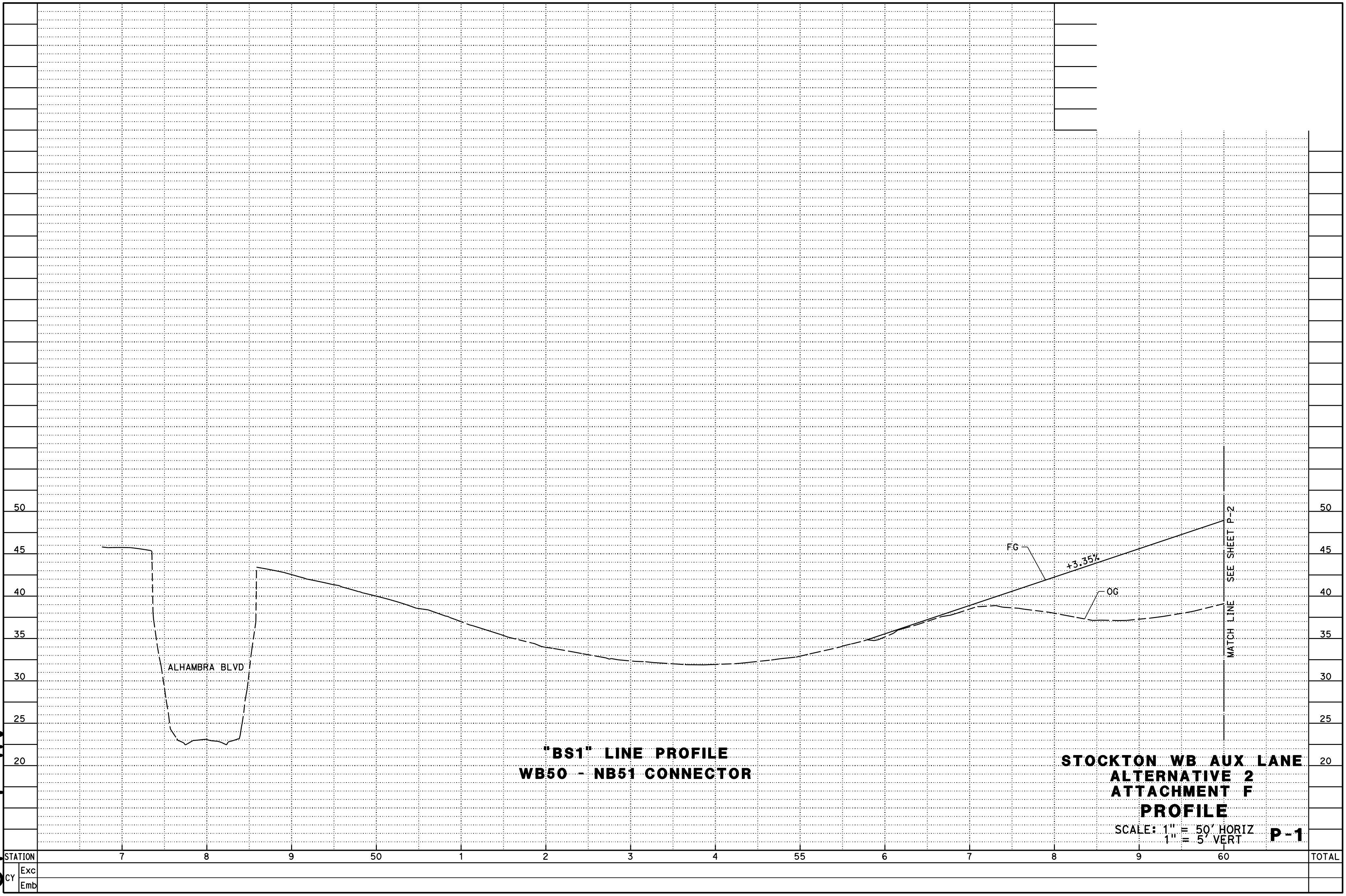
No. (#)	R	Δ	T	L
2	2750'	36°54'29"	917.68'	1771.46'
3	2000'	36°54'29"	667.41'	1288.33'

