4 - ALA - 580 - R1.7/0.8
10 - SJ - 205 - L0.0/R13.2
10 - SJ - 5 - R12.9/R13.5
10-1H170 - 1017000116 – 3260
Program Code 075.600
May 31, 2022

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

To

Request Programming in the 2022 STIP for Capital Support of the Project Approval and Environmental Document (PA&ED) Phase

On Route I-205, I-580 and I-5

Between I-580/West Grant Line Road Interchange

And I-5/I-205 Interchange

APPROVAL RECOMMENDED: Ryan Niblock

Ryan Niblock, Project Manager, Accepts risks identified in this PSR-PDS and attached risk register.
San Joaquin Council of Governments

APPROVAL RECOMMENDED:

Dina El-Nakhal, Corridor Manager
Caltrans District 10

APPROVAL RECOMMENDED:

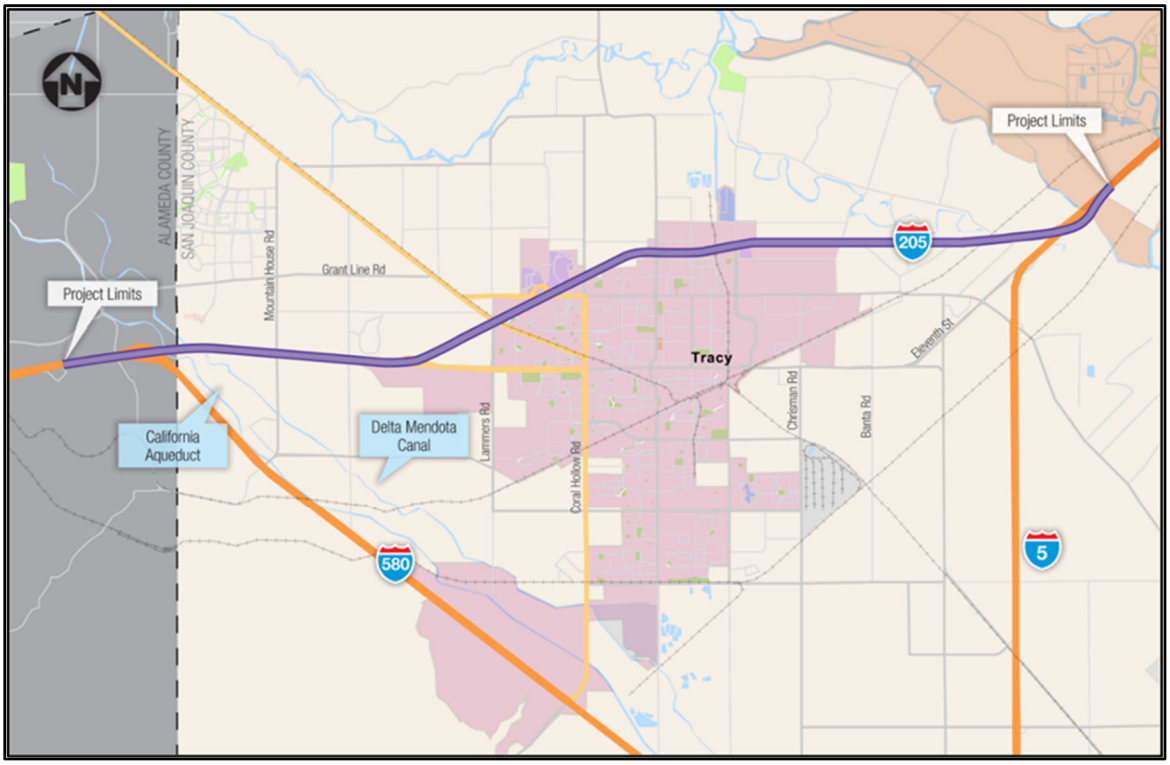
Marlon Regisford, Deputy District Director,
Planning, Local Assistance and Environmental
Caltrans District 10

APPROVED:

Dennis T. Agar, District Director *Date*

4 - ALA - 580 - R1.7/0.8
10 - SJ - 205 - L0.0/R13.2
10 - SJ - 5 - R12.9/R13.5

Vicinity Map



4 - ALA - 580 - R1.7/0.8
10 - SJ - 205 - L0.0/R13.2
10 - SJ - 5 - R12.9/R13.5

This project study 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.

02/18/2022

REGISTERED CIVIL ENGINEER *DATE*



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1. INTRODUCTION

The San Joaquin Council of Government (SJCOG), in cooperation with the California Department of Transportation (Caltrans) completed the Project Study Report-Project Development Support (PSR-PDS) for the High Occupancy Vehicle (HOV) Lanes in San Joaquin County between the Alameda County Line (PM L0.0) and Interstate 5 (I-5) (PM R12.5). That PSR-PDS was approved on December 17, 2017. The purpose of this Supplemental PSR-PDS is to add managed lanes as a viable build alternative and to extend the study limits.

The project proposes to install Managed Lanes on Interstate 205 (I-205) through the City of Tracy, accommodate transit hubs, and improve interchanges between postmiles R1.7 on Interstate 580 and R13.5 on Interstate 5. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. Managed Lanes are highway lanes that are actively managed to respond to an area's rapid growth. Interstate 205 in the City of Tracy has been identified as an area of heavy traffic volume resulting from high truck volumes and commuters that travel to and from the Bay Area. Examples of Managed lanes being considered for the proposed project would be high occupancy vehicle lanes, transit lanes, and express (or toll) lanes.

Additional right-of-way is anticipated as a result of roadway realignment and managed lanes improvement, interchange modifications, and/or providing retention basins for storm water.

See Attachment C for the capital outlay cost estimate for this revised project.

Description	**Original PSR-PDS (HOV Alternatives only)**	**Supplemental PSR-PDS (Managed Lanes Alternative)**
Project Limits	10 - SJ - 205 - L0.0/R12.5	4 - ALA - 580 - R1.7/0.8 10 - SJ - 205 - L0.0/R13.2 10 - SJ - 5 - R12.9/R13.5
Number of Alternatives	1 HOV Build Alternative, 1 No-Build Alternative	2 HOV Build Alternatives, 1 Express Lane Build Alternative, 1 Transit Only Build Alternative, 1 No-Build Alternative
Capital Outlay Support Estimate for PA&ED	$12.36M	$12.36M
Capital Outlay Construction	$251M - $321M	$603.9M - $912.5M
Capital Outlay Right-of-Way	$6M - $6.6M	$31.0M - $39.7M
Funding Source	State, Regional, and Local Funds	Federal, State, Regional, and Local Funds

Funding Year	2018	2022
Type of Facility (conventional, expressway, freeway)	Freeway; HOV Lanes improvements.	Express Lane, Freeway, HOV Lanes improvements.
Number of Structures	19	30
Anticipated Environmental Determination or Document	Initial Study-Mitigated Negative Declaration / Environmental Assessment	Environmental Impact Report and an Environmental Assessment
Legal Description	Construction on I-205 in San Joaquin County and in Tracy from 0.1 miles west of the Delta-Mendota Canal to 0.5 miles west of the I-5 Connector	I-205 Managed Lanes from I-580/West Grant Line Road in Alameda County to the I-5/I-205 interchange in San Joaquin County.
Project Development Category	Category 4, Project that do not require a location adoption or a freeway agreement and do not meet the criteria of Categories 5 or 6.	No Change
PIR Level	Level 2	No Change

2. BACKGROUND

Delay in travel time has been building steadily on I-205 during peak weekday travel periods. To address the travel time delay, Caltrans, and its partner agencies, including SJCOG, adopted an interim strategy of improving the freeway to 6-lanes and adding auxiliary lanes. In addition to the interim strategy, a longer-term dual strategy of targeted improvements of Managed Lanes and the installation of Intelligent Transportation Systems (ITS) technologies was adopted. The PSR-PDS prepared in 2017 intended to develop Managed Lanes between the Alameda County Line and I-5, as part of this long-term dual strategy.

Since the approval of the PSR-PDS, SJCOG through its Congested Corridors Plan (Final Report, March 26, 2020) has been studying further considerations for I-205 to be examined during the PA&ED phase. The SJCOG Congested Corridors Plan for I-205 includes improving I-205 to the outside to leave the median open to allow adding future transportation improvements, including options for reversible lanes, autonomous vehicle lanes, bus-only lanes, passenger rail improvements, or other emerging technologies. It also includes constructing High Occupancy Toll (HOT) Lane, also known as Express Lane, facilities instead of HOV only lanes. In addition to the Express

Lanes, the Congested Corridors Plan identified a need for coordination with other ongoing projects on the I-205 corridor and extending the project limits to examine improvements in Alameda County on I-580, and modifying interchanges along the I-205 corridor to accommodate projected traffic demands, including the I-205/Grant Line Road/Naglee Road Interchange, the I-205/Tracy Boulevard Interchange, and the I-205/MacArthur Drive Interchange.

The project now proposes to install Managed Lanes on I-205 with the project limits now extending from I-580 and the West Grant Line Road interchange to the I-205 and I-5 interchange. Four build alternatives and the no-build alternative will be considered. The four Managed Lane alternatives will require additional studies and design refinements. This Supplemental PSR-PDS discusses these refinements.

3. PURPOSE AND NEED

Section 3, Purpose and Need, in the approved PSR-PDS is superseded in its entirety and replaced as follows:

Purpose:
The proposed project has the following primary purposes:

- The proposed project will provide reliable travel times along I-205 for commuters between the Central Valley and the Bay Area.
- The proposed project will facilitate more efficient goods movement on I-205 .
- The proposed project will facilitate increased multi-modal transportation opportunities, including carpooling and ridesharing.

Need:
The proposed project is needed to address the following concerns:

- Commute times on I-205 continue to increase due to traffic from Central Valley counties to the Bay Area, as workers move to growing Central Valley residential developments while commuting to jobs in the Bay Area.
- Traffic volumes from truck traffic continue to increase as a result of the use of I-205 as a regional and interstate truck and freight route, worsening commute travel time.
- The growth and development occurring in the Central Valley has increased the need for additional alternative modes of transportation to address planned growth and serve commuters to the Bay Area.

4. TRAFFIC ENGINEERING PERFORMANCE ASSESSMENT

A Traffic Engineering Performance Assessment (TEPA) Update has been completed for the revised project and is included as Attachment E. Below is a summary table of the corridors' existing and future Daily Traffic and Truck Percentages.

