

Draft Project Report To Authorize Public Release of the Draft Environmental Document

On Route Interstate 10
Between 16th Street
And County Line Road

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

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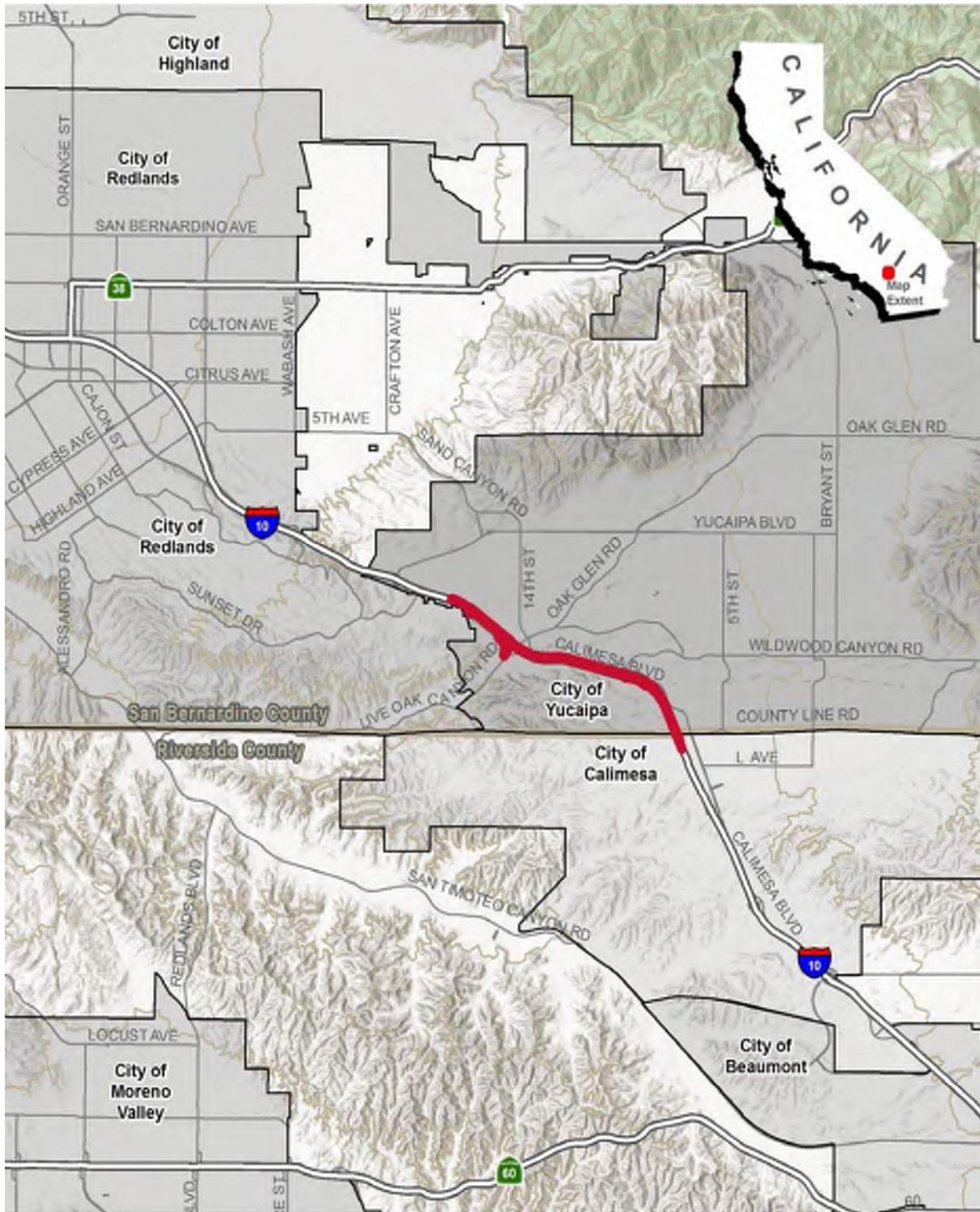
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Regional Vicinity and Project Location Map



LEGEND

 Project Limits

0 Miles 1

08-SBD-10 PM 36.4/R39.2 &
08-RIV-10 PM R0.0/R0.2
EA 1F7600
I-10 Eastbound TCL
Improvement Project

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.

6/19/2020

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1. INTRODUCTION

Project Description

The San Bernardino County Transportation Authority (SBCTA), in cooperation with the California Department of Transportation (Caltrans), proposes to extend the eastbound (EB) truck climbing lane (TCL) on Interstate 10 (I-10) from its current terminus at the existing EB off-ramp to Live Oak Interchange to just east of the existing EB County Line Road off-ramp at the San Bernardino County/Riverside County line (Project). The extension of the existing TCL within the Project limits for an additional three miles from its current location would improve operations by separating slow moving vehicles from faster moving passenger cars on a freeway segment with sustained grades of up to 3.75 percent (%).

The Project is subject to both state and federal environmental review requirements because the use of federal funds from the Federal Highway Administration (FHWA). Project documentation has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under both CEQA and NEPA.

The Project is primarily located at the south edge of San Bernardino County in the City of Yucaipa and at the north edge of Riverside County in the City of Calimesa, California. The Project is bounded by Calimesa Boulevard and Dunlap Boulevard to the north, 17th Street to the west, County Line Road to the east, and Outer 10 Highway South/Wildwood Wash/7th Place to the south (see Attachment A for Project Limits). The Project is located within a suburban setting with primarily commercial, commercial/industrial, open space, and some residential land uses adjacent to the Project limits.

This report is focused on two Project Alternatives which consist of the Build and the No-Build Alternative, with both discussed in greater detail in Section 5. The Build Alternative will pave the existing I-10 dirt median and add a concrete barrier to divide the EB and westbound (WB) roadbeds. The proposed striping will shift the existing three EB general purpose (GP) lanes to the inside so that lane number one will be located along the improved median, and the existing outside lane will provide a continuation to the TCL that currently ends at the Live Oak Canyon Rd exit ramp.

The east terminus of the proposed Project at the County Line Road Interchange was determined based on the profile grade of the existing EB freeway roadbed. The lane configuration at the proposed terminus allows the dedicated EB TCL-merge to occur where the longitudinal grade is less than 2%. This lane drop location meets the requirements of logical termini under NEPA and does not conflict with the existing exit ramps.

The Project will be funded by a combination of local, state and federal funds. Caltrans will provide oversight through the construction phase of the Project. Construction is anticipated to begin in June of 2022 and completed by September of 2023. The only structural work required as part of this Project is the widening of the Oak Glen Creek Bridge (No. 54-0648) in order to close the gap in the median between the EB and WB roadbeds.

This Project is classified as a Category 4B because the proposed improvements do not require substantial new right-of-way (R/W) and do not substantially increase traffic capacity.

According to the Project Study Report/Project Development Support (PSR/PDS) dated June 2017, the Project category assignment was done in accordance with Chapter 8, Section 5 of the Caltrans Project Development Procedures Manual (PDPM), and approved by the Deputy District Director for Design on November 2017 (signature page included in Attachment J). The following table provides a summary of the Project.

Table 1-1 Project Summary

Project Limits	08-SBd-10 PM 36.4/R39.2 & Riv-10-PM R0.0/R0.2	
Number of Alternatives	No-Build Alternative & Build Alternative	
	Current Cost Estimate:	Escalated Cost Estimate:
Capital Outlay Support	\$6.76 M	\$7.67 M
Capital Outlay Construction	\$20.90 M	\$25.43 M
Capital Outlay Right-of-Way	\$280 K	\$328 K
Funding Source	Local, State & Federal	
Funding Year	2021/2022	
Type of Facility	6 to 8 Lane Freeway	
Number of Structures	1, Oak Glen/Wilson Creek (Br. No. 54 0648 L/R)	
Environmental Determination or Document	CEQA: Initial Study (IS) NEPA: Environmental Assessment (EA)	
Legal Description	In San Bernardino County in Yucaipa from the 16 th Street Overcrossing to Riverside County Line & in Calimesa from San Bernardino County Line to 0.2 mile east of County Line Road Undercrossing	
Project Development Category	4B	

2. RECOMMENDATION

It is recommended that this Draft Project Report (DPR) be approved and that the Draft Environmental Document (Attachment L) Initial Study/Environmental Assessment (IS/EA) be approved to circulate for public review and comment.

3. BACKGROUND

Project History

A Project Study Report-Project Development Support (PSR/PDS) was initiated at the request of SBCTA and completed in June of 2017. The PSR/PDS only evaluated one Build Alternative and the No-Build Alternative and recommended both for further study in the next phases of the Project.

The Build Alternative evaluated in this Draft Project Report is consistent with the one evaluated in the PSR/PDS, which consists of median improvements that allow all the work to be done within the existing right-of-way (R/W) with minimal impacts to existing structures, utilities, drainage facilities, and traffic operations during construction.

An Initial Site Assessment (ISA) Checklist for hazardous waste was also completed during the PSR/PDS phase, and it determined that this Project has a low risk for potential hazardous waste involvement. This is still the case based on the ISA prepared during the PA/ED phase (Attachment K) and because other recently completed improvement projects have already disturbed the soils within the median.

Community Interaction

The stakeholders from SBCTA and Caltrans' functional units were heavily involved throughout the preparation and approval of the PSR/PDS. Meetings were held with participation from all stakeholders and functional units from Caltrans and SBCTA. Project issues were discussed in the Project Delivery Team (PDT) meetings as well as through phone calls and emails, and documented accordingly. The report was reviewed and approved after incorporating comments from all involved stakeholders.

In the current phase, the close coordination between SBCTA and Caltrans has continued, and the City of Yucaipa representatives have been informed about the progress of the Project as a consideration for the City's proposed new interchange at Wildwood Canyon Road which is located within the limits of this Project.

Existing Facility

I-10 is the southernmost cross-country interstate highway in the American Interstate Highway System. It stretches from the Pacific Ocean at California State Route 1 (Pacific Coast Highway) in Santa Monica, California, to Interstate 95 (I-95) in Jacksonville, Florida.

I-10 provides for the safe and efficient interstate and interregional movement of goods and people. The route also serves as a major east/west urban corridor and commuter route between Los Angeles and the Counties of San Bernardino and Riverside. Rural areas in eastern Riverside County are connected to the urban centers to the west via I-10.

Within District 8, the centers of population, commerce, industry, agriculture, mineral wealth, and recreation are spatially and economically connected to ports, airports, rail yards, numerous highways and other states by I-10.

This segment of I-10 is an access-controlled route that currently provides six-lanes with three 12-foot wide Mixed Flow Lanes (MFLs) in each direction, 10-foot wide inside and outside

shoulders, and a 36-foot wide median that is unpaved between the edges of shoulder and that provides metal thrie beam barrier to separate the eastbound and westbound traffic. Currently there are no existing high occupancy vehicle lanes within the Project limits or in the vicinity of the Project. The width of existing R/W is predominantly between 170' and 200' but increases at local interchanges, at the Wildwood Safety Roadside Rest Area (SRRA), and at other locations where graded slopes exist.

The terrain within this segment is mostly rolling with upward steep grades of up to 3.75% in the eastbound direction between Live Oak Canyon Road and County Line Road. Three local roads traverse over or under I-10 within the limits of the Project:

- 16th Street overcrossing – No access to/from I-10
- Live Oak Canyon Road overcrossing – Local interchange with access to/from I-10
- County Line Road undercrossing – Local interchange with access to/from I-10

The on-ramps from the local interchanges and from the Wildwood SRRA provide single lane entrances that are currently not metered. No enforcement areas exist within the median or at any of the on-ramp entrances, but there is a small California Highway Patrol (CHP) office at the Wildwood SRRA. All of the exit ramps are single lane exits. The list of existing structures within the project limits is shown in the following table.

Table 3-1 Existing Structures

Structure Name	Number	County	PM
16 th Street (OC)	54-0615	San Bernardino	36.44
Oak Glen Creek	54-0648	San Bernardino	R36.90
Live Oak Canyon Road (OC)	54-1291	San Bernardino	R37.03
Wildwood Creek	54-0312	San Bernardino	R38.53
County Line Road (UC)	56-0484	Riverside	R0.02

No park and ride lots exist within the Project limits, with the closest one located on Hampton Road on the north side of I-10 just to the west of Yucaipa Boulevard. No railroad facilities exist within the limits of the Project.

There are local roads that run parallel to I-10 and serve as frontage/collector roads for local streets and private properties located on either side of the freeway. These are:

- Outer 10 Highway South, which is a two lane bi-directional road located on the south side of I-10 that runs from Gold Hill Lane west of Yucaipa Boulevard to Live Oak Canyon Road.
- Dunlap Boulevard, which is a two lane bi-directional road located on the north side of the I-10 and connects Avenue E on the east side of Yucaipa Boulevard with 14th Street on the west side of Live Oak Canyon Road. From there, 14th Street then connects to Calimesa Boulevard, which is also a two lane bi-directional road located on the north side of the I-10 that runs between Live Oak Canyon Road and County Line Road.

Within the Project limits there are existing storm drain facilities located throughout the edge of the roadways; primarily overside drains (OSD), which are used to capture the roadway runoff and direct them to water quality swales and further to the regional drainage systems.

Portions of the roadway also have grate inlets to capture runoff or sheet flow off into water quality Best Management Practices (BMPs) or earthen swales.

The Project site crosses three major regional drainage systems; Wilson Creek Channel, Yucaipa Creek Channel, and Wildwood Channel. No major impacts or alterations to local drainage systems are expected due to the Project improvements.

During rain events, the paved areas along tangent segments of I-10 primarily sheet flow from the median towards the outside edge of the roadway. Along horizontal curves, the high side of the superelevated roadbed drains towards the median where runoff is collected by inlets and then conveyed via pipes to swales or ditches located outside the roadway. These swales and ditches then eventually discharge the water to the nearest regional system.

4. PURPOSE AND NEED

4A. Problem, Deficiencies, Justification

Purpose

The purpose of the proposed Project is to improve operational characteristics by separating trucks and other slow vehicles from faster moving passenger vehicles along this segment of EB I-10 that includes sustained steep uphill grades of up to 3.75%. By providing a dedicated climbing lane it is expected that conflicts between slow and fast moving vehicles will be reduced, resulting in improved traffic operations.

Need

Trucks characteristically exhibit the lowest level of hill-climbing performance of all vehicles on highways and freeways. Along eastbound I-10 within the Project limits, there is a sustained upward grade of up to nearly four percent. Without a truck climbing lane, slow moving trucks create operational conflicts between faster-moving automobiles and slower-moving trucks.

A large number of commercial trucks travel along this segment of the eastbound I-10 within the Project limits. According to the PSR/PDS, average daily traffic (ADT) truck volumes in 2016 along I-10 within the Project limits make up 16 percent of the total volume of vehicle traffic. Truck accident frequency can be correlated to an increased differential in speed between trucks and faster moving vehicles; therefore, climbing lanes are advantageous when excessive speed differentials exist.

Improvements along eastbound I-10 within the Project limits are needed to reduce weaving and improve efficiency for motorists. In summary, per the Traffic Operations Analysis Report (TOAR) (Caltrans 2018a) prepared for the Project, the following conditions warrant adding the TCL:

- The running speed of trucks falls 10 miles per hour (mph) or more below the running speed of remaining traffic;
- The critical length of grade is less than the length of grade being evaluated;
- The sustained upgrades are greater than two percent, and the total rise is greater than 250 vertical feet ('); and
- The existing Level of Service (LOS) for the upgrade is equal to or better than LOS D; and
- The addition of the TCL improves traffic operations and the LOS by one grade.

4B. Regional and System Planning

Identify Systems

The full length of I-10 within District 8 is included in the National Highway System (NHS), the Department of Defense Priority Network, and the Strategic Highway Corridor Network (STRAHNET). The 1990 Federal Surface Transportation Assistance Act (STAA) identifies I-10 as part of the National Network for STAA Trucks. The Federal Functional Classifications for I-10 are Rural Principal Arterial (PA) and extension of a Rural Principal Arterial into an urban area (PIP).

State Planning

This Project is listed in the 2019 Federal Transportation Improvement Program (FTIP) from the Southern California Association of Governments (SCAG) with Project ID 20179901. The proposed improvements are consistent with state, regional and local mobility goals and are being coordinated with the applicable governmental, regulatory, and local agencies in the area to be consistent with specific local goals and objectives.

The following table shows other ongoing projects that are located within the Project limits and their current status. The TCL does not preclude any of these planned future improvements.

Table 4-1 Future Projects

EA	Project Limits	Scope of Work	Status / (Milestone Date)
0K293	SBd R36.8-R39.2	Rehabilitate Roadway (State SHOPP funds)	CCA (09-01-2020)
1J580	SBd 38.10	Install electric zero-emission vehicle (ZEV) charging stations and dynamic truck parking signs at the Wildwood Safety Roadside Rest Area	PA/ED (10-01-2021)
38423	SBd/Riv 29.4-R39.2/R0.0-R0.117	Install wireless Vehicle Detection Stations (VDS) pole, Changeable Message Signs (CMS), Closed Circuit Television (CCTV), Data Node Cabinet and Fiber Optic Elements	CCA (09-01-2020)
1C300	SBd 34.2-R39.1	Replace diseased plants	CCA (11-02-2020)
1L490	SBd R37.4-R38.1	Install Dynamic Truck Parking Signs	PIP (11-26-19)

Regional Planning

The following additional projects are programmed for funding in SCAG's 2016 financially constrained Regional Transportation Plan (RTP), adopted on April 2016 and the Amendment adopted on April 2017, as well as in the 2019 Federal Transportation Improvement Program (FTIP) Project Listing Part A dated September 2018:

- RTP ID 4M04033: The addition of an interchange at I-10 and the future Wildwood Canyon Road (Estimated completion year 2030), currently in the PID phase (EA 1K090) supported by local SBCTA Measure I and City funds.
- RTP ID 3TK04MA12: The addition of an EB TCL from the San Bernardino County Line to the I-10/SR-60 Junction (Estimated completion year 2025), PIP phase with RCTC Measure A and possible Federal fund allocations.
- FTIP ID RIV131201: Reconstruction of existing interchange at I-10/County Line Road with two 90' radius on/off ramps roundabouts, extending 1,300 linear feet from County Line Lane to approximately 300' west of Calimesa Boulevard. The project will include ramp realignment for all four ramps with minor ramp widening.

SCAG's 2016-2040 RTP/Sustainable Communities Strategy (SCS) Final Amendment #3 dated September 6, 2018, shows project ID 4H01003 as cancelled. The project proposed to add one high occupancy vehicle (HOV) lane in each direction of I-10 between Ford Street in the City of Redlands and Riverside County Line in the City of Yucaipa.

Local Planning

The new I-10/Wildwood Canyon Road Interchange (also mentioned in the Regional Planning section above) was initiated by the City of Yucaipa in coordination with Caltrans and SBCTA, and is expected to be completed in 2030. The I-10/Wildwood Canyon Road Interchange would be located approximately one mile east of Live Oak Canyon Road/Oak Glen Road Interchange and one mile west of County Line Road Interchange, in close proximity to the existing Wildwood Safety Roadside Rest Area (SRRA).

The objective of the I-10/Wildwood Canyon Road Interchange is to improve access to the City of Yucaipa and improve traffic operations at existing interchanges, taking into account current and future land uses, the associated traffic volumes, and travel demands on I-10. The City of Yucaipa General Plan (April 2016) identifies planned businesses/commercial and residential housing north and south of I-10 along the extension of Wildwood Canyon Road near the Wildwood SRRA.

Transit Operator Planning

There are no transit services that would be affected since the Project is located on an accessed-controlled freeway facility.

4C. Traffic

Current and Forecasted Traffic

This section provides a summary of the current and forecasted traffic volumes along the EB I-10 mainline under current (2017), opening year (2025), and horizon year (2045) for the No-Build and Build Alternative. This summary is based on information from the TOAR approved in October 2018.

The TOAR evaluated the EB I-10 between Yucaipa Boulevard and County Line Road Post-Mile 36.4 to R39.2, and from Post-Mile R0.0 to R0.2 in Riverside County. The study locations consist of the I-10 mainline segments and ramp junctions in the study area.

The I-10/Wildwood Canyon Road Interchange is proposed to be completed by Year 2030 and it is currently in the Project Initiation Document (PID) phase. Therefore, traffic forecasts were developed for the I-10/Wildwood Canyon Road Interchange under Design Year (2045) conditions only. The study scenarios for traffic operations analysis include the following:

- Existing (2017) Conditions
- Opening Year (2025) No-Build Alternative
- Opening Year (2025) Build Alternative
- Design Year (2045) No-Build Alternative
- Design Year (2045) Build Alternative

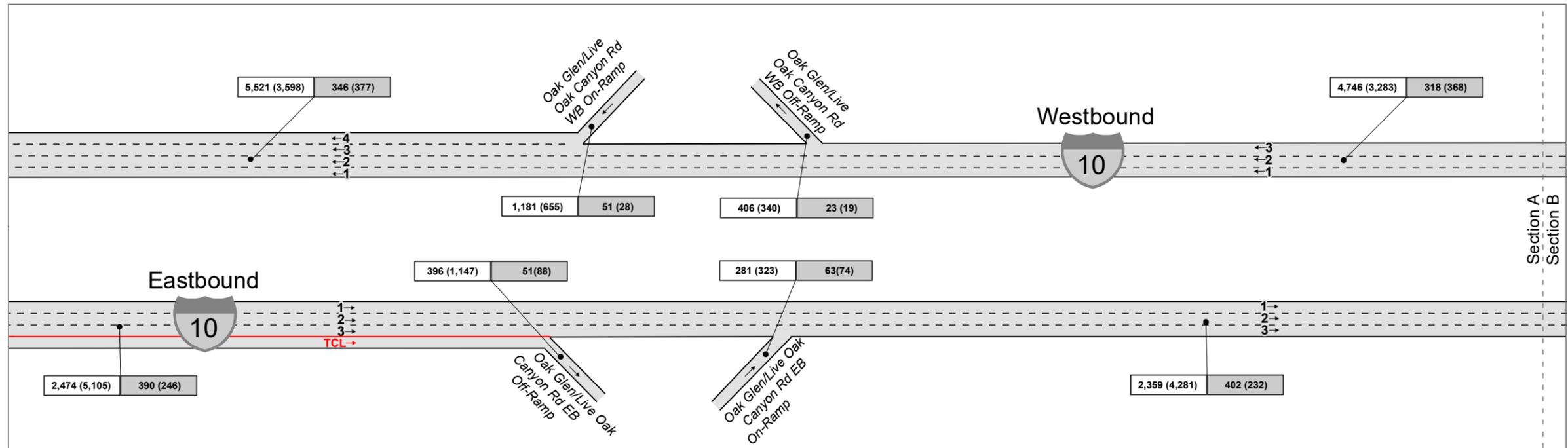
Existing Conditions (2017)

EB and WB freeway mainline volumes were collected during the AM Peak Period (7 AM to 9 AM) and the PM Peak Period (4PM to 6PM) from the 16th Street overcrossing on Tuesday, November 14, 2017. Traffic volume data and classification information was collected by lane for the mainline. Twenty-four hour tube counts with classification data was also collected on all study area ramps. Traffic data was collected as Average Daily Traffic (ADT)/Peak Hour by type and by axle for the mainline/ramps.

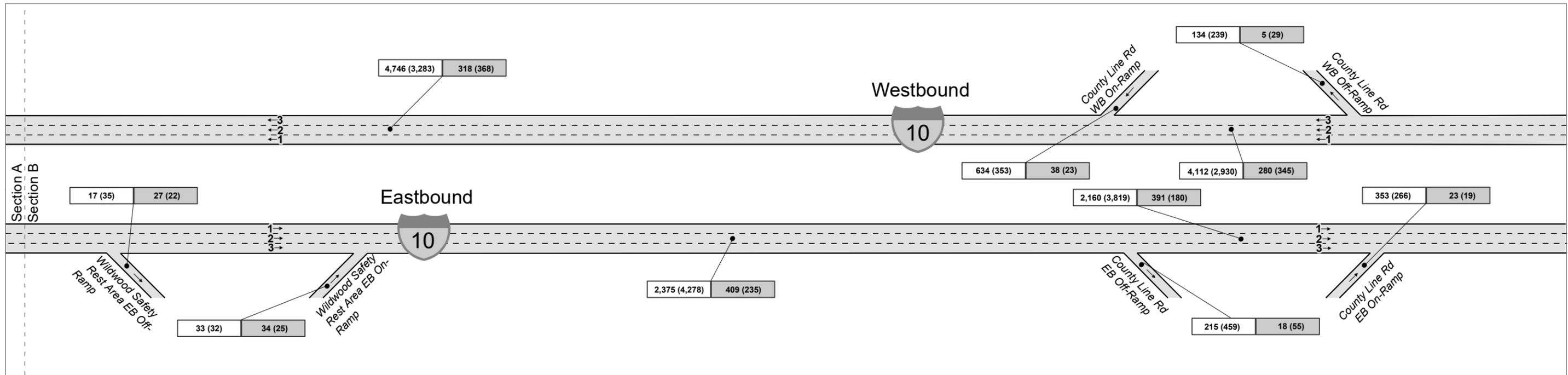
The percentage of trucks along this segment of I-10 is 23 percent. Peak hour travel time runs were also completed by lane to allow for calibration of the VISSIM model. **Figure 1** shows the Existing (2017) passenger car and truck (heavy vehicle) peak hour traffic volumes for the freeway mainline and ramps in the study area.



PROJECT LOCATION



Not to Scale



- General Purpose Lane
- Truck Climbing Lane
- X,XXX (X,XXX) Passenger Car AM(PM) Peak Hour Traffic Volume
- X,XXX (X,XXX) Heavy Vehicle AM(PM) Peak Hour Traffic Volume

Figure 1

Peak Hour Traffic Volumes - Existing (2017) Conditions



Opening Year (2025)

A traffic analysis was conducted for the No-Build and Build Alternative under the Opening Year (2025) conditions.

For the Build Alternative analysis under Opening Year (2025), the TCL was assumed to end at the County Line Road Overcrossing just past the Riverside County Line. This is considered an interim condition provided that by the Design Year (2045) scenario, the TCL would be extended into Riverside County as part of a separate project. That project (RTP ID 3TK04MA12) has a completion year of 2025 in the 2016 RTP; but based on coordination between the leading agencies, it is not likely to be completed until after the extension of the TCL from Yucaipa Boulevard to County Line Road is in place. Therefore, it was determined that the interim condition should be analyzed in the Opening Year analysis, with the continuation of the TCL being analyzed in the Design Year analysis.

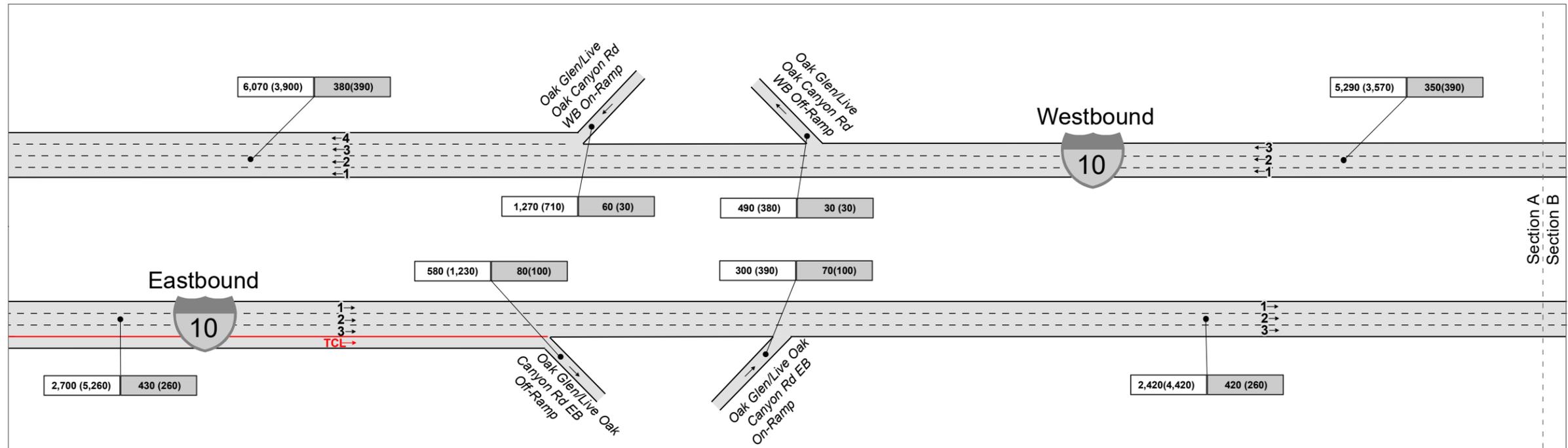
As previously discussed, the I-10/Wildwood Canyon Road Interchange is not expected to be completed by 2025; therefore, it is assumed that the I-10/Wildwood Canyon Road Interchange will not be in place under Opening Year (2025) conditions.

For the No-Build Alternative, the Opening Year (2025) passenger car and truck (heavy vehicle) AM and PM peak hour traffic forecasts for the I-10 mainline segments and ramps are shown in **Figure 2**.

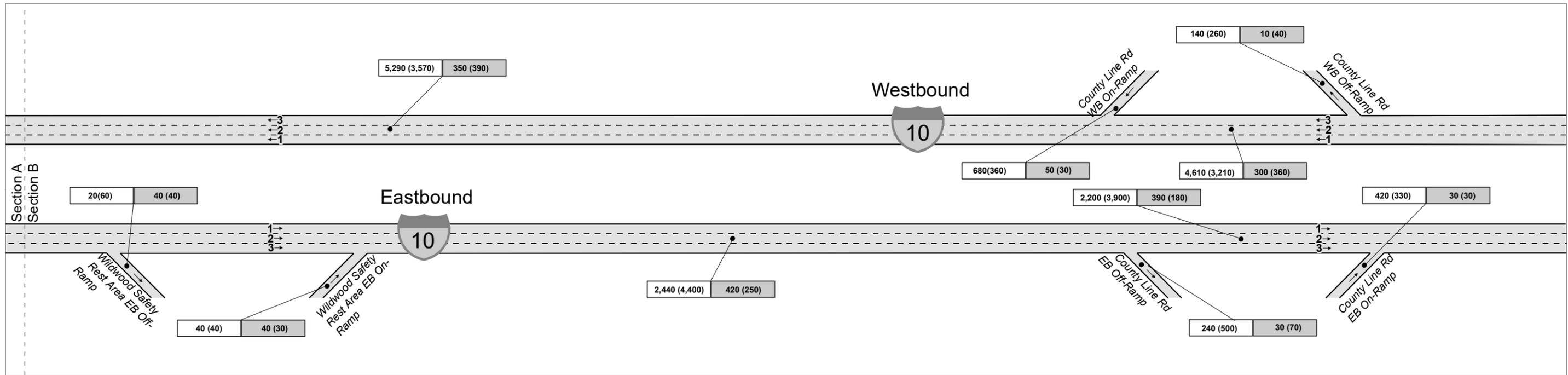
The Opening Year (2025) freeway mainline segment and ramp volumes for the Build Alternative are shown in **Figure 3**. Due to the increase in operational efficiency, slightly higher traffic volumes are expected under the Build Alternative as compared to the No-Build Alternative.



PROJECT LOCATION



Not to Scale



- General Purpose Lane
- Truck Climbing Lane
- X,XXX (X,XXX) Passenger Car AM(PM) Peak Hour Traffic Volume
- X,XXX (X,XXX) Heavy Vehicle AM(PM) Peak Hour Traffic Volume

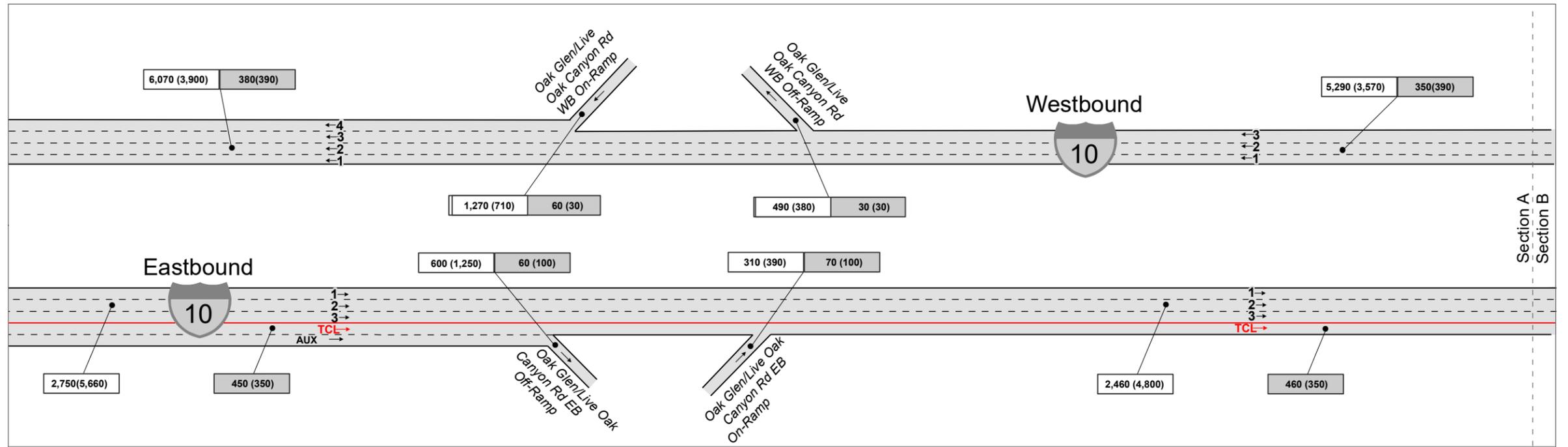
Figure 2

Peak Hour Traffic Volumes - Opening Year (2025) - No Build Alternative

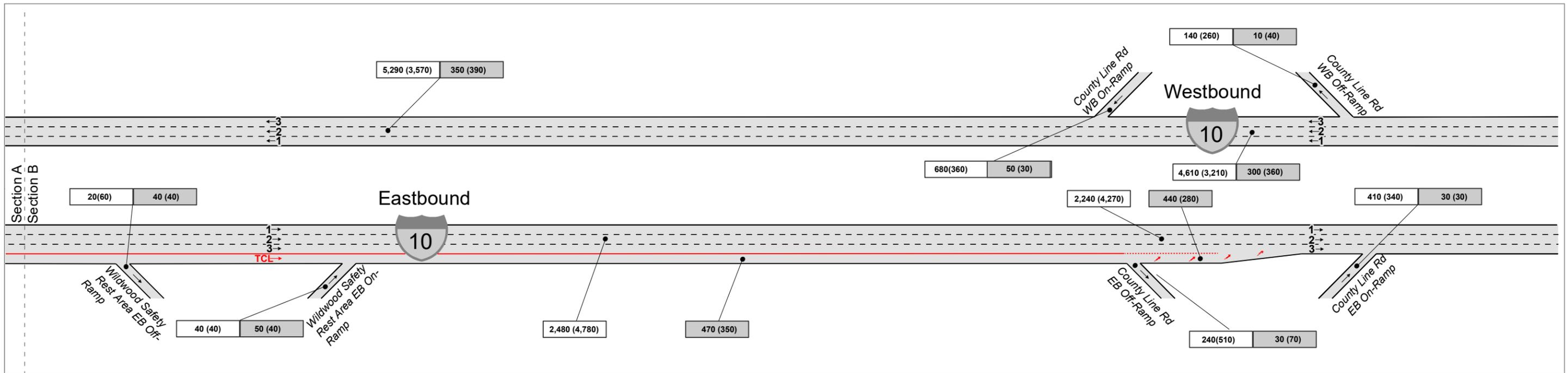




PROJECT LOCATION



Not to Scale



- General Purpose Lane
- Truck Climbing Lane

X,XXX (X,XXX) Passenger Car AM(PM) Peak Hour Traffic Volume

X,XXX (X,XXX) Heavy Vehicle AM(PM) Peak Hour Traffic Volume



Figure 3

**Peak Hour Traffic Volumes-
Opening Year (2025) Build Alternative**

Design Year (2045)

A traffic analysis was conducted for the No-Build and Build Alternative under the Design Year (2045) conditions.

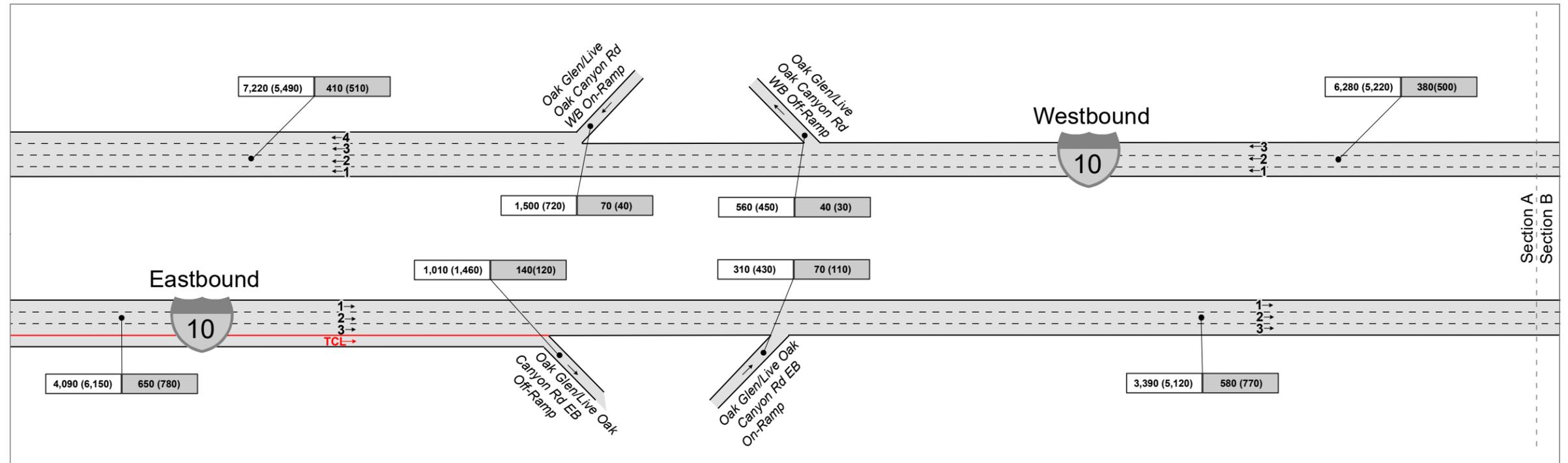
As described in the previous section, SCAG's 2016 financially constrained RTP projects are assumed to be in place for the Design Year forecasts, including the I-10/Wildwood Canyon Road Interchange and the continuation of the TCL from the Riverside County Line to the State Route 60 Junction.

For the No-Build Alternative, the Design Year (2045) passenger car and truck (heavy vehicle) AM and PM peak hour traffic forecasts for the I-10 mainline segments and ramps are shown on **Figure 4**.

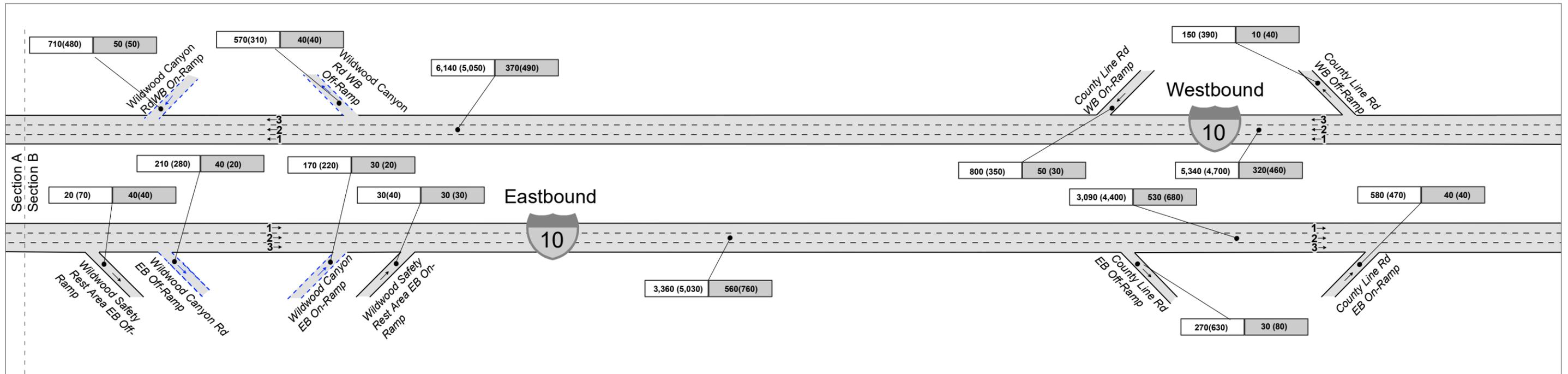
The Design Year (2045) traffic forecasts for the I-10 mainline segments and ramp volumes for the Build Alternative are shown on **Figure 5**. Due to the increase in operational efficiency, slightly higher traffic volumes are expected under the Build Alternative as compared to the No-Build Alternative.