STOCKTON WB AUX LANE
ALTERNATIVE 2
ATTACHMENT F
LAYOUT

SCALE: 1" = 50'

L-3

Attachment Q

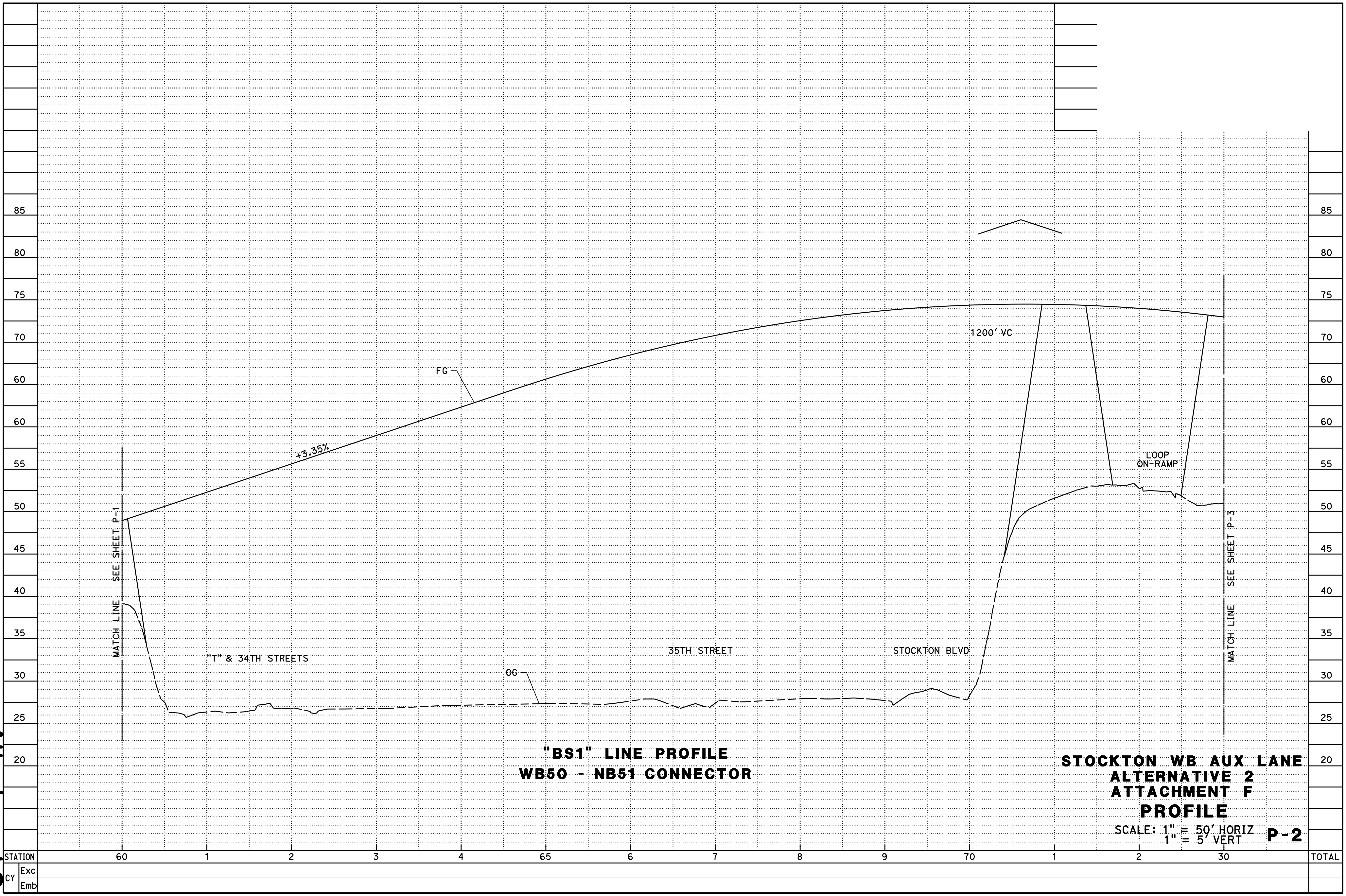


"BS1" LINE PROFILE
WB50 - NB51 CONNECTOR