Freeway Segment	Truck %	Existing Volume		Future No Build	
		AM	PM	AM	PM
I-205 Eastbound					
I-580 to Mountain House Pkwy off-ramp	12.00%	2,310	3,660	3,405	6,000
Mountain House Pkwy off-ramp to Mountain House Pkwy Loop on-ramp	12.00%	2,200	3,440	3,270	5,340
Mountain House Pkwy Loop on-ramp to Mountain House Pkwy on-ramp	12.00%	2,510	3,790	4,322	5,690
Mountain House Pkwy on-ramp to 11th Street off-ramp	12.00%	2,700	4,500	4,558	6,400
11th Street off-ramp to Lammer Rd off-ramp	12.00%	2,010	4,220	3,830	5,674
Lammer Rd off-ramp to Lammer Rd on-ramp				2,816	5,285
Lammer Rd on-ramp to Grant Line Rd off-ramp				3,867	6,004
Grant Line Rd off-ramp to Grant Line Rd on-ramp	12.00%	1,680	3,490	3,356	5,503
Grant Line Rd on-ramp to Tracy Blvd off-ramp	12.00%	2,300	4,270	4,239	6,783
Tracy Blvd off-ramp to Tracy Blvd on-ramp	11.17%	2,150	3,840	4,102	6,238
Tracy Blvd on-ramp to MacArthur Dr off-ramp	11.17%	2,480	4,320	4,914	7,313
MacArthur Dr off-ramp to MacArthur Drive on-ramp	11.43%	2,260	3,840	4,654	5,881
MacArthur Dr on-ramp to Chrisman Rd off-ramp	11.43%	2,440	4,080	4,868	6,121
Chrisman Rd off-ramp to Chrisman Rd on-ramp				4,817	5,548
Chrisman Rd on-ramp to I-5				4,840	5,876
I-205 Westbound					
I-5 to Chrisman Rd off-ramp	11.43%	3,830	2,600	6,000	4,737
Chrisman Rd off-ramp to Chrisman Rd on-ramp				5,810	4,692
Chrisman Rd on-ramp to MacArthur Dr off-ramp				6,387	4,910
MacArthur Dr off-ramp to MacArthur Dr on-ramp	11.43%	3,610	2,390	6,144	4,472
MacArthur Dr on-ramp to Tracy Blvd off-ramp	11.17%	4,030	2,650	7,420	4,727
Tracy Blvd off-ramp to Tracy Blvd on-ramp	11.17%	3,710	2,300	6,396	4,140
Tracy Blvd on-ramp to Naglee Rd/Grant Line Rd off-ramp	12.00%	4,310	2,520	6,996	4,368
Naglee Rd/Grant Line Rd off-ramp to Naglee Rd on-ramp	12.00%	3,570	1,840	6,069	3,778
Naglee Rd on-ramp to Grant Line Rd on-ramp	12.00%	3,870	2,090	6,199	4,352
Grant Line Rd on-ramp to Lammer Rd off-ramp	12.00%	4,080	4,080	6,319	4,652
Lammer Rd off-ramp to Lammer Rd on-ramp				6,098	4,136
Lammer Rd on-ramp to 11th Street on-ramp				6,293	4,518
11th Street on-ramp to Mountain House Pkwy off-ramp	12.00%	4,400	4,400	6,870	5,382

Mountain House Pkwy off-ramp to Mountain House Pkwy on-ramp	12.00%	2,590	2,590	5,060	3,854
Mountain House Pkwy on-ramp to I-580	12.00%	3,930	3,930	7,139	4,024

It was found that Managed Lanes are expected to significantly improve travel time and encourage HOV use within the project study area, providing improved person throughput. Compared to HOV only lanes, Express Lanes would operate dynamically, adapting to changes in travel demand. They provide single occupancy vehicles an option that utilizes HOV lane. Express Lanes also have dynamic pricing, where the toll fee is adjusted in real time until optimal traffic flow is achieved, resulting in improving travel time reliability to accommodate the projected traffic growth in the future.

Similar to the original TEPA, the intent of this TEPA update is to use readily available data. Following the same assumptions used in the original TEPA report, the analysis in this TEPA update is for freeway mainline (General-Purpose Lanes without on/off-ramps) and Managed Lanes (for future Build alternatives). For the Project Approval and Environmental Document (PA&ED) phase, new traffic counts would be conducted and on- and off-ramps would be included in the analysis. The primary sources of existing traffic data for this TEPA update are listed as follows:

- Caltrans 2016 Traffic Volumes and Daily Truck Traffic
- For I-205, the same data from the original TEPA report was used.
- For I-5, available data from the Caltrans Performance Measurement System (PeMS) was used.
- For I-580, available data from PeMS was used, supplemented by Caltrans District 4 census data (where PeMS data was not available or not reliable).

The original TEPA used 2016 as the existing year. For the extended traffic study limits on both I-5 and I-580, to be consistent with the original TEPA report, the existing year was also determined to be 2016. Therefore, data in 2016 was used for existing conditions.

There is no change to the existing I-205 results from the original PSR-PDS report, while the I-5 and I-580 results are based on the new analysis.

- **I-205**: 13 of the 15 segments in the westbound direction are projected to operate at unsatisfactory Level of Service (LOS), a qualitative measure of freeway flow performance, during the AM peak hour (LOS E or F). During the PM peak hour, 12 of the 15 segments in the eastbound direction are projected to operate at unsatisfactory LOS.
- **I-5**: none of the four (4) segments are projected to operate at unsatisfactory LOS during the AM peak hour. During the PM peak hour, three (3) of the four (4) segments in the northbound direction are projected to operate at unsatisfactory LOS.

- **I-580**: five (5) of the seven (7) segments in the westbound direction are projected to operate at unsatisfactory LOS during the AM peak hour. During the PM peak hour, five (5) of the seven (7) segments in the eastbound direction are projected to operate at unsatisfactory LOS.

The following recommendations are identified for future traffic study in PA&ED phase of the work:

- **Traffic Safety and Collision Analysis**: Safety analysis including collision analysis would be conducted under the PA&ED phase using TASAS and other available resources. Performance based decision making to assess proposed improvements would be used during PA&ED phase.
- **Traffic Data Collection**: For the TEPA update, 2016 data was used to match the previously completed TEPA document. During the PA&ED phase, it is recommended to use the most currently available data. Due to the COVID-19 pandemic, it is recommended to use Fall 2019 as the baseline conditions and collect Fall 2019 data accordingly. On- and off-ramps would also be included in the analysis.
- **Interchange Analysis**: Three (3) interchanges would be improved as part of the revised project:
  (1) I-205/Grant Line Road/Naglee Road,
  (2) I-205/Tracy Boulevard, and
  (3) I-205/MacArthur Drive.

  Operational analysis of these interchanges would be performed under the PA&ED phase and reported in the Traffic Operations Analysis Report (TOAR).
- **Toll Demand**: This TEPA made an assumption that future dynamic pricing would be set to maximize Express Lanes throughput. More detailed analysis needs to be conducted to estimate toll demand for Express Lanes (i.e., pay-to-use vehicles).
- **Future Year**: This TEPA update used 2045 as the future year which is consistent with the original TEPA report. The future traffic analysis must analyze conditions at least 20 years after the project opening. Therefore, the final design year is recommended to be 2050 for the TOAR during the PA&ED phase.
- **Traffic Forecasting**: During the PA&ED phase, future traffic forecasts would be developed for the Opening Year (2030 or earlier) and Design Year (2050) using the latest version of the Three-County Travel Demand Model (TDM), which includes San Joaquin, Stanislaus, and Merced counties. The TDM model would be extended to the I-580/Greenville Road Interchange to include travel in the Alameda County and overlap with the existing I-580 Express Lanes. The TDM base year model would be validated before developing the future year model. A traffic forecasting report would be submitted for Caltrans' review and comment.
- **Traffic Operational Analysis Hours and Tools**: During the PA&ED phase, the consultant team should work with Caltrans District 4 and District 10, SJCOG and other local agencies to determine the appropriate peak hours to analyze and the appropriate traffic modeling tools for mainline freeways and intersections analysis.

- **VMT Analysis**: During the PA&ED phase, the consultant team should work with Caltrans District 4, District 10, and Headquarters to learn the latest Vehicle Miles Traveled (VMT) analysis tools and required mitigation strategies per Senate Bill 743 (SB 743). VMT analysis would be performed for no build and build conditions for all the alternatives and reported in the Traffic Operations Analysis Report (TOAR).

5. DEFICIENCIES

The approved PSR-PDS indicated that the facility can be described as deficient during the weekday peak hour periods.

As shown in the updated TEPA, which includes the revised project limits for I-205, I-580 and I-5, the project corridor of I-205 operates under unacceptable conditions during the existing weekday AM and PM peak periods. The free flow travel time in this corridor is on average 23 minutes. Under the existing condition the Peak Period travel time is on average 47 minutes, significantly higher than the free flow travel time. These operating conditions would further degrade due to projected growth and land use changes in the City of Tracy and the counties south of San Joaquin, leading to longer queues and increased travel times and delays. The I-205 corridor is the primary connection between the Port of Oakland, the e-commerce distribution facilities in San Joaquin County and the Central Valley counties to the south. It is also a critical lifeline for commuters and distribution of goods between the Central Valley and the Bay Area. These future increased delays and extended hours of queuing would significantly worsen commuter travel time and result in goods movement delays. The delays and longer travel time on freeway will result in spill thru of traffic to local streets. The cut-through traffic from the freeway will impact local circulation and degrade local communities' quality of life.

Collision Data

Collision data for the revised project corridor was provided by Caltrans via their Traffic Accident Surveillance and Analysis System (TASAS). The tables below summarize the TASAS data for the corridor, and the collision types and factors.

Location	Post Mile	Number of Collisions			Actual Collision Rate (acc/million veh miles)			Average Collision Rate (acc/million veh miles)		
		Total	Fatal	F+1	Total	Fatal	F+1	Total	Fatal	F+1
I-5	R12.9 to R13.5	102	0	29	1.02	0	0.29	0.85	0.005	0.28
I-205	L0.0 to R13.2	627	6	575	1.06	0.004	0.37	0.6	0.008	0.21
I-580	0.808 to R1.6	216	0	62	1.64	0	0.47	0.7	0.006	0.23
I-580	R1.6 to R1.7	10	0	4	1.57	0	0.63	0.7	0.006	0.23

As indicated above, there were a total of 955 collisions along the revised project corridor in the three-year period between July 2017 thru June 2020. Actual collision rates averaged for the corridor are higher than the average statewide rate for comparable facilities.

Type and Number of Collisions		Percent (%)	Primary Collision Factors (Other Associated factors)		Percent (%)
			Speeding and following close	557	52
Rear End	28	42	Improper Turn	154	14
Hit Object	24	36	Other Violation	273	25
Sideswipe	11	16	Other than Driver	23	2
Others	1	2	Influence of Alcohol	45	4
Broadside	1	2	Failure to Yield	5	1
Overturn	1	2	Unknown	19	2
Total	66	100	Total	1076	100

42% of the collisions are rear end crashes, with the primary collision factors of speeding and following too closely. The primary reason for these rear end crashes can be attributed to heavy traffic volume. Thus, if the proposed improvements are implemented, then the number of collisions would be expected to decrease.

36% of the collisions are hit object. All fixed objects within the clear recovery zone would be either removed, relocated, or shielded. Additionally, standard sight distances would be provided throughout the project using methodology from the Highway Safety Manual.

6. CORRIDOR AND SYSTEM COORDINATION

6.1 System Planning

The I-205 Managed Lanes Project proposed to add Managed Lanes from the I-580/West Grant Line Road interchange in Alameda County to the I-5/I-205 connectors in San Joaquin County.

Within the Alameda County limits, improvements begin at the I-580/West Grant Line Road interchange with improvements to the westbound offramp. I-580 improvements begin just east of the West Grant Line Road undercrossing. The revised project would reconfigure the I-580 median and traffic merge pattern. A braided ramp is proposed to maintain access to West Grant Line Road.