PROJECT LOCATION



Not to Scale



- General Purpose Lane
- Truck Climbing Lane
- Proposed Wildwood Canyon Rd Interchange Ramps
- X,XXX (X,XXX) Passenger Car AM(PM) Peak Hour Traffic Volume
- X,XXX (X,XXX) Heavy Vehicle AM(PM) Peak Hour Traffic Volume

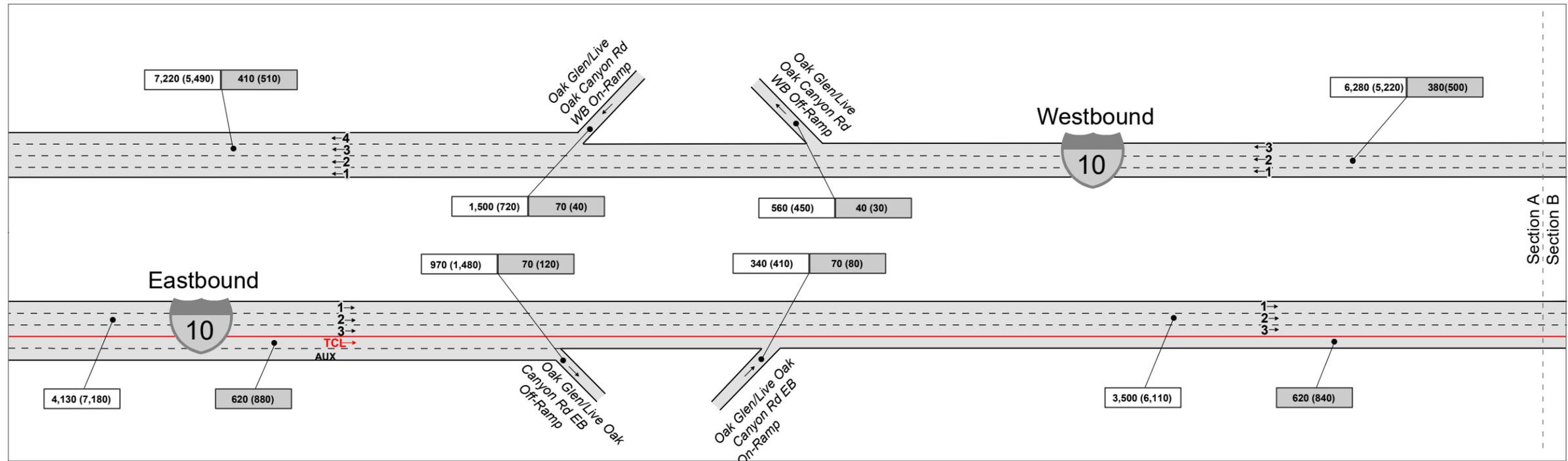
Figure 4

**Peak Hour Traffic Volumes -
Design Year (2045) No Build Alternative**

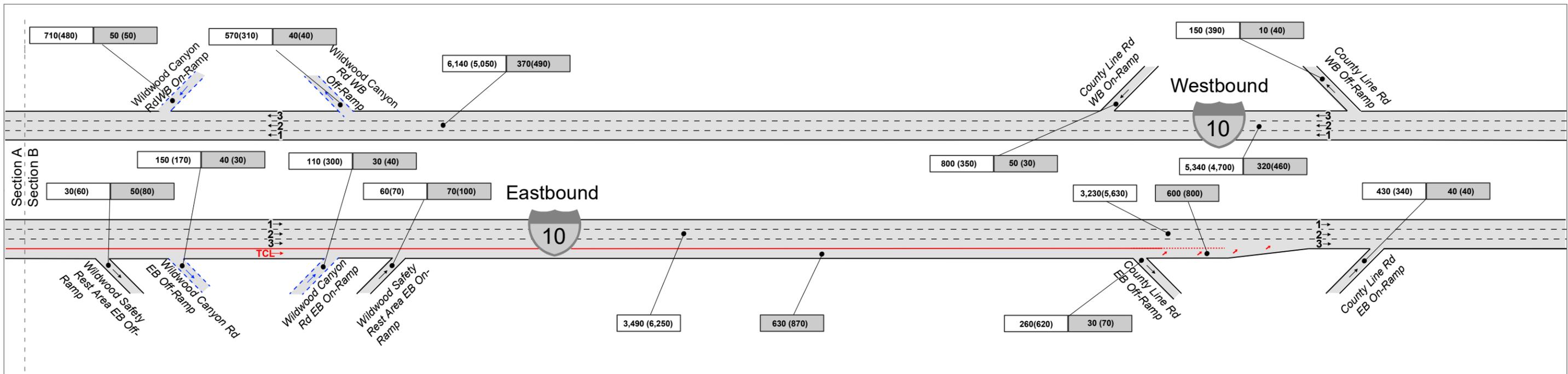




PROJECT LOCATION



Not to Scale



- General Purpose Lane
- Truck Climbing Lane
- Future Wildwood Canyon Rd Interchange Ramps
- X,XXX (X,XXX) Passenger AM(PM) Peak Hour Traffic Volume
- X,XXX (X,XXX) Heavy Vehicle AM(PM) Peak Hour Traffic Volume



Figure 5

**Peak Hour Traffic Volumes -
Design Year (2045) Build**

Table 4-2 provides a summary of the EB ADTs under the No-Build and Build Alternatives for different segments of the mainline and ramps for the existing (2017), opening year (2025) and design year (2045).

Table 4-2 Summary of I-10 Eastbound Freeway ADTs

Study Segment	Description	Existing (2017)		No Build		Build			
		Mainline	Truck	Opening Year Mainline	Design Year Mainline	Opening Year Mainline	Truck	Design Year Mainline	Truck
Mixed Flow between Yucaipa Boulevard and Oak Glen Road	Mixed Flow	59,172	7,660	68,600	80,400	70,700		86,700	
Truck Lane between Yucaipa Boulevard and Oak Glen Road	Truck Lane						10,400		18,300
Off-Ramp to Oak Glen Road	Ramp	2,750	1,035	4,700	7,000	4,500	1,200	8,300	1,400
On-Ramp from Oak Glen Road	Ramp	3,557	943	5,400	5,500	4,300	1,000	5,600	1,000
Mixed Flow between Oak Glen Road and the Wildwood Safety Rest Area	Mixed Flow	59,979	7,568	69,300	78,900	70,500		84,000	
Truck Lane between Oak Glen Road and the Wildwood Safety Rest Area	Truck Lane						10,200		17,900
Off-Ramp to the Wildwood Safety Rest Area	Ramp	763	492	1,500	9,000	900	500	6,600	700
Off-Ramp to Wildwood Canyon Road	Ramp								
On-Ramp from Wildwood Canyon Road	Ramp								
On-Ramp from the Wildwood Safety Rest Area	Ramp	765	470	1,300	1,300	1,000	3,700	1,700	13,000
Mixed Flow between the Wildwood Safety Rest Area and County Line Road	Mixed Flow	59,981	7,546	69,100	71,200	70,600		79,100	
Truck Lane between the Wildwood Safety Rest Area and County Line Road	Truck Lane						13,400		30,200
Off-Ramp to County Line Road	Ramp	5,554	568	7,000	7,500	6,200	600	7,100	700
Mixed Flow between County Line Road Off-Ramp and On-Ramp	Mixed Flow	54,427	6,978	62,100	63,700	64,400		72,000	
Truck Lane between County Line Road Off-Ramp and On-Ramp	Truck Lane						12,800		29,500
On-Ramp from County Line Road	Ramp	3,777	235	5,400	9,200	3,700	300	3,200	400

Collision Analysis

Traffic accident data was collected from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) for a three-year period from December 1st, 2016, through November 30th, 2019, for I-10 EB mainline segments and ramps within the Project limits (Yucaipa Boulevard to County Line Road).

Table 4-3 shows the number of actual fatal, fatal plus injury, and total collision rates on the freeway mainline and ramps within the Project limits in comparison with the statewide average collision rates on similar facilities.

As shown in the table, collision rates at three out of eight analyzed locations are higher than the statewide average for similar facilities. Among the three locations, the on and off ramps to the Wildwood rest area have specific collision rates that are more than double the statewide average rates.

Table 4-3 Summary of Collision Rates for I-10 Eastbound (12-01-16 through 11-30-19)

Location	Post Mile	Accident Rate (a/mvm) or (a/mv)*					
		Actual Rate			Average Rate		
		F	F+I	TOT	F	F+I	TOT
Mainline between 16 th Street and County Line Road	036.400-R039.159	0.000	0.28	0.81	0.004	0.29	0.89
Off-Ramp to Live Oak Canyon Road*	R036.858	0.000	0.17	0.69	0.004	0.32	0.92
On-Ramp from Live Oak Canyon Road*	R037.160	0.000	0.00	0.23	0.002	0.21	0.60
Off-Ramp to Wildwood Rest Area*	R037.965	0.000	0.00	1.83	0.001	0.06	0.61
On-Ramp from Wildwood Rest Area*	R038.277	0.000	0.00	0.50	0.000	0.02	0.23
Off-Ramp to County Line Road*	R039.016	0.000	0.27	0.94	0.004	0.32	0.92
Mainline between County Line Road off-ramp and on-ramp	R000.000-R000.200	0.000	0.00	0.02	0.002	0.14	0.44
On-Ramp from County Line Road*	R000.230	0.000	0.00	0.00	0.002	0.21	0.60

a/mvm = accidents per million vehicle miles

**a/mv = accidents per million vehicles (for intersections and ramps)*

F = Fatal, I = Injury, TOT = Total

Boldface indicates that the actual accident rate is higher than the statewide average.

Source: Caltrans District 8 TASAS Table B, January 2020.

Table 4-4 summarizes the percentage of by collision type within the Project limits. The primary types of collisions reported within the Project limits for the 3-year period are Rear End and Sideswipe. These types of collisions are typically related to traffic congestion and speed differentials between passenger cars and slow moving vehicles like trucks.

Table 4-4 Summary of Collision Types for I-10 Eastbound (12-01-16 through 11-30-19)

Location	PM	Percent of Accidents By Type								
		Head-On	Side-swipe	Rear-End	Broad-side	Hit-Object	Over-turn	Auto-Ped	Other	Not Stated
Mainline between 16 th Street and County Line Road	036.400-R039.159	0.0%	31.3%	51.0%	0.7%	13.6%	1.4%	0.7%	1.4%	0.0%
Off-Ramp to Live Oak Canyon Road	R036.858	0.0%	12.5%	50.0%	25.0%	0.0%	0.0%	12.5%	0.0%	0.0%
On-Ramp from Live Oak Canyon Road	R037.160	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Off-Ramp to Wildwood Rest Area	R037.965	0.0%	75.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.0%	0.0%
On-Ramp from Wildwood Rest Area	R038.277	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
Off-Ramp to County Line Road	R039.016	0.0%	14.3%	85.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mainline between County Line Road off-ramp and on-ramp	R000.000-R000.200	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
On-Ramp from County Line Road	R000.230	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: Caltrans District 8 TASAS, January 2020.

Along the EB direction of the mainline, the EB Off-Ramp to Live Oak Canyon Road, and the EB Off-Ramp to County Line Road, most collisions have occurred in daylight during the afternoon peak hours.

At the EB Off and On-Ramps to the Wildwood Rest Area most collisions have occurred in the early morning hours, and at the EB On-Ramp from Live Oak Canyon Road the collision reported for the three-year period occurred at night time.

Table 4-5 summarizes the Primary Collision Factors within the Project limits. Improper Turns, Speeding, and Other Violations are the most common Collision Factors.

Table 4-5 Summary of Primary Collision Factors for I-10 EB (12-01-16 through 11-30-19)

Location	PM	Percent of Primary Collision Factors									
		HBD	FTC	FTY	IT	ESS	OV	ID	OTD	UNK	FA
Mainline between 16 th Street and County Line Road	036.400-R039.159	6.1%	0.7%	0.7%	23.1%	45.6%	19.0%	0.0%	4.1%	0.7%	0.0%
Off-Ramp to Live Oak Canyon Road	R036.858	0.0%	0.0%	0.0%	0.0%	37.5%	37.5%	0.0%	12.5%	12.5%	0.0%
On-Ramp from Live Oak Canyon Road	R037.160	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Off-Ramp to Wildwood Rest Area	R037.965	0.0%	0.0%	0.0%	50.0%	0.0%	25.0%	25.0%	0.0%	0.0%	0.0%
On-Ramp from Wildwood Rest Area	R038.277	0.0%	0.0%	0.0%	0.0%	0.0%	100%	0.0%	0.0%	0.0%	0.0%
Off-Ramp to County Line Road	R039.016	0.0%	0.0%	0.0%	14.3%	85.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Mainline between County Line Road off-ramp and on-ramp	R000.000-R000.200	0.0%	0.0%	0.0%	0.0%	0.0%	100%	0.0%	0.0%	0.0%	0.0%
On-Ramp from County Line Road	R000.230	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: Caltrans District 8 TASAS, January 2020.

Primary Collision Factor Abbreviations:

HBD – Influence alcohol	OV – Other violations
FTC – Follow too close	ID – Improper driving
FTY – Failure to yield	OTD – Other than driver
IT – Improper turn	UNK – Unknown
ESS – Speeding	FA – Fell sleep

Based on the time of occurrence, traffic conditions and the movements preceding collision it can be concluded that these factors are mostly related to traffic congestion, sudden lane changes, and speed differentials between passenger cars and trucks.

The proposed climbing lane will provide a dedicated lane for slow moving vehicles to separate them from faster moving passenger vehicles, which is expected to reduce weaving and conflicts; thus improving traffic operations within the Project limits.

5. ALTERNATIVES

5A. Viable Alternatives

The viable alternatives evaluated in this report include the No-Build and Build Alternatives.

No-Build

The No-Build Alternative would not extend the existing EB truck climbing lane that currently ends at the Live Oak Canyon Road interchange and would maintain the I-10 corridor in its current condition. However, the new I-10/Wildwood Canyon Road Interchange would still be completed after 2030 under a separate project. As local and regional development continues and the traffic demand increases, traffic operational characteristics will further deteriorate which may result in an increase in congestion, vehicle delay, vehicle-operating costs, and vehicle emissions due to reduced operating speeds on the freeway.

There are no capital costs associated with this alternative since no improvements would take place, but it does not address or alleviate the forecasted operational and mobility issues along this segment of I-10. Therefore, it does not meet the Purpose and Need to improve traffic operations, nor does it reduce conflicts between automobiles and slow-moving vehicles.

Build Alternative

A description of different features of the Build Alternative is provided below. The engineering plans for the proposed layout are included in Attachment B.

Proposed Engineering Features

The Build Alternative maintains the existing horizontal and vertical alignments of the eastbound I-10 corridor and includes the following improvements within the limits of the Project:

- Clearing, grubbing, and removal of the thrie beam barrier from the median.
- Widen Oak Glen Creek Bridge (Number 54-0648) to close the gap between the EB and WB roadbeds.
- Remove the existing inside AC shoulders from both the EB and WB roadbeds and pave the entire median (36 feet) width with jointed plain concrete pavement (JPCP).
- Adding a concrete barrier to divide the roadbeds and to protect the columns of existing bridge structures at 16th Street and Live Oak Canyon Road. The new concrete barrier will join the existing concrete barriers that currently end just west of 16th Street, and at the County Line Road interchange bridge.
- Restriping the EB roadbed to provide 3 Mixed Flow Lanes and a TCL.
- Striping of the WB lanes will be refreshed.
- Implementing drainage system upgrades and Best Management Practices (BMPs).

The existing profile grades within the limits of the Project vary between 0.18% and 4.96% for the WB roadbed, and between 0.21% and 4.84% (down grade) for the EB roadbed. The predominant uphill grades along the proposed EB TCL range between 3.41% and 3.75%. Since the EB and WB roadbeds follow separate vertical profiles, the proposed median concrete barrier will act as retaining structure for the difference in elevation between the roadbeds. Based on the review of as-built plans and preliminary topographic information, the difference in elevation between the roadbeds appears to be less than 3' within the length of the Project. Therefore, the use of concrete median barrier as a retaining structure would be appropriate, and no retaining walls would be required between the EB and WB roadbeds.

All features that do not meet Caltrans Highway Design Manual (HDM) standards are discussed in the Nonstandard Design Features section below, and have been documented in the Design Standard Decision Document for this Project approved on May 1st, 2019.

Typical Sections

The paved median will slope away from the concrete barrier at 2 percent on tangent segments to drain water to the outside. Along horizontal curves the applicable superelevation will be applied and will closely match the existing cross slopes. The existing median width will be reduced from 36' to 24' to accommodate the addition of the interior EB lane.

Generally all the EB lanes will be 12' wide with 11' shoulders on either side of the proposed median concrete barrier. The only exception is at the Live Oak Canyon Road interchange where the existing bridge columns located in the median will be closer to the new Number One Lane. This discussion is also included in the Nonstandard Design Features section.

Right-of-Way

This segment of I-10 is an access-controlled facility. All of the proposed improvements will be constructed within the existing State R/W, whose width is predominantly between 170' and 200' but increases at local interchanges, at the Wildwood Safety Rest Area, and at other locations where graded slopes exist. Temporary construction easements (TCE) will be required for staging/laydown areas and potentially for the construction of a noise barrier (see Noise Barrier section).

Drainage

At certain locations new drainage inlets (DIs) or drainage structures will be constructed along EB I-10 to convey stormwater runoff and to maintain the existing flow patterns. Some runoff will sheet flow onto adjacent unpaved landscaped areas and be treated by proposed treatment BMPs such as Design Pollution Prevention Infiltration Areas (DPPIA) and an infiltration basin. Existing culvert crossings will be maintained, extended, and realigned as needed. The existing and proposed drainage systems and BMPs are shown in the grading and drainage plans included in Attachment B.

The proposed watersheds will be similar to the existing watersheds in sizes and design flows to avoid hydrologic diversions. The hydraulic analysis in the Preliminary Drainage Report concluded that with the additional pavement added to the median, the existing systems can adequately drain the excess runoff without any additional major drainage improvements.

The following is a general description of the existing and proposed drainage features for different segments of the corridor.

- Between the high point located west of 16th Street and first horizontal curve east of Live Oak Canyon Road:

From 16th Street to Wilson Creek a series of existing drainage inlets and overside drains (OSDs) capture the EB roadbed runoff and convey it to earthen swales that run parallel to the freeway, and that eventually discharge to Wilson Creek. A new OSD is proposed approximately 2,200' east of 16th Street to capture runoff and convey it to the existing swale. From Wilson Creek to the horizontal curve east of Live Oak Canyon Road, the EB roadbed runoff drains to the outside in the tangent portion and then towards the median in the superelevated curve. Currently a swale in the median collects the runoff and conveys it to Wilson Creek. A new drainage system with DIs is proposed along the median of this segment to capture runoff and outlet to Wilson Creek Channel, thus maintaining the same drainage pattern.

- Between Yucaipa Creek and Wildwood Safety Rest Area:

An OSD will be provided near the EB off-ramp to the Wildwood Safety Rest Area to capture runoff and convey it to a proposed DPPIA that will be located on the south side of the freeway, between stations 196+00 and 194+00. This DPPIA will be designed to treat low flow for water quality purposes and overflow into Wildwood Wash during extreme storm events.

- Between Wildwood Safety Rest Area and County Line Road:

Existing OSDs and proposed OSDs will capture runoff and treat flows through a second proposed DPP Infiltration Area that will be located on the south side of the freeway between stations 211+00 and 222+00. Additionally, a proposed infiltration basin near station 225+00 will be used for water treatment. Both proposed features will permit runoff to overflow into Wildwood Channel during extreme storm events.

Structures

There is one existing bridge structure that requires inside widening to close the gap in the median, and that is the Oak Glen Creek Bridge (Number 54-0648). This bridge is a three-span reinforced concrete T-beam bridge built in the early 1960's, and its approach slabs were replaced in the early 2000's by another project. All other existing bridge or culvert structures located within the Project limits will adequately accommodate the proposed median improvements.

Traffic Operations

As previously discussed in the Traffic section of this report, for the design year (2045) all the segments within the limits of the Project are improved to LOS B or C in

the AM peak hour with the Build Alternative, which is an improvement compared to the LOS D expected under the No-Build Alternative. During the PM peak hour all the segments are improved to LOS D or better compared to the LOS E or F of the No-Build Alternative.

During the AM peak hour, travel time decreases by 12 seconds for passenger cars and six seconds for trucks. Average speed is also improved by three miles per hour for passenger cars and by one mile per hour for trucks. Average delay per vehicle is reduced by 33 percent or seven seconds, while the vehicle hours of delay is reduced by 30 percent or 10 hours.

During the PM peak hour, travel time decreases by approximately two minutes for passenger cars and three minutes for trucks. Average speed is also improved by approximately 20 miles per hour for passenger cars and 16 miles per hour for trucks. Delay per vehicle is reduced by 75 percent or 105 seconds, while the vehicle hours of delay is reduced by 75 percent or 212 hours. Further details are provided in the TOAR for the Project.

Nonstandard Design Features

Within the limits of the Project, there are locations with design features that do not meet the Caltrans HDM boldface and underlined standards listed below. These design features have been documented in the Project's Design Standard Decision Document approved on May 1st, 2019.

Boldface Standards

Stopping Sight Distance
Standards for Superelevation
Standards for Grade (maximum)
Lane Width
Shoulder Width

Underlined Standards

Decision Sight Distance
Standards for Grade (minimum)
Vertical Curves (minimum length)
Median Standards (minimum width)

Many of these nonstandard features are existing conditions that the Project cannot address due to the limited scope of the Project improvements. To eliminate these existing nonstandard features, major reconstruction of the freeway would be needed to re-grade, re-profile, and widen the existing facility. These activities would also affect and require reconstruction of the existing ramp alignments, drainage culverts and bridge structures located within the limits of the Project.

In reviewing the collision data for the three-year period between December of 2016 and November of 2019 previously discussed in the Collision Analysis Section of this document, the primary types of collisions within the Project limits are rear end and sideswipe. Most collisions along the mainline have occurred in daylight during afternoon peak hours. The nonstandard boldface or underlined features are not expected to contribute to the collisions previously discussed under the Collision Analysis section. The following narrative provides a brief description and discussion of each nonstandard feature.

Boldface Standards

- **Stopping Sight Distance (SSD):**

Stopping sight distance is defined as the distance needed for drivers to see an object on the roadway ahead and bring their vehicles to a safe stop before colliding with the object. Within the limits of the Project there are six locations along horizontal curves where physical obstructions such as bridge columns, barriers, and vegetation limit the SSD required for the 70 mph design speed. All six locations currently do not meet the SSD requirement; and from those, two will be improved by the Project, three will be further constrained, and one will remain the same. An additional five locations have existing nonstandard SSD along vertical curves, with four located along crest curves, and one located along a sag curve. At these five locations, the nonstandard SSD will remain unchanged as no profile modifications are required to construct the median improvements.

Although the SSD for the design speed is not met at these locations, the majority provide a SSD that is slightly above or below the posted speed of 65 mph (62 to 66 mph). It should be noted that the calculation for SSD on vertical crest curves is considered conservative as it uses an object height of 0.5', However, if a 2' object height is assumed (representative of taillight height), the calculated SSD is increased significantly. The reduction in SSD along sag vertical curves is related to the headlight reach during nighttime conditions and can be mitigated with the implementation of street lighting at the sag. The reduction in horizontal SSD occurs along curves for drivers traveling along the inside or outside lanes. The fact that 10' to 11' shoulders are provided next to these lanes provides an opportunity for vehicles to avoid an object located in the travel way by using the shoulders to avoid the object.

- **Standards for Superelevation (SE):**

There are three horizontal curves within the Project limits where the existing superelevation rates of 4% do not meet the standard value of 6.8% required per the HDM based on the existing curve radii of 3,000' and an associated design speed of 70 mph. However, the existing SE rates are compliant with pre-2016 versions of the HDM in which 4% was the standard SE rate for these radii and facility type, and the existing SE rates meet the comfortable speed requirement set forth in Figure 202.2 of the HDM. The proposed median improvements will closely match the existing cross slopes and SE rates to avoid grade break differentials between adjacent travel lanes. The increased SE rates are typically used to help drain runoff out of the travel lanes quicker and to reduce the flooded area on shoulders. Additional drainage inlets and improvements will be provided to capture the increased runoff resulting from the median paving.

- **Standards for Grade (maximum):**

Within the Project limits, the I-10 is located in rolling terrain. The existing profile grades just to the east of the 16th Street overcrossing exceed the 4% maximum for this type of facility for a length of approximately 300' in both directions. Within

this short segment, the existing profile grades are 4.96% in the WB direction and 4.84% in the EB direction. A vertical crest curve on the west end of this segment and a sag curve on the east end of the segment provide transitions to flatter gradients. The steep grades within this segment result in a nonstandard stopping sight distance at the westerly crest curve, which cannot be mitigated unless this segment of the freeway is reconstructed to reduce the profile grades and increase the vertical curve lengths. These extensive modifications are outside the scope of this Project.

- Standards for Lane Width:

Generally 12' wide EB travel lanes are proposed for the entire length of the Project, except at the Live Oak Canyon Road bridge overcrossing. At this location, the proposed Number One Lane will be in close proximity to the bridge columns and the concrete barrier that protects them. At this location, the lane width is proposed to be reduced to 11' so that the shoulder width can be increased slightly at the column location. This shoulder width increase results in a slight increase in SSD ahead of the downstream horizontal curve.

- Standards for Shoulder Width:

Similar to the lane width discussed above, 10' wide outside shoulders and 11' wide inside (median) shoulders are provided for the entire length of the Project, except at the Live Oak Canyon Road bridge overcrossing where the left shoulder is reduced to a width of 4.9' due to the close proximity between Lane Number One (the lane to be placed along the newly paved median) and the concrete barrier protecting the bridge columns.

Underlined Standards

- Standards for Decision Sight Distance (DSD):

The DSD required for a given speed is greater than the SSD to allow drivers time for making decisions without making last minute erratic maneuvers. The lane drop taper for the EB truck climbing lane is located within the limits of an existing vertical crest curve with a SSD below the standard requirement for the design speed of 70 mph. Hence, the DSD along the TCL is also less than the standard requirement when calculated using a 3.5' driver's eye height and a 0.5' object. Since this lane is intended to be used primarily by large trucks however, the driver's eye height would increase to 7.75' (93 inches), which is the average eye height for trucks and other large vehicles per FHWA MUTCD section 5.1.4. Using this value results in a DSD of 1,182' for truck drivers, which exceeds the 1,105' length required for the design speed.

- Standards for Grade (minimum):

The profile for the vertically tangent segment of the freeway between 16th Street and the Live Oak Canyon Road interchange includes longitudinal grades of 0.18% for the WB direction of travel and 0.21% for the EB direction. The minimum standard grade required is 0.30% for locations that are not in snow country, which

is the case for this segment of I-10. Poor drainage is a potential problem associated with shallow grades. Currently there are existing overside drains and drainage ditches located along the outside of the freeway that collect and convey storm water to the larger regional systems. Since the median paving does not add a significant amount of additional impervious area, the Project proposes to perpetuate and maintain the existing flow patterns. A new drainage system with grate inlets will be constructed along the median for the segment between Wilson Creek and the portion of the horizontal curve east of the Live Oak Canyon interchange to collect runoff from the superelevated EB roadbed.

- Standards for Vertical Curves (minimum length):

The HDM requires a minimum vertical curve length of $10V$ for algebraic grade differences of greater than or equal to 2% and design speeds greater than or equal to 40, where V = design speed. This provides adequate sight distance, comfortable driving, and good drainage. An existing 600' long vertical crest curve located along I-10 at 16th Street does not meet this standard. This in turn results in a nonstandard SSD along the curve. The same condition applies to a set of existing vertical sag curves located east of 16th Street, with lengths of 500' in the WB direction and 600' in the EB direction. Within this segment, the shorter sag curve does not provide the standard SSD but the longer curve does.

- Standards for Median Width (minimum)

The HDM defines the median width as the dimension between the inside edges of travel way. This median should be wide enough to provide for future expansion and/or public transit improvements to address the traffic needs 20 years after construction (design year). The existing median width along this segment of I-10, which was built in the 1960's, is 36'. This width complies with the current minimum standard for freeways and expressways located in urban areas. As part of the Project, the median width will be reduced to 24', which could be considered the "future accommodation" within the median of existing facilities referenced in the HDM. The reduced median width still meets the minimum 22' standard required for facilities under restrictive conditions.

Interim Features

There are no feasible interim features to be constructed with this Project.

High-Occupancy Vehicle (Bus and Carpool) Lanes

There are no existing High-Occupancy Vehicle (HOV) lanes in this segment of I-10, and none will be added by this Project. As shown in Section 4B, Regional and System Planning, a separate project (ID 4H01003) proposed to add one HOV lane in each direction of I-10 from Ford Street in Redlands to the Riverside County Line in Calimesa. However the project is shown as cancelled in the RTP/SCS amendment #3 dated September 6, 2018.

Ramp Metering

The existing on-ramps in this segment of I-10 are not metered, and this feature will not be added by this Project. As shown in Section 4B, Regional and System Planning, a separate project (EA 0P260) proposes to install traffic monitoring stations at Live Oak Canyon Road and County Line Road that will later become ramp metering systems.

California Highway Patrol (CHP) Enforcement Areas

Currently there are no existing CHP enforcement areas within this segment of I-10, and none will be added by this Project. It is unknown if these features will be added as part of the planned projects discussed in Section 4B or any other future projects.

Park-and-Ride Facilities

Currently there are no existing park-and-ride lots in this segment of I-10, and none are proposed as part of this Project. It is unknown if any are proposed within the Project limits as part of the planned projects discussed in Section 4B or any other future projects.

Utilities and Other Owner Involvement

A preliminary utility research was conducted during the current Project Approval / Environmental Document (PA/ED) phase of the Project. The research involved retrieving Dig Alert reports for the Project area, contacting and obtaining utility maps and asbuilts from different private and public agencies, and retrieving information from previous studies and projects located in the same area. The following list presents the existing overhead and underground public utilities located within the Project limits.

Dry Utilities

- Electric: Southern California Edison
- Gas: Southern California Gas Company
- Telecom Lines: AT&T, Frontier Communications, Time Warner Cable, Verizon

Wet Utilities

- Sewer: Yucaipa Valley Water District
- Water: Western Heights Water Company, Yucaipa Valley Water District

These utilities are generally located along local streets adjacent to the I-10 mainline. There are a few locations where some of these utilities traverse the freeway underground or along the bridge overcrossings.

One of the future projects mentioned in Section 4B of this report (EA 38423) will install fiber optic within the limits of this Project, with conduits crossings the freeway at minimum depths of 36-inches. Since the proposed structural section for median

paving has a total depth of 1.95' and requires shallow excavations, no impacts are anticipated to the existing or planned utilities.

Railroad Involvement

No railroad agencies will be involved since there are no existing railroad facilities within or immediately adjacent to the Project.

Highway Planting

The proposed improvements are specific to the paving of the existing median, signing and striping for the EB roadbed, and associated minor drainage modifications. Due to the limited scope of these improvements, no highway planting is proposed as part of this Project. However, if the existing trees within the Project limits are removed or damaged during construction, replacement planting will be installed at a rate, size, and location determined by the District Landscape Architect.

Erosion Control

According to the Caltrans District 8 Work Plan, Fiscal Year 2018 – 2019, Interstate 10 is not listed as a road segment prone to erosion. The Project consists primarily of work within the I-10 median, which is flat and narrow. Erosion control measures will be considered as appropriate to minimize the need for maintenance and to assure compliance with storm water quality requirements.

There are no hills or slopes that would be disturbed apart from the slopes within the proposed Design Pollution Prevention Infiltration Areas (DPPIA), the side slopes of a proposed infiltration basin, and existing side slopes that will be minimally disturbed for the construction of new overside drains.

Runoff control during construction will be achieved with gravel bag berms placed along the downstream perimeters of the work area or median. The duration that disturbed areas are left exposed will be minimized to the extent practicable. Temporary barriers will be used to divert runoff around disturbed areas. Temporary drainage inlet protection will be installed at storm drain inlets and other drainage conveyance systems along the EB roadway that collects runoff from the median.

Noise Barriers

According to the requirements of Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772), this Project is classified as a Type I Project because it would add a truck climbing lane on EB I-10. A noise analysis is required for all Type I projects. A Type I project is defined in 23 CFR 772 as follows:

“Proposed federal or federal aid highway project for the construction of a highway on a new location or the physical alteration of an existing highway, which changes either the horizontal or vertical alignment or increases the number of through-traffic lanes.”

A total of 76 representative sensitive receptors were modeled and evaluated for potential noise impacts resulting from the proposed Project. A summary of the

findings from the Noise Study Report (NSR) and Noise Abatement Decision Report (NADR) is provided in Section 6H of this document.

Nonmotorized and Pedestrian Facilities

These types of facilities are not typically found on freeways in this region. That is not the exception for this segment of I-10, which does not have existing or planned non-motorized and pedestrian facilities. The Wildwood Safety Roadside Rest Area (SRRA) is the only existing facility that pedestrians commonly use; but this Project does not intend to make any changes to the SRRA.

Needed Roadway Rehabilitation and Upgrading

This freeway facility is over fifty years old, and the existing concrete slabs show signs of wear and tear (cracking, spalling, etc.) due to aging and the heavy traffic volumes along this corridor. As discussed in Section 4B, a separate rehabilitation project (EA 0K293) is underway to replace the existing two outermost slabs and shoulders for both directions of travel in this segment of I-10, and the work will be completed before the construction begins for this Project.

Needed Structure Rehabilitation and Upgrading

Aside from the proposed widening of the Oak Glen Creek Bridge to close the gap between the EB and WB roadbeds, no other rehabilitation or upgrading of existing structures is being proposed by this Project.

Cost Estimates

The current overall Project capital outlay cost is estimated to be \$21.18 million and \$25.76 million escalated. A summary of major cost elements is provided in the table below. This includes the median roadway improvements, signing and striping for the median and EB roadbed, and the bridge structure widening at Oak Glen/Wilson Creek to close the existing gap between the WB and EB roadbeds. Minor to no utility relocations are expected as only a few utilities cross the freeway, and the paving of the median only requires shallow excavations. A detailed breakdown of this estimate is provided in Attachment C of this report.

Table 5-2 Preliminary Cost Estimate

Preliminary Estimate	Current	Escalated
Roadway	\$19,163,000	\$23,314,720
Structures	\$1,738,800	\$2,115,516
Right of Way	\$280,000	\$328,000
Total	\$21,182,000	\$25,759,000

Right-of-Way Data

Permanent R/W acquisitions are not required by this Project as all of the proposed improvements will be constructed within the existing State R/W. A potential staging/laydown area has been identified within State R/W at the north-west corner of

Outer 10 Highway South and 16th Street, south of I-10. Additionally, the same staging/laydown areas from the Caltrans slab rehabilitation project (EA 0K293) are proposed to be used during construction of this Project to avoid the disturbance of additional areas. The estimated cost for TCEs are included in the Right of Way Data Sheet included in Attachment E of this report.

Effects of Projects-Funded-by-Others on State Highway

The San Bernardino County Transportation Authority is the Project Sponsor, and funding will be provided by a combination of local, state and federal funds. Caltrans will provide oversight through the construction phase of the Project.

The Project is aimed to reduce traffic congestion and accidents associated with slow moving trucks in the Project area by providing a dedicated truck climbing lane, improving both local traffic flows and overall freeway operations in the EB direction of I-10. The Project will improve travel time and speed along the corridor, and will provide bottleneck relief within the Project limits, allowing volume served to increase while still improving operations along I-10.

5B. Rejected Alternatives

The previous PSR-PDS discussed a single build alternative and did not consider other alternatives such as outside widening or combination of outside/inside widening. Likewise, this Draft Project Report will not evaluate other alternatives as they are deemed not suitable for this Project due to the extensive work and impacts that they create, and because the proposed median improvements avoid most of the impacts associated with those alternatives. These additional impacts include, but are not limited to:

- A greater Project footprint that significantly increases the environmental study areas and the review and approval process associated with it
- The need to offset and realign the on and off-ramps of the local interchanges and at the Wildwood Safety Rest Area
- Widening or replacement of existing bridge structures
- New bridge structures for the realignment of the EB off and WB on-ramps of the Live Oak Canyon Road interchange
- Extension of existing drainage culverts crossing under the I-10 and new drainage systems
- Utility relocations and right of way acquisitions
- Higher construction costs
- Extensive earthwork, especially at the hill located on the south side of I-10 east of Wildwood Creek
- Longer duration for construction and impacts to the traffic operations of the freeway and local interchanges
- Longer periods for review and approval of engineering plans

6. CONSIDERATIONS REQUIRING DISCUSSION

6A. Hazardous Waste

An Initial Site Assessment (ISA) was prepared and approved for this Project in August of 2018. An ISA Update Memorandum (ISA Update Memo) was also prepared in June 2020. The ISA checklist is included in Attachment K of this report.

Sites of Concern

According to the ISA and ISA Update Memo, no recognized environmental conditions (REC), historic RECs (HREC), or controlled RECs (CREC) were identified within the Project limits. However, 18 adjacent properties were identified to have a low to moderate potential of impacting the Project under the Build Alternative, including 2 HREC sites and 1 REC site.

The two HREC sites are Unocal 76 Station #5636 and Jorco Chemical Company. These two HREC sites have a low hazard ranking because remediation activities have been completed and the leaking underground storage tanks (LUST) cases involving each facility have been closed. As a result, it is anticipated the two HREC sites would have a low potential of impacting the Project.

The ISA and ISA Update Memo had identified Sorensen Engineering as a REC site. Although this REC site is currently open and being assessed, it has a moderate hazard ranking because groundwater flows northeast away from the Project corridor in the vicinity of the Sorensen facility. As a result, it is unlikely the Project would encounter any off-site migration of groundwater contamination associated with this facility.

No work associated with the Project would occur at the HREC and REC properties. As a result, these sites were found to have a low to moderate potential to adversely affect the Project.

Other Conditions of Concern

Hazardous wastes and materials may be encountered during construction activities for the Build Alternative. Hazardous materials would be properly handled, contained, transported, and disposed of in compliance with applicable regulations and requirements, which may include the Resource Conservation and Recovery Act (RCRA), the Clean Air Act, the Clean Water Act (CWA), the California Department of Toxic Substances Control (DTSC).

Environmental Health Standards for the Management of Hazardous Waste, the provisions of the San Bernardino County Fire Department Hazardous Materials Division, and United States Department of Transportation (USDOT) hazardous materials regulations. Measures HAZ-1 through HAZ-3 in the Environmental Document (ED) describe efforts that would be made to avoid or minimize adverse effects with known or suspected hazardous materials and wastes during construction.

Asbestos-Containing Materials

Project construction would require disturbance activities, including median paving, of the Oak Glen Creek Bridges (Bridge No. 54-0648L and 54-0648R) to accommodate

the widening of I-10.

According to *Asbestos and Lead-Based Paint Testing Results* (Caltrans 2019f), asbestos containing materials (ACM) were detected beneath bolts associated with the guardrail bolts in Bridge No. 54-0648L and atop bolts associated with the guardrail bolts in Bridge No. 54-0648R. Any work that would physically impact ACMs would be conducted in accordance with Caltrans' standard special provision (SSP) 14-11.16, Asbestos-Containing Construction Materials in Bridges, South Coast Air Quality Management District (SCAQMD) Rule 1403, and National Emission Standards for Hazardous Air Pollutants (NESHAP) (Measure HAZ-1 within the ED).

Treated Wood Waste

There is a potential the Project may require the removal of treated wood in the supports of the median guardrails and signage posts along the Project corridor. Treated wood objects removed from the Project corridor are classified as treated wood waste (TWW). The removal of any TWW would be conducted in accordance with Chapter 34 of the Title 22 CCR Section 67386.1 through 67386.12 (Measure HAZ-2 within the ED).

Lead Content

Based on the findings of the aerially deposited lead (ADL) investigation, ADL was not detected along the corridor within the Project limits. In addition, according to the *Asbestos and Lead Based Paint Testing Results* (Vista Environmental Consulting 2019), no surface coatings on the existing bridges were found to contain lead concentrations that would be defined as lead based paint. Traffic striping tested within the Project limits as part of the *Asbestos and Lead Based Paint Testing Results* were not detected at concentrations that would qualify as hazardous waste. With the implementation of a Lead Compliance Plan (LCP) as identified in Measure HAZ-3 in the ED, protections would be in place to minimize work exposure to lead content. The LCP would be prepared by a Certified Industrial Hygienist and in accordance with Title 8 CCR Section 1532.1.

Routine Facility Maintenance

Routine maintenance activities during operation of the Build Alternative would be required to follow applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials. Therefore, the operation of the Project would not result in adverse direct or indirect permanent impacts related to hazardous waste or materials.

6B. Value Analysis

The PSR recommended the current Build Alternative as the most viable option to be studied in the current PA/ED phase because it minimizes the Project cost, schedule, and impacts. The Project Delivery Team (PDT) agreed with that recommendation and a Value Analysis (VA) study was not conducted because any other options would result in additional impacts, cost, and delays to the Project schedule; and because the capital cost of the Project does not exceed \$25 million dollars.