STOCKTON WB AUX LANE
ALTERNATIVE 2
ATTACHMENT F
PROFILE
SCALE: 1" = 50' HORIZ
1" = 5' VERT

P-1

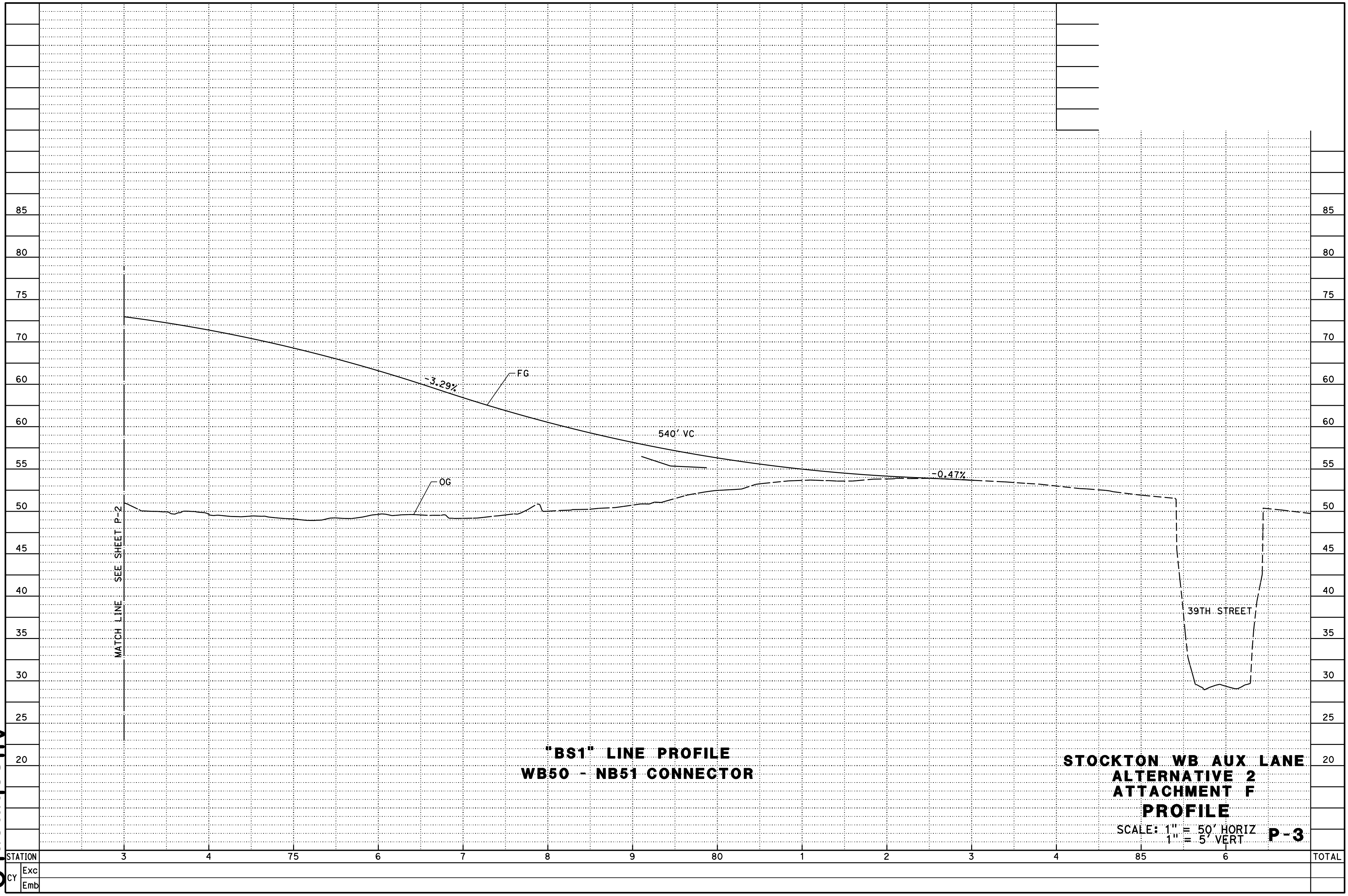
Attachment Q