Within San Joaquin County, the revised project would provide Managed Lanes on I-205 westbound and eastbound from the Delta Mendota Canal to the East Banta Union Pacific Railroad (UPRR) Overhead. Eastbound I-205 Managed Lane would continue toward the I-5. Northbound I-5 would be realigned to the east and then merge with the new eastbound I-205 to northbound I-5 connector. The existing 3-lane connector from eastbound I-205 to northbound I-5 would be restriped to provide access to eastbound State Route 120.

6.2 Transportation Planning Scoping Information Sheet

The Route Segment and Project Information in the Transportation Planning Scoping Information Sheet is superseded and replaced with Attachment D, which extends the project limits and updates the project description to include Managed Lanes.

6.3 Regional Planning

Segments of the revised project are listed in the SJCOG Congested Corridors Plan, which concludes these segments to be feasible and good candidates for Express Lanes.

- I-205 HOV/Express Lane from I-580/West Grant Line Rd Interchange to County Line
- I-205 HOV/Express Lane from County Line to I-5
    - I-205/Grant Line Rd/Naglee Rd IC
    - I-205/Tracy Blvd IC
    - I-205/MacArthur Dr IC
- I-5 HOV/Express Lane from I-205 with direct HOV connector to I-205

As an interstate freeway, the SJCOG Regional Congestion Management Plan network includes all of I-205 in San Joaquin County. By definition, that makes the segments of the revised project eligible for funding from the Regional Transportation Impact Fee (RTIF) program.

In addition, the Tri-Valley – San Joaquin Valley Regional Rail Authority's proposed Valley Link project would connect the existing Dublin/Pleasanton Bay Area Rapid Transit Station in Alameda County to the Altamont Corridor Express North Lathrop Station in San Joaquin County. Proposed stations for this revised project include one in San Joaquin County at Mountain House, one in Downtown Tracy, and one in the City of Lathrop.

The revised project proposes up to four potential transit hubs in the project corridor. Transit hubs would include Park & Ride facilities as appropriate. One hub would be planned near the I-5/Mossdale Road interchange in the City of Lathrop to leverage the future planned Valley Link station and capture transit riders east before they enter I-205.

Two hubs would be within the I-205 corridor with locations to be decided from coordination with the various stakeholders, including the San Joaquin Regional Transit District, SJRRC, Valley Link, Mountain House, County, and the City of Tracy. Potential locations to include one near Mountain House interchange and one near Corral Hollow Road.

The last potential transit hub location is at the existing informal Park & Ride lot at the I-580/West Grant Line Road interchange.

The placement of any Park & Ride facilities associated with the transit hubs would be determined in coordination with Caltrans D4 and D10 planning and regional transit operators.

6.4 Local Planning

There is no change from the previously approved PSR-PDS except that SJCOG desires to analyze an Express Lane alternative to understand the benefit that would be realized by the traveling public and its economic viability.

6.5 Coordination with Programmed and Planned Projects

Currently programed projects include EA 10-1C330 I-205 Smart Corridor Ramp Metering and EA 10-1E210 I-205 Mountain House/International Parkway Interchange. Future planned projects include EA 10-0H910 I-205 11th St/Lammers Road Interchange, EA 10-0H880 I-205 Chrisman Road Interchange, EA 04-3G830 Trilink SR 239, EA 10-1J160K I-5 Mossdale Managed Lanes, and EA 04-3Q820 Valley Link Rail project.

At this time, there is no currently programmed or future planned project to connect the revised project's proposed Express Lane on I-580 from the West Grant Line Road interchange to the existing Express Lane east of Vasco Road in Livermore, Alameda County.

This project is a State Transportation Improvement Program (STIP) project and does not use fund from the State Highway Operation and Protection Program (SHOPP). Request for future use of SHOPP fund shall require early coordination with Asset Management and meet the SHOPP requirements. The request shall be evaluated based on funding and performance target constraints in the State Highway System Management Plan (SHSMP). The performance measures identified in the programmable project alternative shown below and Attachment L are not counted toward the District 2021 SHSMP performance target. The project performance measures are shown in the Attachment L.

7. ALTERNATIVES

The originally approved PSR-PDS included no-build and build alternatives for an HOV Lane Project. At the time, Express Lanes were considered but rejected. Express Lanes, like HOV Lanes, encourage carpools and vanpools and provide more reliable travel times. In addition, Express Lanes optimize the use of the HOV lane and are designed to adapt to changes in travel demand. They also offer non-carpool eligible drivers a reliable travel time option by allowing access via toll payment, thus generating funds that can be used to further improve transit in the corridor. Express Lanes can also be dynamically-priced to ensure they remain a more travel time reliable option for

travelers. For all these reasons, SJCOG wants to reconsider them as a viable alternative. Section 7, Alternatives, in the approved PSR-PDS is superseded in its entirety and replaced as follows:

7A. Viable Alternatives

7A.1. No-Build Alternative

Alternative 1: Under this alternative, no reconstruction or improvements would be made to the existing freeway between the I-580/West Grant Line Road interchange in Alameda County to the I-5/I-205 interchange in San Joaquin County other than routine maintenance and currently programmed improvements. This alternative does not address the need and purpose of the revised project. The need to correct existing deficiencies identified in Section 4 (TEPA) and detailed in Section 5 (DEFICIENCIES) would go unmet. The need to address future deficiencies would also go unmet.

7A.2. Minimum-Build Alternatives

There are two Minimum-Build Alternatives for adding Managed Lanes. Both alternatives consider implementing HOV Lanes.

Alternative 2: HOV Addition – This alternative is as per the originally approved PSR-PDS. One HOV Lane would be added in each direction of I-205. Lane additions west of 11th Street would be made on the outside of the existing lanes and lane additions east of 11th Street would be made on the inside of the existing lanes.

Alternative 3: HOV Conversion – Under this alternative, potential VMT impacts under SB 743 are reduced by converting the existing inside General-Purpose Lane to an HOV Lane.

7A.3. Build Alternatives

In addition, there are two Build Alternatives for adding Managed Lanes. Both alternatives would improve I-205 to the outside.

Alternative 4: Express Lane – Free access to vehicles that meet a minimum occupancy or vehicle type requirement with priced access to vehicles that do not.

Alternative 5: Transit Only Lane – Only buses access the lane.

The footprint for the revised project's Build Alternatives would be the same. Both Build Alternatives propose to construct a Managed Lane in each direction beginning at the I-580/West Grant Line Road interchange in Alameda County and ending at the I-5/I-205 connectors. I-205 would be improved to the outside to accommodate an additional lane in each direction while leaving a 60-foot wide median space open for the future transit improvements. The eastbound Managed Lane is proposed to provide an inside I-5/I-205 direct connector from eastbound I-205 to the median of northbound I-5 at the I-5/I-205 interchange.

Within the Alameda County limits; improvements begin at the I-580/West Grant Line Road interchange with improvements to the westbound offramp. I-580 improvements begin just east of the West Grant Line Road undercrossing. The revised project would reconfigure the I-580 median and traffic merge pattern. A braided ramp is proposed to maintain access to West Grant Line Road. A new alignment for westbound I-205 between the I-205/Mountain House Parkway/International Parkway interchange and I-580 would provide a single-span crossing of both the California Aqueduct and the Delta Mendota Canal, avoiding impacts to water supply and to these historic resources. The revised project would also replace the following structures within the Alameda County limits:

- Westbound I-580 – Midway Road Undercrossing
- Westbound I-580 – I-205 Separation Structure
- Westbound I-205 off-ramp to West Grant Line Road – Westbound I-580 Separation Structure
- Westbound I-205 – Midway Road Undercrossing
- Westbound I-205 – North Midway Road Undercrossing

Within San Joaquin County, the revised project would improve I-205 to the outside on both westbound and eastbound from the Delta Mendota Canal to the East Banta Union Pacific Railroad (UPRR) Overhead. Eastbound I-205 improvements would continue toward the I-5. Northbound I-5 would be realigned to the east and then merge with the new eastbound I-205 to northbound I-5 connector. The existing 2-lane connector from eastbound I-205 to northbound I-5 would be restriped to provide exit only to eastbound State Route 120.

Six interchanges would be impacted by the I-205 Managed Lanes improvements. The Grant Line Road/Naglee Road interchange, the North Tracy Boulevard interchange, and the North MacArthur Drive interchange are existing interchanges that would be improved with this revised project. The Mountain House Parkway interchange, Lammers Road/11th Street interchange, and Chrisman Road interchange are currently under project development and would be constructed independent of this revised project. In addition to retaining walls and sound walls along the corridor, the revised project would also modify or replace the following structures within San Joaquin County:

- Westbound I-205 – Delta Mendota Canal Bridge
- I-205 – Box Culvert
- I-205 – Mountain House Parkway Overcrossing
- I-205 – Hansen Road Overcrossing
- Eastbound I-205 – Irrigation Canal Bridge
- Westbound I-205 – West Byron Road/Janney UPRR Overhead
- Eastbound I-205 – West Byron Road/Janney UPRR Overhead
- Westbound I-205 – Grant Line Road Undercrossing
- Eastbound I-205 – Grant Line Road Undercrossing
- Westbound I-205 – North Corral Hollow Road Undercrossing
- Eastbound I-205 – North Corral Hollow Road Undercrossing
- Westbound I-205 – North Tracy Boulevard Undercrossing
- Eastbound I-205 – North Tracy Boulevard Undercrossing
- I-205 – Holly Drive Overcrossing
- Westbound I-205 – Sugar Spur UPRR Overhead
- Eastbound I-205 – Sugar Spur UPRR Overhead
- Westbound I-205 – North MacArthur Drive Undercrossing
- Eastbound I-205 – North MacArthur Drive Undercrossing
- Westbound I-205 – El Rancho Road Undercrossing
- Eastbound I-205 – El Rancho Road Undercrossing
- Eastbound I-205 – East Banta UPRR Overhead
- Eastbound I-205 – West Canal Blvd/Tom Paine Slough Bridge
- Eastbound 205 to Northbound I-5 Managed Lane Connector – Southbound I-5 Separation Structure
- Northbound I-5 – Paradise Cut Bridge

The Build Alternatives would utilize a continuous access design, which means that the Managed Lanes would be contiguous/non-barrier separated from the General-Purpose Lanes. There would be no intermediate ingress and egress locations unless further traffic analysis concludes that a separated ingress/egress location must be provided to improve operations or address safety concerns. The lanes would be 12 feet wide and designated using a dashed-stripe pavement marking.

For Alternative 4 with the implementation of Express Lanes, the operator of the Express Lanes must be determined during the PA&ED phase to help with the development of the Concept of Operation for the new Express Lanes. Agencies with California Toll Operator Committee (CTC) authority over Express Lanes in this area include the Alameda County Transportation Commission (Alameda CTC) as well the Bay Area Infrastructure Financing Authority (BAIFA). SJCOG intends to be the toll operator for this facility and will seek CTC approval upon completion of the PID/PA&ED phases. No one currently has CTC authority to operate an Express Lane in San Joaquin County and it cannot be applied for in advance of the approved PSR-PDS. The jurisdictional delineation would likely occur at the Alameda and San Joaquin County Line and an Operations and Maintenance Agreement would be needed. These

details would be developed during the PA&ED phase with the determination of the Express Lanes operator.