6C. Resource Conservation

Since the proposed TCL will improve traffic operations and reduce travel times for this segment of EB I-10, an overall reduction in fuel consumption and emissions is expected to result from these improvements. During construction, all the work will be confined to the available median space, and the impacts to traffic operations should be minimal.

Existing asphalt pavement can be ground up and used as new base material or sold to local material vendors. Clean concrete rubble may also be crushed and combined with new materials for reuse in base or minor concrete as appropriate. Sign panels and sign posts can be reused if in optimal condition. The existing metal thrie beam barrier can be removed and transported to a Caltrans District 8 Maintenance Yard, where it may be considered for salvage and reuse. Low energy consumption devices will be installed as necessary (e.g. LED lighting).

This Project proposes to use the same temporary construction easements and concrete batch plant sites used for the Caltrans slab rehabilitation project (EA 0K293) to be completed in advance of this Project; which, if used, prevents the creation of additional disturbance areas.

6D. Right-of-Way Issues

Right-of-Way Required

Due to the nature of the work proposed by this Project, all work will be completed within the existing R/W, and no permanent acquisitions are required. The same staging/laydown areas from the Caltrans slab rehabilitation project (EA 0K293) are proposed to be used during construction of this Project to avoid the disturbance of additional areas. As previously discussed in other sections of this report, relocation of existing utilities is not anticipated. No coordination with railroad agencies is needed since there are no railroad facilities within the limits of the Project. The right of way data sheet for the Project is included in Attachment E.

Relocation Impact Studies

This Project will not displace any person or business since all the improvements will be completed within the existing R/W, and the TCEs will be established on vacant properties.

Airspace Lease Areas

Airspace lease areas have not been assessed for this Project.

6E. Environmental Compliance

An Initial Study (IS) has been prepared for CEQA, and a Routine Environmental Assessment (EA) for NEPA. The Draft IS/EA has been prepared in accordance with Caltrans' environmental procedures, as well as State and federal environmental regulations. The Draft IS/EA was signed on June 29, 2020 (see Attachment L).

Wetlands and Flood Plains

Construction activities related to the installation of bridge piers within Wilson Creek would result in direct temporary impacts on California Department of Fish and Wildlife (CDFW) jurisdictional areas and a permanent loss of 0.01 acre of non-wetland USACE jurisdictional waters, 0.05 acre of CDFW unvegetated streambed, and 0.03 acre of CDFW riparian vegetation. Since the loss of waters of the U.S. would be less than 0.10 acre and would not include wetlands, these effects would not be considered substantial, and no compensatory mitigation is proposed. Based on the low function of this habitat, a compensatory mitigation ratio of 1:1 for permanent loss of CDFW jurisdiction is proposed. This proposed compensatory mitigation would also mitigate for Project impacts on waters regulated by RWQCB.

The implementation of Measures NC-1 through NC-4 described in Section 2.19 of the IS/EA will protect off-site waters from inadvertent impacts during construction. In addition, the implementation of Measure WET-1 described in section 2.20.4 of the IS/EA will reduce Project impacts on wetlands and other waters within and/or adjacent to work areas. Improvements to the Wilson Creek Bridge would have a minimal effect on floodplains and would not increase the extent of the floodplain. Therefore, the Project would not constitute a significant floodplain encroachment as defined in 23 CFR 650.105(q) and is classified as minimal encroachment.

Other Environmental Discussion

An Environmental Certification will be required at the end of the PS&E phase. A revalidation of the environmental document may be needed if changes in project scope or alternatives occur; or if environmental laws, regulations, or guidelines change during the PS&E phase. Caltrans is the Lead Agency for both CEQA and NEPA.

6F. Air Quality Conformity

The proposed Project is in the San Bernardino County portion of the South Coast Air Basin. The proposed Project is included in the 2019 Federal Transportation Improvement Program (FTIP) and the Southern California Association of Government's (SCAG) 2016-2040 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) for San Bernardino County with Project ID 20179901.

An Air Quality Report was completed for the Project on April 5, 2019. The Project is located in a federal nonattainment area for PM_{2.5} and in an attainment/maintenance area for PM₁₀ and CO; thus, a project-level hot-spot analysis is required under 40 CFR 93.109. The Project complies with all PM_{2.5} and PM₁₀ measures in the State Implementation Plan (SIP) and implements measures relied upon in the RTP/TIP regional conformity analysis in a timely manner. The Project does not cause or contribute to any new localized CO, PM_{2.5}, and/or PM₁₀ violations or delay timely attainment of any NAAQS or any required interim emission reductions or other milestones during the timeframe of the transportation plan (or regional emissions analysis).

MSAT analysis indicates that a substantial decrease in MSAT emissions can be expected between the existing (2017) and future (2025 and 2045) No-Build Conditions. When compared with the No-Build Conditions, 2025 and 2045 Build Alternative, MSAT emissions would remain unchanged or increase by 0.1 pounds per day. Thus, the No Build Alternative would not have substantial adverse impacts with regard to MSAT. The report also concluded that the Build Alternative is projected to result in a marginal increase in daily regional emissions due to capacity expansion and subsequent increases in vehicle miles traveled (VMT) along the Project corridor.

6G. Title VI Considerations

Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color or national origin in programs or activities receiving federal financial assistance. Federal-aid recipients, sub-recipients and contractors are required to prevent discrimination and ensure nondiscrimination in all of their programs, activities and services whether these programs, activities and services are federally funded or not. Caltrans and the Federal Highway Administration (FHWA) policies demonstrate a commitment to Title VI of the Civil Rights Act of 1964. This Project will comply with Title VI of the Civil Rights Act.

6H. Noise Abatement Decision Report

General

This section presents a summary of 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 preliminary decision on noise abatement measures to be incorporated into the Draft Environmental Document (DED); and
- Is required for Caltrans to meet the conditions of Title 23 Code of Federal Regulations, Part 772 in accordance with the Federal Highway Administration 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 draft environmental document is published. If a project is subject to federal review, but does not have a circulated environmental document, the NADR documents the final noise abatement decision. The NADR does not address noise barriers or other noise-reducing treatments required as mitigation for significant adverse environmental effects identified under CEQA.

Results of the Noise Study Report

The NSR for this Project was completed by Michael Baker International (MBI) on April 7, 2020 and received concurrence from Caltrans District 8 on April 9, 2020.

A total of 76 representative sensitive receptors were modeled and evaluated for potential noise impacts resulting from the proposed Project. Predicted traffic noise levels for the future build conditions would approach or exceed the applicable noise abatement criteria (NAC) at 30 modeled receptors. The largest noise increase between the modeled existing noise levels and the future build levels is 3 dBA at multiple receptors along the Project alignment. No receptors under Alternative 2 (Build Alternative) would experience a significant increase in noise of 12 dBA or more over their corresponding modeled existing noise level. Receptors where traffic noise levels are predicted to approach or exceed the NAC during the future build (2045) condition include:

- The area west of 16th Street along the EB I-10 (south of Outer Highway 10 South). Three modeled receptors (ST-1, 1, and 3), representing a total of seven residences, would approach or exceed the NAC for Activity Category B land uses.
- The areas along the EB I-10 off-ramp and on-ramp at County Line Road., a total of eight noise-sensitive receptors were evaluated. Four modeled receptors (ST-5, ST-6, 12, and 17) would approach or exceed the NAC for Activity Category B land uses.
- WB I-10 near 17th Street. Two modeled receptors (57 and 58) would approach or exceed the NAC for Activity Category B, and one modeled receptor (ST-16) would approach or exceed the NAC for Activity Category C land uses.
- The residence located at the northeast corner of 16th Street and Dunlap Boulevard. One modeled receptor (ST-15) would approach or exceed the NAC for Activity Category B land uses.
- North side of WB I-10, to the north/west of Live Oak Canyon Road. Four modeled receptors (ST-13, 48, 49, and 50) would approach or exceed the NAC for Activity Category B land uses.
- Hillcrest Mobile Estates located along the WB I-10 and north of Calimesa Boulevard. Ten modeled receptors (ST-10, ST-11/LT-1, 27, 28, 29, 30, 31, 32, 39, and 60) would approach or exceed the NAC for Activity Category B land uses.
- Near the intersection of Calimesa Boulevard and Avenue I. The modeled receiver (ST-9) would approach or exceed the NAC for Activity Category B land uses.
- WB I-10 off-ramp to County Line Road. Four modeled receptors (ST-7, 18, 19, and 20) would approach or exceed the NAC for Land Use Category B land uses.

Based on these findings summarized above, the NSR identified nine locations where noise barriers (soundwalls) would be acoustically feasible by providing the minimum 5 dBA reduction and the 7 dBA noise reduction design goal. Table 6-1 provides a summary of soundwalls that are acoustically feasible and achieve a 5 dBA noise reduction; including their modeled heights, the number of benefited receptors, and their reasonable cost allowance. The locations of these barriers is shown in the exhibits included in Attachment M.

Table 6-1. Summary of Acoustically Feasible Barriers

Barrier	Location	Station	Height (feet)	Acoustically Feasible?	Number of Benefited Receptors	Design Goal Achieved?	Reasonable Allowance per Receptor	Total Reasonable Allowance
EB 1	R/W	102+06 to 107+75 Right	8	Yes	4	No	\$107,000	\$428,000
			10	Yes	4	No	\$107,000	\$428,000
			12*	Yes	6	No	\$107,000	\$642,000
			14	Yes	6	Yes	\$107,000	\$642,000
			16	Yes	7	Yes	\$107,000	\$749,000
EB 2a	R/W	253+14 to 256+78 Right	8	No	0	No	\$107,000	\$0
			10	No	0	No	\$107,000	\$0
			12*	Yes	1	No	\$107,000	\$107,000
			14	Yes	1	Yes	\$107,000	\$107,000
			16	Yes	1	Yes	\$107,000	\$107,000
EB 3b	Property line	264+31 to 266+82 Right	8	Yes	1	No	\$107,000	\$107,000
			10	Yes	1	Yes	\$107,000	\$107,000
			12*	Yes	1	Yes	\$107,000	\$107,000
WB 1	R/W	97+03 to 102+53 Left	8	No	0	No	\$107,000	\$0
			10	Yes	1	No	\$107,000	\$107,000
			12*	Yes	3	No	\$107,000	\$321,000
			14	Yes	3	Yes	\$107,000	\$321,000
			16	Yes	3	Yes	\$107,000	\$321,000
WB 3a	R/W	130+21 to 134+72 Left	8	Yes	1	No	\$107,000	\$107,000
			10	Yes	1	No	\$107,000	\$107,000
			12	Yes	2	Yes	\$107,000	\$214,000
			14	Yes	3	Yes	\$107,000	\$321,000
			16*	Yes	4	Yes	\$107,000	\$428,000
WB 3b	R/W - Prop. line	132+09 to 134+72 Left	8	Yes	1	Yes	\$107,000	\$107,000
			10	Yes	2	Yes	\$107,000	\$214,000
			12*	Yes	3	Yes	\$107,000	\$321,000
WB 4a**	ES-R/W	212+40 to 227+38 Left	8	No	0	No	\$107,000	\$0
			10	No	2	No	\$107,000	\$214,000
			12*	Yes	10	No	\$107,000	\$1,070,000
			14	Yes	10	Yes	\$107,000	\$1,070,000

Barrier	Location	Station	Height (feet)	Acoustically Feasible?	Number of Benefited Receptors	Design Goal Achieved?	Reasonable Allowance per Receptor	Total Reasonable Allowance
			16	Yes	16	Yes	\$107,000	\$1,712,000
WB 4b**	Property line	212+87 to 227+11 Left	6	Yes	15	Yes	\$107,000	\$1,605,000
			8	Yes	18	Yes	\$107,000	\$1,926,000
			10*	Yes	22	Yes	\$107,000	\$2,354,000
			12	Yes	24	Yes	\$107,000	\$2,568,000
WB 6	R/W	264+17 to 268+89 Left	8	No	1	No	\$107,000	\$107,000
			10	Yes	1	Yes	\$107,000	\$107,000
			12	Yes	3	Yes	\$107,000	\$321,000
			14*	Yes	3	Yes	\$107,000	\$321,000
			16	Yes	3	Yes	\$107,000	\$321,000

* Minimum height needed to break the line of sight between 11.5 foot truck exhaust stack and first receptor.

** Barrier consists of two or more segments.

ES = Edge of shoulder

Factors in the Noise Abatement Decision Report

The NADR for this Project was completed on May 6, 2020. Concurrence from Caltrans District 8 was received on May 8, 2020. The overall reasonableness of noise abatement evaluated in the NADR is typically determined by the following factors:

- The number of benefited receptors
- The noise reduction design goal
- The total reasonable cost allowance versus the cost of noise abatement
- The viewpoints of benefited receptors

Caltrans' noise reduction design goal is that a barrier must be predicted to provide at least 7 dBA of noise reduction at one or more benefited receptors. An engineer's cost estimate was developed for each barrier that is acoustically feasible and then it was compared to the total reasonable allowances. If the engineer's cost estimate is less than the allowance and the abatement provides at least 7 dBA of noise reduction at one or more benefited receptors, then the preliminary determination is that the abatement is reasonable. If the cost estimate is higher than the allowance or if the design goal cannot be achieved, the preliminary determination is that abatement is not reasonable. Table 6-2 provides a summary of information and comparison between the total reasonable allowance and estimated construction cost for each barrier in the NSR that was found to be acoustically feasible and provided the noise reduction design goal, to help in evaluating which ones would be economically reasonable. Barrier heights that do not benefit any receptors, are not acoustically feasible, or do not meet the 7 dBA noise reduction design goal have been excluded.

Table 6-2. Summary of Economic Feasibility of Barrier Locations

Barrier & Found. Type	Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Design Goal Achieved?	Total Reasonable Allowance	Estimated Construction Cost***	Cost Less than Allowance?
EB 1*** 736S/SV Barrier	14*	Yes	6	Yes	\$642,000	\$2,297,059	No
	16	Yes	7	Yes	\$749,000	\$2,351,902	No
EB 2a Pile cap	14*	Yes	1	Yes	\$107,000	\$318,271	No
	16	Yes	1	Yes	\$107,000	\$358,021	No
EB 3b Pile Cap	10	Yes	1	Yes	\$107,000	\$268,580	No
	12*	Yes	1	Yes	\$107,000	\$303,071	No
WB 1 736S/SV Barrier	14*	Yes	3	Yes	\$321,000	\$706,361	No
	16	Yes	3	Yes	\$321,000	\$762,401	No
WB 3a Pile cap	12	Yes	2	Yes	\$214,000	\$370,849	No
	14	Yes	3	Yes	\$321,000	\$410,926	No
	16*	Yes	4	Yes	\$428,000	\$458,838	No
WB 3b Pile cap	8	Yes	1	Yes	\$107,000	\$387,686	No
	10	Yes	2	Yes	\$214,000	\$419,489	No
	12*	Yes	3	Yes	\$321,000	\$455,222	No
WB 4a** 736S/SV- Pile cap	14*	Yes	10	Yes	\$1,070,000	\$1,922,955	No
	16	Yes	16	Yes	\$1,712,000	\$2,038,813	No
WB 4b** 736S/SV Barrier	6	Yes	15	Yes	\$1,605,000	\$5,617,239	No
	8	Yes	18	Yes	\$1,926,000	\$5,769,626	No
	10*	Yes	22	Yes	\$2,354,000	\$5,946,312	No
	12	Yes	24	Yes	\$2,568,000	\$6,110,849	No
WB 6 736S/SV Barrier	10	Yes	1	Yes	\$107,000	\$337,308	No
	12	Yes	3	Yes	\$321,000	\$379,425	No
	14*	Yes	3	Yes	\$321,000	\$421,541	No
	16	Yes	3	Yes	\$321,000	\$471,891	No

* Minimum height needed to break the line of sight between 11.5 foot truck exhaust stack and first receptor.

** Barrier consists of two or more segments. Construction costs include all segments of wall.

*** Refer to NADR Appendix C for cost estimate details.

Variations in alignment options and constructability methods were further evaluated for noise barriers EB 1 and WB 4b within the NADR to determine if cost reductions would allow them to be deemed economically reasonable. Noise barrier EB 1 was shortened in length on the east end to avoid impacts to an existing guy pole that supports OH electric and telecom lines that span over the I-10 freeway. The shortened barrier length for EB 1 did not meet the design goal of a 7 dBA noise level reduction and could not be recommended as a viable alternate noise barrier.

Similarly, an additional noise barrier not evaluated in the NSR, noise barrier WB 4c, was considered for comparison against noise barrier WB 4b in order to determine if an alternate noise barrier location would have similar performance benefits for the receptors and provide lower construction costs. Based on that additional analysis, it was determined that barrier WB 4c (between barriers WB 4a & WB 4b) provided less noise level reduction benefits but did achieved a lower construction cost than barrier WB 4b. Based on this finding one additional construction approach was considered for Barrier WB 4b in an effort to reduce its construction cost. This consideration included maintaining the existing power pole locations to support the upper transmission OH electric lines in place, and relocating the lower tiers of distribution OH electric and telecom lines to the south side of Calimesa Boulevard as temporary or permanent relocations to facilitate barrier construction. In both cases the construction costs identified for barriers WB 4b and WB 4c remained higher than the overall cost allowances, they were therefore deemed economically unreasonable and could not be recommended as viable alternative barrier build options. Table 6-3 includes a summary of additional cost analysis performed as part of the NADR for barriers WB 4b and WB 4c, the cost estimate details are included in the NADR.

Table 6-3. Summary of Additional Economic Feasibility of Barrier Locations

Barrier & Found. Type	Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Design Goal Achieved?	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?
WB 4b** 736S/SV Barrier Option 2 Temporary Shoofly	6	Yes	15	Yes	\$1,605,000	\$2,567,959	No
	8	Yes	18	Yes	\$1,926,000	\$2,720,346	No
	10*	Yes	22	Yes	\$2,354,000	\$2,897,032	No
	12	Yes	24	Yes	\$2,568,000	\$3,061,569	No
WB 4b** 736S/SV Barrier Option 3 Power/Tel Lines Relocation	6	Yes	15	Yes	\$1,605,000	\$4,950,459	No
	8	Yes	18	Yes	\$1,926,000	\$5,102,846	No
	10*	Yes	22	Yes	\$2,354,000	\$5,279,532	No
	12	Yes	24	Yes	\$2,568,000	\$5,444,069	No
WB 4c** 736S/SV Barrier	14	Yes	10	Yes	\$1,070,000	\$2,171,680	No
	16	Yes	14	Yes	\$321,000	\$2,271,394	No

** Barrier consists of two or more segments. Construction costs include all segments of wall.

Non-acoustical Factors Relating to Feasibility

Factors not relating to acoustics that must be considered for noise barriers include: geometric standards, safety, maintenance, security, utility relocations, geotechnical considerations, and visual impacts. Other factors to be considered are:

- Feedback from impacted residents,
- Impacts of abatement construction,
- Physical limitations and constraints,
- Public and local agency input, and
- Social, economic, environmental, legal, and technological factors.

The noise barriers are typically designed to be in accordance with required geometric safety standards in such a way as to minimize or avoid these non-acoustical factors. A maximum soundwall height of 16 feet above the ground line is recommended to comply with HDM Section 1102.3, which states that Noise barriers should not exceed 14 feet in height (measured from the pavement surface at the face of the safety shape barrier) when located 15 feet or less from the edge of the traveled way, and should not exceed 16 feet in height above the ground when located more than 15 feet from the traveled way. Likewise, the maximum soundwall height for barriers located along property lines within the City of Yucaipa is limited to 10 feet per City's Municipal Code.

Preliminary Noise Abatement Decision

The nine barriers presented in Table 6-2 and the additional barrier (WB 4c) evaluated in the NADR would provide a line-of-sight break between a receptor and an 11.5 foot high truck stack, are acoustically feasible, and achieve the 7 dBA noise reduction design goal. However, no barriers have construction costs below the total reasonable allowance and therefore all barriers are considered not reasonable.

The preliminary noise abatement decision presented in this report is based on existing Project alignments and profiles, and the evaluation of proposed median improvements for the addition of a truck climbing lane in the EB direction of I-10. The preliminary noise abatement decision presented here will be included in the draft environmental document, which will be circulated for public review.

Secondary Effects of Abatement

Noise abatement barriers (soundwalls) have the potential to result in secondary effects on cultural resources, scenic views, hazardous materials, biology, utility and/or landscaping impacts, or other resources. However, because the preliminary noise barrier cost estimates show that all of the proposed barriers are not reasonable, the studied soundwalls are recommended to not be constructed. As a result, any secondary effects of abatement are irrelevant and not further studied.

6I. Life-Cycle Cost Analysis

A life-cycle cost analysis (LCCA) report was prepared for the Project and approved on March 26, 2019. Life cycle costs include initial construction costs, maintenance costs, and user costs due to future closures for maintenance operations.

The pavement alternatives considered by the report for mainline construction included 40-year JPCP and 40-year continuously reinforced concrete pavement (CRCP). For shoulder construction, JPCP was considered to match mainline pavement and adjacent shoulder pavements. Materials costs were estimated using data from Caltrans Contract Cost Data (2018c) for projects within the last three years, adjusted average pricing, using similar material quantities, and within Caltrans District 8 where possible.

Caltrans requires that documentation be provided wherever the alternative with the lowest life cycle cost is not selected. For this Project, no deviations are recommended from selecting the alternative with lowest life cycle cost. Out of the three alternatives for pavement structural sections analyzed by the LCCA, the one presented in Table 6-4 is recommended for design. The LCCA report is included in Attachment G.

Table 6-4 Recommended Pavement Structural Sections

Selected Alternative	Pavement Composition (feet)
Mainline 3	1.00 CRCP over 0.25 HMA-A over 0.70 AS Class 2
Shoulder	0.90 JPCP over 1.05 AB Class 2

6J. Reversible Lanes

Reversible lanes are not considered feasible for this Project due to the difference in elevations between the EB and WB roadbeds of the I-10 mainline, and the existence of columns in the freeway median supporting the bridges at the 16th Street and Live Oak Canyon Road overcrossings.

7. OTHER CONSIDERATIONS AS APPROPRIATE

Public Hearing Process

A virtual public hearing will be held during circulation of the Draft IS/EA.

Route Matters

Freeway Agreements and New Connections

I-10 freeway is an existing access-controlled route and the Project does not propose any new connections or permanent closures of the existing local roads. Therefore, a new freeway agreement is not required.

Route Adoptions

According to the Caltrans PDPM route adoptions are required for any of the following situations:

- A new alignment for an existing route
- Establishment of a location for an unconstructed route
- Conversion of a conventional highway to a freeway or a controlled access freeway
- Designating a traversable highway
- Temporary connections

Since none of the items above apply to this Project, there are no route adoptions needed.

Relinquishments

The Project does not include the removal of a State Highway (either in whole or in part) from the State Highway System (SHS). Therefore, there are no relinquishments proposed by this Project.

Permits

The regulatory permits, reviews and approvals listed in the table below would likely be required for the construction of the Project.

Table 7-1 Project Permits and Approvals

Agency	Permit/Approval	Status
California Department of Fish and Wildlife	1602 Streambed Alteration Agreement	To be submitted after approval of Project Report and Final Environmental Document.
Regional Water Quality Control Board	Clean Water Act Section 401 Water Quality Certification Section 402 NPDES	To be submitted after approval of Project Report and Final Environmental Document.
San Bernardino County Flood Control District	Encroachment Permit	To be submitted after approval of Project Report and Final Environmental Document.
U.S. Army Corps of Engineers	Clean Water Act Section 404 Nationwide Permit	To be submitted after approval of Project Report and Final Environmental Document.

Cooperative Agreements

SBCTA and Caltrans executed an agreement on July 28, 2017 for purposes related to the PA/ED phase of the Project. The agreement will be continued for the review and design oversight during the PS&E and construction phases of the Project.

Caltrans is the Lead Agency under the California Environmental Quality Act (CEQA) as well as the Lead Agency under the National Environmental Policy Act (NEPA), as assigned by the Federal Highway Administration (FHWA), in accordance with NEPA (42 United States Code [USC] 4321 et seq.); and the Council on Environmental Quality (CEQ) Regulations implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508).

Other Agreements

Besides Caltrans and SBCTA, the City of Yucaipa is another stakeholder that is also involved with the development of the Project. Although no formal agreements exist, the City's staff has been contacted on a regular basis to keep them updated on the progress of the Project.

Report on Feasibility of Providing Access to Navigable Rivers

There are no navigable rivers within the limits of the Project or in the immediate vicinity.

Public Boat Ramps

Not applicable to this Project for the same reason mentioned above.

Transportation Management Plan

A Transportation Management Plan (TMP) data sheet has been prepared as part of the PA/ED phase of the Project. Some of the key elements recommended in the TMP include the following:

- Public Information/Public Awareness Campaign
- Motorist Information Strategies
- Incident Management
- Construction Strategies
- Demand Management
- Alternative Route Strategies
- Other Strategies

The conceptual staging and traffic handling is discussed in the next section below. The TMP Data Sheet for the Project is provided in Attachment F.

Stage Construction

A detailed stage construction plan will be created during final design to minimize the impacts to freeway operations; however, a conceptual staging sequence is described below:

- Prior to commencing the work, the appropriate construction and temporary signs will be installed to inform and warn motorists about the construction activities that will be taking place.
- Then temporary striping will be applied on both directions of travel to reduce the lane widths and shift them to the outside. The temporary striping configuration will provide 11' for Lanes #1 and #2, 12' for Lane #3 and 8' for outside shoulders. This will provide the room necessary to install k-rail on either side of the median to protect the construction work area.
- The k-rail will be placed 1' to the outside of the existing median shoulders and an additional 1' of separation will be provided between the k-rail and lane #1.
- With the k-rail in place, the construction of the bridge widening at Oak Glen Creek Bridge can be started concurrently with the work to remove the asphalt shoulders, the thrie beam, and the clearing and grubbing of the median.
- Once the median is clear, the rough grading and installation of the proposed concrete barriers can be started, followed by the installation of any new drainage systems, final grading, and the construction of new base material and concrete pavement between the new concrete barrier and the edge of existing concrete slabs.
- Lastly the k-rail can be removed, and the final signing and striping will be installed for both directions of travel.

Any proposed sound barriers, BMPs, drainage modifications, and other construction activities on the outside of the freeway can be done concurrently with any of the above work items.

Accommodation of Oversize Loads

The existing bridges with limited vertical clearances along I-10 through the Project limits are summarized in the table below. The table also shows if the interchanges provide a direct bypass to the overcrossing structure. In addition to the overcrossing bridges, there are no existing overhead sign structures along I-10 within the Project limits with a restricted vertical clearance.

Table 7-2 Existing Overcrossing Structures

County Post Mile	Structure Name	Vertical Clearance (ft)	Bypass
SBD-36.44	16 th Street OC	16.7	Bypass Available along Outer 10 Highway South between Yucaipa Blvd and Live Oak Canyon Rd
SBD-R37.03	Live Oak Canyon Road OC	18.8	Bypass Available along Calimesa Blvd between Live Oak Canyon Rd and County Line Rd

Source: Caltrans California Log of Bridges on State Highways

It should be noted that there are traffic signals, overhead lines and service drops along the adjacent bypass roads within the Project limits that would have to be considered if an oversize load is moved through these alternate routes.

Graffiti Control

For the proposed median improvements of the freeway, the development of a graffiti removal specification is not anticipated to be required but this will be further evaluated during the PS&E phase. If the noise barrier (soundwall) recommended in the Noise Abatement Decision Report near Hillcrest Mobile Estates is accepted by the local community, regionally appropriate vines and irrigation could be installed as a graffiti control measure for this barrier wall.

Asset Management

There are no outstanding issues carried over from the PSR phase of the Project that would require discussion.

Complete Streets

Since the Project is located along an accessed-controlled freeway facility, the Complete Streets program does not apply to this Project.

Climate Change Considerations

The Project is listed in SCAG's 2016-2040 RTP/Sustainable Communities Strategy and is not considered a major project in terms of energy consumption as the

difference in energy consumption between the Build and No-Build conditions is not considered to be substantial. Therefore, an analysis related to energy is not anticipated to be necessary.

The Project is intended to reduce traffic congestion and delays along this segment of I-10, which would result in a reduction in vehicle hours traveled, carbon dioxide emissions, and improved traffic flow. Given that the Project is located along an accessed-controlled freeway facility, there are no existing or proposed facilities for pedestrians and bicyclists.

Broadband and Advance Technologies

According to Caltrans' website for wired broadband facilities on State Highway right of way, California Governor's Executive Order S-23-06 Twenty-First Century Government directed the establishment of the California Broadband Task Force, of which Caltrans is a member, to bring together public and private stakeholders to better facilitate broadband installation, identify opportunities for increased broadband adoption, and enable access to and deployment of new advanced communication technologies.

The preliminary utility research during the PSR and PA/ED phases identified the existence of intercontinental fiber optic (FO) lines in the vicinity of the Project. On the west side of the Project the lines run along Outer 10 Highway South, cross under I-10 approximately 820' west of 16th Street and continue along Dunlap and Calimesa Boulevard.

As discussed in previous sections of this report, one of the future projects (EA 38423) will install additional fiber optic lines within the limits of this Project with conduits crossing below the I-10 freeway at minimum depths of 36-inches. Traffic monitoring stations will be installed by the same project at the Live Oak Canyon Road and County Line Road interchanges. No impacts are anticipated to the existing or planned facilities.

Other Appropriate Topics

There are no additional topics that need discussion and that would influence the approval of the Project for public circulation.

8. FUNDING, PROGRAMMING AND ESTIMATE

Funding

It has been determined that this Project is eligible for Federal-aid Funding. The proposed Project may be funded by a combination of local, state, and federal funds. Other Project funding sources include San Bernardino County Measure I and State Transportation Improvement Program (STIP) Regional Improvement Program (RIP).

Programming

The Project is included in the Southern California Association of Governments (SCAG) project listing of the Final 2019 Federal Transportation Improvement Program (FTIP) with Project ID 20179901. The following table provides the information for current programmed dollar amounts. Once funding is identified for future phases, the FTIP project listing will be updated.

Table 8-1 Project Programmed Dollar Amounts

Fund Source	Fiscal Year Estimate								
	Prior	Current	18/19	19/20	20/21	21/22	22/23	Future	Total
20.XX.###.###									
Component	In thousands of dollars (\$1,000)								
PA/ED Support	1,706								1,706
PS&E Support			2,890						2,890
Right-of-Way Support									
Construction Support									
Right-of-Way									
Construction				30,000					30,000
Total	1,706		2,890	30,000					34,596

The support cost ratio is 32%.

Estimate

The current overall Project capital outlay cost is estimated to be \$21.18 million and \$25.76 million escalated. The major cost items include the pavement structural section, concrete barrier, and associated drainage items. The complete Project Cost Estimate is provided under Attachment C.

9. DELIVERY SCHEDULE

The following table has the current key dates for the Project delivery schedule.

Table 9-1 Project Delivery Schedule

Project Milestones		Milestone Date (Month/Day/Year)	Milestone Designation (Target/Actual)
PROGRAM PROJECT	M015	04/27/2017	Actual
BEGIN ENVIRONMENTAL	M020	10/09/2017	Actual
CIRCULATE DPR & DED EXTERNALLY	M120	07/2020	Target
PA/ED	M200	10/2020	Target
PS&E TO DOE	M377	09/2021	Target
PROJECT PS&E	M380	12/2021	Target
RIGHT OF WAY CERTIFICATION	M410	12/2021	Target
READY TO LIST	M460	12/2021	Target
AWARD	M495	04/2022	Target
APPROVE CONTRACT	M500	06/2022	Target
CONTRACT ACCEPTANCE	M600	12/2023	Target
END PROJECT EXPENDITURES	M800	6/2024	Target
FINAL PROJECT CLOSEOUT	M900	7/2025	Target

10. RISKS

Based on the Project capital cost estimate and non-complexity, a Risk Register with deterministic risk analysis has been created and attached as Attachment H.

11. EXTERNAL AGENCY COORDINATION

Coordination with the following agencies is expected to be required for the Project.

Federal Highway Administration (FHWA)

Per the Current Stewardship and Oversight Agreement (Agreement) between the California Department of Transportation (Caltrans) and Federal Highway Administration (FHWA), dated May 28, 2015, this Project is considered to be a Delegated Project. However, should any future situation/circumstance that will potentially classify the Project as a Project of Division Interest arises, Caltrans shall notify FHWA and reassess this Project using the Project of Division Interest selection criteria outlined in the Agreement. This Draft Project Report has been reviewed by the Caltrans' FHWA Liaison, Sergio Avila, and is eligible for federal funding.

The Project requires the coordination with the following agencies:

San Bernardino County Flood Control District

Encroachment Permit for field activities.

Riverside County Transportation Commission (RCTC)

Coordination may be required with the Riverside County Transportation Commission for the design of the truck climbing lane eastern terminus at the County Line Road interchange for compatibility with the future TCL to be completed by RCTC between County Line Road and the I-10/SR-60 interchange.

US Army Corps of Engineers (ACOE)

To obtain Section 404 Permit and confirm that Section 408 Permit is not required.

Santa Ana Regional Water Quality Control Board (SARWQCB) and State Water Resources Control Board (SWRCB)

To obtain Section 401 Water Quality Certification permit and Section 402 NPDES permit.

California Department of Fish and Wildlife (CDFW)

To obtain Section 1602 Approval and Permit.

12. PROJECT REVIEWS

District Maintenance	<u>James Lan</u>	Date <u>4/29/2020</u>
Headquarters Project Delivery Coordinator	<u>Luis Betancourt</u>	Date <u>4/28/2020</u>
Project Manager	<u>Mohammed H. Rahman</u>	Date <u>4/21/2020</u>
District Design Liaison/FHWA Liaison/ADA	<u>Sergio Avila</u>	Date <u>4/28/2020</u>
District Safety Review	<u>Kevin Chen</u>	Date <u>4/04/2019</u>
Constructability Review	<u>Martha Santana</u>	Date <u>5/05/2020</u>
Design Oversight	<u>Aysha Habib</u>	Date <u>5/11/2020</u>

13. PROJECT PERSONNEL

Table 13-1 Project Personnel

Organization	Name	Title	Phone #
SBCTA	Paula Beauchamp	Director of Project Delivery	909-884-8276
SBCTA	Paul Melocoton	Project Manager	909-262-9973
SBCTA	Dennis Saylor	Project Manager	909-884-8276
Caltrans	Mohammed H. Rahman	Project Manager	909-388-7016
Caltrans	Aysha Habib	Design Oversight	909-806-2554
Caltrans	Haissam Yahya	Traffic Operations	909-383-4065
Caltrans	Antonia Toledo	Senior Environmental Planner	909-806-2541
HDR	Mark Hager	Project Manager	951-320-7343
HDR	Julian Hernandez	Roadway Engineer	951-320-7325
HDR	Angie Kung	Environmental Lead	949-241-6192
Fehr & Piers	Jason Pack	Traffic Lead for HDR	951-274-4800

14. ATTACHMENTS

- A. Location Map (3)
- B. Engineering Plans (21)
- C. Cost Estimate (10)
- D. Advance Planning Study (2)
- E. Right of Way Data Sheet (5)
- F. Transportation Management Plan (12)
- G. Life Cycle Cost Analysis (9)
- H. Risk Register (1)
- I. Project Category Approval (1)
- J. Signature Pages of Approved Project Study Report / Project Development Support (4)
- K. Initial Site Assessment Checklist (2)
- L. Signature Page of Approved Environmental Document (2)
- M. Noise Barrier Monitoring and Modeling Locations (7)

Attachment A

Location Map

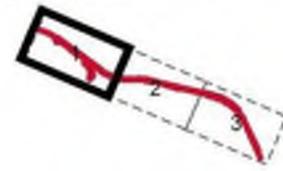


0 Feet 600

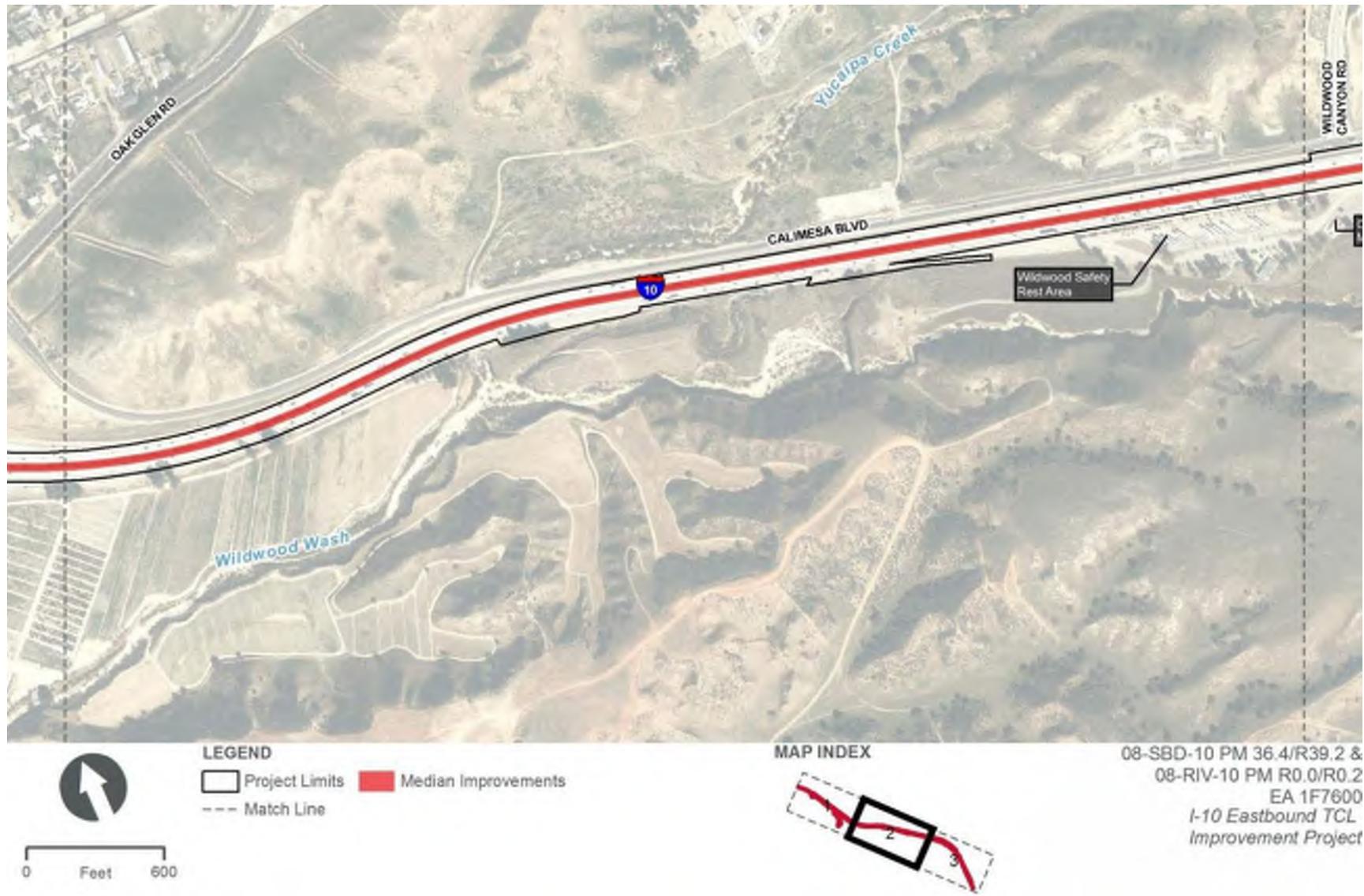
LEGEND

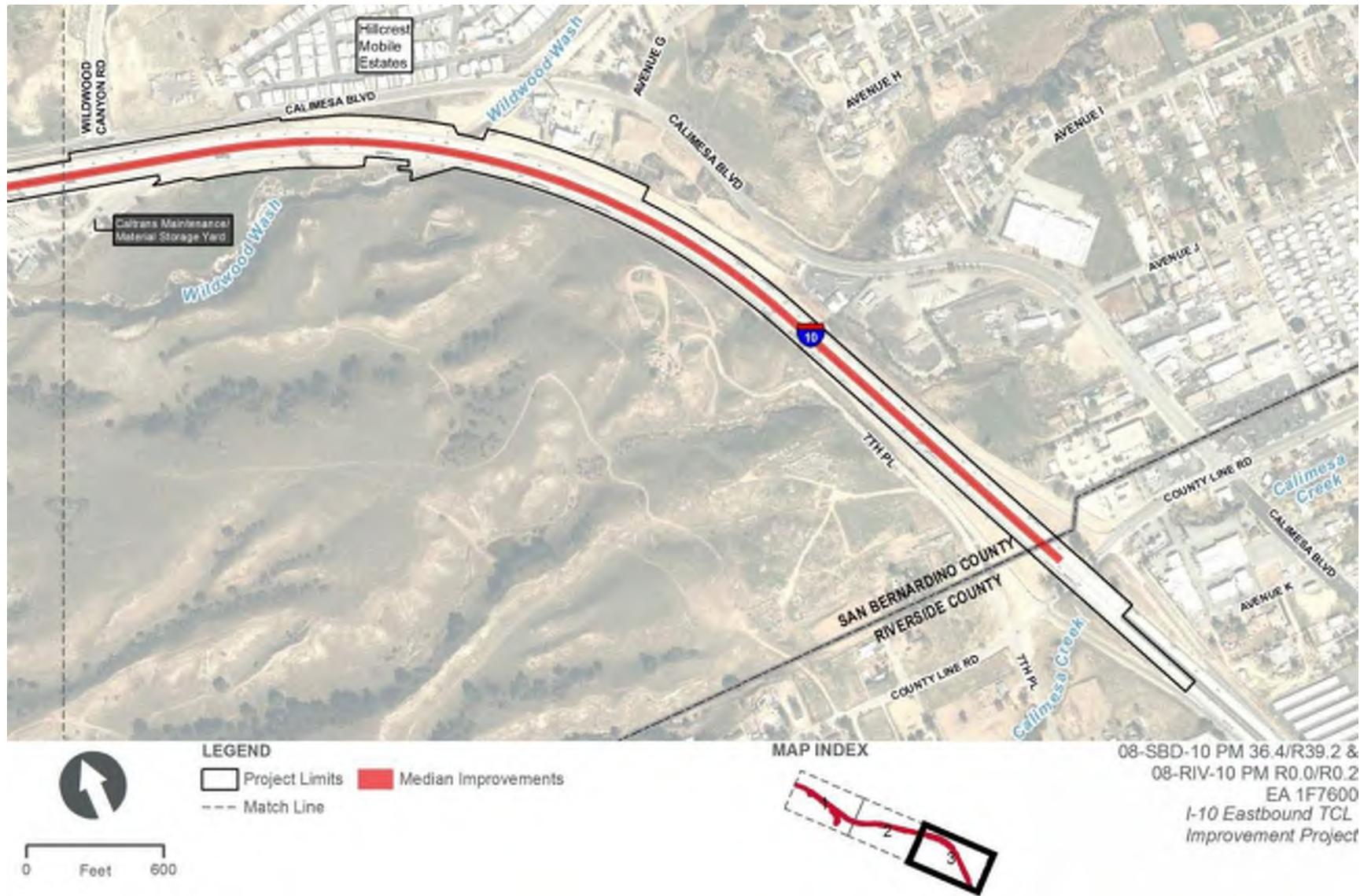
-  Project Limits
-  Median Improvements
-  Match Line
-  Wilson Creek Bridge Widening

MAP INDEX



08-SBD-10 PM 36.4/R39.2 &
 08-RIV-10 PM R0.0/R0.2
 EA 1F7600
 I-10 Eastbound TCL
 Improvement Project





ATTACHMENT B

Engineering Plans

INDEX OF PLANS

SHEET NO. DESCRIPTION

- 1 TITLE AND LOCATION MAP
- X1-X4 TYPICAL SECTIONS
- K1 KEYMAP AND LINE INDEX
- L1-L15 LAYOUTS

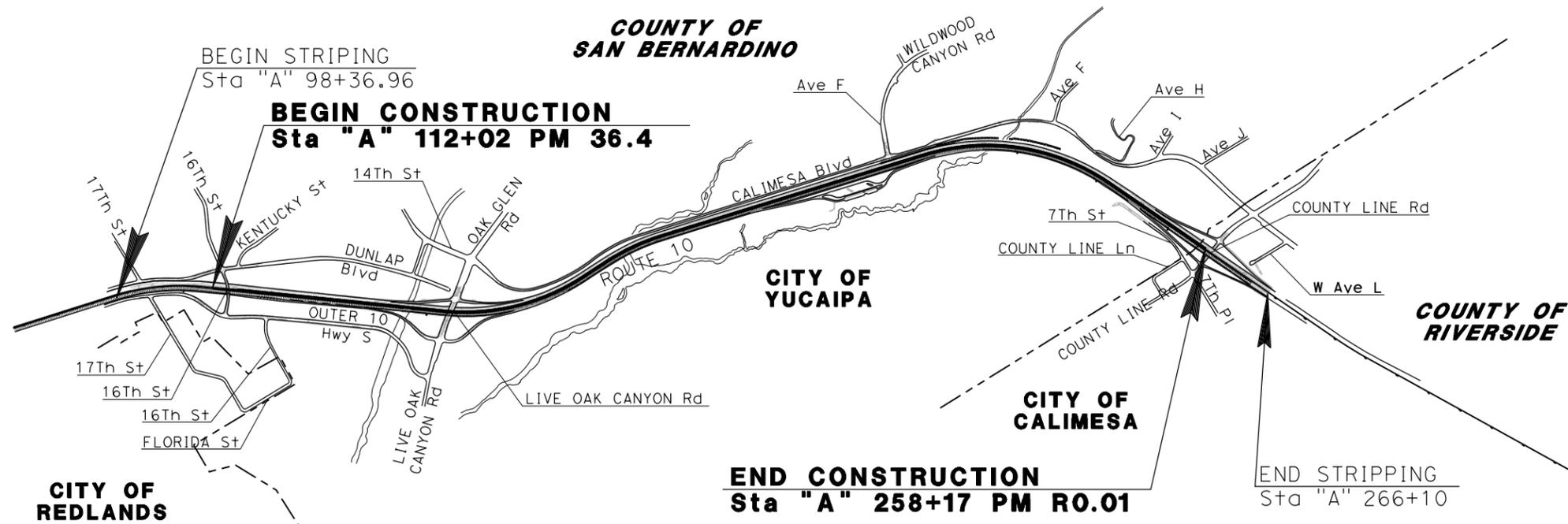
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT REPORT EXHIBITS FOR
INTERSTATE 10
EASTBOUND TRUCK CLIMBING LANE
IN SAN BERNARDINO & RIVERSIDE COUNTIES
FROM 0.3 MILE WEST OF 16TH STREET OC TO 0.1 MILE
EAST OF COUNTY LINE ROAD

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2018

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBd,Riv		36.4/R39.2, R0.0/R0.2	1	21

LOCATION MAP



PROJECT MANAGER
MARK S. HAGER

CONSULTANT DESIGN MANAGER
JULIAN HERNANDEZ

MARK S. HAGER
PROJECT MANAGER
REGISTERED CIVIL ENGINEER

DATE

REGISTERED PROFESSIONAL ENGINEER
MARK S. HAGER
No. C 67659
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA

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.