"BS1" LINE PROFILE
WB50 - NB51 CONNECTOR

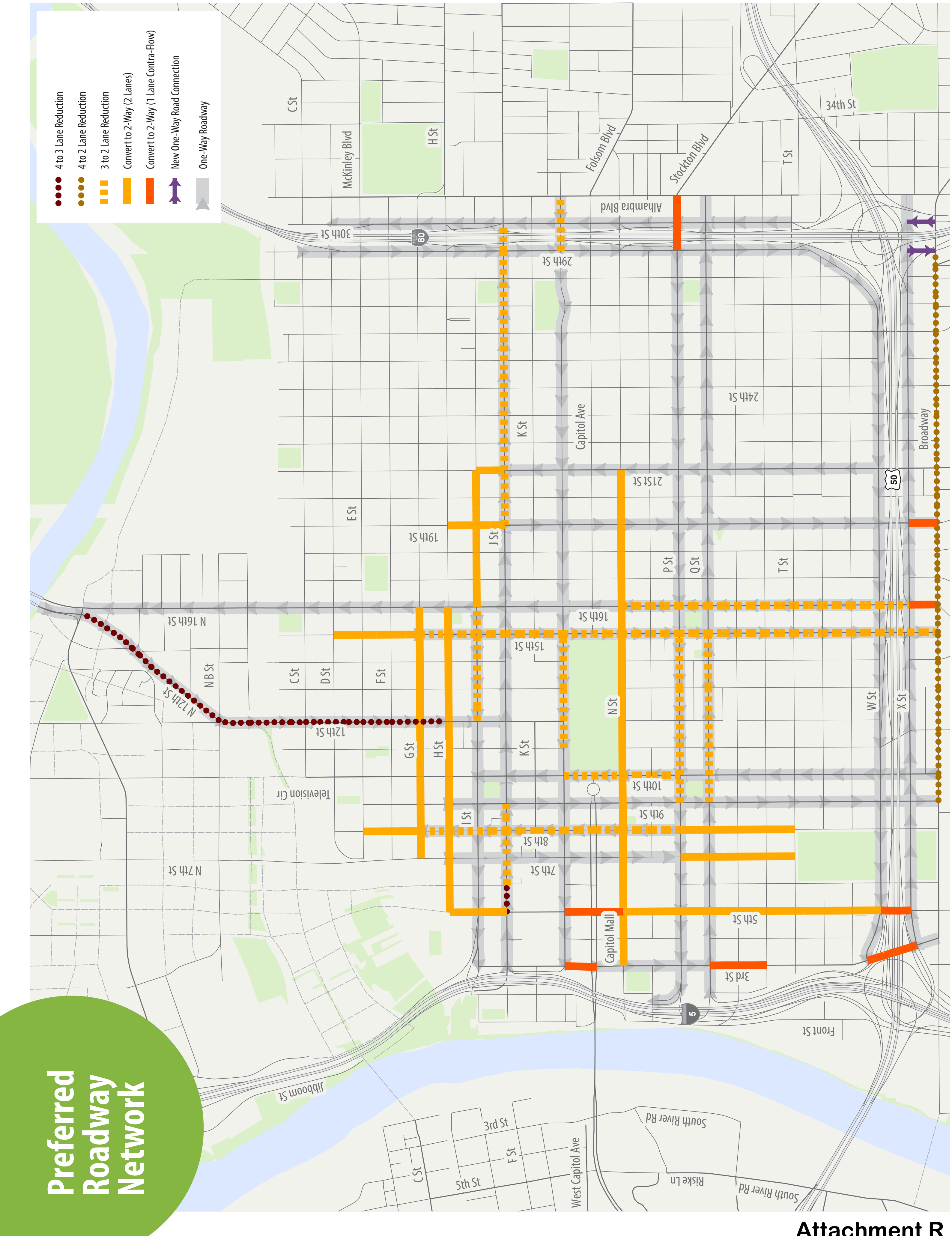
STOCKTON WB AUX LANE
ALTERNATIVE 2
ATTACHMENT F
PROFILE
SCALE: 1" = 50' HORIZ
1" = 5' VERT
P-2