The operator would select the Toll System Integrator that will organize, schedule, and integrate all the individual elements of the Express Lanes. Using the Concept of Operations, the Toll System Integrator would then design, implement their equipment in the field, and test the toll systems. Other elements would include installation of static and dynamic signs, electric tolling equipment, fiber optic trunk line, and toll collection system. In addition, California Highway Patrol (CHP) Observation and Median Enforcement Areas would be provided, where feasible, and if required and dictated by the traffic operational analysis.

The Build Alternatives would also include stormwater basins, access roads, ITS/TMS elements including Changeable Message Signs (CMS) for real time traveler information, Traffic Operations Systems (TOS) for transportation management, and up to four transit hubs, as discussed in Section 6.1, System Planning. Locations for transit hubs would be determined to improve access to the transit facility and not to preclude connectivity to the local communities.

The I-205 improvements for the Build Alternatives would impact local road interchanges. The following three local road interchanges on I-205 are proposed to be modified as part of the Build Alternatives and will be refined during the PA&ED phase.

- I-205/Grant Line Road/Naglee Road Interchange
- I-205/Tracy Boulevard Interchange
- I-205/MacArthur Road Interchange

The design options at each interchange location and the major improvements are described below.

I-205/Grant Line Road/Naglee Road Interchange

The following options are considered at I-205/Grant Line Road/Naglee Road and will be refined during the PA&ED phase.

Option 1 – Hybrid (Type L-9/L-6) Interchange
The existing westbound ramps would remain in their current configurations with minor improvements at the intersection of Naglee Road/Pavilion Parkway intersection. The westbound on-ramp would be improved to accommodate a HOV preferential lane. The eastbound ramps would be removed to add eastbound loop on-ramp from southbound Grant Line Road. The existing eastbound off-ramp would be realigned to accommodate the new loop on-ramp in the southeastern quadrant.

The Grant Line Road would be restriped to include Class IV separated bikeways with 3 ft buffer and 6 ft wide sidewalks on both sides within the interchange area. Caltrans

access control limits at Grant Line Road/Naglee Road and Naglee Road/Pavilion Parkway intersections would be extended to limit access to minimum 100' beyond the end of curb returns to ensure that entry onto the facility does not impair the operational characteristics. New right of way would be required in the southeast quadrant of the interchange to accommodate the eastbound loop on-ramp and diagonal off-ramp.

Option 2 – Divergent Diamond Interchange (DDI)
Existing interchange ramps at Grant Line Road would be modified to create more efficient interchange DDI configuration within the existing right of way. A new WB off-ramp would be constructed that peels off from existing WB off-ramp which would need a new bridge overcrossing to cross the existing WB on-ramp from Naglee Road/Pavilion Parkway intersection. The interchange ramp intersections would be improved to include the directional crossover traffic on either side of the interchange on Grant Line Road. Vehicles on Grant Line Road making a left turn to or from the ramps do not conflict with vehicles approaching from other directions. The DDI design improves the operation of the ramp terminal intersections by removing left turning movements to and from the freeway facility at the signalized intersections.

The Grant Line Road would be restriped to include Class IV separated bikeways with 3 ft buffer and 6 ft wide sidewalks on both sides within the interchange area. Caltrans access control limits at Grant Line Road/Naglee Road and Naglee Road/Pavilion Parkway intersections would be extended to limit access to minimum 100' beyond the end of curb returns to ensure that entry onto the facility does not impair the operational characteristics. New right of way would be required in the southeast quadrant of the interchange to accommodate the eastbound loop on-ramp and diagonal off-ramp.

I-205/Tracy Boulevard Interchange

The following two options are considered at I-205/Tracy Boulevard and will be refined during the PA&ED phase.

Option 1 – Compact Diamond (Type L-1) Interchange
The existing eastbound and westbound ramps would remain in their current configuration with minor improvements at the intersections. The entrance ramps would be improved to accommodate a HOV preferential lane. The exit ramps would be improved to add second lane to add storage for stacking of vehicles ahead of the ramp intersections.

Tracy Boulevard would be improved to accommodate 5 ft. wide Class II and 6 ft wide sidewalks on both sides within the interchange area. It is proposed to provide 11 feet wide through traffic lanes and 10.75 feet wide left turn lanes on the northbound and southbound directions of Tracy Blvd in order to provide 5 feet wide Class II bike lanes to avoid reconstruction of the existing Tracy Blvd UC. Caltrans access control limits at both the eastbound and westbound interchange ramp intersections would be extended to limit access to minimum 100' beyond the end of curb returns to ensure that entry

onto the facility does not impair the operational characteristics. Sliver takes would be required along the both sides of Tracy Boulevard.

Option 2 – Divergent Diamond Interchange (DDI)
Existing interchange ramps at Tracy Boulevard would be modified to create more efficient interchange DDI configuration within the existing right of way. The interchange ramp intersections would be improved to include the directional crossover traffic on either side of the interchange on Grant Line Road. Vehicles on Tracy Boulevard making a left turn to or from the ramps do not conflict with vehicles approaching from other directions. The DDI design improves the operation of the ramp terminal intersections by removing left turning movements to and from the freeway facility at the signalized intersections. The existing bridge undercrossings would be replaced with new bridges to accommodate the improvements on Tracy Boulevard.

Tracy Boulevard would be improved to accommodate 5 ft. wide Class II and 6 ft wide sidewalks on both sides within the interchange area. Caltrans access control limits at both the eastbound and westbound interchange ramp intersections would be extended to limit access to minimum 100' beyond the end of curb returns to ensure that entry onto the facility does not impair the operational characteristics. Sliver takes would be required along both sides of Tracy Boulevard.

I-205/MacArthur Road Interchange

The following two options are considered at I-205/MacArthur Road and will be refined during the PA&ED phase.

Option 1 – Hybrid (Type L-1/L-9) Interchange
The existing eastbound ramps would remain in their current configurations with minor improvements at the intersections. The eastbound entrance ramp would be improved to accommodate a HOV preferential lane. The eastbound off-ramp would be improved to add second lane to add storage for stacking of vehicles ahead of the ramp intersections. The westbound exit ramp and entrance ramps would be realigned to accommodate a new westbound loop on-ramp from northbound MacArthur Road. Both westbound entrance ramps are two-lane ramps (one General-Purpose Lane + HOV Lane). New bridge would be constructed along westbound I-205 to accommodate the loop on-ramp.

MacArthur Road would be improved to accommodate 5 ft. wide Class II and 6 ft wide sidewalks on both sides within the interchange area. Caltrans access control limits at both the eastbound and westbound interchange ramp intersections would be extended to limit access to minimum 100' beyond the end of curb returns to ensure that entry onto the facility does not impair the operational characteristics. Sliver takes would be required for the improved of MacArthur Road along both sides.

Option 2 – Compact Diamond Interchange (Type L-1)

The existing eastbound and westbound ramps would remain in their current configurations with minor improvements at the intersections. The entrance ramps would be improved to accommodate a HOV preferential lane. The exit ramps would be improved to add second lane to add storage for stacking of vehicles ahead of the ramp intersections.

Structural Modifications

Along the revised project corridor, several structures crossing local arterials, railroads, or waterways would need modification or replacement. The table below documents anticipated structures to be proposed or modified. Standard side slopes would be met in conjunction with the use of retaining walls.

Structure No.	Structure Name	Description of Work	Length (ft)	Width (ft)	Design Assumptions and Notes
New	Westbound I-205 off-ramp to West Grant Line Road – Westbound I-580 Separation Structure	New Structure	504	27.5	New Cast-in-Place 3-span prestressed box girder superstructure supported on single column concrete bents and concrete abutments founded on pile foundations.
New	Westbound I-580 – Midway Road Undercrossing	New Structure	126	47.7	New Cast-in-Place single-span prestressed box girder superstructure (or precast girders) supported on concrete abutments founded on pile foundations.
	Westbound I-205 – Midway Road Undercrossing	Improve to Outside	102	16.5	Adda lane to the existing 3-span slab bridge supported on pier wall bents and concrete diaphragm style abutments founded on pile foundations.
33 0346	Westbound I-580 – I-205 Separation Structure	Replace with New Structure	466	42.5	Replace existing structure with Cast-in-Place 3-span prestressed box girder superstructure, supported on skewed multi column concrete bents and concrete abutments founded on pile foundations.
33 0402	Westbound I-205 – California Aqueduct Bridge	Replace with New Structure	200	83.5	Replace existing bridge with Steel Plate Girder single-span superstructure supported on concrete abutments founded on pile foundations.
29 0299	Westbound I-205 – North Midway Road Undercrossing	Replace with New Structure	86	83.5	Replace existing structure with Cast-in-Place single-span prestressed box girder superstructure (or precast girders) supported on concrete abutments founded on pile foundations.

29 0037	Westbound I-205 – Delta Mendota Canal Bridge	Replace with New Structure	193	83.5	Replace existing bridge with Steel Plate Girder single-span superstructure supported on skewed concrete abutments founded on pile foundations.
	I-205 – Box Culvert	Extension	116	12	Extend existing culvert undercrossing to north and south.
29 0321	I-205 – Mountain House Parkway Overcrossing	Abutment Improvements	358	20	Ground Anchor walls assumed at each abutment. Currently under project development and would be constructed independent of this revised project. Coordination with current design group in the event their improvements also have walls so that their improvements would not be throw away.
29 0208	I-205 – Hansen Road Overcrossing	Replace with New Structure	262	50	Replace existing bridge with 2-span precast girder bridge supported on multi column concrete bent and concrete seat abutments founded on pile foundations. Existing controlling vertical clearance of 16'-4".
	Eastbound I-205 – Irrigation Canal Bridge	Extension	114	30	Extend existing Irrigation Canal structure.
29 0074R	Eastbound I-205 – West Byron Road/Janney UPRR Overhead	Improving to Outside	306	44	Add a lane to the existing 5-span structure with 5-span mildly reinforced concrete structure. Precast drop-in span is assumed over the railroad, supported on concrete columns and diaphragm abutments founded on pile foundations. Sound wall expected on outside barrier.
29 0074L	Westbound I-205 – West Byron Road/Janney UPRR Overhead	Improving to Outside	306	34	Add a lane to the existing 5-span structure with 5-span mildly reinforced concrete structure. Precast drop-in span is assumed over the railroad, supported on concrete columns and diaphragm abutments founded on pile foundations. Sound wall expected on outside barrier.
29 0186R	Eastbound I-205 – Grant Line Road Undercrossing	Improving to Outside	354	36	Add a lane to the existing 4-span 2-fame structure with a mildly reinforced concrete box structure supported on concrete columns and diaphragm abutments founded on pile foundations. Existing controlling vertical clearance of 15'-8".