HDR ENGINEERING, INC 2280 MARKET STREET, SUITE 100 RIVERSIDE, CA 92501	
SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY 1170 W. 3rd STREET SAN BERNARDINO, CA 92410	
CONTRACT No.	08-1F7600
PROJECT ID	0815000050

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 JULIAN HERNANDEZ, P.E.
 CONSULTANT SUPERVISOR
 REVISIONS: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

NOTES:

- FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.
- SECTIONS AS PROPOSED IN PAVEMENT REHABILITATION PROJECT EA OK2934, TO BE COMPLETED PRIOR TO THIS PROJECT.

DESIGN DESIGNATION (INTERSTATE 10)

ADT (2025) = 84,000 ESAL₂₀ = 26,741,310
 ADT (2045) = 109,300 TI₂₀ = 13.5
 DHV = 7,120 T = 23%
 V = 70 MPH
 CLIMATE REGION: INLAND VALLEY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	Sbd, Riv	10	36.4/R39.2, R0.0/R0.2	2	21

MARK S. HAGER
 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.

HDR ENGINEERING, INC. SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY
 2280 MARKET STREET 1170 W. 3rd STREET
 SUITE 100 SAN BERNARDINO, CA 92410
 RIVERSIDE, CA 92501

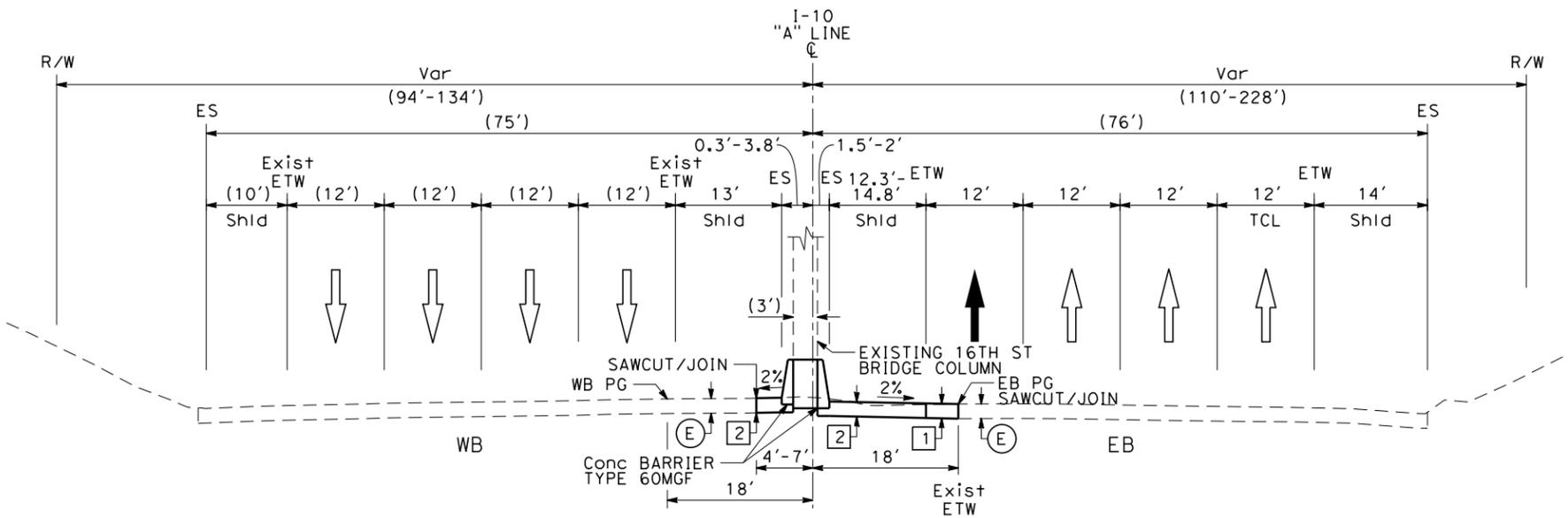
LEGEND:

STRUCTURE SECTIONS

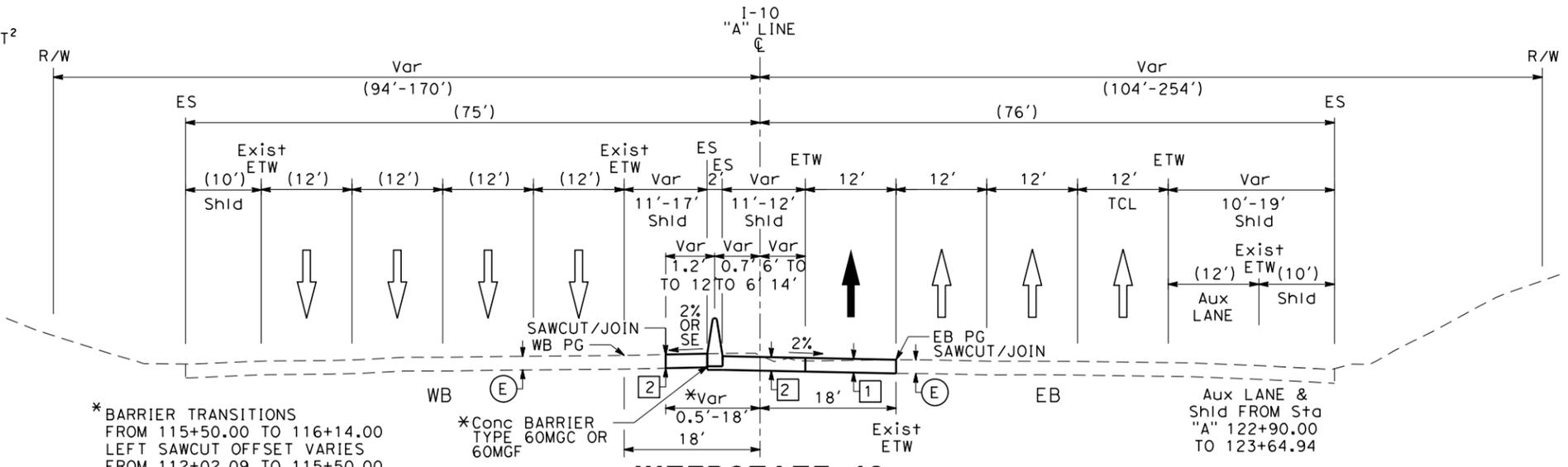
- 1 [1.00' CRCP
0.25' HMA-A
0.70' AS CL 2] MAINLINE
- 2 [0.90' JPCP
1.05' AB CL 2] MEDIAN SHOULDER

EXISTING STRUCTURE SECTIONS

- A [1.10' CRCP
0.25' HMA-A
0.70' AS CL 2] MAINLINE CRCP²
- B [0.50' HMA-A
1.60' AB CL 2] MEDIAN SHOULDER²
- C [1.25' JPCP (RSC)
6 MILS POLYETHYLENE
0.50' LCB RS] MAINLINE RAPID SET²
- D [0.75' JPCP (RSC)
6 MILS POLYETHYLENE
0.35' JPCP (RSC)] INDIVIDUAL SLAB REPLACEMENT²
- E [0.75' PCC
0.33' RMCTB
1.00' AS CL 2 (TYPE A)
1.50' AS CL 2 (TYPE B)] MAINLINE PCC



INTERSTATE 10
 Sta "A" 113+26.00 TO 115+50.00
 AT 16TH ST BRIDGE



INTERSTATE 10
 Sta "A" 112+00.00 TO 113+26.00
 Sta "A" 115+50.00 TO 123+64.94

* BARRIER TRANSITIONS FROM 115+50.00 TO 116+14.00 LEFT SAWCUT OFFSET VARIES FROM 112+02.09 TO 115+50.00

* Conc BARRIER TYPE 60MGC OR 60MGF

Aux LANE & Shld FROM Sta "A" 122+90.00 TO 123+64.94

TYPICAL CROSS SECTIONS
 NO SCALE

NOT FOR CONSTRUCTION

X-1

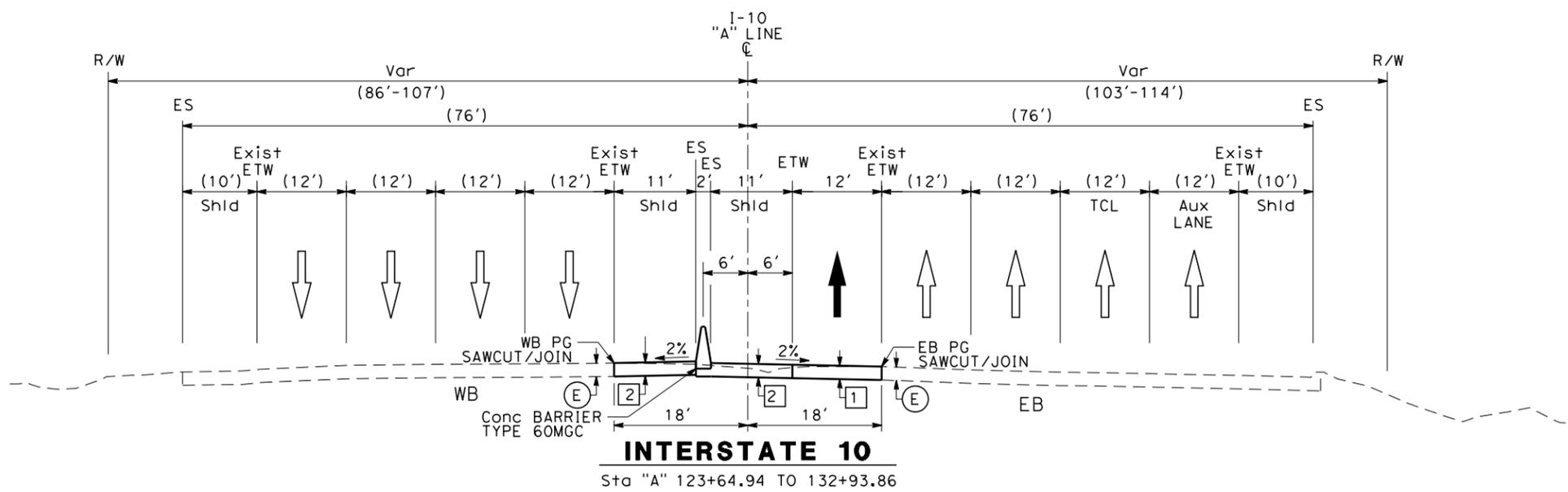
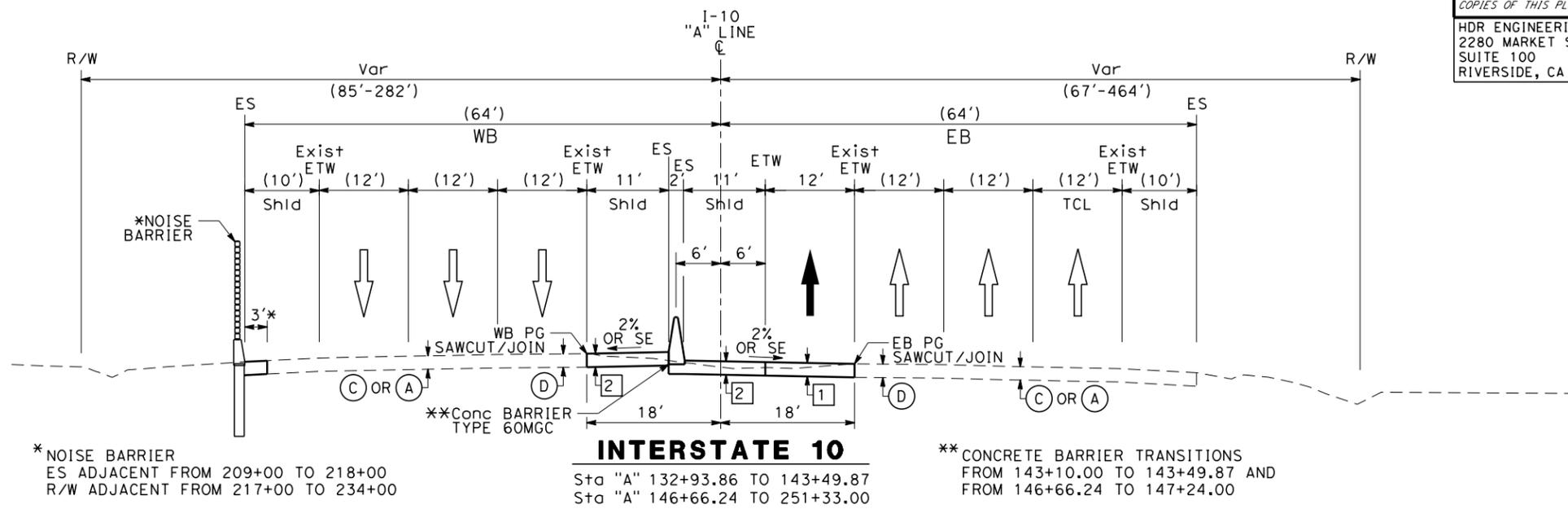
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
 JULIAN HERNANDEZ, P.E.
 REVISIONS: REVISED BY, DATE, REVISIONS

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBD, Riv	10	36.4/R39.2, R0.0/R0.2	3	21

MARK S. HAGER
 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.
 HDR ENGINEERING, INC. 2280 MARKET STREET SUITE 100 RIVERSIDE, CA 92501
 SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY 1170 W. 3rd STREET SAN BERNARDINO, CA 92410



TYPICAL CROSS SECTIONS
 NO SCALE

NOT FOR CONSTRUCTION

X-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT - FUNCTIONAL SUPERVISOR
 JULIAN HERNANDEZ, P.E.
 REVISOR BY
 DATE REVISION
 CALCULATED/DESIGNED BY
 CHECKED BY

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBD, Riv	10	36.4/R39.2, R0.0/R0.2	4	21

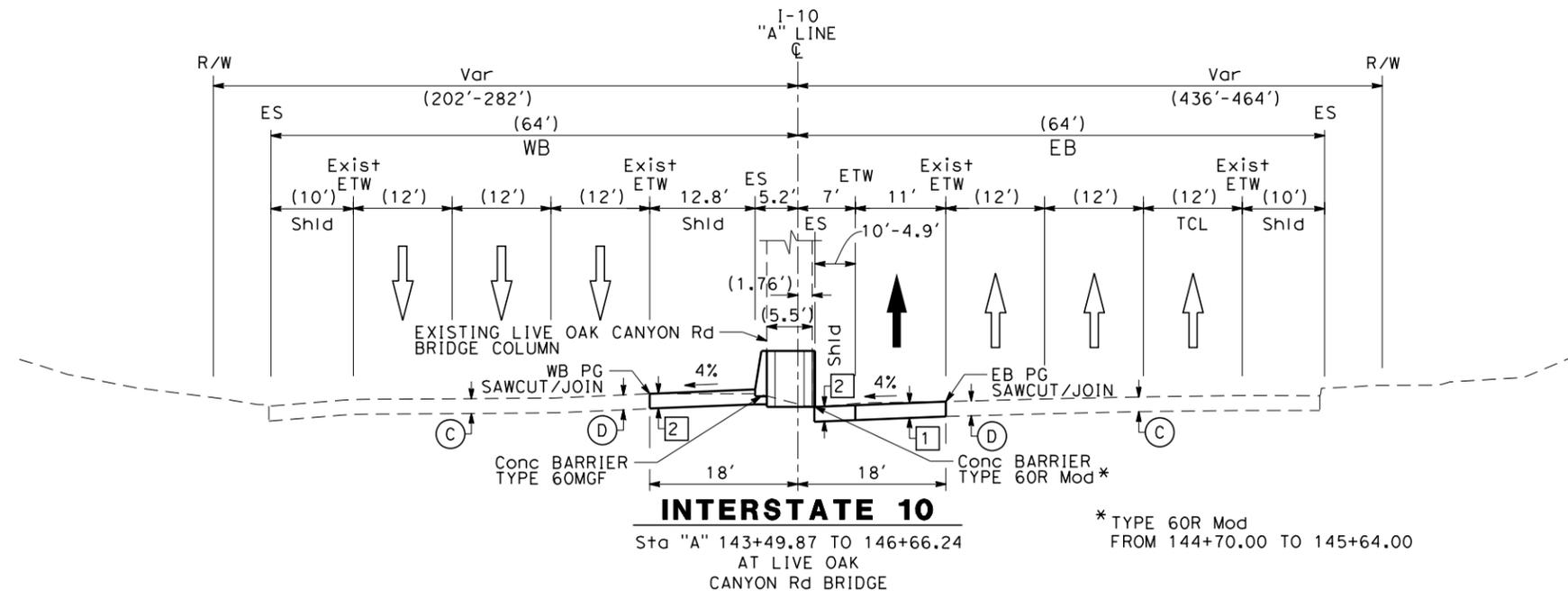
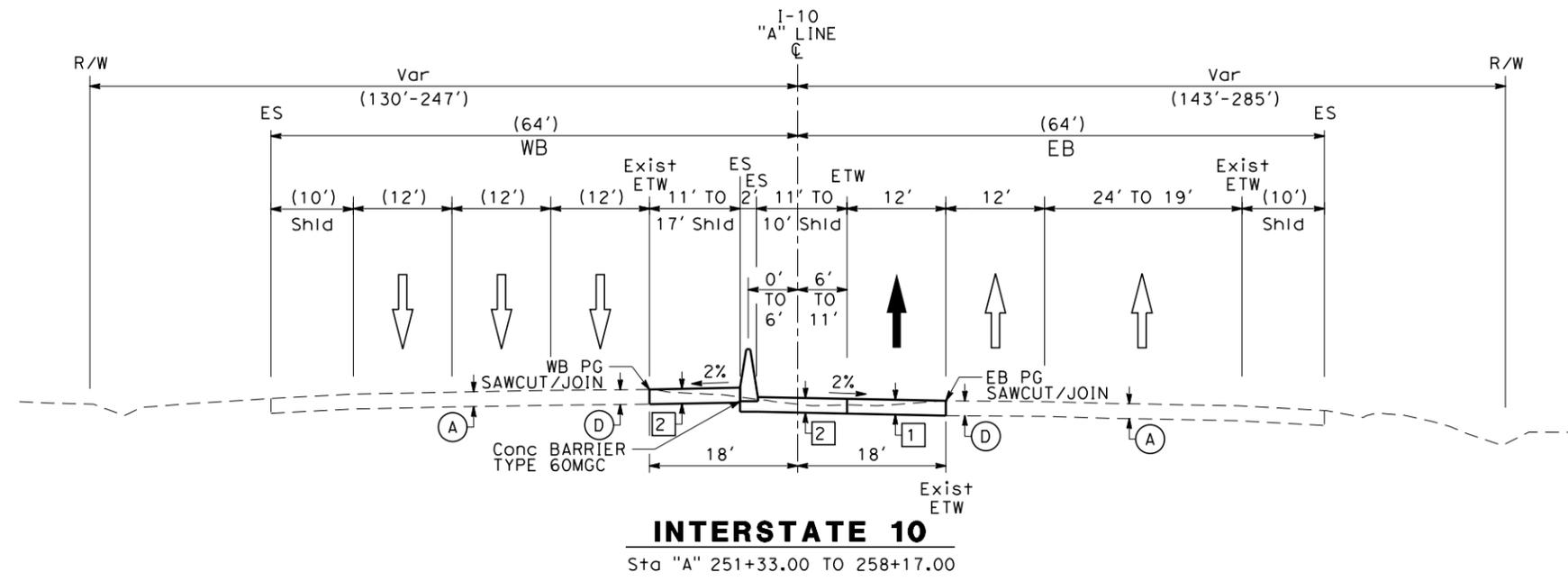
MARK S. HAGER
 REGISTERED CIVIL ENGINEER DATE _____

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.

HDR ENGINEERING, INC.
 2280 MARKET STREET
 SUITE 100
 RIVERSIDE, CA 92501

SAN BERNARDINO COUNTY
 TRANSPORTATION AUTHORITY
 1170 W. 3rd STREET
 SAN BERNARDINO, CA 92410



TYPICAL CROSS SECTIONS
 NO SCALE

NOT FOR CONSTRUCTION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
St. Catrans
 CONSULTANT - FUNCTIONAL SUPERVISOR
 JULIAN HERNANDEZ, P.E.
 CALCULATED-DESIGNED BY
 CHECKED BY
 REVISED BY
 DATE REVISED

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

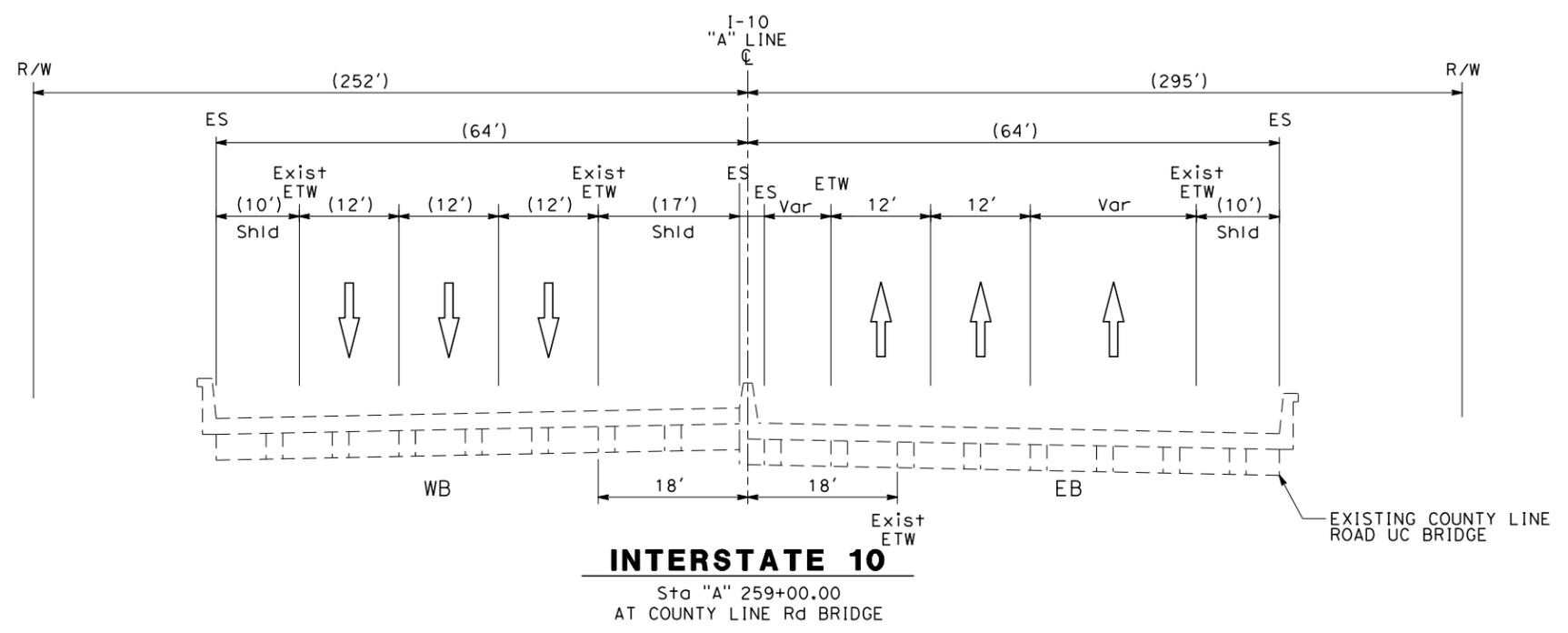
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBD, Riv	10	36.4/R39.2, R0.0/R0.2	5	21

MARK S. HAGER
 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.

HDR ENGINEERING, INC. 2280 MARKET STREET SUITE 100 RIVERSIDE, CA 92501
 SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY 1170 W. 3rd STREET SAN BERNARDINO, CA 92410



INTERSTATE 10
 Sta "A" 259+00.00
 AT COUNTY LINE Rd BRIDGE

TYPICAL CROSS SECTIONS
 NO SCALE

NOT FOR CONSTRUCTION

X-4

LAST REVISION DATE PLOTTED => \$DATE 00-00-00 TIME PLOTTED => \$TIME

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBD, Riv	10	36.4/R39.2, R0.0/R0.2	6	21

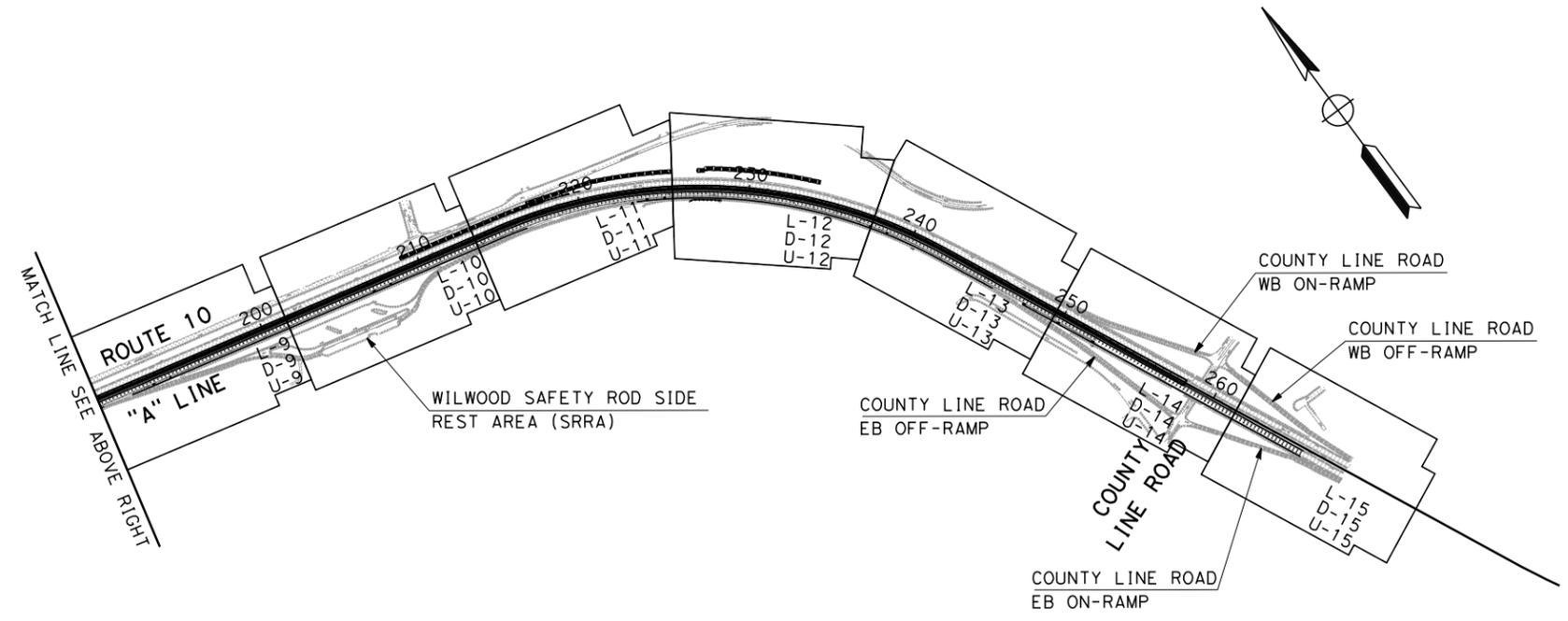
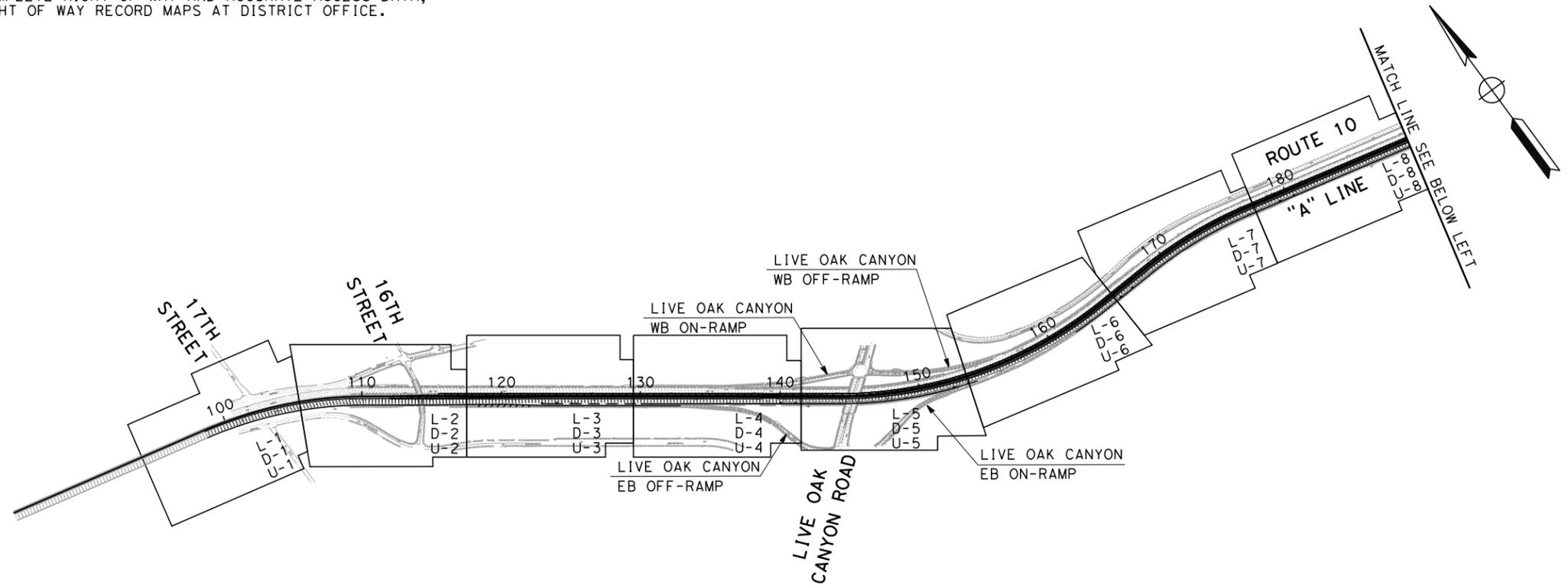
MARK S. HAGER
REGISTERED CIVIL ENGINEER DATE _____

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.

HDR ENGINEERING, INC. 2280 MARKET STREET SUITE 100 RIVERSIDE, CA 92501

SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY 1170 W. 3rd STREET SAN BERNARDINO, CA 92410



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

JULIAN HERNANDEZ, P.E.

REVISOR BY DATE

CALCULATED/DESIGNED BY CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

NOT FOR CONSTRUCTION

KEY MAP AND LINE INDEX
NO SCALE **K-1**

LAST REVISION DATE PLOTTED => \$DATE 00-00-00 TIME PLOTTED => \$TIME

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CURVE DATA

No. @	R	Δ	T	L
1	2913.09	23°26'00"	604.16'	1191.42'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	Sbd,Riv	10	36.4/R39.2, RO.0/RO.2	8	21

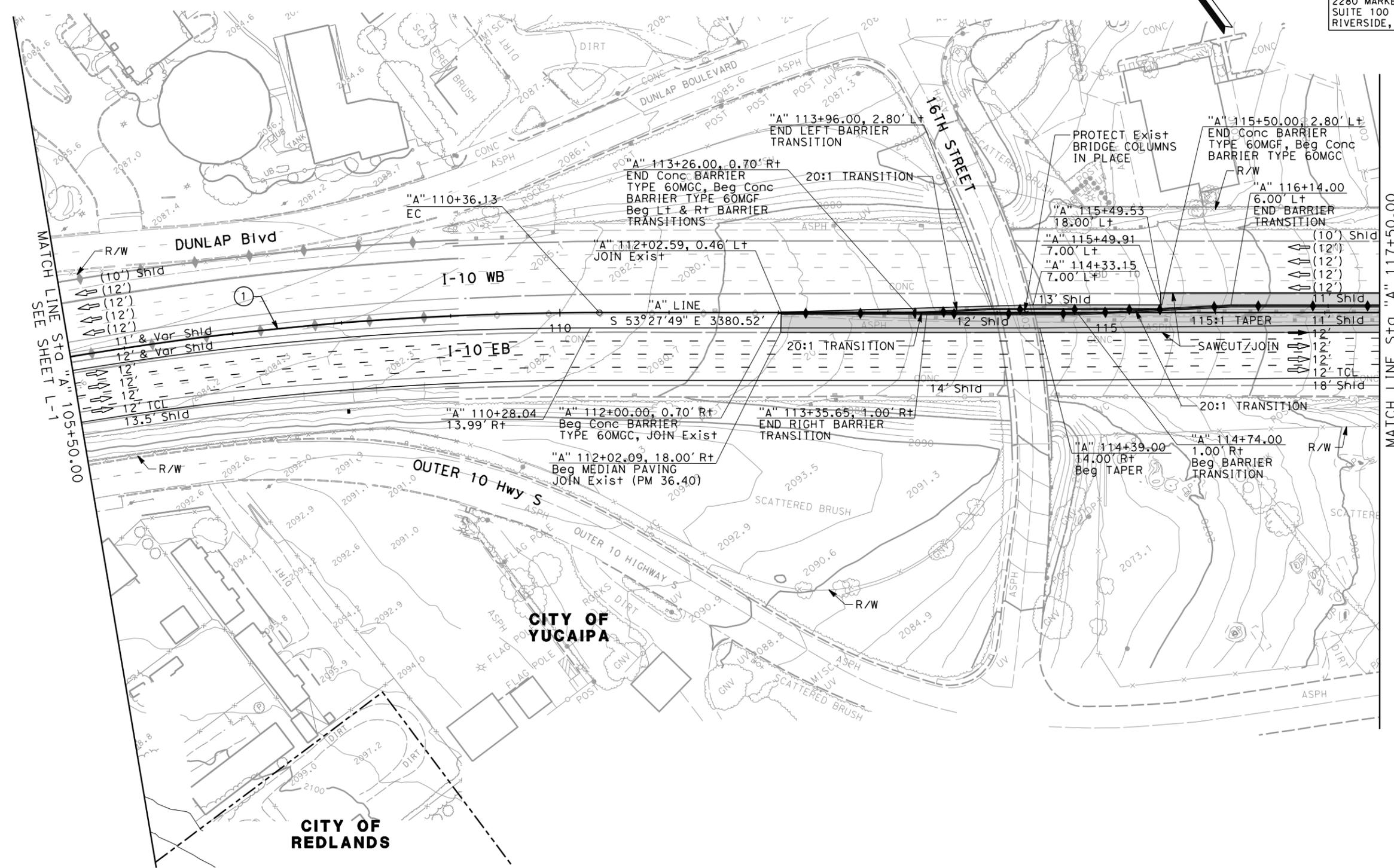
MARK S. HAGER
REGISTERED CIVIL ENGINEER DATE _____

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.