Attachment Q



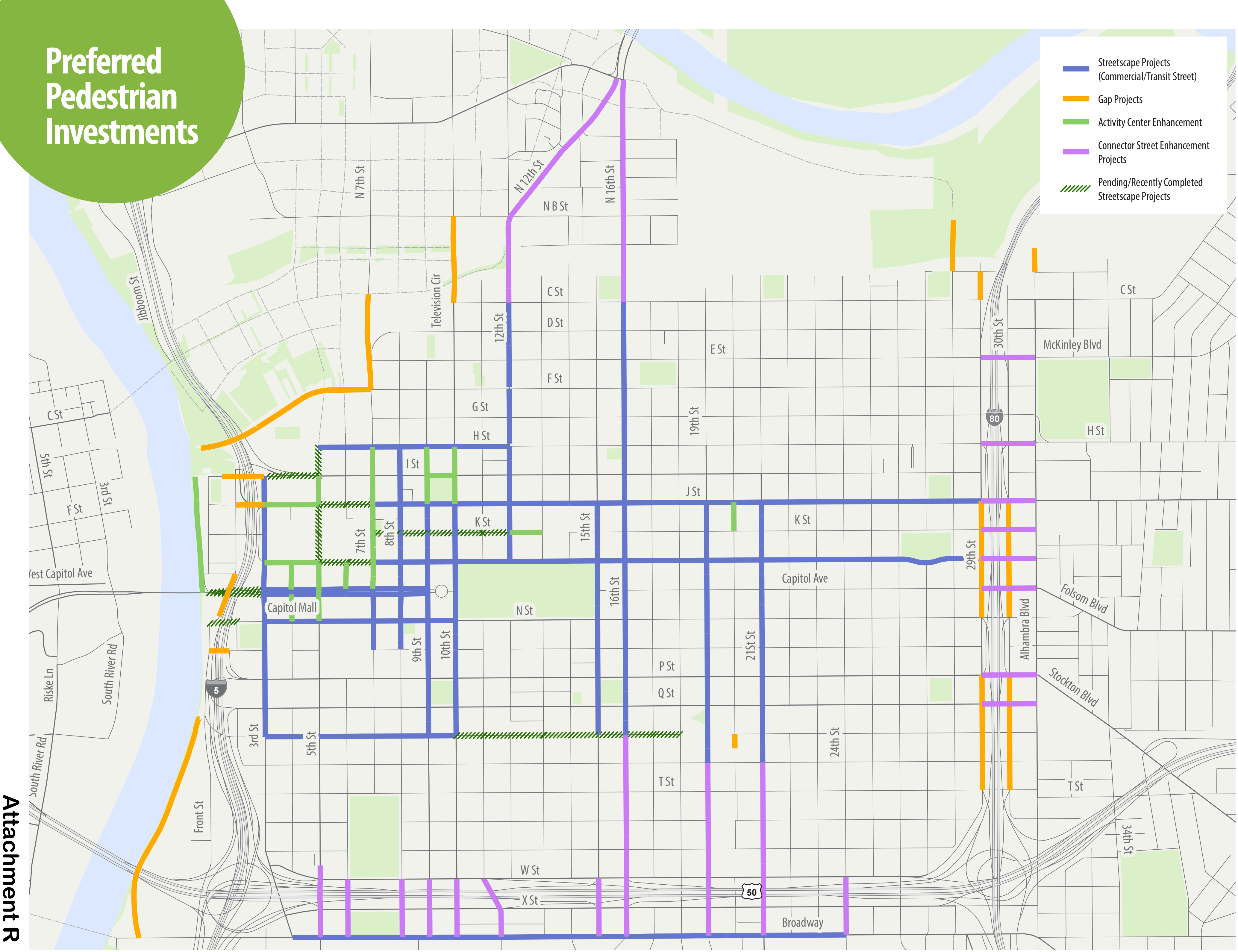
Attachment Q

Preferred Roadway Network