29 0186L	Westbound I-205 – Grant Line Road Undercrossing	Improving to Outside	354	42	Add a lane to the existing 4-span 2-fame structure with a mildly reinforced concrete box structure supported on concrete columns and diaphragm abutments founded on pile foundations. Existing controlling vertical clearance of 15'-8".
29 0132R	Eastbound I-205 – North Corral Hollow Road Undercrossing	Improving to Outside	96	45	Add a lane to the existing single-span bridge with precast prestressed wide flange girders supported on diaphragm style abutments founded on pile foundations. Existing controlling vertical clearance of 14'-10".
29 0132L	Westbound I-205 – North Corral Hollow Road Undercrossing	Improving to Outside	96	35	Add a lane to the existing single-span bridge with precast prestressed wide flange girders supported on diaphragm style abutments founded on pile foundations. Existing controlling vertical clearance of 14'-10".
29 0178R	Eastbound I-205 – North Tracy Boulevard Undercrossing	Improving to Outside	156	39	Add a lane to the existing 3-span concrete box structure with a precast prestressed wide flange girder superstructure supported on concrete piers and diaphragm style abutments founded on pile foundations.
29 0178L	Westbound I-205 – North Tracy Boulevard Undercrossing	Improving to Outside	156	37	Add a lane to the existing 3-span concrete box structure with a precast prestressed wide flange girder superstructure supported on concrete piers and diaphragm style abutments founded on pile foundations.
29 0182	I-205 – Holly Drive Overcrossing	Replace with New Structure	258	50	Replace existing structure with 2-span precast girder bridge supported on multi column concrete bent and concrete seat abutments founded on piles. Existing controlling vertical clearance of 16'-5".
29 0183R	Eastbound I-205 – Sugar Spur UPRR Overhead	Improving to Outside	194	42	Add a lane to the existing 4-span structure with a 4-span mildly reinforced concrete box structure supported on concrete columns and diaphragm abutments founded on pile foundations.
29 0183L	Westbound I-205 – Sugar Spur UPRR Overhead	Improving to Outside	194	32	Add a lane to the existing 4-span structure with a 4 span mildly reinforced concrete box structure supported on concrete columns

					and diaphragm abutments founded on pile foundations.
29 0184R	Eastbound I-205 – North MacArthur Drive Undercrossing	Improving to Outside	161	40	Add a lane to the existing 3-span concrete box structure with a precast prestressed wide flange girder superstructure supported on concrete piers and diaphragm style abutments founded on pile foundations.
29 0184L	Westbound I-205 – North MacArthur Drive Undercrossing	Improving to Outside	161	39	Add a lane to the existing 3-span concrete box structure with a precast prestressed wide flange girder superstructure supported on concrete piers and diaphragm style abutments founded on pile foundations.
29 0214R	Eastbound I-205 – El Rancho Road Undercrossing	Improving to Outside	120	38	Add a lane to the existing 3-span concrete box structure with a precast prestressed girder superstructure supported on concrete piers and diaphragm style abutments founded on pile foundations.
29 0214L	Westbound I-205 – El Rancho Road Undercrossing	Improving to Outside	120	41	Add a lane to the existing 3-span concrete box structure with a precast prestressed girder superstructure supported on concrete piers and diaphragm style abutments founded on pile foundations.
29 0179R	Eastbound I-205 – East Banta UPRR Overhead	Improving to Outside	242	39	Add a lane to the existing 3-span concrete box structure with a precast prestressed girder superstructure, or a Cast-in-Place box girder superstructure, supported on concrete piers and diaphragm style abutments founded on pile foundations.
29 0180R	Eastbound I-205 – West Canal Blvd/Tom Paine Slough Bridge	Improving to Outside	403	39	Add a lane to the existing 5-span, 2-frame, concrete box structure with a 5-span, 2-frame, Cast-in-Place box girder superstructure supported on concrete piers and diaphragm style abutments founded on pile foundations.

New	Eastbound 205 to Northbound I-5 Managed Lane Connector – Southbound I-5 Separation Structure	New Structure	602	60	New Cast-in-Place 4-span prestressed box girder superstructure supported on multi column concrete bents and concrete abutments founded on pile foundations.
29 0032R	Northbound I-5 – Paradise Cut Bridge	Improving to Outside	458	34	Add a lane to the existing 11-span, 2-frame, concrete box structure with an 11-span, 2-frame, Cast-in-Place box girder superstructure supported on concrete piers and diaphragm style abutments founded on pile foundations.

Stormwater Data Information

The revised project would comply with the Caltrans National Pollutant Discharge Elimination System (NPDES) Order 2012-0011-DWQ No. CAS000003 Permit. Outside of Caltrans' right-of-way, the revised project may also adhere to the Phase II Small Municipal Separate Storm Sewer System (MS4) Permit (Order 2013-0001-DWQ, NPDES NO. CAS000004). The NNI for Districts 4 and 10 are greater than 50% of the total revised project impervious surface and therefore, the proposed alternative would be required to treat the NIS. The added impervious areas for Districts 4 and 10 are greater than 50% of the existing impervious area and therefore, stormwater treatment is required for all existing, new, and replaced impervious surfaces to the extent feasible. Because Alameda County is part of the Region 5 portion of the revised project and adheres to the Phase II Small MS4 permit, the same rule would apply. The post-construction treatment area (PCTA) is 191.69 acres.

The revised project is within Caltrans' right-of-way and the following local jurisdictions: Alameda County, San Joaquin County, and the City of Tracy. The revised project is also under the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB), Region 5.

Hydrology

Per the Caltrans Water Quality Planning Tool (2020), the revised project is within two hydrologic sub-areas, which are separated by the I-205/Hansen Road interchange. West of I-205/Hansen Road, the revised project is located within the Carbona Hydrologic Unit, undefined Hydrologic Area, and Hydrologic Sub-Area 575.00 on I-205 PM 0.0. East of I-205/Hansen Road, the revised project is located within the San Joaquin Delta Hydrologic Unit. The revised project in the San Joaquin Delta is within an undefined Hydrologic area and undefined Hydraulic Sub-Area 544.00 on I-205 PM 12.5.

Receiving Water Bodies

There are several water bodies, which are identified as blue lines on the United States Geological Survey (USGS) quadrangle maps, within the revised project area. The revised project crosses the Upper Main Canal and Lower Main Canal, Tom Paine Slough, and eight unnamed waterbodies as seen in USGS Topo Maps for Midway, Tracy, Union Island, and Lathrop, California (2018) and Water Quality Planning Tool (2020).

Beneficial Uses

The Central Valley RWQCB Basin Plan (2018) does not list any of the receiving water bodies as having beneficial uses.

Topography

The revised project area is relatively flat, sloping northeast. Along the I-205 corridor, the highest elevation in North American Vertical Datum of 1988 (NAVD 88) is approximately 320 feet at the I-580/West Grant Line Road and the lowest elevation ranges between 10 to 20 feet NAVD 88 at the I-5/I-205 interchange (USGS, 2018). 7,458 acres, 516 acres, and 3,588 acres, respectively.

Soil

A detailed geotechnical investigation and site-specific soil information would be conducted during the PA&ED phase or the Plans, Specification, and Estimate (PS&E) phase. A cursory assessment from the U.S. Department of Agriculture (USDA) Web Soil Survey (2020) shows a variety of soils that make up most of the area of interest or within the revised project limits. The hydrologic soil groups are classified as C. Soil groups C is classified as having low infiltration rates. Based on data from the vicinity of the revised project area, lithology consists of primarily clay and silt, with sandy silt and sandy clay interbedded layers, from ground surface to 10 feet below ground surface (GeoTracker, 2003).

Retention Basins

Stormwater runoff would be handled by using stormwater retention basins, with the possibility of new retention basins added while minimizing the right-of-way acquisition. There are currently 19 existing retention basins along the corridor. Any existing basins impacted by the revised project improvements would be replaced with new basins. New basins would be considered for the impacted existing basins due to sound walls. Retention basins are sized for two 10-year, 24-hour storms and therefore, treatment BMPs are not required. However, if retention basins are not feasible, other treatment BMPs that can be considered include Biofiltration/Bioretention Devices, Infiltration Devices, or Detention Devices.

Complete Streets

SJCOG realizes the importance of providing programs and activities to support and promote walking and biking. These programs go beyond the typical public agency role of planning, designing, funding, and constructing bicycle and pedestrian infrastructure. Several existing programs within San Joaquin County complement and support walking and bicycling. The SJCOG operates the Commute Connection program, which is designed to help commuters transition from driving alone to alternative modes of transportation such as carpooling, transit, bicycling and walking. Services include a ride match list to encourage carpooling, a Guaranteed Ride Home program, and the provision of bike maps. I-205 Managed Lanes project will evaluate opportunities for complete streets elements consistent with the Director's Policy -DP-37.

The revised project would provide comfortable, convenient, and connected complete streets facilities for people walking, biking, and taking transit or potential passenger rail and incorporate the following complete street elements at the local interchanges:

- I-205/Grant Line Road/Naglee Road Interchange: The Grant Line Road/Naglee Road would be restriped to include Class IV separated bikeways with 3 ft buffer and 6 ft wide sidewalks on both sides within the interchange area.

- I-205/Tracy Boulevard Interchange: Tracy Boulevard would be improved to accommodate 5 ft. wide Class II and 6 ft wide sidewalks on both sides within the interchange area.

- I-205/MacArthur Road Interchange: MacArthur Road would be improved to accommodate 5 ft. wide Class II and 6 ft wide sidewalks on both sides within the interchange area.

Along the I-205 corridor, the revised project proposes to incorporate up to four transit hubs. These facilities would be bicycle and pedestrian friendly and would encourage transit travel through the corridor, supporting the development of other local complete streets facilities to provide access to bicyclists, pedestrians, and transit users.

Climate Change

Caltrans' Climate Change Branch developed a series of vulnerability assessments in order to identified climate change vulnerabilities along the state highway system, including impacts from changes in temperature, precipitation, and increased wildfires. The revised project is not within an area that would be affected by sea level rise. During the PA&ED phase, impacts related to climate change would be assessed.

Highway Planting and Irrigation

I-205 from PM R5.95 to PM R8.33 is classified as a Landscaped Freeway; a section of freeway with ornamental vegetation planting that meets the criteria established by the California Code of Regulations Outdoor Advertising Regulations, Title 4, Division 6. In order to accommodate the proposed improvements and/or to maintain the proper clear recovery zone, numerous Landscape Plantings would be affected. Where planting affected is considered Landscape Planting, a 1:1 replacement ratio would be implemented to maintain the Landscape Freeway designation through the section of highway. Planting and irrigation provisions must be in compliance with Caltrans current planting and water conservation policies. A 3-year Plant Establishment Period is anticipated for the revised project. During the PA&ED phase, a Conceptual Landscape Plan would be developed.

Broadband Needs

Any broadband needs along the corridor would be met to address House of Representatives Bill 8368: Rural Broadband Expansion Act of 2020, and California Assembly Bill / Senate Bill 156: Communications: Broadband. These recent bills fund the expansion or improvement of infrastructure in rural areas for the provision of broadband internet access service throughout every region of the state. Broadband needs along the revised project corridor will be identified during the PA&ED phase.

Other Improvements for the Build Alternatives

Other improvements under the Build Alternatives include:

- Transit Hubs / Park & Ride Facilities
- Traffic Operations Systems (TOS) for transportation management
- Retaining Walls
- Sound Walls
- Americans with Disabilities Act Improvements
- California Highway Patrol and Maintenance Vehicle Pullouts
- Ramp Metering

7B. Nonstandard Features.

The design standards risk assessment table below lists the proposed nonstandard design features for the Build Alternatives and interchange options.