HDR ENGINEERING, INC. 2280 MARKET STREET SUITE 100 RIVERSIDE, CA 92501

SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY 1170 W. 3rd STREET SAN BERNARDINO, CA 92410



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT FUNCTIONAL SUPERVISOR
 CALCULATED/DESIGNED BY
 CHECKED BY
 REVISIONS: JULIAN HERNANDEZ, P.E.
 REVISED BY
 DATE REVISED



NOT FOR CONSTRUCTION

LAYOUT
SCALE: 1"=50'

L-2

LAST REVISION: DATE PLOTTED => #DATE 00-00-00 TIME PLOTTED => \$TIME

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBD, Riv	10	36.4/R39.2, R0.0/R0.2	9	21

MARK S. HAGER
REGISTERED CIVIL ENGINEER DATE _____

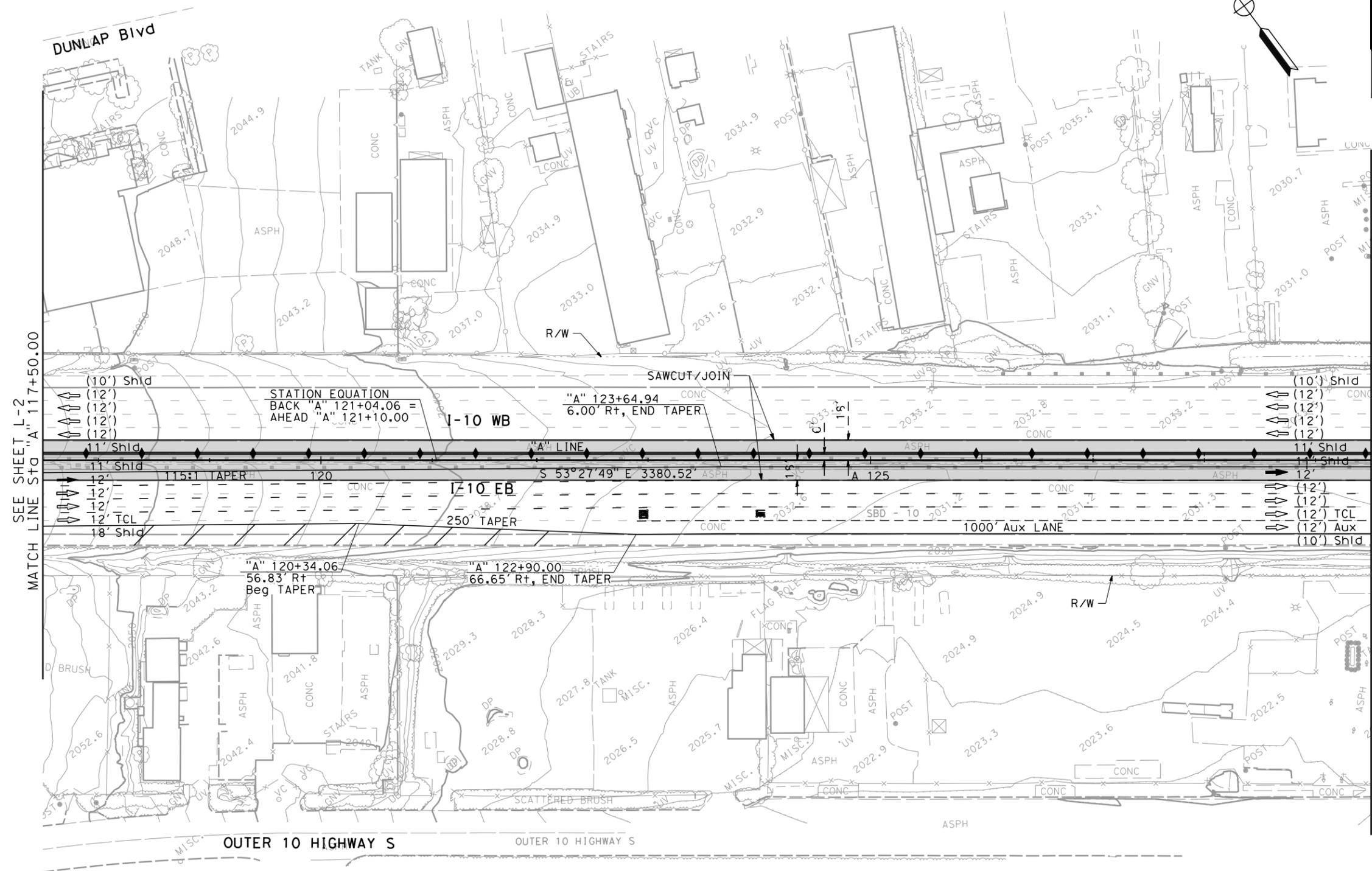
PLANS APPROVAL DATE _____

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.

HDR ENGINEERING, INC. 2280 MARKET STREET SUITE 100 RIVERSIDE, CA 92501

SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY 1170 W. 3rd STREET SAN BERNARDINO, CA 92410

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE
Caltrans	JULIAN HERNANDEZ, P.E.	CHECKED BY	REVISOR	DATE



SEE SHEET L-2
MATCH LINE S TO "A" 117+50.00

MATCH LINE S TO "A" 129+50.00
SEE SHEET L-4

NOT FOR CONSTRUCTION

LAYOUT
SCALE: 1"=50'
L-3

LAST REVISION DATE PLOTTED => #DATE 00-00-00 TIME PLOTTED => \$TIME

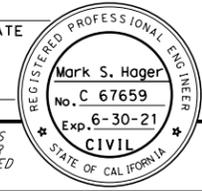
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
 CALCULATED/DESIGNED BY
 CHECKED BY
 REVISOR BY
 DATE REVISED

NOTES:

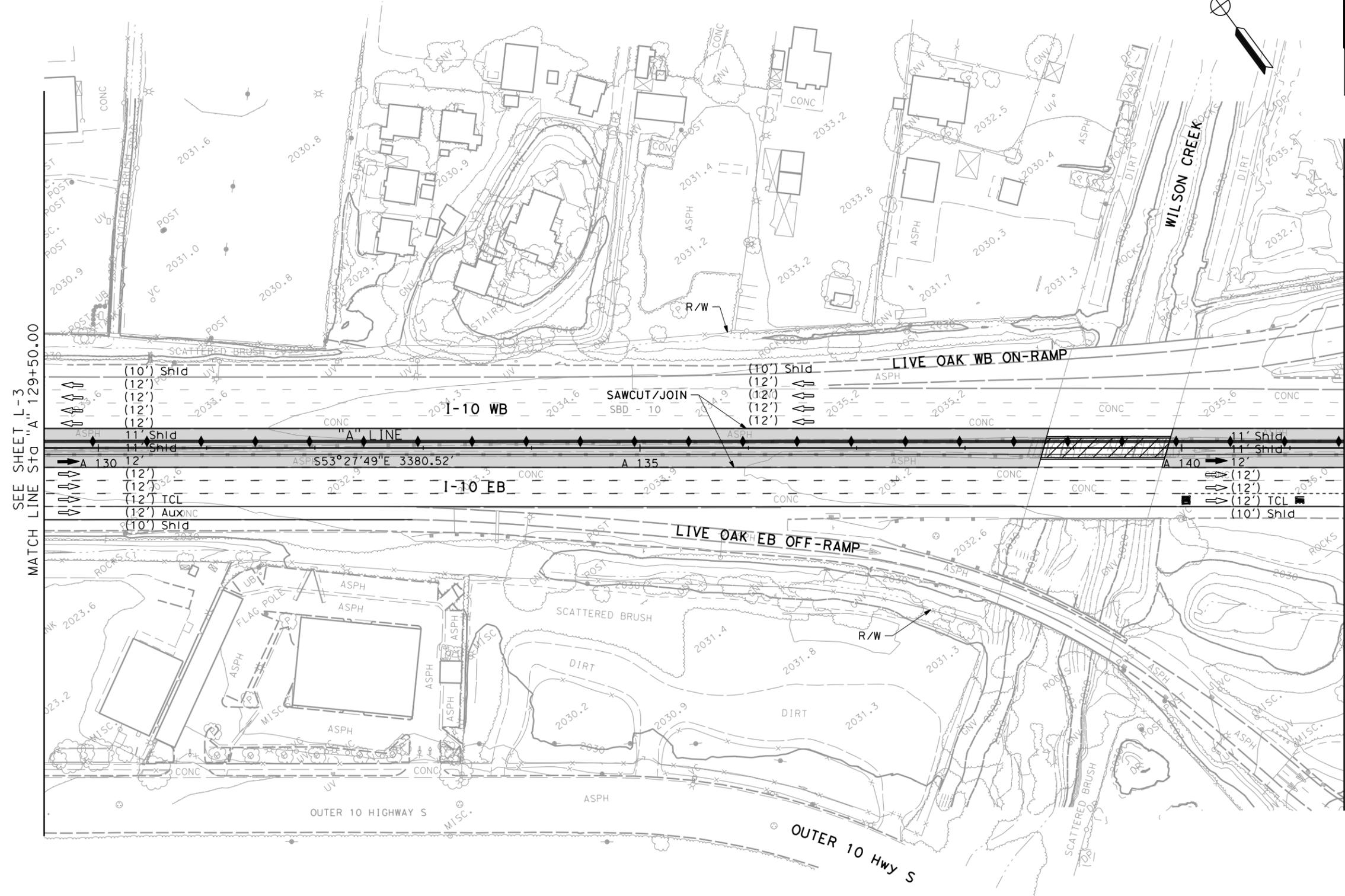
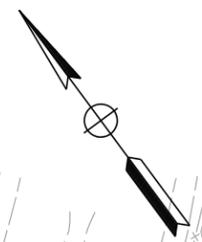
1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBD, Riv	10	36.4/R39.2, R0.0/R0.2	10	21

MARK S. HAGER
 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.



HDR ENGINEERING, INC. 2280 MARKET STREET SUITE 100 RIVERSIDE, CA 92501
 SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY 1170 W. 3rd STREET SAN BERNARDINO, CA 92410



SEE SHEET L-3
 MATCH LINE STG "A" 129+50.00

MATCH LINE STG "A" 141+50.00
 SEE SHEET L-5

NOT FOR CONSTRUCTION

LAYOUT
 SCALE: 1"=50'

L-4

LAST REVISION DATE PLOTTED => #DATE 00-00-00 TIME PLOTTED => \$TIME

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CURVE DATA

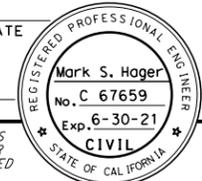
No. Ⓞ	R	Δ	T	L
2	2999.73'	38°39'45"	1052.33'	2024.18

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBD, Riv	10	36.4/R39.2, RO.0/RO.2	11	21

MARK S. HAGER
REGISTERED CIVIL ENGINEER DATE _____

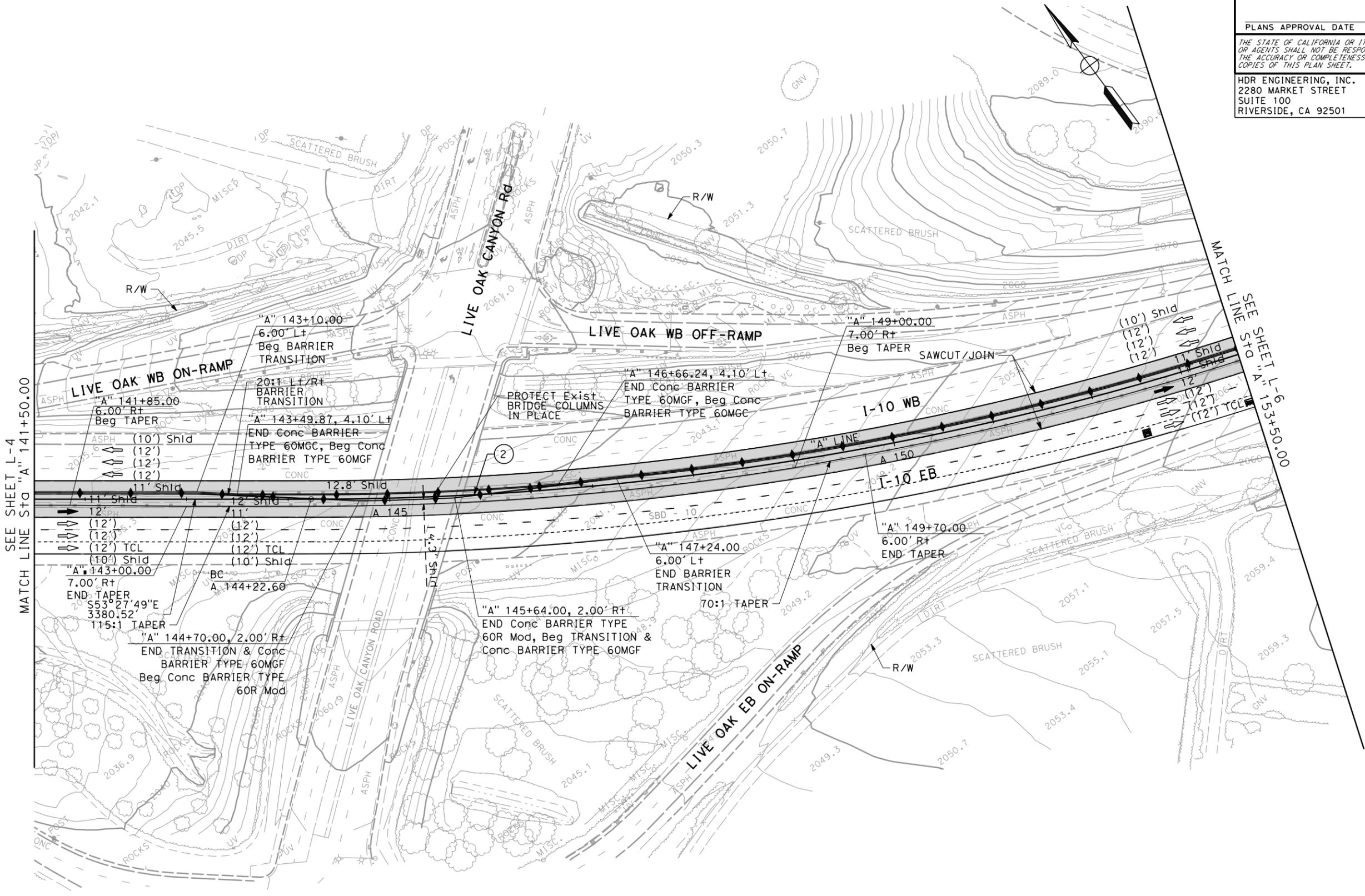
PLANS APPROVAL DATE _____

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.



HDR ENGINEERING, INC.
2280 MARKET STREET
SUITE 100
RIVERSIDE, CA 92501

SAN BERNARDINO COUNTY
TRANSPORTATION AUTHORITY
1170 W. 3rd STREET
SAN BERNARDINO, CA 92410



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

REVISOR: JULIAN HERNANDEZ, P.E.

DESIGNER: JULIAN HERNANDEZ, P.E.

CHECKED BY: _____

FUNCTIONAL SUPERVISOR: _____

REVISIONS: _____

NOT FOR CONSTRUCTION

LAYOUT
SCALE: 1"=50'
L-5

STATE OF CALIFORNIA -- DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
 CALCULATED/DESIGNED BY
 CHECKED BY
 REVISIONS
 JULIAN HERNANDEZ, P.E.
 REVISIONS
 REVISOR
 DATE

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CURVE DATA

No. Ⓞ	R	Δ	T	L
3	2999.73'	15°44'0"	414.47'	823.72'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	Sbd,Riv	10	36.4/R39.2, RO.0/RO.2	13	21

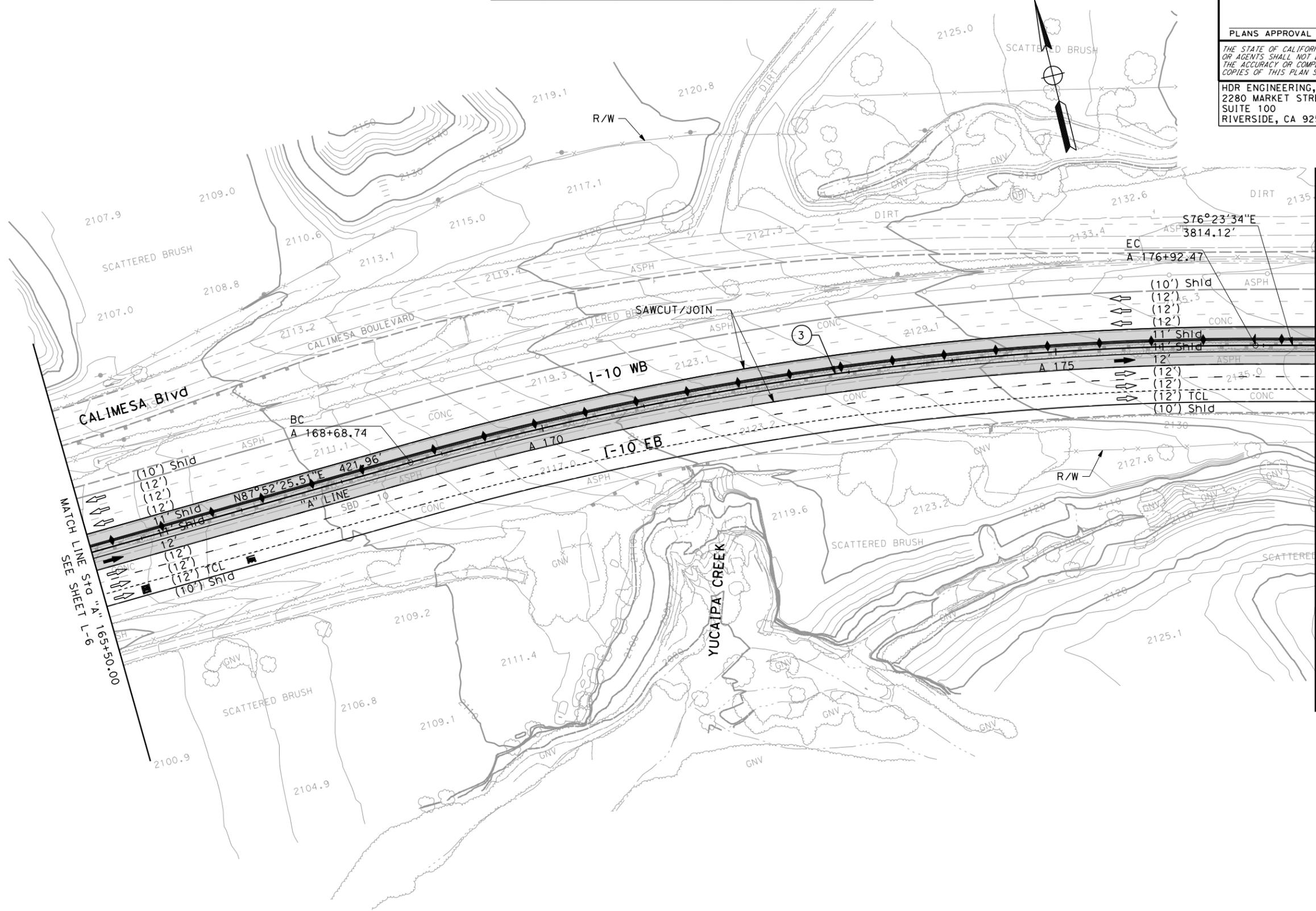
MARK S. HAGER
 REGISTERED CIVIL ENGINEER DATE _____

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.

HDR ENGINEERING, INC.
 2280 MARKET STREET
 SUITE 100
 RIVERSIDE, CA 92501

SAN BERNARDINO COUNTY
 TRANSPORTATION AUTHORITY
 1170 W. 3rd STREET
 SAN BERNARDINO, CA 92410



NOT FOR CONSTRUCTION

LAYOUT
 SCALE: 1"=50'

L-7

LAST REVISION DATE PLOTTED => #DATE 00-00-00 TIME PLOTTED => \$TIME

STATE OF CALIFORNIA -- DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
 CALCULATED/DESIGNED BY
 CHECKED BY
 REVISOR BY
 DATE REVISED

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBD, Riv	10	36.4/R39.2, RO.0/RO.2	14	21

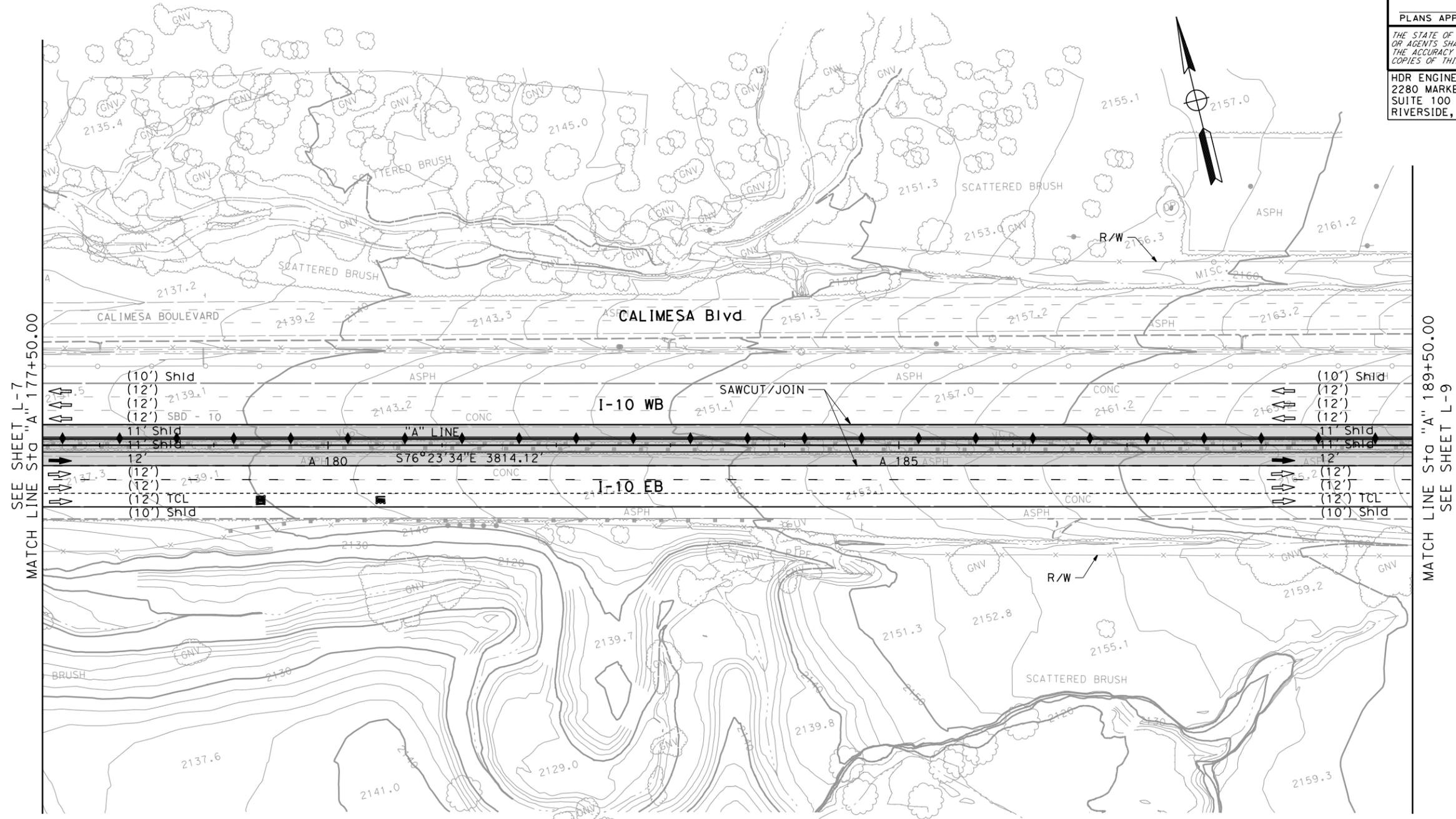
MARK S. HAGER
 REGISTERED CIVIL ENGINEER DATE _____

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.

HDR ENGINEERING, INC.
 2280 MARKET STREET
 SUITE 100
 RIVERSIDE, CA 92501

SAN BERNARDINO COUNTY
 TRANSPORTATION AUTHORITY
 1170 W. 3rd STREET
 SAN BERNARDINO, CA 92410



SEE SHEET L-7
 MATCH LINE STG "A" 177+50.00

MATCH LINE STG "A" 189+50.00
 SEE SHEET L-9

NOT FOR CONSTRUCTION

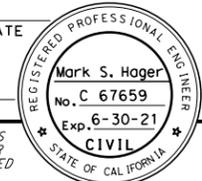
LAYOUT
 SCALE: 1"=50'

L-8

LAST REVISION DATE PLOTTED => #DATE 00-00-00 TIME PLOTTED => \$TIME

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	Sbd,Riv	10	36.4/R39.2, RO.0/RO.2	15	21

MARK S. HAGER
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.

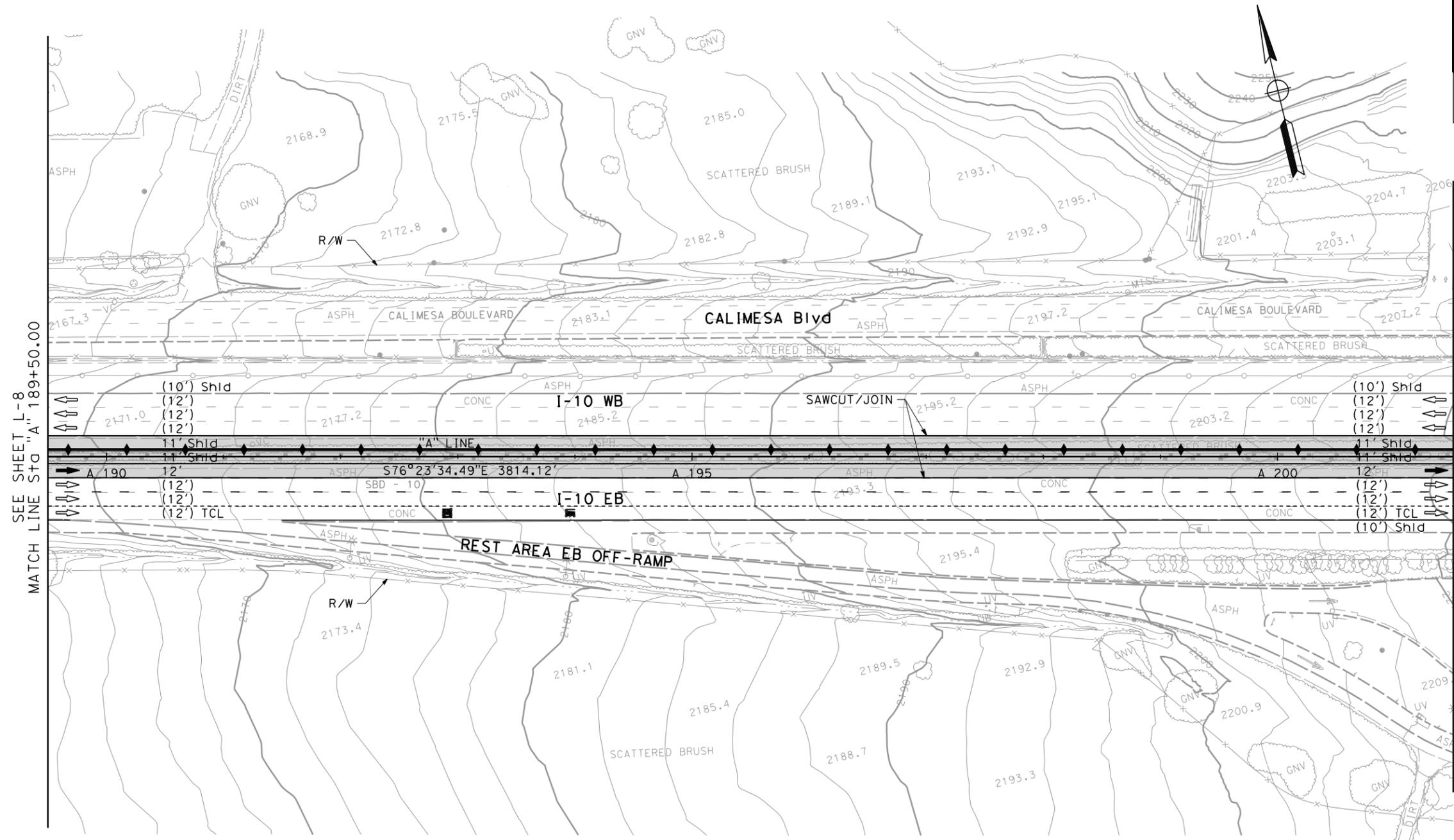


HDR ENGINEERING, INC. 2280 MARKET STREET SUITE 100 RIVERSIDE, CA 92501
SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY 1170 W. 3rd STREET SAN BERNARDINO, CA 92410

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
Caltrans	-----	JULIAN HERNANDEZ, P.E.	-----
-----	-----	-----	-----
-----	-----	-----	-----



SEE SHEET L-8 MATCH LINE STG "A" 189+50.00

MATCH LINE STG "A" 201+50.00 SEE SHEET L-10

NOT FOR CONSTRUCTION

LAYOUT
SCALE: 1"=50'

L-9

LAST REVISION DATE PLOTTED => #DATE 00-00-00 TIME PLOTTED => \$TIME

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
 CALCULATED/DESIGNED BY
 CHECKED BY
 REVISOR BY
 DATE REVISED

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBD,Riv	10	36.4/R39.2, R0.0/R0.2	16	21

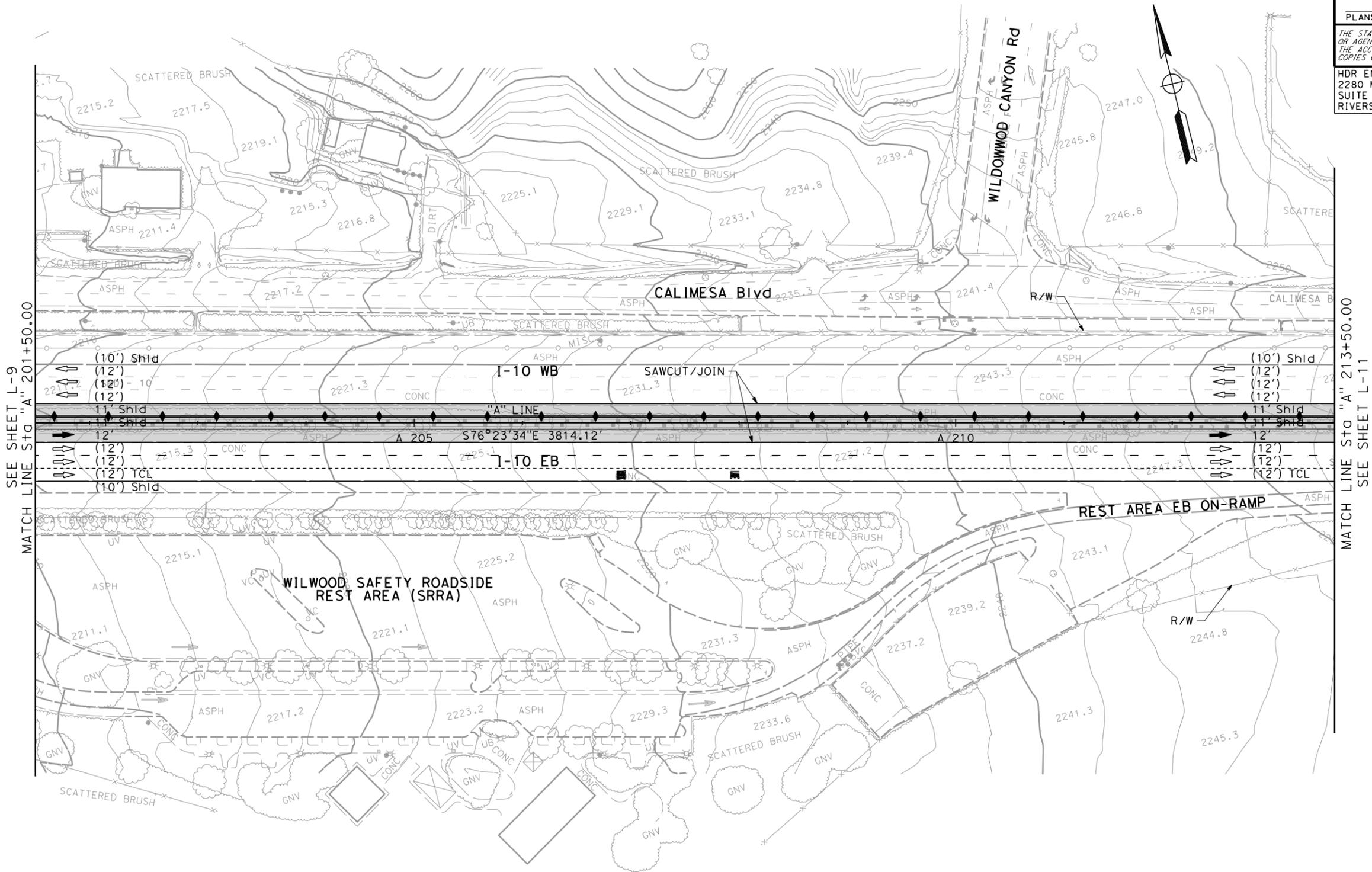
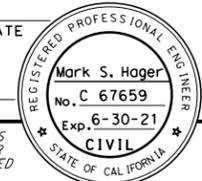
MARK S. HAGER
 REGISTERED CIVIL ENGINEER DATE _____

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.

HDR ENGINEERING, INC.
 2280 MARKET STREET
 SUITE 100
 RIVERSIDE, CA 92501

SAN BERNARDINO COUNTY
 TRANSPORTATION AUTHORITY
 1170 W. 3rd STREET
 SAN BERNARDINO, CA 92410



NOT FOR CONSTRUCTION

LAYOUT
 SCALE: 1"=50'
L-10

LAST REVISION DATE PLOTTED => #DATE 00-00-00 TIME PLOTTED => \$TIME

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
 CALCULATED/DESIGNED BY
 CHECKED BY
 REVISOR
 DATE REVISOR

NOTES:

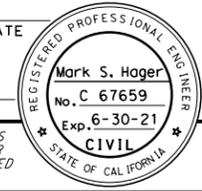
1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CURVE DATA

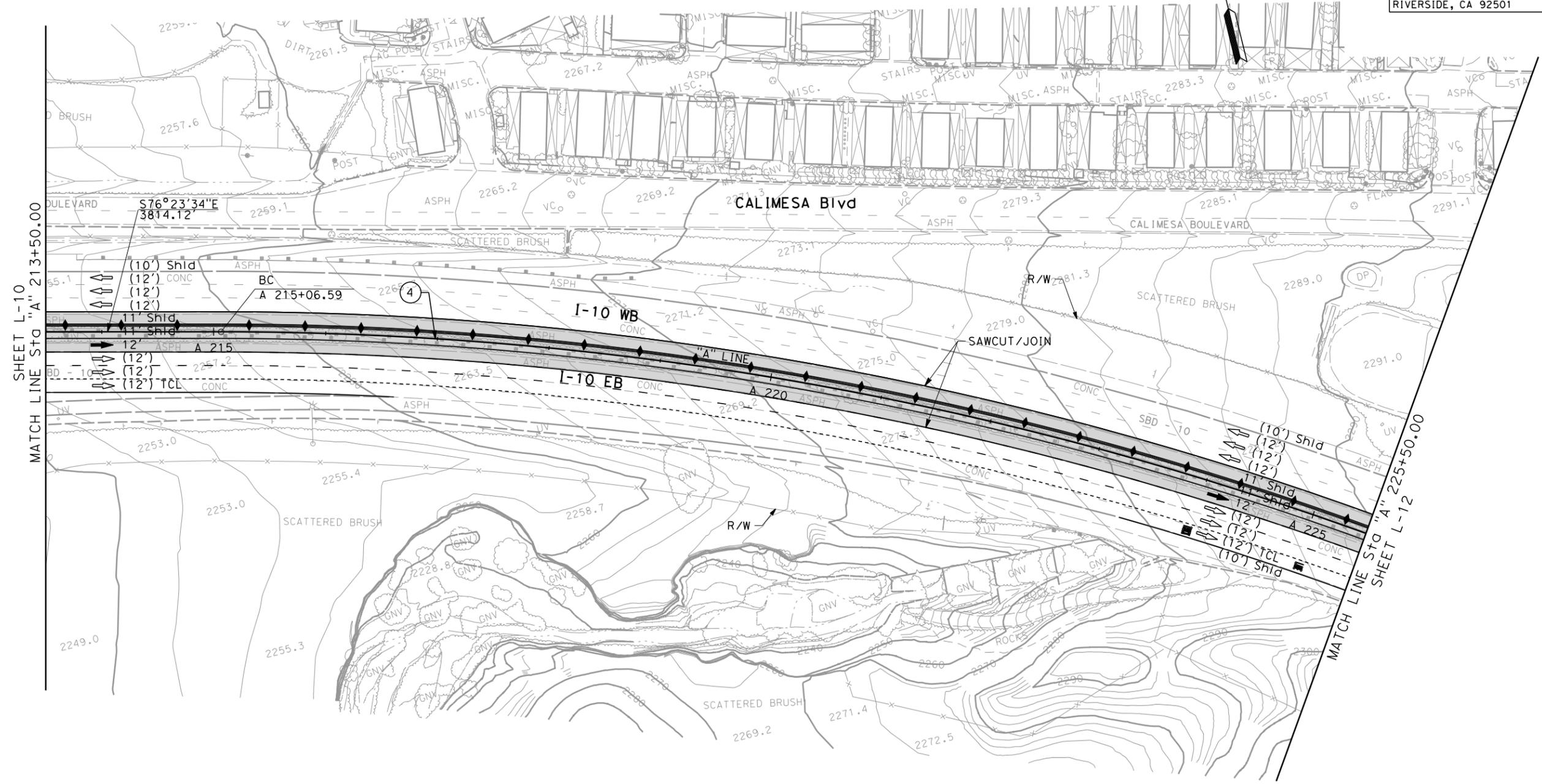
No. Ⓞ	R	Δ	T	L
4	2999.73'	51°33'00"	1448.51'	2698.91'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBD, Riv	10	36.4/R39.2, RO.0/RO.2	17	21

MARK S. HAGER
 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.



HDR ENGINEERING, INC.
 2280 MARKET STREET
 SUITE 100
 RIVERSIDE, CA 92501
 SAN BERNARDINO COUNTY
 TRANSPORTATION AUTHORITY
 1170 W. 3rd STREET
 SAN BERNARDINO, CA 92410



NOT FOR CONSTRUCTION

LAYOUT
 SCALE: 1"=50'
L-11

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
 CALCULATED/DESIGNED BY
 REVISOR BY
 DATE REVISOR

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

CURVE DATA

No. Ⓞ	R	Δ	T	L
4	2999.73'	51°33'00"	1448.51'	2698.91'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBD, Riv	10	36.4/R39.2, RO.0/RO.2	19	21

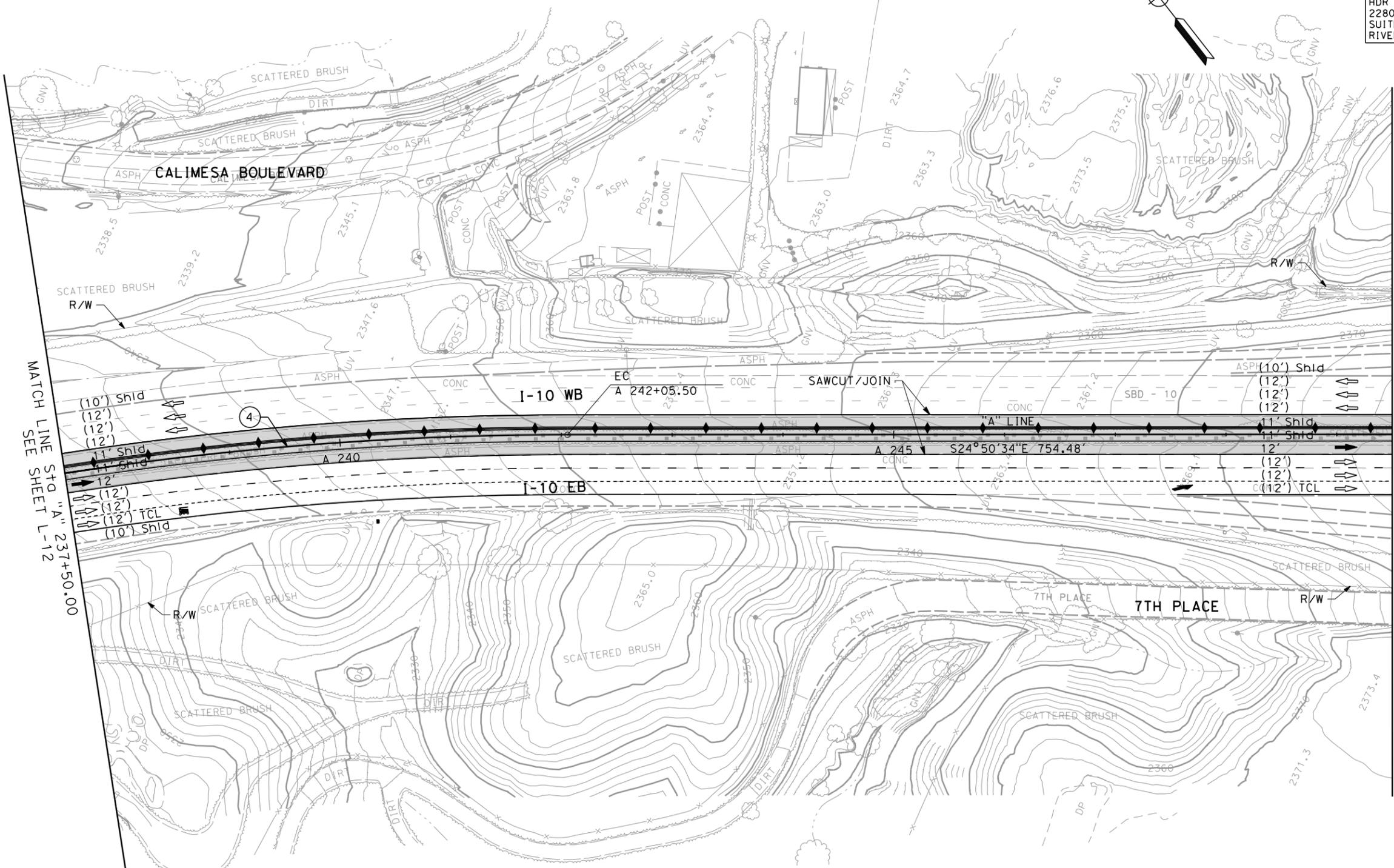
MARK S. HAGER
 REGISTERED CIVIL ENGINEER DATE _____

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.