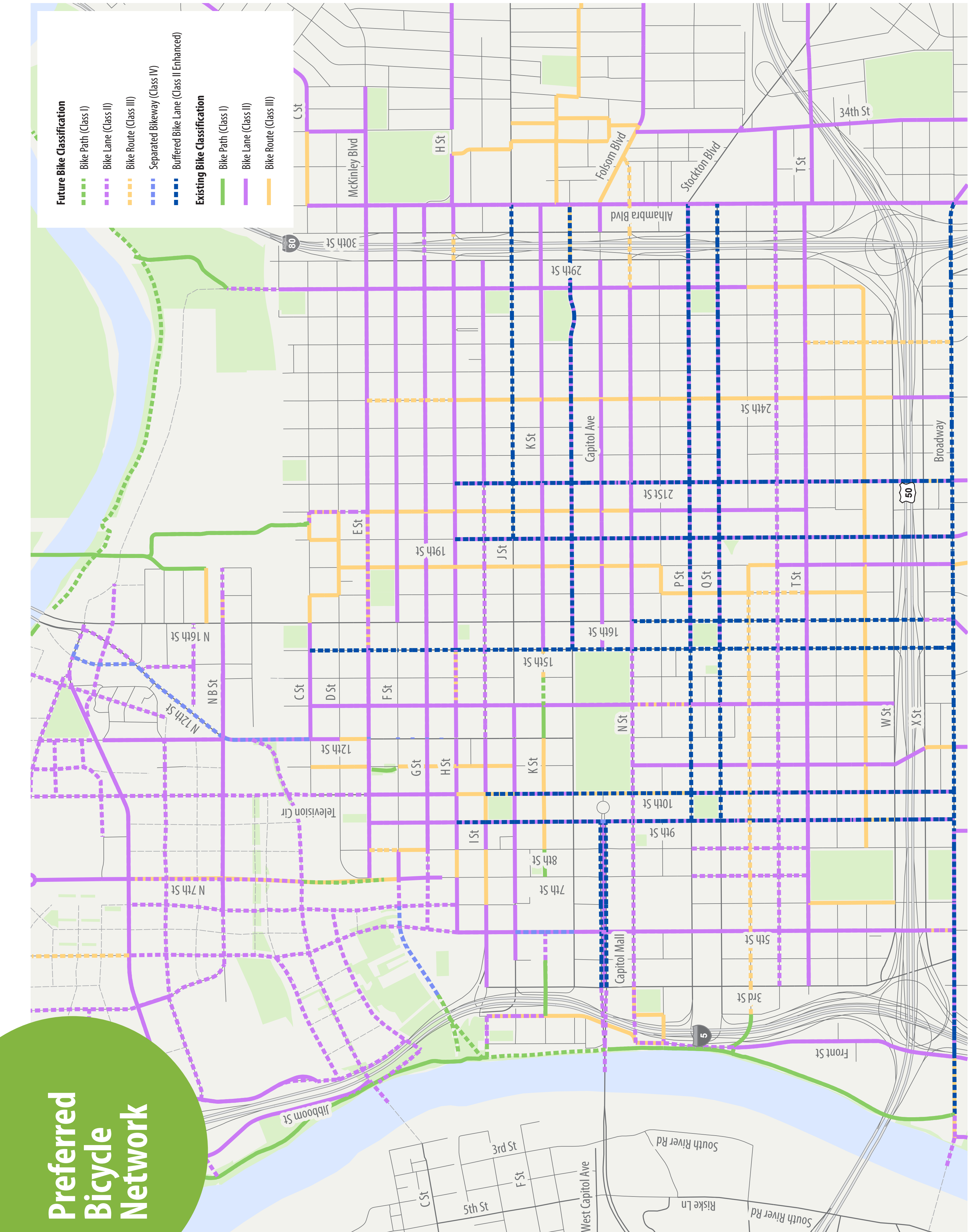


Attachment R

Preferred Pedestrian Investments



Attachment R