Design Standards Risk Assessment			
Option	Design Standard from Highway Design Manual Tables 82.1A & 82.1B	Probability of Nonstandard Design Feature Approval (None, Low, Medium, High,)	Justification for Probability Rating
Byron Rd Undercrossing Side Slopes West of Undercrossing Existing 2:1, Proposed 2:1	HDM Index 304.1(a) Side Slope (Underline)	Medium	The embankment slopes at 2:1 with the combination of retaining walls are proposed within the interchange area to minimize right-of-way acquisition.
Grant Line Road-Option 1	HDM Index 101.1 Design Speed (Underline)	High	The revised project proposes to maintain the existing design speed of 40 mph on Grant Line Road.
	HDM Index 202.5(1) Superelevation Transition (Underline)	Medium	The nonstandard superelevation transitions would be designed in the rate of change of the cross slope of 6% per 100 feet.
	HDM Index 202.5(2) Superelevation Transition Runoff (Underline)	Medium	The revised project proposes to maintain the existing location of the westbound diagonal on-ramp where the end of the curve starts at the ramp intersection.
	HDM Index 304.1(a) Side Slope (Underline)	Medium	The embankment slopes at 2:1 with the combination of retaining walls are proposed within the interchange area to minimize right-of-way acquisition.
Grant Line Road-Option 2	HDM Index 101.1 Design Speed (Underline)	High	The revised project proposes to maintain the existing design speed of 40 mph on Grant Line Road.
	HDM Index 203.6 Reversing Curves (Underline)	Medium	Due to the DDI geometry and the location of the diagonal on-ramp, no tangent is provided when the westbound on-ramp (R=1000') merge to the diagonal on-ramp (R=570').
	HDM Index 202.5(1) Superelevation Transition (Underline)	Medium	The nonstandard superelevation transitions would be designed in the rate of change of the cross slope of 6% per 100 feet.
	HDM Index 202.5(2) Superelevation Transition Runoff (Underline)	Location 1: High Location 2: Medium	Location 1: The revised project proposes to maintain the existing location of the westbound diagonal on-ramp where the end of the curve starts at the ramp intersection. Location 2: Due to the DDI geometry and the location of the diagonal on-ramp, no tangent is provided when the

			westbound on-ramp (R=1000') merge to the diagonal on-ramp (R=570').
	HDM Index 302.1 and Index 308.1 Shoulder Width (Bold)	High	The revised project proposes to provide 5 feet wide right shoulder/Class II bike lanes on Grant Line Road
	HDM Index 304.1(a) Side Slope (Underline)	Medium	The embankment slopes at 2:1 with the combination of retaining walls are proposed within the interchange area to minimize right-of-way acquisition.
	HDM Index 403.3 Angle of Intersection (Underline)	Location 1: High Location 2: Medium	Location 1: The revised project proposes to maintain the existing skew angle on eastbound ramps intersection to avoid right-of-way acquisition. Location 2: The revised project proposes to provide 50-degree skew angle on the westbound off-ramp due to the geometry constraint.
Tracy Boulevard – Option 1	HDM Index 101.1 Design Speed (Underline)	High	The revised project proposes to maintain the existing design speed of 35 mph on Tracy Blvd.
	HDM Index 202.5(1) Superelevation Transition (Underline)	High	The nonstandard superelevation transitions would be designed in the rate of change of the cross slope of 6% per 100 feet.
	HDM Index 202.5(2) Superelevation Transition Runoff (Underline)	High	The nonstandard runoffs are proposed on the westbound on-ramp entrance and eastbound off-ramp exist due to the I-205 mainline is on curve with R = 5000'
	HDM Index 302.1 and Index 308.1 Shoulder Width (Bold)	High	The revised project proposes to provide 5 feet wide right shoulder/Class II bike lanes on Tracy Blvd.
	HDM Index 301.1 and Index 405.2(2)(a) Lane Width (Bold)	Medium	The revised project proposes to provide 11 feet wide through traffic lanes and 10.75 feet wide left turn lanes on the northbound and southbound directions of Tracy Blvd in order to provide 5 feet wide Class II bike lanes to avoid reconstruction of the existing Tracy Blvd UC.
	HDM 305.1 Median Width (Underline)	Medium	The revised project proposes to maintain the existing condition with no median on Tracy Blvd in order to provide 5 feet wide Class II bike lanes to avoid reconstruction of the existing Tracy Blvd UC.
	HDM Index 304.1(a) Side Slope (Underline)	Medium	The embankment slopes at 2:1 with the combination of retaining walls are proposed within the interchange area to minimize right-of-way acquisition.

	HDM 504.3(3) Distance Between Ramp Intersection and Local Road Intersection (Bold)	High	The distance between the eastbound ramps intersection and Clover Road is less than 400 feet.
	HDM 504.2(2) Ramp Entrance and Exit Standards (Underline)	High	The westbound on-ramp and eastbound off-ramp cannot conform to the standard designs as the I-205 mainline is on curve of 5000 ft radius.
Tracy Boulevard – Option 2	HDM Index 101.1 Design Speed (Underline)	High	The revised project proposes to maintain the existing design speed of 35 mph on Tracy Blvd.
	HDM Index 202.5(1) Superelevation Transition (Underline)	High	The nonstandard superelevation transitions would be designed in the rate of change of the cross slope of 6% per 100 feet.
	HDM Index 202.5(2) Superelevation Transition Runoff (Underline)	High	The nonstandard runoffs are proposed on the westbound on-ramp entrance and eastbound off-ramp exist due to the I-205 mainline is on curve with R = 5000’
	HDM Index 302.1 and Index 308.1 Shoulder Width (Bold)	High	The revised project proposes to provide 5 feet wide right shoulder s/Class II bike lanes on Tracy Blvd.
	HDM Index 304.1(a) Side Slope (Underline)	Medium	The embankment slopes at 2:1 with the combination of retaining walls are proposed within the interchange area to minimize right-of-way acquisition.
	HDM 504.3(3) Distance Between Ramp Intersection and Local Road Intersection (Bold)	High	The distance between the eastbound ramps intersection and Clover Road is less than 400 feet.
	HDM 504.2(2) Ramp Entrance and Exit Standards (Underline)	High	The westbound on-ramp and eastbound off-ramp cannot conform to the standard designs as the I-205 mainline is on curve with R = 5000’.
MacArthur Drive – Option 1	HDM Index 101.1 Design Speed (Underline)	High	The revised project proposes to maintain the existing design speed of 40 mph on MacArthur Drive.
	HDM Index 203.6 Reversing Curves (Underline)	High	Due to the I-205 mainline is on curve (R=5000’), the revised project proposes to provide reversing curves with no intermediate tangent at the westbound off-ramp gore area to minimize the right-of-way acquisition.
	HDM Index 202.5(1) Superelevation Transition (Underline)	High	The nonstandard superelevation transitions would be designed in the rate of change of the cross slope of 6% per 100 feet.

	HDM Index 202.5(2) Superelevation Transition Runoff (Underline)	High	The nonstandard runoffs are proposed on the eastbound on-ramp entrance and westbound off-ramp exist due to the I-205 mainline is on curve with R = 5000’
	HDM Index 302.1 and Index 308.1 Shoulder Width (Bold)	High	The revised project proposes to provide 5 feet wide right shoulder widths and function as Class II bike lanes on the northbound and southbound directions of MacArthur Drive.
	HDM 504.2(2) Ramp Entrance and Exit Standards (Underline)	High	The eastbound on-ramp and westbound off-ramp cannot conform to the standard designs as the I-205 mainline is on curve with R = 5000’.
MacArthur Drive – Option 2	HDM Index 101.1 Design Speed (Underline)	High	The revised project proposes to maintain the existing design speed of 40 mph on MacArthur Drive.
	HDM Index 202.5(1) Superelevation Transition (Underline)	High	The nonstandard superelevation transitions would be designed in the rate of change of the cross slope of 6% per 100 feet.
	HDM Index 202.5(2) Superelevation Transition Runoff (Underline)	High	The nonstandard runoffs are proposed on the eastbound on-ramp entrance and westbound off-ramp exist due to the I-205 mainline is on curve with R = 5000’
	HDM Index 302.1 and Index 308.1 Shoulder Width (Bold)	High	The revised project proposes to provide 5 feet wide right shoulder widths and function as Class II bike lanes on the northbound and southbound directions of MacArthur Drive.
	HDM 504.2(2) Ramp Entrance and Exit Standards (Underline)	High	The eastbound on-ramp and westbound off-ramp cannot conform to the standard designs as the I-205 mainline is on curve with R = 5000’.

Approval of a Design Standard Decision Document would be required prior to approval of the Project Report.

7C. Analysis of Alternatives

With the additional Managed Lane alternatives, there are now five (5) alternatives to be further analyzed as potential viable alternatives as part of the traffic operational analysis during the PA&ED phase as follows:

- Alternative 1: No-Build
- Alternative 2: HOV Only: Add a HOV Lane

- Alternative 3: HOV Only: Conversion of General-Purpose Lane to HOV Lane

- Alternative 4: Express Lanes: Add an Express Lane – Free access to vehicles that meet a minimum occupancy or vehicle type requirement with priced access to vehicles that do not

- Alternative 5: Transit Only Lane: Add a Bus Only Lane

The alternatives analysis will identify Build Alternative(s) that would meet Need and Purpose, require the least right of way, and minimize(s) environmental impacts.

7D. Coordination with Other Projects

There are several planned and/or programmed projects within the revised project vicinity. These are tabulated below.

EA	Description	Limits
10-1E210	Mountain House/International Parkway Interchange	0.5/1.3
10-OH910	Lammers Rd/11th Street Interchange	2.6/R5.1
10-0H880	Chrisman Road Interchange	R9.0/R9.6
10-1C330	I-205 Smart Corridor Ramp Metering	R4.5/R9.0
10-1M570	Iron Horse Parkway	
10-1J160K	I-5 Mossdale Managed Lanes	
04-0K6801	ALA 580 Power Supply & Eastbound Lighting Project	
04-4J9401	ALA 580, 205 Roadside Safety Project	
04-3Q820	Tri-Valley-San Joaquin Valley Regional Rail Authority Valley Link Project	
04-3G830	Contra Costa Transportation Authority State Route 239 Project	

These projects currently under project development would be coordinated with but constructed independent of this revised project.

8. RIGHT-OF-WAY

Land:

The anticipated parcel acquisitions that result from the Build Alternatives are identified in the table below. This table replaces the right-of-way table in the approved PSR-PDS dated December 2017. This impact to right of way is included in the Risk Register for the revised project. 29 total acres are impacted across 59 parcels along the corridor (see Attachment K for the for the project conceptual cost estimate of the right-of-way component).