HDR ENGINEERING, INC.
 2280 MARKET STREET
 SUITE 100
 RIVERSIDE, CA 92501

SAN BERNARDINO COUNTY
 TRANSPORTATION AUTHORITY
 1170 W. 3rd STREET
 SAN BERNARDINO, CA 92410



MATCH LINE STD "A" 237+50.00
SEE SHEET L-12

MATCH LINE STD "A" 249+50.00
SEE SHEET L-14

NOT FOR CONSTRUCTION

LAYOUT
 SCALE: 1"=50'

L-13

LAST REVISION: DATE PLOTTED => \$DATE
00-00-00 TIME PLOTTED => \$TIME

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
 CALCULATED/DESIGNED BY
 CHECKED BY
 REVISIONS
 JULIAN HERNANDEZ, P.E.
 REVISOR
 DATE

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

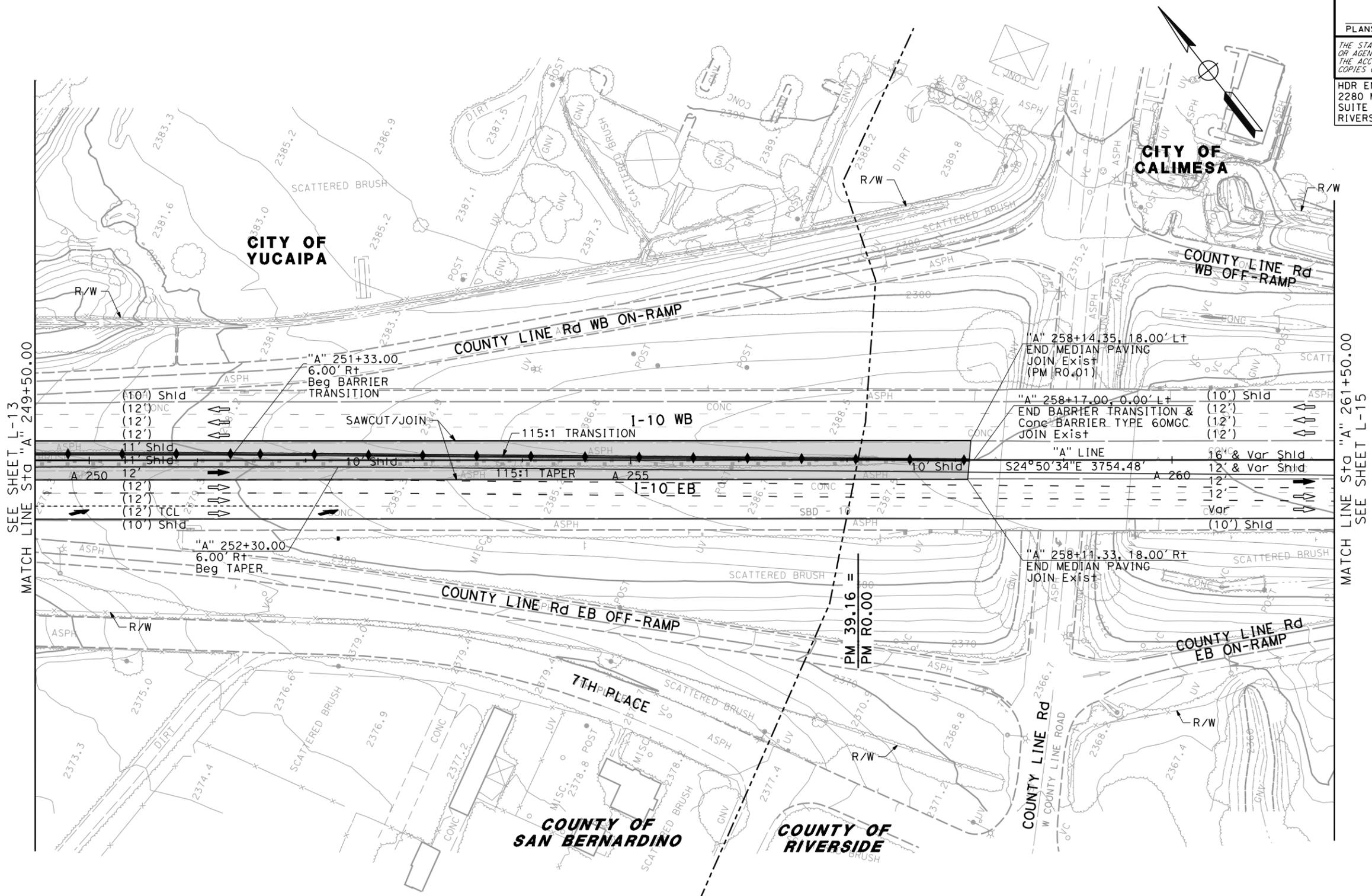
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBD,Riv	10	36.4/R39.2, RO.0/RO.2	20	21

MARK S. HAGER
 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.

HDR ENGINEERING, INC. 2280 MARKET STREET SUITE 100 RIVERSIDE, CA 92501
 SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY 1170 W. 3rd STREET SAN BERNARDINO, CA 92410



NOT FOR CONSTRUCTION

LAYOUT
 SCALE: 1"=50'
L-14

STATE OF CALIFORNIA -- DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR
 JULIAN HERNANDEZ, P.E.
 CALCULATED/DESIGNED BY
 CHECKED BY
 REVISED BY
 DATE REVISED

NOTES:

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
8	SBD, Riv	10	36.4/R39.2, R0.0/R0.2	21	21

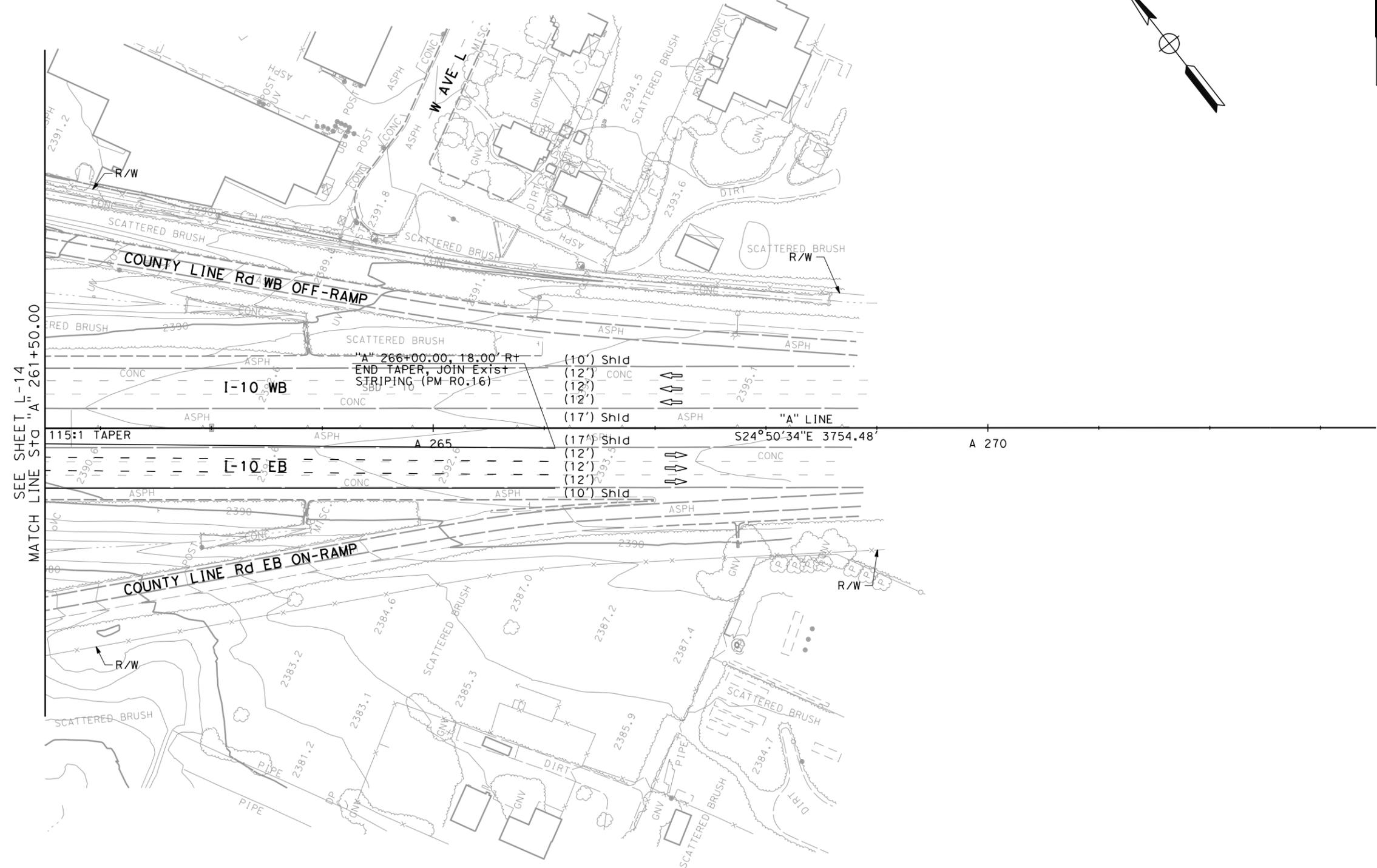
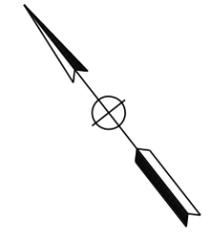
MARK S. HAGER
 REGISTERED CIVIL ENGINEER DATE _____

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HDR ENGINEERING, INC.
 2280 MARKET STREET
 SUITE 100
 RIVERSIDE, CA 92501

SAN BERNARDINO COUNTY
 TRANSPORTATION AUTHORITY
 1170 W. 3rd STREET
 SAN BERNARDINO, CA 92410



SEE SHEET L-14
 MATCH LINE STA "A" 261+50.00

NOT FOR CONSTRUCTION

LAYOUT
 SCALE: 1"=50'
L-15

LAST REVISION DATE PLOTTED => #DATE 00-00-00 TIME PLOTTED => \$TIME

ATTACHMENT C

Cost Estimate

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price (\$)		Cost
190101	Roadway Excavation	CY	22,436	x	24.00	= \$	538,464
19010X	Roadway Excavation (Type X) ADL	CY		x		= \$	-
194001	Ditch Excavation	CY		x		= \$	-
19801X	Imported Borrow	CY		x		= \$	-
192037	Structure Excavation (Retaining Wall)	CY		x		= \$	-
193013	Structure Backfill (Retaining Wall)	CY		x		= \$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		= \$	-
160103	Clearing & Grubbing	ACRE	2.9	x	5,000.00	= \$	15,000
170101	Develop Water Supply	LS	1	x	80,000.00	= \$	80,000
210130	Duff	ACRE		x		= \$	-
XXXXXX	Some Item	Unit				= \$	-

TOTAL EARTHWORK SECTION ITEMS	\$	633,500
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SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price (\$)		Cost
401050	Jointed Plain Concrete Pavement (0.90')	CY	10,682	x	250.00	= \$	2,670,500
400050	Continuously Reinforced Concrete Pavement (1')	CY	6,151	x	300.00	= \$	1,845,300
404092	Seal Pavement Joint	LF		x		= \$	-
404093	Seal Isolation Joint	LF		x		= \$	-
413117	Seal Concrete Pavement Joint (Silicone)	LF		x		= \$	-
413118	Seal Pavement Joint (Asphalt Rubber)	LF		x		= \$	-
280000	Lean Concrete Base	CY		x		= \$	-
280010	Rapid Strength Concrete Base	CY		x		= \$	-
410095	Dowel Bar (Drill and Bond)	EA		x		= \$	-
390132	Hot Mix Asphalt (Type A, 0.25')	TON	3,010	x	145.00	= \$	436,450
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON		x		= \$	-
393004	Geosynthetic Pavement Interlayer (Type X)	SQYD		x		= \$	-
260203	Class 2 Aggregate Base (1.05')	CY	12,462	x	45.00	= \$	560,790
290201	Asphalt Treated Permeable Base	CY		x		= \$	-
250201	Class 2 Aggregate Subbase (0.7')	CY	4,306	x	45.00	= \$	193,770
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		= \$	-
397005	Tack Coat	TON		x		= \$	-
377501	Slurry Seal	TON		x		= \$	-
3750XX	Screenings (Type XX)	TON		x		= \$	-
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		= \$	-
370001	Sand Cover (Seal)	TON		x		= \$	-
731530	Minor Concrete (Textured Paving)	CY		x		= \$	-
731502	Minor Concrete (Miscellaneous Construction)	CY		x		= \$	-
39407X	Place Hot Mix Asphalt Dike (Type X)	LF		x		= \$	-
150771	Remove Asphalt Concrete Dike	LF		x		= \$	-
420201	Grind Existing Concrete Pavement	SQYD		x		= \$	-
150860	Remove Base and Surfacing	CY		x		= \$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		= \$	-
15312X	Remove Concrete	LF/CY/LS		x		= \$	-
394090	Place Hot Mix Asphalt (Miscellaneous Area)	SQYD		x		= \$	-
153103	Cold Plane Asphalt Concrete Pavement	SQYD		x		= \$	-
39405X	Shoulder Rumble Strip (HMA, X-In Indentations)	STA		x		= \$	-
413113	Repair Spalled Joints, Polyester Grout	SQYD		x		= \$	-
420102	Groove Existing Concrete Pavement	SQYD		x		= \$	-
390136	Minor Hot Mix Asphalt	TON		x		= \$	-
394095	Roadside Paving (Miscellaneous Areas)	SQYD		x		= \$	-
398000	Remove Asphalt Concrete Pavement	CY	9,440	x	35.00	= \$	330,400
832070	Vegetation Control (Minor Concrete)	SQYD	60	x	180.00	= \$	10,800

TOTAL PAVEMENT STRUCTURAL SECTION ITEMS	\$	6,048,100
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SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price (\$)		Cost
15080X	Remove Culvert	EA/LF	x	=	\$	=	-
150820	Modify Inlet	EA	x	=	\$	=	-
155232	Sand Backfill	CY	x	=	\$	=	-
15020X	Abandon Culvert	EA/LF	x	=	\$	=	-
152430	Adjust Inlet	LF	x	=	\$	=	-
155003	Cap Inlet	EA	x	=	\$	=	-
194001	Ditch Excavation	CY	3	x	145.00	=	435
390132	Hot Mixed Asphalt (Type A)	TON	6	x	250.00	=	1,500
394090	Place Hot Mixed Asphalt (Miscellaneous Area)	SQYD	35	x	170.00	=	5,950
510501	Minor Concrete	CY	x	=	\$	=	-
510094	Structural Concrete (Drainage Inlet)	CY	24	x	3,085.00	=	74,040
5105XX	Minor Concrete (Type XX)	CY	x	=	\$	=	-
620XXX	XX" Alternative Pipe Culvert (Type X)	LF	x	=	\$	=	-
6411XX	XX" Plastic Pipe	LF	x	=	\$	=	-
650018	24" Reinforced Concrete Pipe	LF	3,090	x	200.00	=	618,000
6650XX	XX" Corrugated Steel Pipe (0.XXX" Thick)	LF	x	=	\$	=	-
68XXXX	XX" Plastic Pipe (Edge Drain)	LF	x	=	\$	=	-
69011X	XX" Corrugated Steel Pipe Downdrain (0.XXX" Th	LF	x	=	\$	=	-
70321X	XX" Corrugated Steel Pipe Inlet (0.XXX" Thick)	LF	x	=	\$	=	-
70XXXX	XX" Corrugated Steel Pipe Riser (0.XXX" Thick)	LF	x	=	\$	=	-
7050XX	XX" Steel Flared End Section	EA	x	=	\$	=	-
703233	Grated Line Drain	LF	x	=	\$	=	-
72XXXX	Rock Slope Protection (Type and Method)	CY/TON	x	=	\$	=	-
72901X	Rock Slope Protection Fabric (Class X)	SQYD	x	=	\$	=	-
721420	Concrete (Ditch Lining)	CY	x	=	\$	=	-
721430	Concrete (Channel Lining)	CY	x	=	\$	=	-
750001	Miscellaneous Iron and Steel	LB	8,242	x	20.00	=	164,840
839473	Concrete Barrier (Type 60 W)	LF	4,075	x	160.00	=	652,000
	Water Quality BMPs Lump Sum	LS	1	x	700,000.00	=	700,000
	Trash Capture Devices	LS	1	x	75,000.00	=	75,000

TOTAL DRAINAGE ITEMS	\$ 2,291,800
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SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price (\$)		Cost
080050	Progress Schedule (Critical Path Method)	LS	x	=	\$	=	-
582001	Sound Wall (Masonry Block)	LS	x	=	\$	=	-
510530	Minor Concrete (Wall)	CY	x	=	\$	=	-
15325X	Remove Sound Wall	LF/LS	x	=	\$	=	-
070030	Lead Compliance Plan	LS	1	x	15,000.00	=	15,000
141120	Treated Wood Waste	LB	x	=	\$	=	-
839774	Remove Concrete Barrier	LF	483	x	30.00	=	14,490
150662	Remove Metal Beam Guard Railing	LF	29,233	x	9.00	=	263,097
150668	Remove Flared End Section	EA	x	=	\$	=	-
8000XX	Chain Link Fence (Type XX)	LF	x	=	\$	=	-
80XXXX	XX" Chain Link Gate (Type CL-6)	EA	x	=	\$	=	-
832001	Metal Beam Guard Railing	LF	x	=	\$	=	-
832005	Midwest Guardrail System	LF	113	x	40.00	=	4,520
839301	Single Thrie Beam Barrier	LF	x	=	\$	=	-
839310	Double Thrie Beam Barrier	LF	x	=	\$	=	-
839521	Cable Railing	LF	x	=	\$	=	-
8395XX	Terminal System (Type CAT)	EA	x	=	\$	=	-
839585	Alternative Flared Terminal System	EA	x	=	\$	=	-
839584	Alternative In-line Terminal System	EA	1	x	4,300.00	=	4,300
4906XX	CIDH Concrete Piling (Insert Diameter)	LF	x	=	\$	=	-
839XXX	Crash Cushion (Insert Type)	EA	x	=	\$	=	-
839706	Concrete Barrier (Type 60G Mod)	LF	94	x	220.00	=	20,680
839708	Concrete Barrier (Type 60GC)	LF	9,999	x	100.00	=	999,900
839709	Concrete Barrier (Type 60GE)	LF	987	x	260.00	=	256,620
520103	Bar Reinforced Steel (Retaining Wall)	LB	x	=	\$	=	-
510060	Structural Concrete, Retaining Wall	CY	x	=	\$	=	-
513553	Retaining Wall (Masonry Wall)	SQFT	x	=	\$	=	-
511035	Architectural Treatment	SQFT	x	=	\$	=	-
598001	Anti-Graffiti Coating	SQFT	x	=	\$	=	-
203070	Rock Stain	SQFT	x	=	\$	=	-
5136XX	Reinforced Concrete Crib Wall (Type X)	SQFT	x	=	\$	=	-
83954X	Transition Railing (Type WB-31)	EA	1	x	4,000.00	=	4,000
597601	Prepare and Stain Concrete	SQFT	x	=	\$	=	-
839561	Rail Tensioning Assembly	EA	x	=	\$	=	-
83958X	End Anchor Assembly (Type X)	EA	x	=	\$	=	-
XXXXXX	Some Item	Unit	x	=	\$	=	-

TOTAL SPECIALTY ITEMS	\$ 1,582,700
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SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code	Unit	Quantity		Unit Price (\$)		Cost
	LS	1	x	100,000.00	= \$	100,000
130670	LF		x		= \$	-
141000	LF	3,600	x	5.00	= \$	18,000
146002	LS	1	x	50,000.00	= \$	50,000
<i>Subtotal Environmental Mitigation</i>						\$ 168,000

5B - LANDSCAPE AND IRRIGATION

Item code	Unit	Quantity		Unit Price (\$)		Cost
20XXXX	LS		x		= \$	-
20XXXX	LS		x		= \$	-
204099	LS		x		= \$	-
204101	LS		x		= \$	-
20XXXX	LS		x		= \$	-
150685	LS		x		= \$	-
20XXXX	LS		x		= \$	-
206400	LS		x		= \$	-
21011X	CY/TON		x		= \$	-
20XXXX	SQFT/SQYD		x		= \$	-
200122	SQYD		x		= \$	-
208304	EA		x		= \$	-
2087XX	LF		x		= \$	-
20890X	LF		x		= \$	-
<i>Subtotal Landscape and Irrigation</i>						\$ -

5C - EROSION CONTROL

Item code	Unit	Quantity		Unit Price (\$)		Cost
210010	EA		x		= \$	-
210350	LF		x		= \$	-
210360	LF		x		= \$	-
2102XX	SQFT		x		= \$	-
21025X	SQFT/ACRE		x		= \$	-
210300	SQFT		x		= \$	-
210420	SQFT		x		= \$	-
210430	SQFT		x		= \$	-
210600	SQFT		x		= \$	-
210630	SQFT		x		= \$	-
<i>Subtotal Erosion Control</i>						\$ -

5D - NPDES

Item code	Unit	Quantity		Unit Price (\$)		Cost
130300	LS	1	x	200,000.00	= \$	200,000
130200	LS		x		= \$	-
130100	LS	1	x	270,000.00	= \$	270,000
130330	EA		x		= \$	-
130310	EA		x		= \$	-
130320	EA		x		= \$	-
130520	SQYD		x		= \$	-
130550	SQYD		x		= \$	-
130505	EA		x		= \$	-
130640	LF		x		= \$	-
130900	LS		x		= \$	-
130710	EA		x		= \$	-
130610	LF		x		= \$	-
130620	EA		x		= \$	-
130730	LS		x		= \$	-
<i>Subtotal NPDES</i>						\$ 470,000

TOTAL ENVIRONMENTAL	\$	638,000
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Supplemental Work for NPDES

066595	LS	1	x	15,000.00	= \$	15,000
066596	LS	1	x	10,000.00	= \$	10,000
066597	LS	1	x	5,000.00	= \$	5,000
XXXXXX	LS		x		= \$	-
<i>Subtotal Supplemental Work for NDPS</i>						\$ 30,000

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

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code	Unit	Quantity	Unit Price (\$)	Cost
860460	Lighting and Sign Illumination	LS	x	= \$ -
860201	Signal and Lighting	LS	x	= \$ -
860990	Closed Circuit Television System	LS	x	= \$ -
86110X	Ramp Metering System (Location X)	LS	x	= \$ -
86070X	Interconnection Conduit and Cable	LF/LS	x	= \$ -
560218	Furnish Sign Structure (Truss)	EA	2 x 90,000.00	= \$ 180,000
560219	Install Sign Structure (Truss)	EA	2 x 10,000.00	= \$ 20,000
490605	36" Cast-in-drilled-hole Conc Piling (Sign Found)	LF	60 x 1,000.00	= \$ 60,000
870111	Inductive Loop Detectors	EA	10 x 750.00	= \$ 7,500
870600	Traffic Monitoring Station System	LS	90,000 x 3.00	= \$ 270,000
15075X	Remove Sign Structure	EA/LS	x	= \$ -
151581	Reconstruct Sign Structure	EA	x	= \$ -
152641	Modify Sign Structure	EA	x	= \$ -
860090	Maintain Existing Traffic Management System Eler	LS	x	= \$ -
86XXXX	Fiber Optic Conduit System	LS	x	= \$ -
XXXXX	Some Item	LS	x	= \$ -
<i>Subtotal Traffic Electrical</i>				\$ 537,500

6B - Traffic Signing and Striping

Item code	Unit	Quantity	Unit Price (\$)	Cost
566011	Roadside Sign - One Post	EA	3 x 420.00	= \$ 1,260
566012	Roadside Sign - Two Post	EA	x	= \$ -
5602XX	Furnish Sign	SQFT	x	= \$ -
568016	Install Sign Panel on Existing Frame	SQFT	x	= \$ -
150711	Remove Painted Traffic Stripe	LF	65,275 x 0.70	= \$ 45,693
141101	Remove Yellow Painted Traffic Stripe (Haz Was)	LF	31,017 x 0.60	= \$ 18,610
150712	Remove Painted Pavement Marking	SQFT	x	= \$ -
150742	Remove Roadside Sign	EA	3 x 190.00	= \$ 570
152320	Reset Roadside Sign	EA	x	= \$ -
152390	Relocate Roadside Sign	EA	x	= \$ -
82010X	Delineator (Class X)	EA	x	= \$ -
840502	Thermoplastic Traffic Stripe (Enhanced Wet Night	LF	95,931 x 0.55	= \$ 52,762
846012	Thermoplastic Crosswalk and Pavement Marking (SQFT	x	= \$ -
120090	Construction Area Signs	LS	x	= \$ -
84XXXX	Permanent Pavement Delineation	LS	x	= \$ -
<i>Subtotal Traffic Signing and Striping</i>				\$ 118,895

6C - Traffic Management Plan

Item code	Unit	Quantity	Unit Price (\$)	Cost
128651	Portable Changeable Message Signs	EA	6 x \$ 12,500	= \$ 75,000
<i>Subtotal Traffic Management Plan</i>				\$ 75,000

6D - Stage Construction and Traffic Handling

Item code	Unit	Quantity	Unit Price (\$)	Cost
120199	Traffic Plastic Drum	EA	x	= \$ -
12016X	Channelizer (Type X)	EA	x	= \$ -
120120	Type III Barricade	EA	x	= \$ -
129100	Temporary Crash Cushion Module	EA	x	= \$ -
120100	Traffic Control System	LS	1 x 300,000.00	= \$ 300,000
129110	Temporary Crash Cushion	EA	x	= \$ -
129000	Temporary Railing (Type K)	LF	30,000 x 12.70	= \$ 381,000
120149	Temporary Pavement Marking (Paint)	SQFT	x	= \$ -
82010X	Delineator (Class X)	EA	x	= \$ -
XXXXXX	Some Item	Unit	x	= \$ -
<i>Subtotal Stage Construction and Traffic Handling</i>				\$ 681,000

TOTAL TRAFFIC ITEMS	\$ 1,412,400
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SECTION 7: DETOURS

Includes constructing, maintaining, and removal

Item code	Unit	Quantity	Unit Price (\$)	Cost
190101	Roadway Excavation	CY	x	= \$ -
19801X	Imported Borrow	CY/TON	x	= \$ -
390132	Hot Mix Asphalt (Type A)	TON	x	= \$ -
26020X	Class 2 Aggregate Base	TON/CY	x	= \$ -
250401	Class 4 Aggregate Subbase	CY	x	= \$ -
130620	Temporary Drainage Inlet Protection	EA	x	= \$ -
129000	Temporary Railing (Type K)	LF	x	= \$ -
128601	Temporary Signal System	LS	x	= \$ -
120149	Temporary Pavement Marking (Paint)	SQFT	x	= \$ -
80010X	Temporary Fence (Type X)	LF	x	= \$ -
XXXXXX	Some Item	Unit	x	= \$ -
TOTAL DETOURS				\$ -

SUBTOTAL SECTIONS 1 through 7 \$ 12,606,500

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items				
ADA Items			1.0%	\$ 126,065
8B - Bike Path Items				
Bike Path Items			1.0%	\$ 126,065
8C - Other Minor Items				
Other Minor Items			8.0%	\$ 1,008,520
Total of Section 1-7		\$ 12,606,500	x 3.0%	= \$ 378,195
TOTAL MINOR ITEMS				\$ 378,200

SECTIONS 9: MOBILIZATION

Item code				
999990	Total Section 1-8	\$ 12,984,700	x 10%	= \$ 1,298,470
TOTAL MOBILIZATION				\$ 1,298,500

SECTION 10: SUPPLEMENTAL WORK

Item code	Unit	Quantity	Unit Price (\$)	Cost
066670	Payment Adjustments For Price Index Fluctuations	LS	x	= \$ -
066094	Value Analysis	LS	x	= \$ -
066070	Maintain Traffic	LS 1	x 225,000.00	= \$ 225,000
066919	Dispute Resolution Board	LS 1	x 15,000.00	= \$ 15,000
066921	Dispute Resolution Advisor	LS	x	= \$ -
066015	Federal Trainee Program	LS 1	x 20,000.00	= \$ 20,000
066610	Partnering	LS 1	x 50,000.00	= \$ 50,000
066204	Remove Rock and Debris	LS	x	= \$ -
066222	Locate Existing Crossover	LS	x	= \$ -
XXXXXX	Some Item	Unit	x	= \$ -
<i>Cost of NPDES Supplemental Work specified in Section 5D</i>				<i>= \$ 30,000</i>
Total Section 1-8		\$ 12,984,700	0%	= \$ -
TOTAL SUPPLEMENTAL WORK				\$ 340,000

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price (\$)	=	Cost
066105	Resident Engineers Office	LS	1	x	80,000.00	=	\$80,000
066063	Traffic Management Plan - Public Information	LS	1	x	200,000.00	=	\$200,000
066901	Water Expenses	LS		x		=	\$0
8609XX	Traffic Monitoring Station (X)	LS		x		=	\$0
066841	Traffic Controller Assembly	LS		x		=	\$0
066840	Traffic Signal Controller Assembly	LS		x		=	\$0
066062	COZEEP Contract	LS	1	x	286,900.00	=	\$286,900
066838	Reflective Numbers and Edge Sealer	LS		x		=	\$0
066065	Tow Truck Service Patrol	LS	1	x	50,000.00	=	\$50,000
066916	Annual Construction General Permit Fee	LS		x		=	\$0
XXXXXX	Some Item	Unit		x		=	\$0
Total Section 1-8			\$ 12,984,700		0%	= \$	-
TOTAL STATE FURNISHED							\$616,900

SECTION 12: TIME-RELATED OVERHEAD

Total of Roadway and Structures Contract Items excluding Mobilization \$14,578,600 (used to calculate TRO)
 Total Construction Cost (excluding TRO and Contingency) \$16,978,900 (used to check if project is greater than \$5 million excluding contingency)

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

Item code		Unit	Quantity		Unit Price (\$)	=	Cost
070018	Time-Related Overhead	WD	330	X	\$2,209	=	\$729,000
TOTAL TIME-RELATED OVERHEAD							\$729,000

Note: If the building portion of the project is greater than 50% of the total project cost, then TRO is not included.

SECTION 13: ROADWAY CONTINGENCY

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

Total Section 1-12	\$	15,969,100	x	20%	=	\$3,193,820	
TOTAL CONTINGENCY							\$3,193,900

II. STRUCTURE ITEMS

Bridge 1

DATE OF ESTIMATE	06/14/18	00/00/00	00/00/00
Bridge Name	Oak Glen/Wilson Creek Bridge	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Bridge Number	54-0648	57-XXX	57-XXX
Structure Type	3 Span, PC/PS Conc. Girder	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Width (Feet) [out to out]	36 LF	0 LF	0 LF
Total Bridge Length (Feet)	115 LF	0 LF	0 LF
Total Area (Square Feet)	4140 SQFT	0 SQFT	0 SQFT
Structure Depth (Feet)	4 LF	0 LF	0 LF
Footing Type (pile or spread)	Pile	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Cost Per Square Foot	\$350	\$0	\$0

COST OF EACH	\$1,449,000		\$0		\$0
---------------------	--------------------	--	------------	--	------------

DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Width (Feet) [out to out]	0 LF	0 LF	0 LF
Total Length (Feet)	0 LF	0 LF	0 LF
Total Area (Square Feet)	0 SQFT	0 SQFT	0 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
Cost Per Square Foot	\$100	\$0	\$0

COST OF EACH	\$0		\$0		\$0
---------------------	------------	--	------------	--	------------

TOTAL COST OF BRIDGES	\$1,449,000
------------------------------	--------------------

TOTAL COST OF BUILDINGS	\$0
--------------------------------	------------

Structures Mobilization Percentage	10%	\$144,900
------------------------------------	-----	------------------

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

Structures Contingency Percentage	10%	\$144,900
-----------------------------------	-----	------------------

TOTAL COST OF STRUCTURES	\$1,738,800
---------------------------------	--------------------

Estimate Prepared By: _____
 XXXXXXXXXXXXXXXXXXXX ----- Division of Structures

 Date

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill, Fees	\$	220,000
	A2)	SB-1210	\$	0
B)		Acquisition of Offsite Mitigation	\$	0
C)	C1)	Utility Relocation (State Share)	\$	0
	C2)	Potholing (Design Phase)	\$	0
D)		Railroad Acquisition	\$	0
E)		Clearance / Demolition	\$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)	\$	0
G)		Title and Escrow	\$	60,000
H)		Environmental Review	\$	0
I)		Condemnation Settlements	\$	0
		_____ 0%		
J)		Design Appreciation Factor	\$	0
		_____ 0%		
K)		Utility Relocation (Construction Cost)	\$	

L)

TOTAL RIGHT OF WAY ESTIMATE	\$280,000
------------------------------------	------------------

M)

TOTAL R/W ESTIMATE: Escalated	\$328,000
--------------------------------------	------------------

N)

RIGHT OF WAY SUPPORT	\$60,000
-----------------------------	-----------------

Support Cost Estimate Prepared By Julian Hernandez, P.E. (951)320-7325
Project Coordinator¹ Phone

Utility Estimate Prepared By Julian Hernandez, P.E. (951)320-7325
Utility Coordinator² Phone

R/W Acquisition Estimate Prepared By Julian Hernandez, P.E. (951)320-7325
Right of Way Estimator³ Phone

Note: Items G & H applied to items A + B

¹ When estimate has Support Costs only

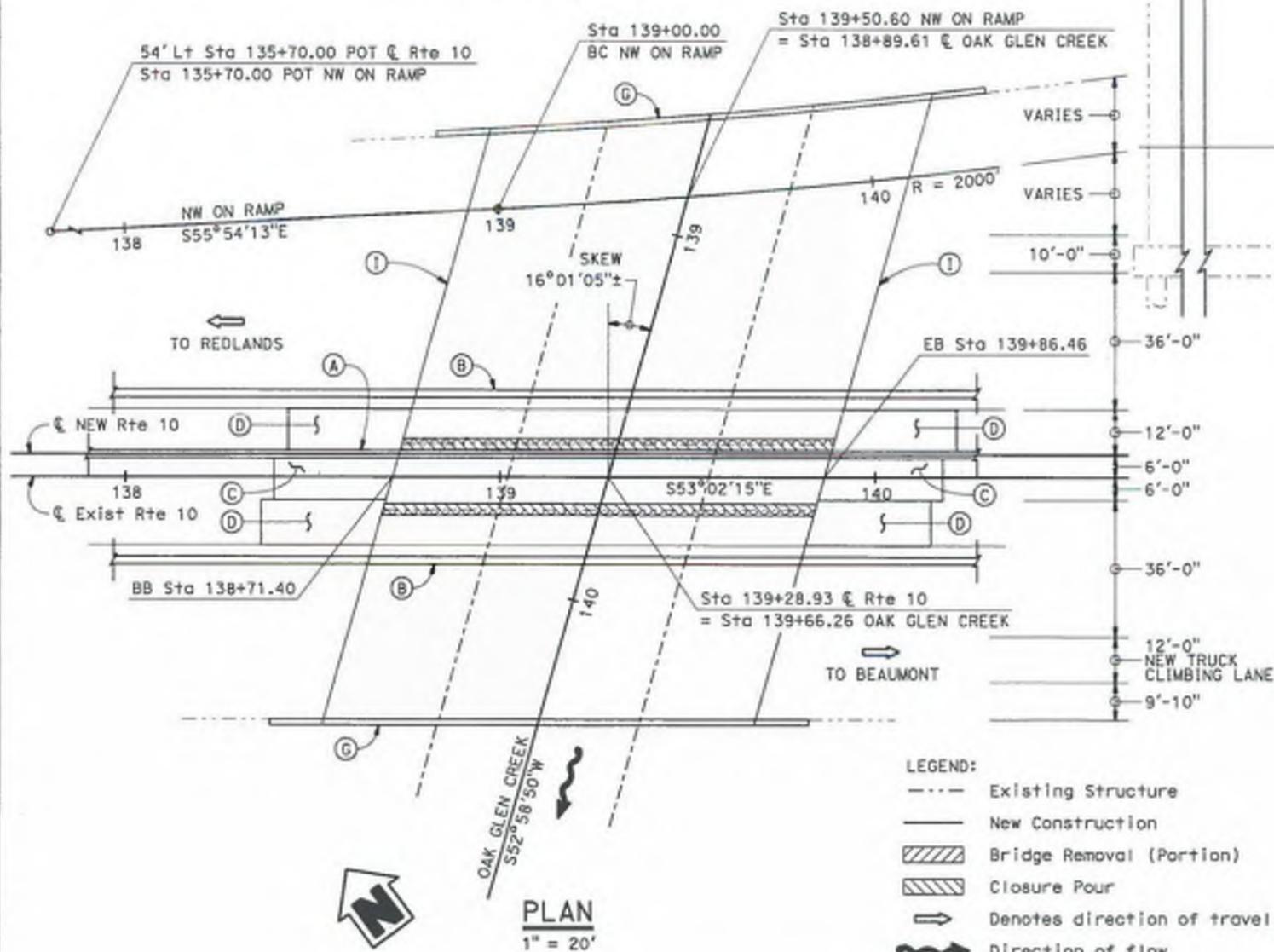
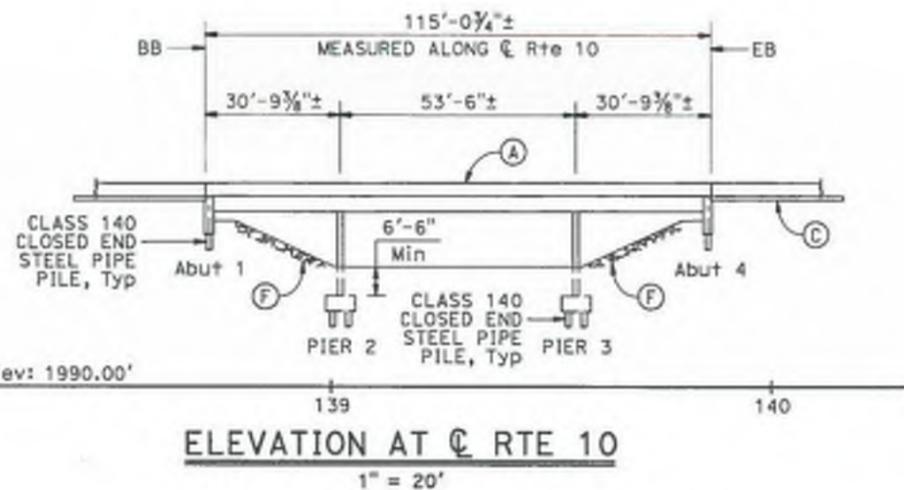
² When estimate has Utility Relocation

³ When R/W Acquisition is required

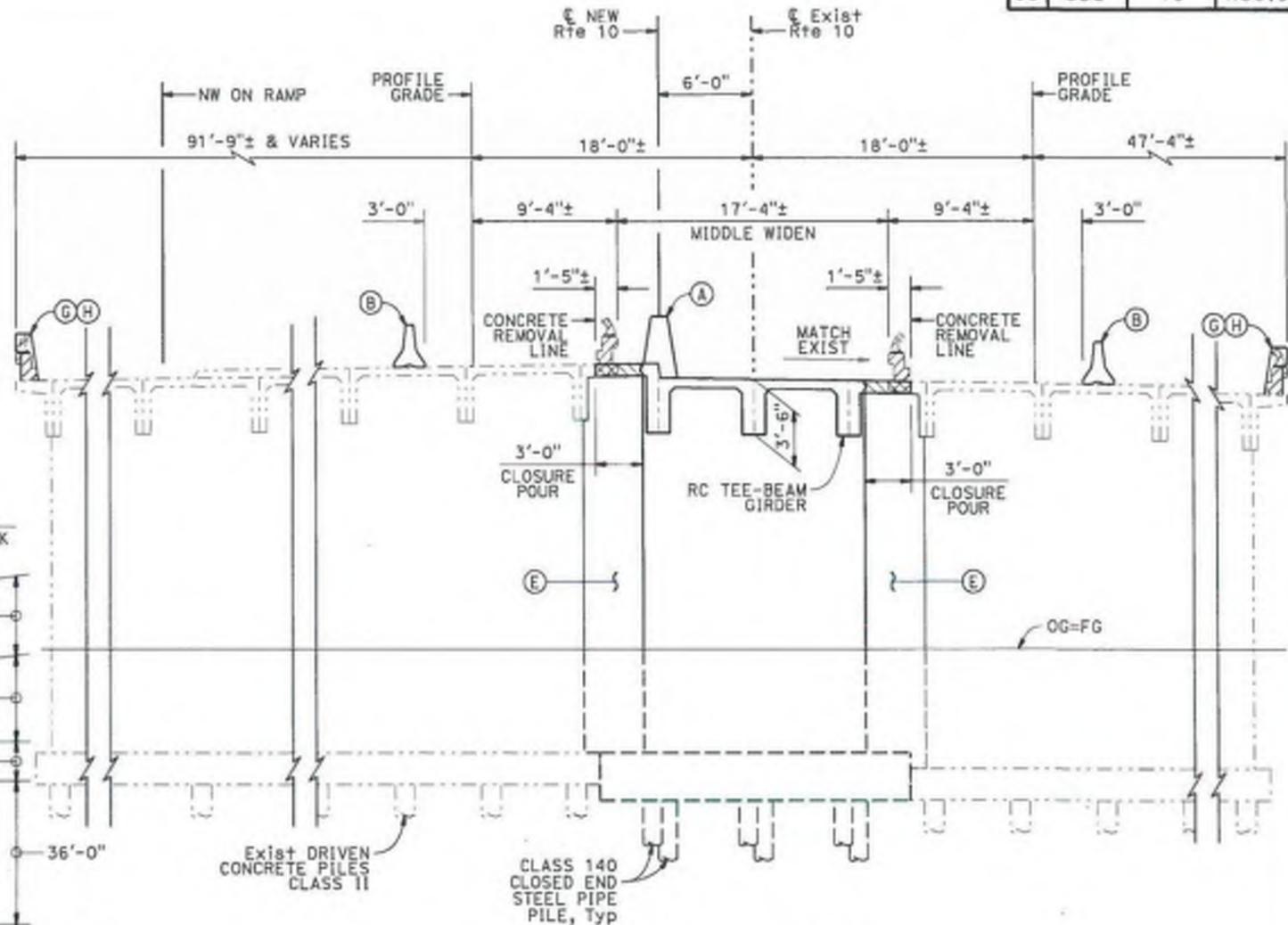
ATTACHMENT D

Advance Planning Study

DIST	COUNTY	ROUTE	POST MILE
08	SBd	10	R36.9



- LEGEND:**
- Existing Structure
 - New Construction
 - ▨ Bridge Removal (Portion)
 - ▩ Closure Pour
 - Denotes direction of travel
 - ~ Direction of flow



NOTES:

- (A) Concrete Barrier Type 60A (MOO)
- (B) Temporary Railing Type K, see "ROADWAY PLANS"
- (C) Structure Approach Type N(300)
- (D) Structure Approach Type R(300)
- (E) Infill Wall
- (F) Remove and replace rip rap, see "ROADWAY PLANS"
- (G) Concrete Barrier Type 736
- (H) Existing Barrier Railing Type 1 to be removed
- (I) Joint Seal Type A (MR = 1/2")

ASSUMPTIONS:

1. Temp shoring will be required for pier foundation excavation and construction.
2. Site liquefaction potential is low. Liquefaction potential and resultant lateral spreading will be determined after a subsurface investigation is performed.
3. Existing profile and cross slope to be maintained.
4. Widening requires restriping of lane lines.
5. This project may require permits. District to investigate early.
6. As-built stations and datum shown.