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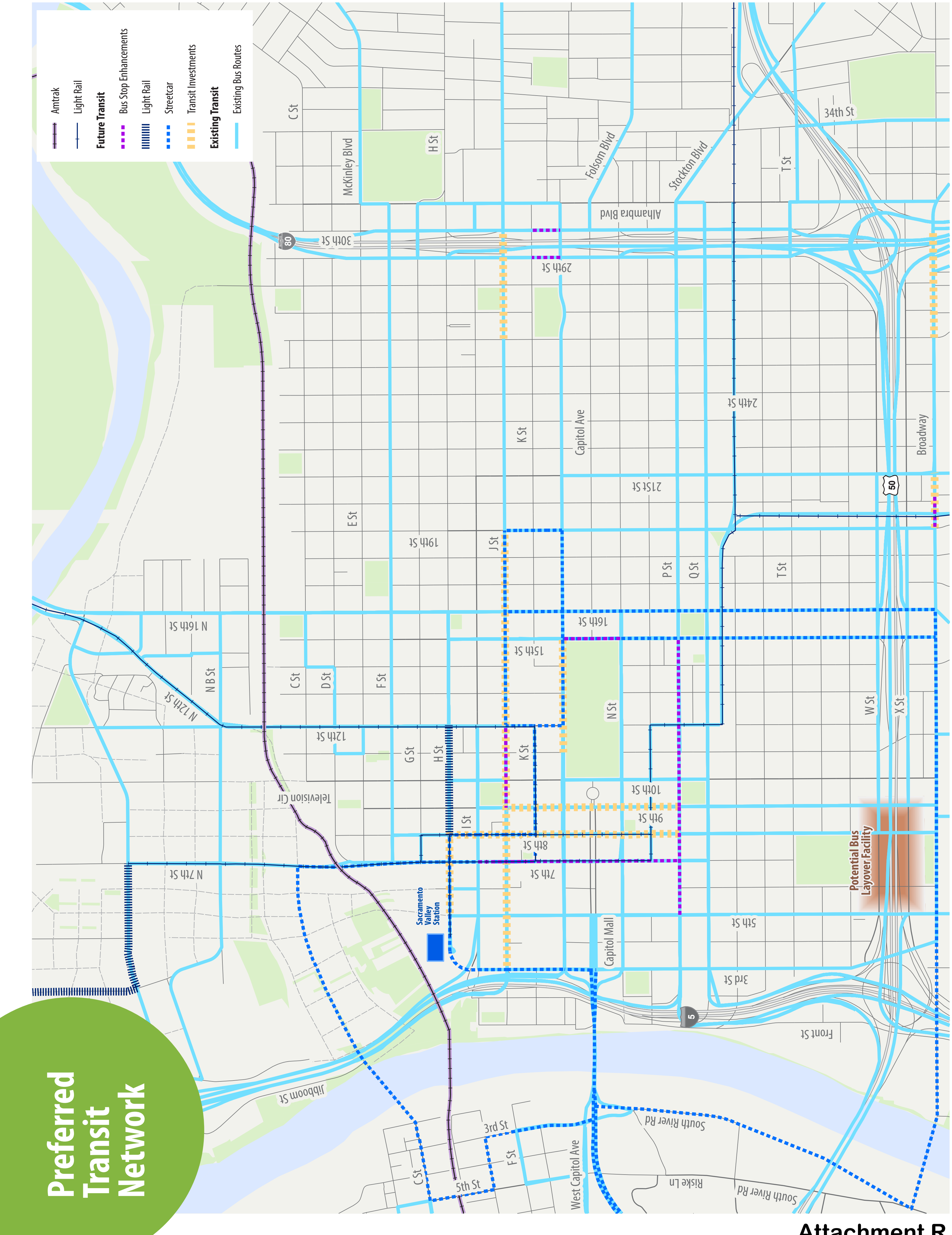