Assessor's Parcel Number (APN)	Zoning	Acquisition Area (Acres)
99B-7700-5-3	AG	0.65
99B-7700-8-1	AG	0.91
99B-7675-11	CA Aqueduct	1.21
99B-7675-1-8	CA Aqueduct	0.43
San Joaquin County	Delta Mendota Canal	1.42
209-08-016	AG	0.47
209-08-049	IND	0.48
209-08-026	IND	0.81
209-08-038	IND	0.61
209-46-035	AG	0.16
209-46-020	AG	3.34
209-46-018	AG	0.12
209-46-034	AG	0.60
209-46-021	RES	0.95
209-37-017	RES	0.01
209-37-016	RES	0.06
209-37-015	RES	0.00
209-37-013	RES	0.04
209-37-012	RES	0.04
209-37-011	RES	0.02
209-37-010	RES	0.02
209-37-009	RES	0.03
209-37-008	RES	0.03
209-37-007	RES	0.02
209-37-005	RES	0.03
209-37-004	AG	0.03
209-41-026	AG	0.03
209-41-030	AG	0.08
214-02-017	COM	0.31
214-02-040	COM	0.27
238-19-022	COM	0.13
212-17-030	COM	0.04
214-18-017	COM	0.04
214-18-019	COM	0.00
212-25-003	COM	0.51
214-21-001	COM	0.01
213-06-002	AG	0.90
213-06-025	RES	1.58
213-06-035	Tracy Sewer Plant	0.07
213-06-036	IND	0.78

213-06-042	City of Tracy	0.01
213-06-047	COM	0.03
213-06-049	IND	0.02
213-07-001	AG	1.53
213-07-036	COM	7.25
213-06-044	RES	0.20
213-06-033	RES	0.50
213-06-004	AG	0.08
213-06-045	IND	0.26
213-60-646	IND	0.32
213-06-020	IND	0.09
213-06-022	AG	0.22
213-06-018	AG	0.02
213-06-017	AG	0.13
213-06-009	AG	0.09
213-06-012	IND	0.07
213-17-004	AG	0.18
213-17-005	AG	0.44
213-17-037	AG	1.99

Utilities:

Locations of known utility conflicts are tabulated and included in Attachment I. This table replaces the utility information in the approved PSR-PDS dated December 2017. Utility owners along the revised project corridor include but are not limited to PG&E, Comcast, Chevron, AT&T, and the City of Tracy. Utility conflicts will be confirmed in the PA&ED and PS&E phases.

Railroad:

There are three (3) locations and five (5) Union Pacific Railroad (UPRR) overhead crossings along I-205 that would be impacted by the revised project. UPRR would be contacted early in the PA&ED phase to start the conversation regarding the construction and maintenance agreements.

Structure No.	**Structure Name**
29 0074R	Eastbound I-205 – West Byron Road/Janney UPRR Overhead
29 0074L	Westbound I-205 – West Byron Road/Janney UPRR Overhead
29 0183R	Eastbound I-205 – Sugar Spur UPRR Overhead
29 0183L	Westbound I-205 – Sugar Spur UPRR Overhead
29 0179R	Eastbound I-205 – East Banta UPRR Overhead

9. COMMUNITY INVOLVEMENT

The draft environmental document prepared for this revised project would be publicly noticed and circulated as applicable. A series of public community workshops, pop up events and presentations, web-based tools, and/or potential interviews with stakeholders and property owners are anticipated to gain input prior to completion of the draft environmental document to ensure the revised project is consistent with the aesthetic, historical, and environmental values of the community. In an effort to limit the spread of COVID-19, social distancing and restrictions on gatherings may require expanding participation during the pandemic through online platforms. All meetings, events, and interviews could be held in a virtual format via Zoom or similar on-line platform until such time that in-person meetings can be conducted (based on changes or modifications to California COVID-19 restrictions). Additional outreach tools that allow for on-line collaboration could be deployed for public workshops to mimic the in-person experience as appropriate to the event and audience. In addition, the project website could be updated with recordings of meetings and presentations so that interested members of the public may review these materials if they are unable to attend the live meeting.

10. ENVIRONMENTAL COMPLIANCE

Key environmental issues under the build alternatives are anticipated to result from the improvements of the roadway in the vicinity of the canals and stream crossings, as well as issues associated with adding managed lanes. Improving in the vicinity of the canals would entail property acquisition, which would result in farmland impacts, but no relocations are anticipated. Impact on biological resources (particularly jurisdictional waters, special-status plants, fish, and wildlife) are anticipated and ground disturbance in the area of the improvements near the canals may also affect archaeological and paleontological resources. Additionally, Paradise Cut provides habitat for special-status fish species that may be affected by bridge work in that area. The proposed managed lanes improvements would likely result in an increase in vehicle miles travelled and impacts to the air quality are also likely. A qualitative analysis of construction and operational greenhouse gas emissions (GHG) would be required to estimate long-term impacts or benefits from the revised project. During the PA&ED phase, the consultant team would work with Caltrans to understand the latest VMT analysis tools and required mitigation strategies per SB 743. The project proponents would ensure that the revised project is appropriately included in the RPT and FTIP to support regional conformity at the time the final environmental document is prepared. The project area is in attainment for carbon monoxide, but Interagency Consultation would be conducted to determine project level conformity for ozone and particulate matter. Noise impacts may also result, and noise abatement consideration may be required as the revised project would improve the highway and bring traffic closer to receptors. The anticipated level of action under CEQA is an Environmental Impact Report and an Environmental Assessment under NEPA. A moderate level Visual

Impact Analysis (VIA) study with photo simulations to address the visual impacts to the viewers will be conducted during PA&ED phase. Aesthetic treatment for lighting, bridge rails, retaining walls, and sound walls will be considered for the project to create a cohesive and visually pleasing corridor.

11. FUNDING, PROGRAMMING AND ESTIMATE

Funding

While the PA&ED phase of the revised project is fully funded, only $26M is programmed in the STIP to fund the PS&E phase in fiscal year 2022/2023 for the portion of the revised project between the Alameda County Line and Eleventh Street. The remainder of the corridor is unfunded. It would be more efficient to design the entire revised project at one time to get ready to compete for Senate Bill 1 and other funding sources to construct the revised project.

State funding would be sought during the next STIP cycle. Regional funding, including funding from the RTIF program would also be sought. The City of Tracy's also has their local Traffic Improvement Fund which can be used for improving access to the interstate systems. It has been determined that this revised project is eligible for Federal-aid funding.

Estimate

The Preliminary revised project cost estimates for the Build Alternative is provided in Attachment C and summarized below.

Description		Range of Cost		STIP Funds	Funding Source
		Construction	Right-of-Way		
Original PSR-PDS	HOV Build Alternative	$251M - $321M	$6.0M - $6.6M	$0.0M	State, Regional, and Local Funds
Supplemental PSR-PDS	Managed Lanes Alternative	$603.9M - $912.5M	$31.0M - $39.7M	TBD	Federal, State, Regional, and Local Funds

These capital outlay cost estimates should not be used to program or commit capital funds. The Project Report in the PA&ED phase would serve as the appropriate document from which the capital outlay and remaining capital outlay support costs of the revised project would be programmed.

12. DELIVERY SCHEDULE

Project Milestones		Milestone Date (Month/Day/Year)
PROGRAM PROJECT	M015	April 2018
BEGIN ENVIRONMENTAL	M020	9/23/2021
NOTICE OF PREPARATION (NOP)	M030	9/23/2021
CIRCULATE DPR & DED EXTERNALLY	M120	Fall 2023
PA & ED	M200	January 2025

The anticipated funding fiscal year for construction is 2032/2033.

13. RISKS

There are additional risks related to the implementation of the Express Lane alternative (See Attachment H for details), which include the following:

- As the result of the lack of an identified Express Lane operator, changes to the project improvements may occur, which would lead to impacts to the project cost. Identifying the Express Lane operator early in the PA&ED phase can ensure Express Lane needs and features are consistent with operator requirements.
- As the result of lack of consensus on the project purpose and need, an increase in project scope may occur, which would lead to an increase in project cost. Early Stakeholder outreach and public engagement would be needed to build project consensus and help with timely alternative refinement.
- As the result of stakeholder input, significant design changes resulting in a larger project footprint may occur, which would lead to project cost and schedule impacts. Early and continued stakeholder coordination is needed to develop project improvements and accommodate transit hubs.
- As the result of the ongoing development of the VMT analysis tools and mitigation options, significant or unanticipated mitigation may occur, which would lead to project cost and schedule impacts. Close and continued coordination with Caltrans would be necessary during the PA&ED phase.

14. EXTERNAL AGENCY COORDINATION

Federal Highway Administration (FHWA)

As a project with a capital cost of more than $100M, the project has been identified as a Project of Division Interest. A financial plan will be prepared and submitted to FHWA-CA for approval during the PA&ED phase.

At this time, there are no actions requiring Caltrans coordination with the FHWA for review and approval of the project.

The project requires the following coordination:

US Army Corps of Engineers
Department of the Army Permit for:
Clean Water Act Section 404
California Department of Fish and Wildlife
California Fish and Game Code Section 1602
Streambed Alteration Agreement

Central Valley Regional Water Quality Control Board
Clean Water Act Section 401
Water Quality Certification
Statewide Construction General Permit

Central Valley Flood Plain Board

Local Agency
Cooperative Agreements with SJCOG

Local Agency
Agreements with City of Tracy, San Joaquin County, Alameda County

Union Pacific Railroad
Railroad Agreement for at-grade or separated-grade crossings

Endangered Species Act: Section 7(a)(2)
Section 7 Consultation

15. PROJECT REVIEWS

District 10 Project Manager	Dina El-Nakhal	Date 9/13/2021
District 10 Project Engineer	Randy Bowles	Date 9/14/2021
District 10 Design Senior	Sean Pledger	Date 9/14/2021
District 4 Design Oversight PE	Deana De La Vega	Date 9/21/2021
District 10 Traffic Forecasting	Eric Chin/Franklin Cai	Date 9/14/2021
District 10 Traffic Safety Engineer	Vu H Nguyen	Date 9/14/2021
District 4 Traffic	Mike Kerns	Date 9/03/2021
District 10 Environmental	Kayla Lopez/Jason Meigs	Date 9/14/2021
District 4 Environmental	Hardeep Takhar	Date 9/14/2021
District 10 Landscape	Robyn Fong	Date 9/20/2021
District 4 Landscape	Alex McDonald	Date 9/14/2021
Central Region Design Liaison	Robert Navarro	Date 9/14/2021
District 4 Advance Planning	Celia McCuaig	Date 9/21/2021