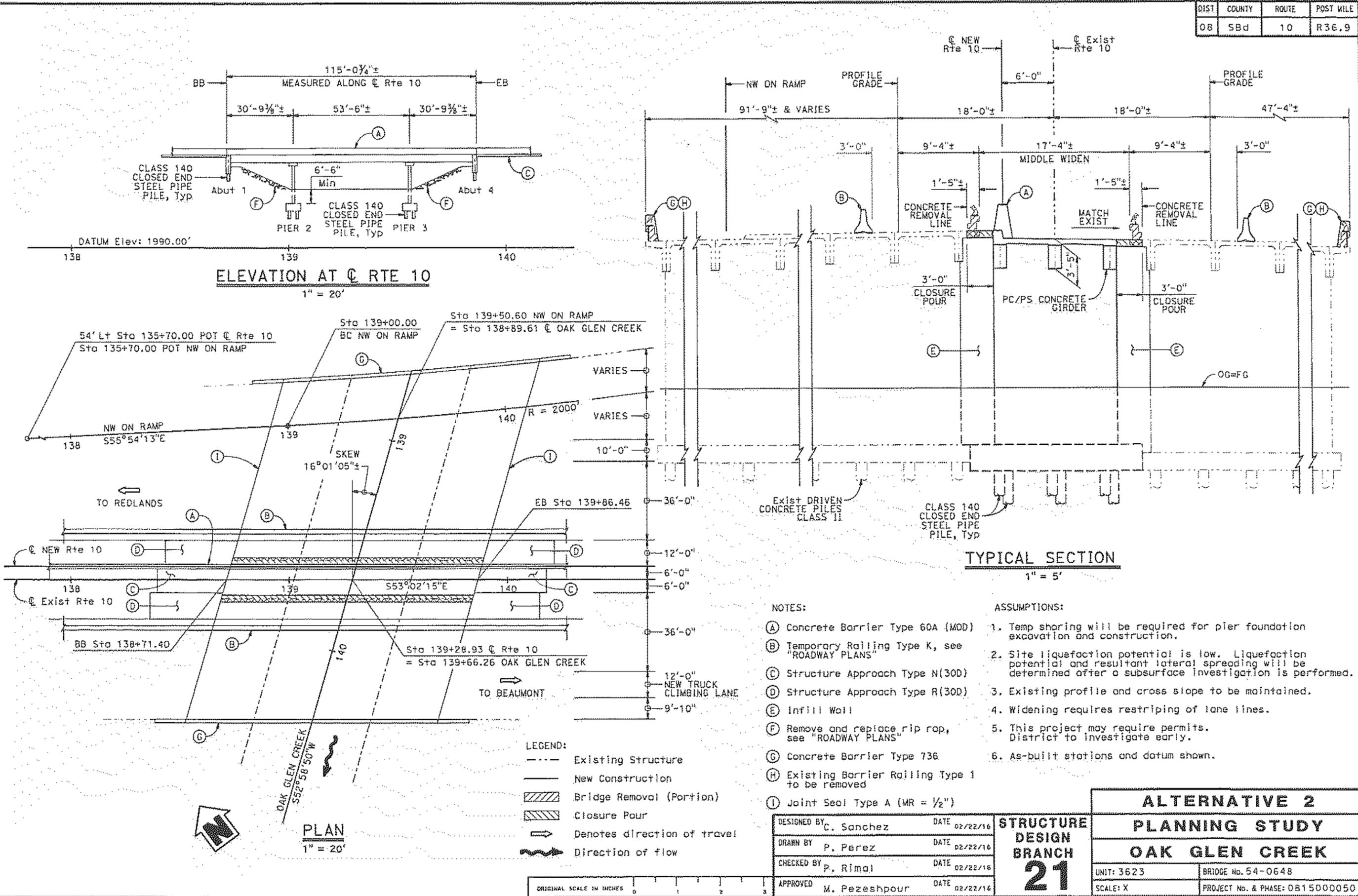
DESIGNED BY	C. Sanchez	DATE	02/22/16
DRAWN BY	P. Perez	DATE	02/22/16
CHECKED BY	P. Rimal	DATE	02/22/16
APPROVED	M. Pezeshpour	DATE	02/22/16

STRUCTURE DESIGN BRANCH
21

ALTERNATIVE 1	
PLANNING STUDY	
OAK GLEN CREEK	
UNIT: 3623	BRIDGE No. 54-0648
SCALE: X	PROJECT No. & PHASE: 0815000050

ORIGINAL SCALE IN INCHES 0 1 2 3

DIST	COUNTY	ROUTE	POST MILE
08	SBd	10	R36.9



DESIGNED BY	C. Sanchez	DATE	02/22/16
DRAWN BY	P. Perez	DATE	02/22/16
CHECKED BY	P. Rimal	DATE	02/22/16
APPROVED	M. Pezeshpour	DATE	02/22/16

STRUCTURE DESIGN BRANCH
21

ALTERNATIVE 2	
PLANNING STUDY	
OAK GLEN CREEK	
UNIT: 3623	BRIDGE No. 54-0648
SCALE: X	PROJECT No. & PHASE: 0815000050

ATTACHMENT E

Right of Way Data Sheet

RIGHT OF WAY DATA SHEET FOR LOCAL PUBLIC AGENCIES

(Form #)

To: Rebecca Guirado
Deputy District Director
Division of Right of Way

Date: 6/15/2020

Co. SBd/Riv Rte. I-10
Expense Authorization 1F7600

Attention: Milele Robertson
Senior Right of Way Agent
Local Programs

Subject: **RIGHT OF WAY DATA SHEET - LOCAL PUBLIC AGENCIES**

Project Description: I-10/Eastbound Truck Climbing Lane D08-SBd/Riv-10 PM 36.4-R39.2/R0.0-R0.2

Right of way necessary for the subject project will be the responsibility of SBCTA

The information in this data sheet was developed by HDR Engineering Inc.

I. **Right of Way Engineering**

Will Right of Way Engineering be required for this project?

- No
- Yes X (Submit a copy of the *Right of Way Engineering Surveys and Mapping Services checklist for Locally Funded Projects*. This checklist includes, but is not limited to, the following items.)

- Hard copy (base map)
- Appraisal map
- Acquisition Documents
- Property Transfer Documents
- R/W Record Map
- Record of Survey

II. **Engineering Surveys**

1. Is any surveying or photogrammetric mapping required?

No Yes X (Complete the following.)

2. **Datum Requirements**

Yes X Project will adhere to the following criteria:

- Horizontal - datum policy is NAD 83, CA-HPGN, EPOCH 1991.35 and English system of units and measures.
- Vertical - datum policy is NAVD 88.
- Units - metric is not required.

No Provide an explanation on additional page.

3. Will land survey monument perpetuation be scoped into the project, if required?

Yes X

No Provide explanation on additional page.

RIGHT OF WAY DATA SHEET FOR LOCAL PUBLIC AGENCIES (Cont.)
(Form #)

R/W Data Sheet - Local Public Agencies
Page 2 of 5

III. **Parcel Information (Land and Improvements)**

Are there any property rights required within the proposed project limits?

No _____ Yes X (Complete the following.)

	Part Take	Full Take	Estimate \$
A. Number of Vacant Land Parcels	<u> 0 </u>	<u> 0 </u>	\$ <u> 0 </u>
B. Number of Single Family Residential Units	<u> 0 </u>	<u> 0 </u>	\$ <u> 0 </u>
C. Number of Multifamily Residential Units	<u> 0 </u>	<u> 0 </u>	\$ <u> 0 </u>
D. Number of Commercial/Industrial Parcels	<u> 0 </u>	<u> 0 </u>	\$ <u> 0 </u>
E. Number of Farm/Agricultural Parcels	<u> 0 </u>	<u> 0 </u>	\$ <u> 0 </u>
F. Permanent and/or Temporary Easements	<u> 5 </u>	<u> 0 </u>	\$ <u> 200,000 </u>
G. Other Parcels (define in "Remarks" section)	<u> 0 </u>	<u> 0 </u>	\$ <u> 0 </u>
Totals	<u> 5 </u>	<u> 0 </u>	\$ <u> 200,000 </u>

Provide a general description of the right of way and excess lands required (zoning, use, improvements, critical, or sensitive parcels, etc.).

All permanent improvements will be located within the existing State right of way. The cost for temporary construction easements includes staging/laydown areas. Three locations have been identified as suitable for use as staging/laydown TCE areas for this Project. The first one would be located within State right of way at the north-west corner of Outer 10 Highway South and 16th Street, south of I-10. The second and third TCE areas would be located outside State R/W on the parcels east and west of Wilson Creek at the south-west quadrant of the Live Oak Canyon Road interchange, between the EB Off-Ramp and Outer 10 Highway South. These parcels are the same TCE areas used recently by the Caltrans rehabilitation project (EA 0K293).

IV. **Dedications**

Are there any property rights which have been acquired, or anticipate will be acquired, through the "dedication" process for the Project?

No X Yes _____ (Complete the following.)

Number of dedicated parcels 0

Have the dedication parcel(s) been accepted by the municipality involved? N/A

V. **Excess Lands / Relinquishments**

Are there Caltrans property rights which may become excess lands or potential relinquishment areas?

No X Yes _____ (Provide an explanation on additional page.)

VI. **Relocation Information**

Are relocation displacements anticipated?

No X Yes _____ (Complete the following.)

A. Number of Single Family Residential Units	<u> 0 </u>	
Estimated RAP Payments		\$ <u> 0 </u>
B. Number of Multifamily Residential Units	<u> 0 </u>	
Estimated RAP Payments		\$ <u> 0 </u>
C. Number of Business/Nonprofit	<u> 0 </u>	
Estimated RAP Payments		\$ <u> 0 </u>
D. Number of Farms	<u> 0 </u>	
Estimated RAP Payments		\$ <u> 0 </u>
E. Other (define in the "Remarks" section)	<u> 0 </u>	
Estimated RAP Payments		\$ <u> 0 </u>
 Totals	 <u> 0 </u>	 \$ <u> 0 </u>

VII. **Utility Relocation Information**

Do you anticipate any utility facilities or utility rights of way to be affected?

No X Yes _____ (Complete the following.)

Facility	Owner	Estimated Relocation Expense		
		State Obligation	Local Obligation	Utility Owner Obligation
A.		\$0	\$0	\$0
B.		\$0	\$0	\$0
C.		\$0	\$0	\$0
D.		\$0	\$0	\$0
E.		\$0	\$0	\$0
F.		\$0	\$0	\$0
Totals		\$0	*	\$0
Number of facilities		0	0	0

*This amount reflects the estimated total financial obligation by the State.

Explanation for Section V - Excess Lands/Relinquishments N/A

R/W Data Sheet - Local Public Agencies

Page 4 of 5

VIII. Rail Information

Are railroad facilities or railroad rights of way affected?

No X Yes _____ (Complete the following.)

Describe railroad facilities or railroad rights of way affected.

N/A

Owner's Name	Transverse Crossing	Longitudinal Encroachment
A. N/A	N/A	N/A
B. N/A	N/A	N/A

Discuss types of agreements and rights required from the railroads. Are grade crossings that require services contracts, or grade separations that require construction and maintenance agreements involved? N/A

IX. Clearance Information

Are there improvements that require clearance?

No X Yes _____ (Complete the following.)

A. Number of Structures to be Demolished 0
 Estimated Cost of Demolition \$ 0

X. Hazardous Materials/Waste

Are there any site(s) and/or improvements(s) in the Project Limits that are known to contain hazardous materials? None X Yes _____ (Explain in the "Remarks" section.)

Are there any site(s) and/or improvement(s) in the Project Limits that are suspected to contain hazardous waste? None _____ Yes X (Explain in the "Remarks" section.)

XI. Project Scheduling

	Proposed lead time	Completion date
* Preliminary Engineering, Surveys	<u> 2 </u> (months)	<u> 02-2021 </u>
* R/W Engineering Submittals	<u> 3 </u> (months)	<u> 03-2021 </u>
* R/W Appraisals/Acquisition	<u> 9 </u> (months)	<u> 12-2021 </u>
Proposed Environmental Clearance		<u> 10-2020 </u>
Proposed R/W Certification		<u> 12-2021 </u>

R/W Data Sheet - Local Public Agencies
Page 5 of 5

XII. Proposed Funding

	Local	State	Federal	Other
Acquisition (TCE)	\$200,000			
Utilities	N/A			
Relocation Assistance Program	N/A			
R/W Support	\$60,000			
Cost (Eng. Appraisals, etc.)	\$80,000			

XIII. Remarks

According to the results in the Hazmat Report asbestos-containing materials are present in the bridge structure at Wilson Creek, and may be impacted by the proposed construction activities. More specifically the asbestos was found in the bolt shims and epoxy-like materials of the bridges' median guardrails on each side of the freeway. Work performed during any activities that disturb the asbestos containing materials must be done in compliance with the most recent edition of all applicable federal, state, and local regulations, standards, and codes governing abatement, transport, and disposal of asbestos-containing materials.

Project Sponsor Consultant
Prepared by:

Julian Hernandez, P.E.

Project Engineer
HDR Engineering Inc.

6-15-2020
Date

Project Sponsor
Reviewed and Approved by:

P.M.
6/16/2020

Paula Beauchamp

Director of Project Delivery and Toll Operations
SBCTA

June 16, 2020
Date

Caltrans
Reviewed and approved based on information provided to date:

Milele Robertson
Senior Right of Way Agent
Local Programs

06/18/2020
Date

ATTACHMENT F

Transportation Management Plan

TRANSPORTATION MANAGEMENT PLAN (TMP) DATA SHEET # 4 for PID, PSR, PR or PSE including DTM requirements for PSE and Construction Phase -
This TMP is valid for two years from date of preparation, unless the project or impact changes.

T:\DTM.TMP\project docs\SBD-10\0H93\090211\0H9301 Data Sheet # 4.xls (includes signature/background sheet, estimate, table, DTM requirements, and Revisions & Notes)



EA 08-1F760 **DATE** **3/19/2020**
Project No. 815000050

Location: On Interstate 10 eastbound between 16th Street and County Line Road
Work: Pave median, install concrete median barrier and add Truck Climbing Line to Eastbound Direction

Date of TMP/Review Request Memo: Not applicable.
Documents available: Geometric Approval Drawings and Draft Project Report

Construction period per PE	
EST START DATE	6/2022
EST END DATE	12/2023
Construction period per WPS	
EST START DATE	N/A
EST END DATE	N/A

BACKGROUND INFORMATION:

DURATION: 330 WORKING DAYS
PROJECT COST: \$21,182,000
TMP ESTIMATE: \$942,900 or 4.45% OF THE PROJECT COST

IMPACT	High	Medium	Low	NA
STATE HWY			X	
LOCAL RD				X
Ramps/connectors			X	

Details: Mainline paving improvements within the existing median of I-10.

This Transportation Management Plan (TMP) has been prepared under the direction of the following Registered Engineer. The Registered Civil Engineer attests to the technical information contained therein and the engineering data upon which recommendations, conclusions and decisions are based.

Prepared by: _____ Signature: _____ Date: _____

Name: Julian Hernandez, P.E.
Title: Project Engineer
Organization: HDR Engineering, Inc.
Telephone/FAX: (951) 320-7325
email: Julian.Hernandez@hdrinc.com

Al Afaneh
TMP/DTM Traffic Manager
Department of Transportation
District 8/Operations MS-B20
464 W 4th Street 6th Floor
909 383-4917, FAX 909 383-1068
Al_Afaneh@dot.ca.gov

Prepared for

cc:

Project Manager: Mohammed Rahman

Project Senior:

HYahya ,TSasis, or MJabson, Ops Surveillance

MKar (D8 Callbox Coordinator routes to SAFEs as needed. Also concerned if loops for supercallboxes or census stations are damaged)

Aleuschen
RMelgoza

SLombardo
TLagana
Traci Peterson
Twatkins

VGau
MBoone
BWasser or LSartori
RTadi

MHess
UApabio
DMaleki
Benjamin Egiebor/D08/Caltrans/CAGov,
Cuong Tieu/D08/Caltrans/CAGov,
Kim L Walker/D08/Caltrans/CAGov,
DTM

DerekWilliams@chp.ca.gov (D8 TMC CHP Officer)
JoWilson@chp.ca.gov (Inland Division Cozeep/Mazeep Coordinator)

HTupper@chp.ca.gov (CHP Inland Division FSP Coordinator)

If items are checked in Section 5 on the Table tab:

MKirkhoff@sanbag.ca.gov (SANBAG DM Manager)
KLynn@sanbag.ca.gov

TMP ESTIMATE

EA

08-1F760

DATE 3/19/2020

1. Public Information	NO	<input checked="" type="checkbox"/> YES	MAYBE	\$200,000
2. Motorist Information Strategies	NO	<input checked="" type="checkbox"/> YES	MAYBE	\$75,000
3. Incident Management	NO	<input checked="" type="checkbox"/> YES	MAYBE	\$286,900
4. Construction Strategies	NO	<input checked="" type="checkbox"/> YES	MAYBE	\$381,000
5. Demand Management (DM)	<input checked="" type="checkbox"/> NO	YES	MAYBE	\$0
6. Alternate Route Strategies	<input checked="" type="checkbox"/> NO	YES	MAYBE	\$0
7. Other Strategies	<input checked="" type="checkbox"/> NO	YES	MAYBE	\$0

TMP TOTAL \$ 942,900

1 Public Information/Public Awareness Campaign (PAC) COST

BEES 066063 - Traffic Management Plan Public Information.
 Cost to be reduced by Public Affairs (PA) and Construction Liaison (CL) only.

PA COST CL COST
 \$100,000 \$100,000

- 1.0 Include Rideshare information in PA/CL project material to encourage vehicles reduction in work area
- 1.1 Brochures and Mailers
- 1.2 Media Releases (& minority media sources)
- 1.3 Paid Advertising
- 1.4 Public Information Center/Kiosk
- 1.5 Public Meetings/PAC Mtgs./Speakers Bureau (show cost also for room rental)
- 1.6 Handdeliver notices to vicinity
- 1.7 Broadcast fax service
- 1.8 Telephone Hotline OR
- 1.9 1-800-COMMUTE or 511 (the telephone number is shown on CS-Info signs) - contact Cyrin Kwong, 383-4256, to place msg into the 1800C telephone system.
- 1.10 Visual Information (videos, slide shows, etc.)
- 1.11 Local cable TV and News
- 1.13 Internet, E-mail (SBCTA website)
- 1.14 Notification to targeted groups:
 - Revised Transit Schedules/maps
 - Rideshare organizations
 - schools
 - organizations representing people with disabilities
 - bicycle organizations
- 1.15 Include PA/CL/Consultant resources in WPS
- 1.16 Commercial traffic reporters/feeds - e.g. brief Traffic Information people (TIP) group
- 1.17 Insert SSP (no number at this time)
 "A representative of the Contractor, at Superintendent level or higher, and authorized to commit the Contractor, shall attend and participate in all Public Awareness Campaign meetings. Time commitment for the meeting(s) varies from two to four hours per month."
- 1.18 Others

Subtotals \$ 100,000 \$ 100,000
SUBTOTAL \$200,000

2 Traveler Information Strategies

2.1 Existing Electronic Message Signs (Stationary) - list locations. See Note 5

New Installation (Stationary) - BEES 860530 CHANGEABLE MESSAGE SIGN SYSTEM
- list locations. See Note 5

2.2 Portable Changeable Message Signs (PCMS).

**Construction prefers Rental Lumpsum BEES 066578 in Supplemental Funds
And include SSP 12-370**

These PCMS advise motorists to divert at remote advance decision points - outside the usual work limits. Unlike stationary CMS, you are allowed to use them for advance motorist information - e.g. a week ahead. Their placement may need to be cleared **environmentally** so that they can be included in plans and SSP later. They may be in **addition** to Traffic Design's PCMS for regular traffic handling in and next to a work area.

Placement Details: \$75,000

2.3 BEES 860503 Extinguishable Signs (only shown because they are on the TMP Guidelines list. Usually found at Weigh Stations - Weigh Station "open/closed".)

2.4 Ground Mounted Signs / Fabric signs Note 2

C40/40A Double Fine Sign - black and white

BEES 860926 Regulatory speed signs

SC6-4 (per MUTCD) (Ramp will be closed...)

CS-SPECIAL w/ SC6-2 PANEL ("Dates/Days/Hours/Expect delay") Use when conventional highways or local roads will be affected for longer periods. To encourage traffic to detour so delay in your work area is less, use at advance location and add the work location. **Use fabric signs if short duration or fast moving operation.**

CS-INFO/1-800-COMMUTE Panel Sign. **Also see 1.9.**

Blue and white Rideshare guide signs, including website (1-800-COMMUTE/www.commutessmart.info). **Need to be installed at the same time as the funding signs.**

2.5 BEES 860520 Commercial Traffic Radio (usually only applicable in the Upper desert)

Highway Advisory Radio (HAR) - Fixed. List locations here. They can be obtained from TMC Manager. See Note 5.

Highway Advisory Radio - mobile (signs alerting motorists to the HAR will also be needed)
Contact TMC manager for assistance with specifications to include portable HARs as bid item in the contract. To avoid FCC fines, CT Portable HAR cannot be used except for emergencies. Seldom used. See Note 5

List proposed locations here:

2.6 Lane Closure Web Site

2.7 Caltrans Highway Information Network (CHIN)

2.8 Radar Speed Message Sign (Specter sign) BEES 066064 (approx. EA @ \$30,000)

2.9 Bicycle and pedestrian information, e.g. Detour maps

2.10 Others

SUBTOTAL \$75,000

3 Incident Management

3.1 CHP's Construction or Maintenance Zone Enhanced Enforcement Program – COZEEP or MAZEEP. [BEES 066062](#) - show under "State or Agency furnished" in the Cost Estimate. **SSP 12-225 has been deleted per HQ OE. See note 1.**

Consider the LC hours and add CHP driving time to/from their office

Hourly Cozeep overtime loaded rate: \$ 95

COZEEP - to protect active closures

150	8	1	75	10	2	\$256,500
# of days	hours	# of officers (1 per car)	nights	hours	# of officers (Remember - nights require 2 per car)	

ECOZEEP - to mitigate continuous restrictions. Add weekends days if needed.

0	0	0	0	0	0	\$0
# of days	hours	# of officers	nights	hours	see above	

(add weekends days as needed)

CHP TRAFFIC HANDLING - reduce delay by keeping traffic flowing and/or to enforce closures - total facility/structure/major traffic shifts/ramps/connectors/local road/extended closures. Freeway closures with local road detours may require **2 officers per intersection** to direct traffic.

0	0	0	0	0	0	\$0
days	hours	# of officers	nights	hours	see above	

CHP Officer in TMC during major construction closures

20	8	1				\$15,200
days	hours	# of officers				

CHP Officer for Command Post during regional impact construction closures

20	8	1				\$15,200
days	hours	# of officers				

3.1 Total \$286,900

3.2 BLANK

TMP TABLE	EA	08-1F760	DATE
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3.3 **Freeway Service Patrol (FSP) for Construction (CFSP)** \$/hr/truck **\$75**
BEES 066065 - show under "State or Agency furnished" in the Cost Estimate
 Short duration or remote area CFSP usually is bid w much higher hourly rates. If enhancement of program FSP feasible, CFSP could tie into the lower long-term FSP rates.

FOR SERVICE WITHIN REGULAR FSP HOURS:

A days & hrs:

0	8
---	---

 # of trucks:

--

\$0

FOR SERVICE OUTSIDE REGULAR FSP HOURS:

Extend Peak hour coverage

B days & hrs:

0	8
---	---

 # of trucks:

--

\$0

Night support during structure freeway closures and major traffic shifts

C days & hrs:

0	8
---	---

 # of trucks:

--

\$0

Weekend support

D days & hrs:

0	8
---	---

 # of trucks:

--

\$0

Local agency (SAFE) support 8% of truck cost **\$0**

CFSP CHP support 5% of truck cost **\$0**
 THIS % ONLY IF **WITHIN** REGULAR FSP HOURS AND AREA!

Equipment/Supplies 10% **\$0**
 % of truck cost unless more detail available

CONSULT W INLAND DIVISION CHP OR BORDER IN SOUTHERN RIVERSIDE CO. which method is acceptable FOR B,C,D WHICH ARE OUTSIDE REGULAR FSP HOURS OR AREA!

Method 1

CFSP CHP support - including 50% of truck cost **\$0**
 time for meetings

or

Method 2

CFSP Dispatcher @ **\$55**

0	8	0
---	---	---

\$0
 days/nights hours Dispatcher(s)

CFSP CHP Officers (See Cozeep rate)

0	8	0	0	8	0
days	hours	# of officers	nights	hours	

\$0

Include time for meetings:

0	8	0	0	8	0
days	hours	# of officers	nights	hours	

\$0

- Cooperative Agreement or Task Order with SAFE for **\$0**
 - Task Order with CHP (Statewide Master Agreement for FSP support). for **\$0**
 - Contact District FSP Coordinator for task orders.
 - Service Contract
 - Local Agency will arrange CFSP with SAFE
 - Local Agency will arrange CFSP administration with CHP
- 3.3 Total** **\$0**

TMP TABLE	EA	08-1F760	DATE
-----------	----	----------	------

- 3.4 CHP Helicopter/Airplane
- 3.5 Traffic Surveillance Stations for construction impact mitigation (loop detectors and CCTV)

Keep existing operational during construction

- New CCTV
- New loops

3.6 **Call Boxes - also see NOTE 4 in the Revisions & Notes tab**

TEMPORARY INSTALLATION to mitigate impact (\$5000/box/move from project funds to SAFE). Project Report/Design PE: Please discuss with the D8 Call box coordinator if it is feasible to keep this motorist aid available during construction. If it is not, please notify TMP, then other mitigation needs to be considered. For location in SBd County see Q:\Ops\Call Boxes\SBD\Excel List. Apparently no list available for Riv County.

callboxes x moves x \$5,000.00 = \$0

Add 15% to callbox cost since contractor will need to pay SAFE through CCO.

- 3.7 911 Cellular Calls
- 3.8 Project needs to provide resources to Transportation Management Center Unit 370 for additional staff during high impact closures
- 3.9 Traffic Management Teams (TMT) needed to assist w system diversion/impact reduction. Project needs to provide resources.
See 7/3/05 in Tab 6 - Revisions

- 3.10 On-site Traffic Advisor
- 3.11 Others

SUBTOTAL \$ 286,900

4 Construction Strategies

4.1 Coordinate with adjacent construction and planned projects - also on detour routes.
[Use SSP 07-850](#)

4.2 This TMP presumes work is planned as below. If different, TMP needs to be revised. The Lead Project Engineer is responsible to include all appropriate closure charts.

- Off peak
- Night
- Weekend

- 4.3
- Flagging
 - Shoulder
 - Lane
 - Street
 - Ramp
 - Connector*
 - Extended Weekend Closures*
 - Total Facility Closures*

*Consult w TMP and DTM re Cozeep & other cost. Show your detour and traffic diversion plans.

4.4 Contra Flow (put traffic into opposing roadbed)

4.5 Reversible Lanes

4.6 Project Phasing

4.7 [BEES 152372](#) - If K-Rail is placed, consider including cost item for lateral shifting to open a minimum of 2.4 m (8') shoulder space as soon as possible. Please include supplemental work funds in the estimate to pay for the extra work. See Standard Specifications 12-4, Measurement and Payment. \$381,000

4.8 [BEES 129150](#) Temporary Traffic Screens (Gawk Screen - see 5/10/06 entry in Revisions tab)

4.9 Movable Barrier

4.10 Truck Traffic Restrictions

4.11 [BEES 066008](#) Incentives/Disincentives

4.12 [BEES 070010](#) Strictly enforce Constr. Progress Schedule (CPM)

CAUTION: If the Lane Closure Chart (LCC) for full mainline closures (one or both directions on a highway or freeway) does not show a maximum number of allowable days, the PSE cannot be certified by DTM/TMP.

Please contact Saleh Yadegari, 4232, to get Delay Calculations, lane closure charts, Table Z and Special events list. Inform him of any concerns/commitments re special LC days, times, season, events; environmental restrictions; if work may be affected by snow and low or high temperatures. E.g. desert heat may delay AC digout curing which may increase traffic impact when vehicles overheat in the queue; etc. IF traffic volumes vary significantly between seasons, consider 2 sets of closure charts to avoid CCOs later.

[Use SSP 12-130 and following](#)

4.13 [Include Specification 12-220](#)

4.15 Delay Damages (DD) Please contact Saleh Yadegari, 4232, regarding Delay Calculations.

4.16 Others

SUBTOTAL \$ 381,000

5 Demand Management (DM)

Traffic diversion may increase available work hours.

- 5.1 A coop will be executed - mentioned in PSR or PR.
- Instead of a coop, 15% is added to the cost of DM elements since the payment to the local agency will be routed through the contractor.
- Instead of a coop, the local agency will make their own arrangements with RCTC/SANBAG.
- PA/CL or local agency need to inform commuters through RCTC/SANBAG. Funds part of PA/CL.
- 5.2 HOV Lanes/Ramps (New or Convert)
- 5.3 Park-and-Ride Lots
- LEASED SPACES (Sponsored spaces may be feasible in exchange for signs and print coverage)
- 5.4 Parking Management/Pricing (Coordination with local agency required)
- 5.5 [BEES 066069](#) Rideshare Promotion
- 5.6 Rideshare Incentives -
As far as D8 DTM.TMP knows, incentives to individuals cannot be paid by the State, however, State can pay for Local Transportation agency staff time, postage, cost of extra busses, etc.
- Carpool/vanpool
- Transit
- Train
- Light-Rail
- 5.7 [BEES 066066](#)
- Public Transit Support/Improvements/Shuttle Service
- School Shuttle Service
- 5.8 Variable Work Hours
- 5.9 Telecommute
- 5.10 Ramp Metering (Modify or new)
- 5.11 Blue and white Rideshare signs needed - unless already signed. See 2.4
- 5.12 Others

SUBTOTAL \$ -

6 Alternate Route Strategies

Traffic diversion may increase available work hours. Please work with Traffic Design.

- 6.1 Add Capacity to Freeway connector
- 6.2.1 Upstream Ramp Closures needed to avoid conflicts with closure tapers, etc., during construction
- 6.2.2 Upstream Connector Closures needed to avoid conflicts with closure tapers, etc., during construction
- 6.3 Temporary Highway Lanes or Shoulder Use
- 6.4 Parking Restrictions
- 6.5 Street Improvements
- State R/W - Signals, Widen, etc.
- Local R/W - Signals, Widen, etc. Coop or Permit may be needed
- 6.6 Local Street USE - Coop or Permit may be needed
- 6.7 Traffic Control Officers (see 3.1 Cozeep)
- 6.8 Signed detour - using State routes
- 6.9 Signed detour - using local streets and roads
- 6.10 Adjust signals (time signals to allow detour traffic to flow)
- 6.11 Temporary bicycle or pedestrian facilities
- 6.12 Others

SUBTOTAL \$ -

7 Other Strategies

- 7.1 Application of new technology
- 7.2 Innovative products
- 7.3 Others

SUBTOTAL \$ -

TOTAL \$ 942,900

Assistant DTM must be invited by project team starting with the 65% Constructability reviews, in addition to TMP. DTM will review Plan Sheets showing the traffic handling for:

- 1 **Local area** - how local traffic will be routed around construction restrictions. For example, Riv-215 Linden Iowa Overcrossing replacement requires closure of that structure. How will local traffic be routed?

- 2 **Vicinity** - how highway and freeway traffic will be routed around construction restrictions and diverted. For example, the Riv-215 Linden Iowa Overcrossing replacement requires freeway closures. One of the elements needed would be signage, usually PCMS, on 60, 91 and 215 ahead of the preceding exits with appropriate messages. The goal is to divert motorists who know the area and therefore reduce the demand on the signed detour.

- 3 **Regional** - some work, such as 50% of lanes or connector/freeway closures, or major traffic shifts, etc., require diversion at remote approaches. For example, Riv-215 Linden Iowa Overcrossing replacement requires freeway closures. Therefore PCMS are needed around SBd-10/215, SBd-10/15, EB/WB 60, Riv-15/91, even NB 15/215 in Temecula to encourage motorists to take alternate freeways. Some projects may require diversion into other counties or even States. Projects adjacent to each other or on detour routes for other projects will need to coordinate their closures.

Please contact Al Afaneh, D8 DTM, 909 383-4917, or the DTM desk, 383-5911, DTM Dist08/D08/Caltrans/CAGov, if you need more information.

DTM requires these items to approve closures:

- 1 Email from RE or Permit Inspector that they have reviewed and approved the Contractor's Contingency Plan, with the plan attached. This plan shows how the Contractor will resolve problems which could prevent the timely opening of closures.
- 2 Also, the Contractor Plansheets showing the elements which will be functional to divert traffic for the proposed work.
- 3 Depending on the work, Caltrans (CT) or the local agency need an Area, Vicinity, and Regional plan how to divert traffic. This shows which Traffic Operations System (TOS) elements and other resources such as Cozeep, Construction Freeway Service Patrol (CFSP), CT or Local Agency staff, etc., will be used and where. Potential TOS, or TMC, or very limited TMT use require the project team to get written consent from the TMC Manager during the PS&E stage. Resources need to be committed as early as possible so that Construction can make them available to the TMC Manager, Unit 370. DTM.TMP, Unit 375, also requires resources during construction for TMP and DTM involvement.
- 4 Email from Requestor that any necessary public outreach is in progress. Requestor needs to contact PA and CL or the Maintenance Liaison. If a local agency is doing the work, their PA/CL staff is expected to do the outreach and coordinate with CT PA/CL.
- 5 Pre-closure meeting: For significant closures, Construction needs to arrange a meeting several days - in time to meet advance notification requirements for CHP and tow services, etc. - before the closure with DTM, TMC, TMT (very limited use), and agencies such as the CHP Area COZEEP Sergeant, CHP Inland Division FSP for CFSP, Locals (to avoid work on detours), to clarify TMP elements to be used and how COZEEP, CFSP, PCMS, tow trucks, etc. need to be deployed, when and where.
- 6 Night of closure meeting: Construction needs to arrange a tailgate meeting to confirm arrangements with all appropriate units/personnel. Only minor modifications may be made at this time.
- 7 Notify TMC: RE/Inspector needs to call the TMC as agreed upon at the Pre-Closure meeting (usually at least 30 minutes prior to dropping the first cone in case of full closure or when messages on stationary CMS will be needed.) Confirm TMT support. Advise of any changes/issues that may require signage and other changes. Advise the TMC ASAP if the opening may be delayed and activate the Contingency plan. Remember to provide the 10-97 and 10-98 as well to the TMC.

Please contact Al Afaneh, D8 DTM, 909 383-4927, or the DTM desk, 383-5911, DTM Dist08/D08/Caltrans/CAGov, if you need more information.

Remember, DTM.TMP is unit 375 and not only needs hours in the early project phases, but also in 270, **especially for projects with complex closure approval.**

ATTACHMENT G

Life Cycle Cost Analysis

**I-10 EASTBOUND TRUCK CLIMBING LANES
LIFE CYCLE COST ANALYSIS REPORT
EA 1F760, 08-SBd-10PM 36.4/R39.2 & Riv-10-PM R0.0/R0.2
San Bernardino and Riverside Counties, California**



March 2019

Prepared for:

Caltrans District 8
464 W 4th Street
San Bernardino, CA 92401

Prepared by:

HDR Engineering, Inc.
2280 Market Street, Suite 100
Riverside, CA 92501



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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The San Bernardino County Transportation Authority (SBCTA), in cooperation with the California Department of Transportation (Caltrans), proposes to extend the eastbound (EB) truck climbing lane (TCL) on Interstate 10 (I-10) from its current terminus at the existing eastbound off-ramp to Live Oak Interchange to just east of the County Line Road existing eastbound off-ramp at the San Bernardino County and Riverside County line (Project). The extension of the existing TCL within the Project limits for an additional 3-miles would improve operations by separating slow moving vehicles from faster moving passenger cars that are climbing the existing grade.

The Project is subject to both state and federal environmental review requirements because use of federal funds from the Federal Highway Administration (FHWA) is anticipated for the Project. Project documentation has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under both CEQA and NEPA.

The terminus of the proposed Project at the County Line Road Interchange was determined based on the profile grade of the existing eastbound lanes. The lane configuration at the proposed terminus allows the dedicated TCL-merge to occur after the sustained grade is less than 2 percent, meets the requirements of logical termini under NEPA, and does not conflict with existing exit ramps. Terminating the dedicated TCL at the existing County Line Road off-ramp is not preferred because it would create a forced weaving situation at the existing exit ramp since most trucks would continue eastbound on I-10 and therefore be forced to merge at this location. We understand that the existing outside two lanes are currently under bid and/or contract to be replaced and are therefore not a part of this Project.

1.2 SCOPE

The purpose of this report is to present the results of the Life Cycle Cost Analysis (LCCA) performed for the Project and to provide recommendations for cost-effective pavement structural sections for the proposed roadway improvements.

The pavement scope of work includes the addition of a single inside lane as well as construction of a new median as described in Section 4.0. No associated modifications to ramps, connectors, or other features is proposed as part of the Project.

2.0 EXISTING FACILITY

The Project is primarily located at the south edge of San Bernardino County in the City of Yucaipa and at the north edge of Riverside County in the City of Calimesa, California (see Appendix A, Figure 1). The Project proposes improvements along I-10 from PM 36.4 to R39.2 in the City of Yucaipa in San Bernardino County and from PM R0.0 to R0.2 in the City of Calimesa in Riverside County, (see Appendix A, Figures 2 and 3). The Project is located within a suburban setting with primarily commercial, commercial/industrial, open space, and some residential land uses adjacent to the Project limits.