Attachment R

State of California **Business, Transportation and Housing Agency**

Memorandum

Date: June 5, 2015

File: 03-Sac-50
PM 0.2-5.3
EA 3F360
EFIS 0312000216

To: Michael Sullivan
Design Engineer

From: Rajive Chadha
North Region Office of Environmental Engineering (NROEE) - South

Subject: Updated Initial Site Assessment

It is understood that this project proposes to add car pool lanes along the above project limits. Project work includes median decking at eleven structures, widening on/off ramps along the above project limits, adding sound walls. New R/W is required for this project, all excess soils will be relinquished to the contractor and the existing traffic stripe will be grinded off along with the roadway.

The review for potential hazardous waste impacts involved the following;

1. A review of the project plans and aerial mapping;
2. Discussions with the design engineer;
3. A review of Geotracker (a hazardous waste database of contaminated sites);
4. A review of previous hazardous waste consultant studies performed within these project limits;

Based on this review, the potential for hazardous waste exists with respect to the following;

1) Lead-contaminated soil may exist within and near our R/W due to the historical use of leaded gasoline, leaded airline fuels, waste incineration, and et-cetera. The areas of primary concern in relation to highway facilities are soils along routes with historically high vehicle emissions due to large traffic volumes, congestion, or stop and go situations. Since soil disturbance and relinquishment to the contractor will occur, an Aerially Deposited Lead (ADL) site investigation is required. This site investigation will determine if hazardous soils exist and what actions, if any, will need to occur during construction.

2) Groundwater and soil contamination may exist where new footings for the bridge widening will occur. As such, a site investigation is required to determine if hazardous soils and groundwater exists and what actions, if any, will need to occur during construction.

3) Since bridge expansion joint materials and rail shims will be removed during construction, a bridge asbestos survey is required to determine if asbestos is present.

4) Hazardous chemicals are known to exist in the wood posts associated with metal beam guardrail. As such, if wood posts are removed, they shall be disposed of in accordance with Standard Special Provision 14-11.09 (Treated Wood Waste).

5) The potential for hazardous waste exists with the levels of lead and chromium in the yellow color traffic stripes. Since these traffic stripes will be grinded off along with the roadway or dug out, the levels of lead and chromium will become non-hazardous. These grindings (which consist of the roadway material and the yellow color traffic stripes) shall be removed and disposed of in accordance with Standard Special Provision 15-1.03B (Residue Containing High Lead Concentration Paints) which requires a Lead Compliance Plan (LCP). Non-hazardous levels of lead are known to exist in the white traffic striping. As such, these grindings shall be removed and disposed of in accordance with the same specification. For budgetary purposes, you can assume a cost of $ 2,000 (Use BEES item code 190110).

6) A Hazardous Materials Disclosure Document (HMDD) will be required for attachment to the Certificate of Sufficiency (COS) before any right of way can be acquired. To provide the HMDD, Design will need to provide our office with final R/W mapping as soon as it is available.

Attachment S

Since construction of the proposed project cannot avoid disturbing soils a Site Investigation (SI) is required. This site investigation will also include an asbestos survey to determine if asbestos is present in the eleven bridge structures. A SI needs to be requested by the PE or PM and takes 2 to 5 months to complete since a task order has to be prepared, approved, and issued to a contractor. The contractor is then required to prepare work plans, health and safety plans, conduct site investigations, and prepare site investigation reports for Caltrans review and approval.

The following support costs will be needed for this project;

Unit 0386 NROEE (Hazardous Waste) Resource Hour Needs			
ISA	**Site Investigation**	**Specs Prep**	**Functional Support**
165.10.50	**165.10.50**	**230.35**	**285.10**
20	**120**	**8**	**4**

Should any project changes occur, another review will be required. Should you require further information or have any questions, I can be reached at (530) 741-4295.

c.c. Ken Lastufka, Environmental Co-ordinator
Sutha Suthahar, Project Manager
Douglas Coleman, NROEE - South