The existing condition along I-10 within the Project limits is a six-lane freeway with three 12-foot wide Mixed Flow Lanes (MFLs) in each direction including an 8-foot wide asphalt inside shoulder and 10-foot wide asphalt outside shoulder, and a 36-foot wide median (including existing shoulders) with dual metal thrie-beam barrier separating EB and westbound (WB) roadbeds. The existing mainline pavement consists of jointed plain concrete pavement (JPCP) and we understand that proposed improvements in the truck climbing lanes (two right hand lanes) will consist of continuously reinforced concrete pavement (CRCP).

The Project is located in an Inland Valley Region (Caltrans, 2018d). Additional information regarding climate, topography, prior land uses, and other information is provided by Leighton (2019). The highway's maintenance service level is 1.

3.0 TRAFFIC

Traffic data was provided by Caltrans in a memorandum dated June 18, 2018. The data regarding PM R36.4 to R39.2 provided by Caltrans are summarized in Table 3–1 and Table 3–2, below. The memo is included for reference in Attachment 3. This LCCA pertains to the design of the 'inside lanes'. The 'outside lanes' are included for reference. Current Level of Service was not provided.

Table 3–1. I-10 Eastbound Mainline Traffic Data

Item	Year 2017	Year 2025	Year 2045	Year 2065
Annual Average Daily Traffic (AADT)	67,500	84,000	109,300	147,700
Truck % in AADT	12	14	23	23

Table 3–2. I-10 Eastbound Mainline Traffic Index, Year 2025

Traffic Index Year	2 Inside Lanes		2 Outside Lanes	
	Mainline	Shoulder	Mainline	Shoulder
10 Year (ESAL)	9,696,679	193,934	38,786,716	775,734
10 Year TI	12.0	7.5	14.0	8.5
20 Year (ESAL)	26,741,310	534,826	106,965,238	2,139,305
20 Year TI	13.5	8.5	15.5	10.0
40 Year (ESAL)	72,267,151	1,445,343	289,068,605	5,781,372
40 Year TI	15.0	9.5	17.5	11.0

4.0 PAVEMENT ALTERNATIVES

The existing Project area is generally asphalt concrete (AC) paved center median as well as unpaved median and center divider barrier. Proposed improvements include paving remaining median width as well as replacing existing median pavement with lane pavement.

The two paved surfaces within the Project area include proposed shoulder and traveled way pavement. Based on our review of the LCCA Widening flowchart (Caltrans, 2013), the pavement alternatives for consideration for the lane construction on the Project include 40-year JPCP and 40-year CRCP. For shoulder construction, we understand that JPCP is recommended to match mainline pavement, as well as to match adjacent shoulder pavements.

Caltrans (2018a) provided 40-year Traffic Indices (TI) of 15.0 for the proposed mainline lane and 9.5 for the proposed shoulder. Leighton assumed an R-value of 15 for their design, and pavement structural section design was performed by Leighton and presented in their preliminary materials report (Leighton, 2019). Concrete pavement design is based on a Type II subgrade, and per Caltrans direction the pavements are considered not laterally supported. The relevant pavement sections from their report are presented in Table 4–1, below. Additionally, Leighton’s report is included in Attachment 2.

Table 4–1. Proposed Pavement Structural Sections

Alternative	Pavement Composition (feet) ⁽¹⁾	Design Life (years)	TI	RV
Mainline 1	1.15 JPCP over 0.10 HMA BB over 0.35 LCB over 0.70 AS Class 2	40	15	15
Mainline 2	1.15 JPCP over 0.25 HMA-A over 0.70 AS Class 2	40	15	15
Mainline 3	1.00 CRCP over 0.25 HMA-A over 0.70 AS Class 2	40	15	15

Notes:

(1) JPCP = Jointed Plain Concrete Pavement, HMA = Hot Mix Asphalt, BB = Bond Breaker, LCB = Lean Concrete Base, AS = Aggregate Subbase, HMA-A = Type A HMA, CRCP = Continuously Reinforced Concrete Pavement, AB = Aggregate Base, RHMA-G = Rubberized Hot Mix Asphalt Gap-Graded, SEGT = Subgrade Enhancement Geotextile, TI = Traffic Index, RV = R-Value

(2) AB section modified per recommendations of Caltrans and Leighton (2019) to match adjacent lane thickness.

5.0 ANALYSIS

Caltrans requires that life-cycle cost impacts be fully taken into account when making project-level decisions for pavements. Caltrans requires an LCCA for all pavement projects that are done on the State Highway System, regardless of funding source, with minor exceptions (Caltrans, 2013). LCCAs utilize RealCost v2.5.4CA (Caltrans, 2018b) software and economic assumptions to estimate user costs and agency costs associated with different pavement alternatives over the course of the pavement's life.

5.1 INITIAL CONSTRUCTION COSTS

Initial construction costs were developed using the pavement sections provided by Leighton (2019) which were described in Section 4.0.

Materials costs were estimated using data from Caltrans Contract Cost Data (2018c) for projects within the last three years, adjusted average pricing, using similar material quantities, and within Caltrans District 8 where possible. Details and calculations are provided in Attachment 4. Initial construction costs are also presented in Table 5–1.

5.2 LIFE CYCLE COSTS

Life cycle costs include initial construction costs, maintenance costs, and user costs due to future closures for maintenance operations. Total life cycle costs for each pavement alternative are presented in Table 5–1, below. Additional procedures, assumptions, and input data are provided in Attachment 5. RealCost software report output (Caltrans, 2018b) is included in Attachment 6.

Table 5–1. Life Cycle Costs (Present Value Dollars [\$1,000])

Analyzed Alternative ⁽¹⁾	Initial Construction	Maintenance	Life Cycle		
			Agency	User	Total
Mainline 1	2,470	69	2,539	71	2,610
Mainline 2	2,399	69	2,468	71	2,539
Mainline 3	2,475	12	2,487	0	2,487

Notes:

(1) See Section 4.0 for pavement details.

6.0 CONCLUSION

Caltrans (2013) considers calculations LCCA evaluations in a present-value dollars, with the end goal being to analyze pavement alternatives to determine the most cost effective long-term strategy. In this analysis, agency costs and user costs are considered equivalent. The deterministic outputs of the analysis performed for this project are presented in Table 5–1, above.

Caltrans requires that documentation be provided wherever the alternative with the lowest life cycle cost is not selected. For this Project, no deviations are recommended from selecting the alternative with lowest life cycle cost. Therefore, the alternatives presented in Table 6–1 are recommended for design:

Table 6–1. Recommended Pavement Structural Sections

Selected Alternative	Pavement Composition (feet)
Mainline 3	1.00 CRCP over 0.25 HMA-A over 0.70 AS Class 2
Shoulder	0.90 JPCP over 1.05 AB Class 2

It is noted that the three alternatives presented for mainline construction are relatively similar in total life cycle costs, with JPCP and CRCP alternatives within about five percent of the same cost. Other considerations which are outside the scope of LCCAs, such as economies of scale or construction/detail benefits, may exist that make a JPCP alternative more attractive than is apparent from the results of this LCCA. This conclusion may be refined after completion of a final materials report.

7.0 REFERENCES

The following references were used in preparation of this report:

Caltrans, 2013, Life-Cycle Cost Analysis Procedures Manual, For RealCost Version 2.5CA.

Caltrans, 2016, Value of User Time Economic Parameters, <http://www.dot.ca.gov/hq/tpp/offices/eab/benefit_cost/LCBCA-economic_parameters.html>

Caltrans, 2017, Pavement Rehabilitation, 08-SBD-10 PM R36.8/R39.16, Project ID 081200100 EA 0K293, April.

Caltrans, 2018a, Memorandum: I-10 Eastbound Truck Climbing Lane Traffic Data Request, June 18.

Caltrans, 2018b, RealCost Version 2.5.4CA software.

Caltrans, 2018c, Contract Cost Data Lookup, <<http://sv08data.dot.ca.gov/contractcost/>>

Caltrans, 2018d, Highway Design Manual.

Leighton, 2019, Preliminary Materials Report, I-10 Eastbound Truck Climbing Lanes, EA 08-1F760, January 30.

Trading Economics, 2019, US CPI Transportation, <<https://tradingeconomics.com/united-states/cpi-transportation>>

ATTACHMENT H

Risk Register

LEVEL 2 - RISK REGISTER				Project Name:	SBCTA I-10 EB TCL Improvements (PA/ED)			DIST- EA	08-1F760	Project Manager	Mark S. Hager						
Risk Identification							Risk Assessment					Risk Response					
Status	ID #	Type	Category	Title	Risk Statement	Current status/assumptions	Probability	Cost Impact	Cost Score	Time Impact	Time Score	Rationale	Strategy	Response Actions	Risk Owner	Updated	
Active	08-1F760-01	Threat	Construction	Hazardous Materials	Hazardous materials in surrounding soil and lead paint could be encountered during construction, which will require an on-site storage area and potential additional costs to dispose.	Active	2-Low	2 -Low	4	2 -Low	4	Since the freeway has been in operations since 1960's hazardous materials and lead paint could be encountered during construction.	Mitigate	Include specifications for proper storage and disposal of hazardous waste in the PS&E phase.	PM / Project Engineer	6/29/2018	
Active	08-1F760-02	Threat	Construction	Buy America / Map 21	Federally funded projects are required to meet the buy America / Map 21 requirements, which may result in additional costs and increased lead times.	Active	2-Low	2 -Low	4	4 -Moderate	8	Ordering American products may require additional lead time for production and delivery, and the prices may be higher	Accept	Provisions will be added during PS&E to meet requirements.	PM / Project Engineer	6/29/2018	
Active	08-1F760-03	Threat	Environmental	Nesting birds	Nesting birds, protected from harassment under the Migratory Bird Treaty Act, may delay construction during the nesting season.	Active	2-Low	1 -Very Low	2	4 -Moderate	8	Agricultural areas near Live Oak Canyon could provide a potential habitat for nesting birds.	Mitigate	Schedule contract work to avoid the nesting season or remove nesting habitat before starting work.	PM / Project Engineer	6/29/2018	
Active	08-1F760-04	Threat	Design	Supplemental EIR	A design change that is outside of the parameters contemplated in the Environmental Document could trigger a supplemental EIR, thereby causing a delay due to the public comment period.	Active	1-Very Low	1 -Very Low	1	4 -Moderate	4	Potential lane shifting/ pavement reconstruction beyond project limits could trigger the need for a supplemental EIR.	Avoid	Monitor design changes against ED to avoid reassessment of ED unless the opportunity outweighs the threat.	PM / Project Engineer	6/29/2018	
Retired	08-1F760-05	#REF!	Design	Eastern Terminus	The Eastern Terminus at County Line Road is not consistent with the PSR, and if not approved it would lead to a redesign and increased schedule delays and construction costs.	Retired, the Traffic Operations Analysis Report (TOAR) has been approved in October, 2018.	1-Very Low	1 -Very Low	1	1 -Very Low	1	If the proposed Eastern Terminus at County Line Road is not approved it would lead to a redesign and increased schedule delays and construction costs.	Accept	The Traffic Operations Analysis Report showed the operational benefits of having the TCL lane drop past the County Line Rd EB exit and where the longitudinal grades fall below 2%. The GADs have been approved.	PM / Project Engineer	1/18/2019	
Active	08-1F760-06	Threat	Design	Noise Barriers	Noise barriers may need to be included as part of the project, which would cause an increase in project footprint, construction costs, and potential schedule delays for design.	Active	3-Moderate	4 -Moderate	12	4 -Moderate	12	Including noise barriers would require additional project footprint, construction costs and have the potential for schedule delays for the design of noise barriers.	Accept	Monitor the noise study. Noise barriers are subject to Public voting to determine whether or not they will be constructed.	PM / Project Engineer	11/12/2019	
Active	08-1F760-07	Threat	Design	Permits at Wilson Creek	Environmental permits at Wilson Creek bridge may be delayed, which would have impacts to the project schedule.	Active	2-Low	2 -Low	4	4 -Moderate	8	Delays in obtaining permits may cause delays in construction schedule.	Mitigate	Monitor the permit process and allow for delays during the application process.	PM / Project Engineer	6/29/2018	
Retired	08-1F760-08	Opportunity	Design	Rehabilitation Project	The pavement rehabilitation project in the area would provide strengthened shoulders and good pavement, which could lead to reduced costs and a reduction in the project schedule.	Retired, the rehabilitation project is currently under construction as of November of 2019.	1-Very Low	1 -Very Low	1	1 -Very Low	1	The design assumes the existing pavement will be adequate after completion of the rehabilitation project.	Accept	If rehabilitation project is delayed, pavement accommodations may need to be accounted for during construction (i.e., shoulder strengthening, etc.).	PM / Project Engineer	11/12/2019	
Retired	08-1F760-09	Threat	Design	Rehabilitation Project	The planting proposed by the rehabilitation project may conflict with the location of potential sound barriers	Retired, the noise barrier previously proposed ROW adjacent near planting locations is not economically feasible and other noise barrier locations outside Caltrans ROW are being considered.	2-Low	2 -Low	4	2 -Low	4	The rehabilitation project will plant trees near the location of a potential sound barrier that is acoustically feasible and that would benefit the Hillcrest Mobile Estates. Some of these trees may need to be removed if in conflict with the sound barrier.	Mitigate	Coordinate with the PDT of the rehabilitation project to request that the location of the trees is revised to avoid potential conflicts with the noise barrier.	PM / PDT	11/12/2019	
Retired	08-1F760-10	Threat	Design	Design Standard Decision Document Approval	Nonstandard features may not be approved.	Retired, the DSDD has been approved in January, 2018.	1-Very Low	1 -Very Low	1	1 -Very Low	1	The design would need to be revisited if the Design Standard Decision Document is not approved, which could cause increased construction costs and schedule delays due relating to design.	Accept	The DSDD has been approved. Justification was provided for the nonstandard features and the reasons why these cannot be made standard, including but not limited to the impacts to environmental sensitive areas, hydrology, cost, and project schedule.	PM / Project Engineer	1/18/2019	
Active	08-1F760-11	Threat	Design	Potential Staging Areas	Additional staging areas may be required on adjacent vacant properties.	Active	2-Low	4 -Moderate	8	4 -Moderate	8	Additional staging areas would require R/W negotiations with adjacent property owners and increase the overall project cost.	Avoid	Attempt to avoid additional staging areas through design.	PM / Project Engineer	6/29/2018	
Active	08-1F760-12	Threat	Organizational	Funding	Trade Corridor Improvement Fund (TCIF) dollars may not be available.	Active	2-Low	4 -Moderate	8	2 -Low	4	Trade Corridor Improvement Fund (TCIF) dollars may not be available for this project, which would require additional funding from another source.	Mitigate	Monitor existing funding and look for opportunities to cover TCIF dollars should they not be available for this project.	PM / Project Engineer	6/29/2018	
Active	08-1F760-13	Threat	Construction	Escalation Fluctuation	Escalation rates for labor and materials may fluctuate prior to start of construction.	Active	2-Low	4 -Moderate	8	2 -Low	4	Construction is set to begin in 2020, and with current market fluctuations, escalation rates could change, causing the project to cost more than originally anticipated.	Mitigate	Monitor existing market trends and ensure project schedule does not slip during design.	PM / Project Engineer	6/30/2018	
Active	08-1F760-14	Threat	Organizational	Funding	Meeting CTC Funding Deadline	Active	3-Moderate	2 -Low	6	2 -Low	6	California Transportation Commission (CTC) dollars may not be available for this project if the deadline to apply is not met, which would require additional funding from another source.	Mitigate	Work with PDT to try to expedite pending submittals, reviews and approvals to finish the PA/ED phase prior to the deadline to apply for funding.	PM / PDT	11/12/2019	

ATTACHMENT I

Project Category Approval

Memorandum

*Serious drought.
Help Save Water!*

To: CHRISTY CONNORS
DEPUTY DISTRICT DIRECTOR
DESIGN

Date: February 02, 2017

File: 08-SBd-10-36.4/R39.2
08-Riv-10-R0.0/R0.2
Add TCL (EB)
08-2201-1F760K
ID 0815000050

From: MAEN SHAAR *MS*
PID/Special Studies
Planning

Subject: REQUEST FOR PROJECT DEVELOPMENT CATEGORY APPROVAL

In accordance with Chapter 8, Section 5 of the Project Development Procedure Manual, your approval is requested to assign the above-mentioned project to Category 4B.

A Project Study Report-Project Development Support (PSR-PDS) is being prepared to add an east bound truck climbing lane to improve Level of Service (LOS) and safety at this segment of interstate 10. The project is located in Yucaipa from the 16th street overcrossing in San Bernardino County to 0.2 mile east of County Line Road undercrossing in Riverside County. It is a locally funded project.

The scope includes adding an EB TCL by widening the median only, widening the Oak Glen Creek Bridge, installing concrete barrier in the median, and adding sound wall in the west bound.

The Category 4B is recommended based on the following project considerations:

1. The project will not require additional right of way
2. The project will not increase freeway traffic capacity

APPROVED BY:

ma 
CHRISTY CONNORS
Deputy District Director
Design

2/6/17
Date

ATTACHMENT J

Signature Pages of Project Study Report / Project Development Support

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

To

Request Approval of a Locally Funded Project to Proceed to Project Approval and Environmental Document Phase

On Route _____ 10 _____
Between _____ 16th Street Overcrossing _____
And _____ County Line Road Undercrossing _____

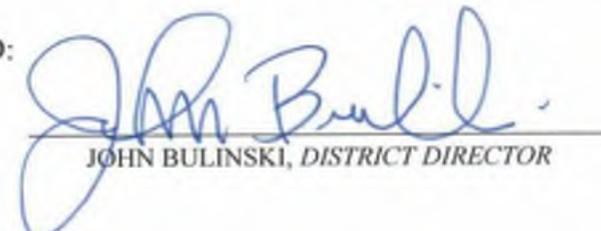
APPROVAL RECOMMENDED:


MELECIO CHALCO, *CALTRANS Project Manager*

APPROVAL RECOMMENDED:


RAY DESSELLE, *Deputy District Director, Planning*

APPROVED:


JOHN BULINSKI, *DISTRICT DIRECTOR*

6/13/17
DATE

Memorandum

*Making Conservation
a California Way of Life.*

To: JOHN BULINSKI
DISTRICT DIRECTOR

Date: March 30, 2017

File: 08-SBd-10-PM 36.4/R39.2
08-Riv-10-PM R0.0/R0.2
EA 1F760K- Program 800.100
Project ID No. 0815000050

From: MAEN SHAAR ^{MS}
Planning

Subject: **PROJECT STUDY REPORT-PROJECT DEVELOPMENT SUPPORT (PSR-PDS)**

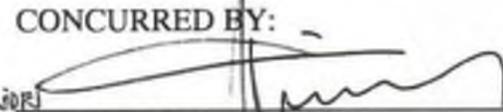
It is recommended that the attached PSR-PDS for the above-referenced project be approved.

CONCURRED BY:



RAY I. BESELLE
Deputy District Director
Planning

CONCURRED BY:



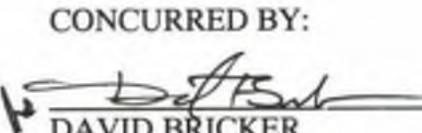
CATALINO A. PINING III
Deputy District Director
Traffic Operations

CONCURRED BY:



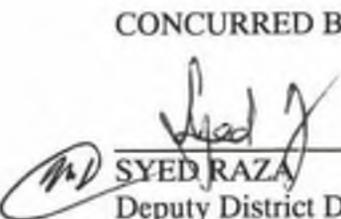
CHRISTY CONNORS
Deputy District Director
Design

CONCURRED BY:



DAVID BRICKER
Deputy District Director
Environmental Planning

CONCURRED BY:



SYED RAZA
Deputy District Director
Program Project Management

Attachment: PSR-PDS
c: Maen Shaar

This project study report-project development support has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

Maen Shaar
REGISTERED CIVIL ENGINEER

3/30/17
DATE



ATTACHMENT K

Initial Site Assessment Checklist



Initial Site Assessment (ISA) Checklist

Project Information

District 8 County SBd/Riv Route I-10 Post Mile SBd 36.4-R39.2 and Riv R0.0-R0.2 EA 1F7600

Description Interstate 10 (I-10) Eastbound Truck Climbing Lane Project. See attached project description

Is the project on the HW Study Minimal-Risk Projects List (HW1)? _____

Project Manager Mohammed H. Rahman phone # (909) 388-7016

Project Engineer Aysha Habib phone # (909) 806-2554

Project Screening

Attach the project location map to this checklist to show location of all known and/or potential HW sites identified.

1. Project Features: New R/W? NO Excavation? YES Railroad Involvement? NO
Structure demolition/modification? YES Subsurface utility relocation? NO

2. Project Setting Interstate 10 median and fast lane shoulders between SBd PM 36.4 and R39.2 and Riv PM R0.0 and R0.2

Rural or Urban Rural to suburban

Current land uses Freeway

Adjacent land uses Light industrial, commercial, agricultural, residential

(industrial, light industry, commercial, agricultural, residential, etc.)

3. Check federal, State, and local environmental and health regulatory agency records as necessary, to see if any known hazardous waste site is in or near the project area. If a known site is identified, show its location on the attached map and attach additional sheets, as needed, to provide pertinent information for the proposed project.

4. Conduct Field Inspection. Date 4/27/18 Use the attached map to locate potential or known HW sites. See I-10 EB TCL ISA (Leighton 2018)

STORAGE STRUCTURES / PIPELINES:

Underground tanks None Surface tanks None

Sumps None Ponds None

Drums None Basins None

Transformers None Landfill None

Other Potential Treated Wood on Median Guardrail supports and Median Sign Posts

Initial Site Assessment (ISA) Checklist (continued)

CONTAMINATION: (spills, leaks, illegal dumping, etc.)

Surface staining None Oil sheen None

Odors None Vegetation damage None

Other None

HAZARDOUS MATERIALS: (asbestos, lead, etc.)

Buildings Oak Glen Creek Bridge Spray-on fireproofing _____

Pipe wrap _____ Friable tile _____

Acoustical plaster _____ Serpentine _____

Paint _____ Other _____

5. Additional record search, as necessary, of subsequent land uses that could have resulted in a hazardous waste site. Use the attached map to show the location of potential hazardous waste sites.

6. Other comments and/or observations: _____

ISA Determination

Does the project have potential hazardous waste involvement? Yes If there is known or potential hazardous waste involvement, is additional ISA work needed before task orders can be prepared for the Investigation? No If "YES," explain; then give an estimate of additional time required: _____

As previously identified in the 2018 ISA, a Lead Compliance Plan (LCP) will be required for ADL, traffic striping, and lead -based paint on the Oak Glen Creek Bridge. No new hazardous waste/material sites were identified in the ISA Update Memorandum (2020) that would warrant additional ISA work or preliminary site investigations (PSI).

A brief memo should be prepared to transmit the ISA conclusions to the Project Manager and Project Engineer.

ISA Conducted by Uyenlan Vu **Date** 6/26/2020

ATTACHMENT L

Signature Page of Approved Environmental Document

I-10 Eastbound Truck Climbing Lane Improvement Project

CITIES OF YUCAIPA AND CALIMESA
SAN BERNARDINO AND RIVERSIDE COUNTIES, CALIFORNIA
08-SBd-10-PM 36.4/R39.2
08-RIV-10-PM R0.0/R0.2
PN 0815000050/EA 08-1F7600

Draft Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment



**Prepared by the
State of California Department of Transportation
and
San Bernardino County Transportation Authority**

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 USC 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.



June 2020

SCH# _____

08-SBd-10-PM 36.4/R39.2

08-RIV-10-PM R0.0/R0.2

EA: 08-1F7600

Project No. 0815000050

Interstate 10 Eastbound Truck Climbing Lane Improvement Project
(Postmile 36.4 to R39.2 and R0.0 to R0.2) in the Cities of Yucaipa and Calimesa,
San Bernardino and Riverside Counties, California.

**Draft Initial Study with Proposed Mitigated Negative
Declaration/Environmental Assessment**

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 U.S.C. 4332(2)(c)

THE STATE OF CALIFORNIA
Department of Transportation
and
San Bernardino County Transportation Authority

6/29/2020
Date of Approval



David Bricker
Deputy District Director
California Department of Transportation
CEQA & NEPA Lead Agency

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

Antonia Toledo, MS
Senior Environmental Planner
Caltrans District 8
464 West 4th Street, MS-820
San Bernardino, CA 92401

Timothy Watkins
San Bernardino County Transportation Authority
1170 West 3rd Street, 2nd Floor
San Bernardino, CA 92410

ATTACHMENT M

Noise Barrier Monitoring and Modeling Locations



02/20 JN 163305 MAS

SOURCE: Google Earth Pro Aerial, March 2018

SEE EXHIBIT 4b

Noise Monitoring and Modeling Locations Exhibit 4a

LEGEND

- Noise Modeling Locations
- Short-term Noise Measurement and Modeling Locations
- Acoustically Equivalent Noise Measurement Location
- Short-term Measurement, Long-term Measurement, and Noise Modeling Locations
- Right of Way
- Potential Barrier Locations



0 Feet 200

NOTE: Barrier locations are approximate and are not drawn to scale.

08-SBD-10 PM 36.4/R39.2 &
08-RIV-10 PM R0.0/R0.2
EA 1F7600
I-10 Eastbound TCL
Improvement Project

SEE EXHIBIT 4a



SEE EXHIBIT 4c

SOURCE: Google Earth Pro Aerial, March 2018

Noise Monitoring and Modeling Locations Exhibit 4b

LEGEND

- Noise Modeling Locations
- Short-term Noise Measurement and Modeling Locations
- ◆ Short-term Measurement, Long-term Measurement, and Noise Modeling Locations
- Acoustically Equivalent Noise Measurement Location
- - - Right of Way
- - - Potential Barrier Locations
- - - Potential Barrier Locations

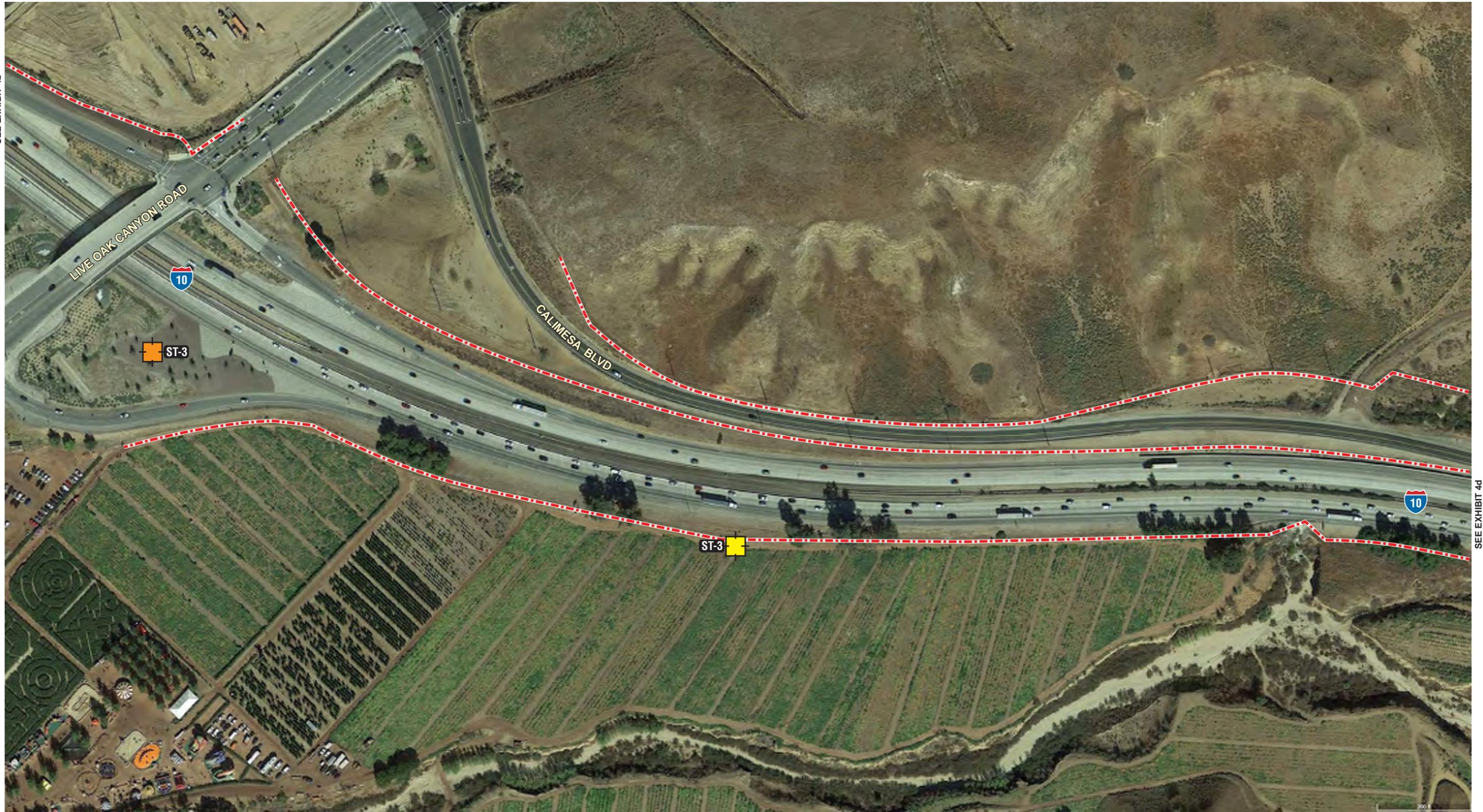
NOTE: Barrier locations are approximate and are not drawn to scale.

08-SBD-10 PM 36.4/R39.2 &
08-RIV-10 PM R0.0/R0.2
EA 1F7600
I-10 Eastbound TCL
Improvement Project

02/20 JN 163305 MAS

Google Earth

SEE EXHIBIT 4b



SEE EXHIBIT 4d

05/19 JN 163305 MAS

SOURCE: Google Earth Pro Aerial, March 2018

SEE EXHIBIT 4d

Noise Monitoring and Modeling Locations

Exhibit 4c

LEGEND

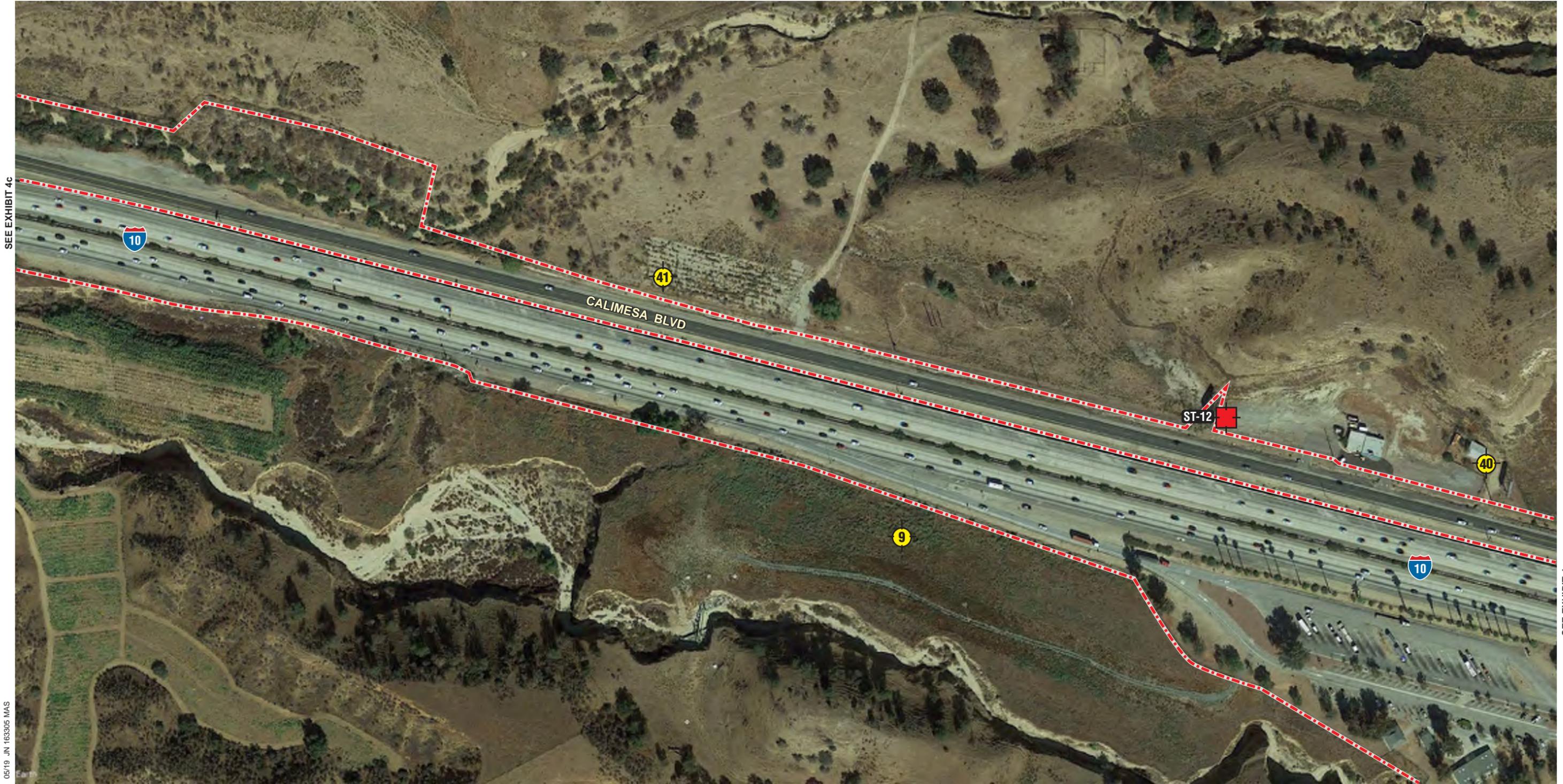
-  Noise Modeling Locations
-  Short-term Noise Measurement and Modeling Locations
-  Short-term Measurement, Long-term Measurement, and Noise Modeling Locations
-  Acoustically Equivalent Noise Measurement Location
-  Right of Way
-  Potential Barrier Locations

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0 Feet 200

08-SBD-10 PM 36.4/R39.2 &
08-RIV-10 PM R0.0/R0.2
EA 1F7600
I-10 Eastbound TCL
Improvement Project



SEE EXHIBIT 4c

05/19_JN_163305_MAS

SEE EXHIBIT 4e

SEE EXHIBIT 4e

SOURCE: Google Earth Pro Aerial, March 2018

Noise Monitoring and Modeling Locations Exhibit 4d

LEGEND

- Noise Modeling Locations
- Short-term Noise Measurement and Modeling Locations
- Short-term Measurement, Long-term Measurement, and Noise Modeling Locations
- Acoustically Equivalent Noise Measurement Location
- Right of Way
- Potential Barrier Locations



0 Feet 200

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08-SBD-10 PM 36.4/R39.2 &
08-RIV-10 PM R0.0/R0.2
EA 1F7600
I-10 Eastbound TCL
Improvement Project

SEE EXHIBIT 4d



02/20 JN 163305 MAS

SOURCE: Google Earth Pro Aerial, March 2018

SEE EXHIBIT 4f

Noise Monitoring and Modeling Locations Exhibit 4e

LEGEND

- Noise Modeling Locations
- Short-term Noise Measurement and Modeling Locations
- Acoustically Equivalent Noise Measurement Location
- Short-term Measurement, Long-term Measurement, and Noise Modeling Locations
- Right of Way
- Potential Barrier Locations

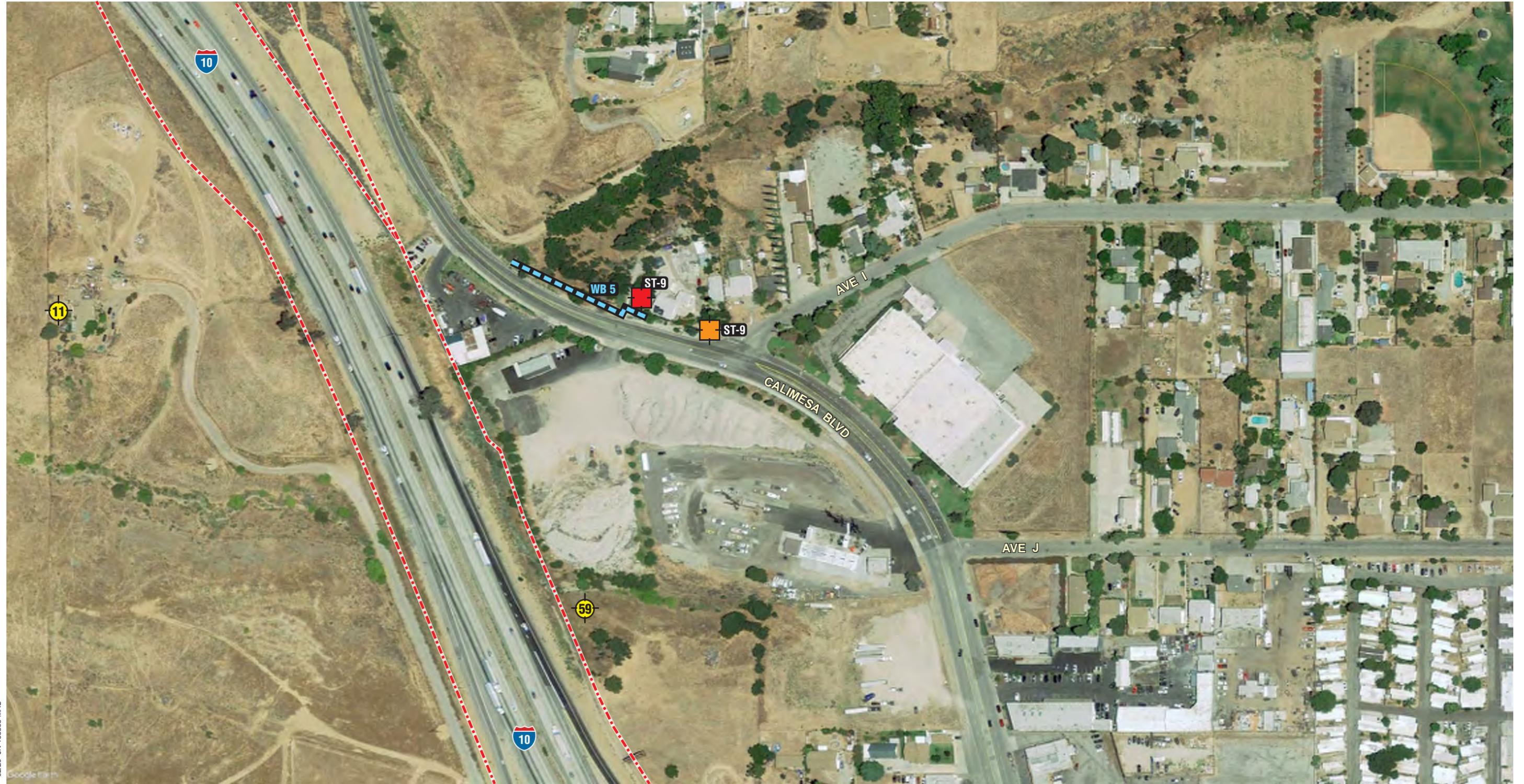
NOTE: Barrier locations are approximate and are not drawn to scale.



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08-SBD-10 PM 36.4/R39.2 &
08-RIV-10 PM R0.0/R0.2
EA 1F7600
I-10 Eastbound TCL
Improvement Project

SEE EXHIBIT 4e



02/20 JN 163305 MAS

SOURCE: Google Earth Pro Aerial, March 2018

SEE EXHIBIT 4g

Noise Monitoring and Modeling Locations

Exhibit 4f

LEGEND

-  Noise Modeling Locations
-  Short-term Noise Measurement and Modeling Locations
-  Short-term Measurement, Long-term Measurement, and Noise Modeling Locations
-  Acoustically Equivalent Noise Measurement Location
-  Right of Way
-  Potential Barrier Locations

NOTE: Barrier locations are approximate and are not drawn to scale.

08-SBD-10 PM 36.4/R39.2 &
 08-RIV-10 PM R0.0/R0.2
 EA 1F7600
 I-10 Eastbound TCL
 Improvement Project

SEE EXHIBIT 4f



02/20 JN 163305 MAS

SOURCE: Google Earth Pro Aerial, March 2018

Noise Monitoring and Modeling Locations

Exhibit 4g

LEGEND

- Noise Modeling Locations
- Short-term Noise Measurement and Modeling Locations
- Acoustically Equivalent Noise Measurement Location
- Short-term Measurement, Long-term Measurement, and Noise Modeling Locations
- Right of Way
- Potential Barrier Locations

NOTE: Barrier locations are approximate and are not drawn to scale.



0 Feet 200

08-SBD-10 PM 36.4/R39.2 &
 08-RIV-10 PM R0.0/R0.2
 EA 1F7600
 I-10 Eastbound TCL
 Improvement Project