16. PROJECT PERSONNEL

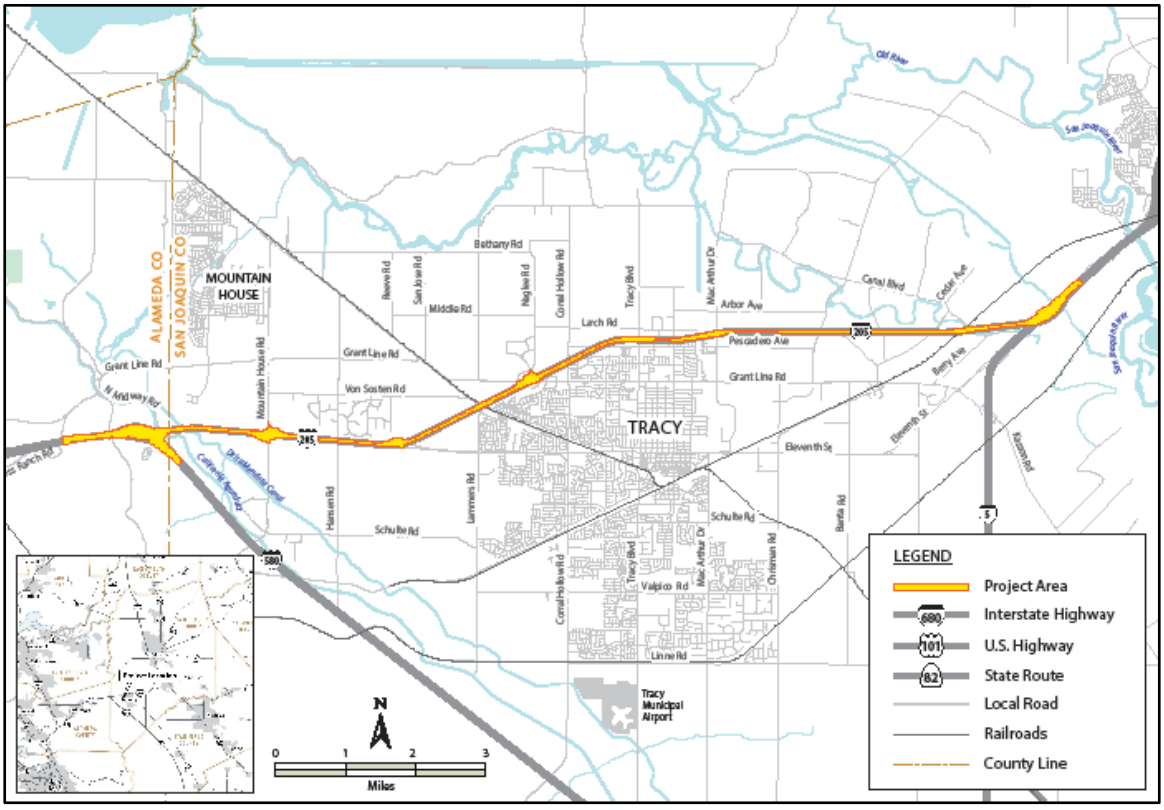
SJCOG	
Ryan Niblock, Deputy Director of Programming and Project Delivery	209-235-0588
Caltrans	
Dina El-Nakhal, D10 Project Manager	209-351-4432
Vu Nguyen, D10 Freeway and Highway Operations Branch Chief	209-603-5126
Eric Chin, D10 Project Initiation/Travel Forecasting	209-948-7071
Scott Guidi, D10 Environmental Manager	209-479-1839
Christina Dart, D10 Project Analyst	209-986-3858
Randy Bowles, D10 Project Engineer	661-487-5262
Sean Pledger, D10 Design Manager	559-230-3110
Jack Siauw, D4 Project Manager	510-622-8824
City of Tracy	
Anju Pillai	209-831-6424
Robert Armijo	209-831-6452
Mountain House Community Services District	
Anush Nejad	209-831-2310
San Joaquin County	
Jeffrey Levers, Transportation Liaison	209-953-7631
Najee Zarif	209-609-2417

San Joaquin Regional Rail Commission	
Kevin Sheridan	209-403-4340
David Ripperda	209-944-6275
San Joaquin Regional Transit District	
Kimberly Gayle	209-467-6615
Alameda County Transportation Commission	
Gary Huisingh, Deputy Executive Director of Projects	510-208-7405
Kimley-Horn	
Parag Mehta, Project Manager	925-965-7703
Jack Boda, Principal-in-Charge	619-744-0183
Marie Santos, Project Engineer	619-744-0145
Dipan Shah, Project Engineer	925-398-4863

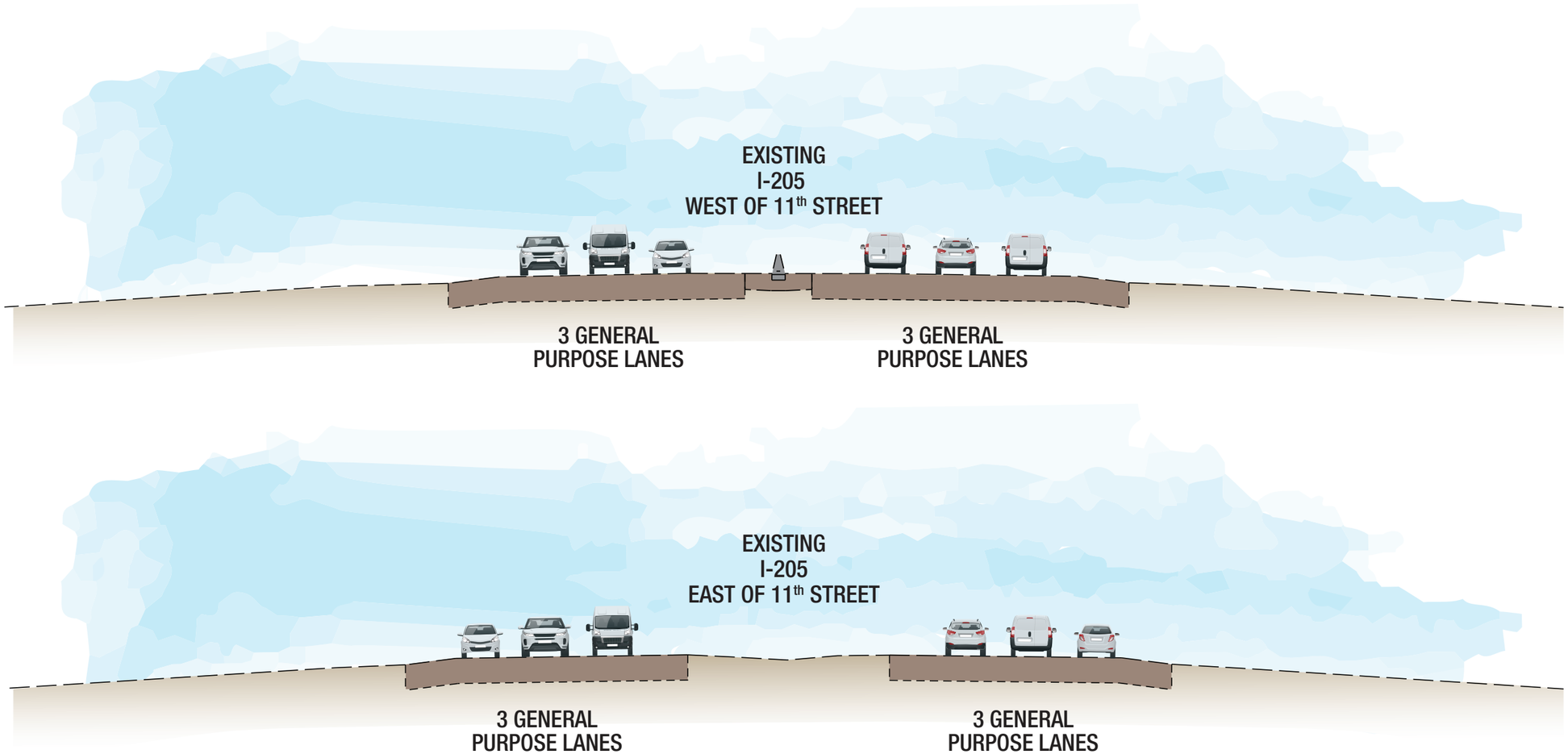
17. ATTACHMENTS (Number of Pages)

A. Project Vicinity and Location Map	(1)
B. Build Alternative Typical Sections and Layout Sheets	(91)
C. Preliminary Project Cost Estimate	(13)
D. Transportation Planning Scoping Information Sheet	(16)
E. Traffic Engineering Performance Assessment Update (TEPA)	(97)
F. Preliminary Environmental Analysis Report (PEAR)	(162)
G. Storm Water Data Report – cover sheet	(1)
H. Risk Register	(1)
I. Utility Conflict Matrix	(4)
J. Previously Approved PSR-PDS, December 17, 2017	(35)
K. Conceptual Cost Estimate – Right-of-Way Component	(2)
L. Performance Report	(1)

Attachment A
Project Vicinity and Location Map

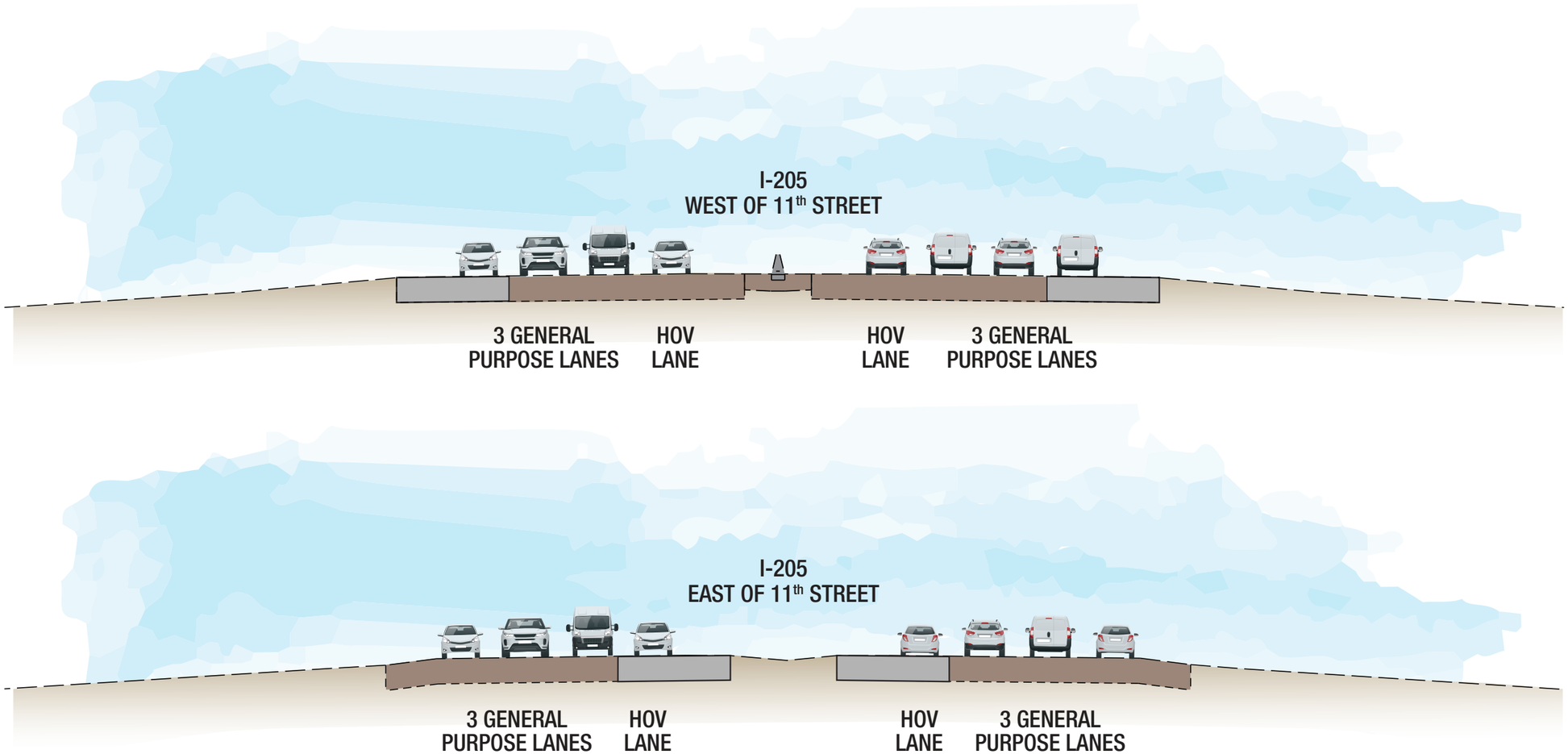


Attachment B
Build Alternative Typical Sections and Layout Sheets



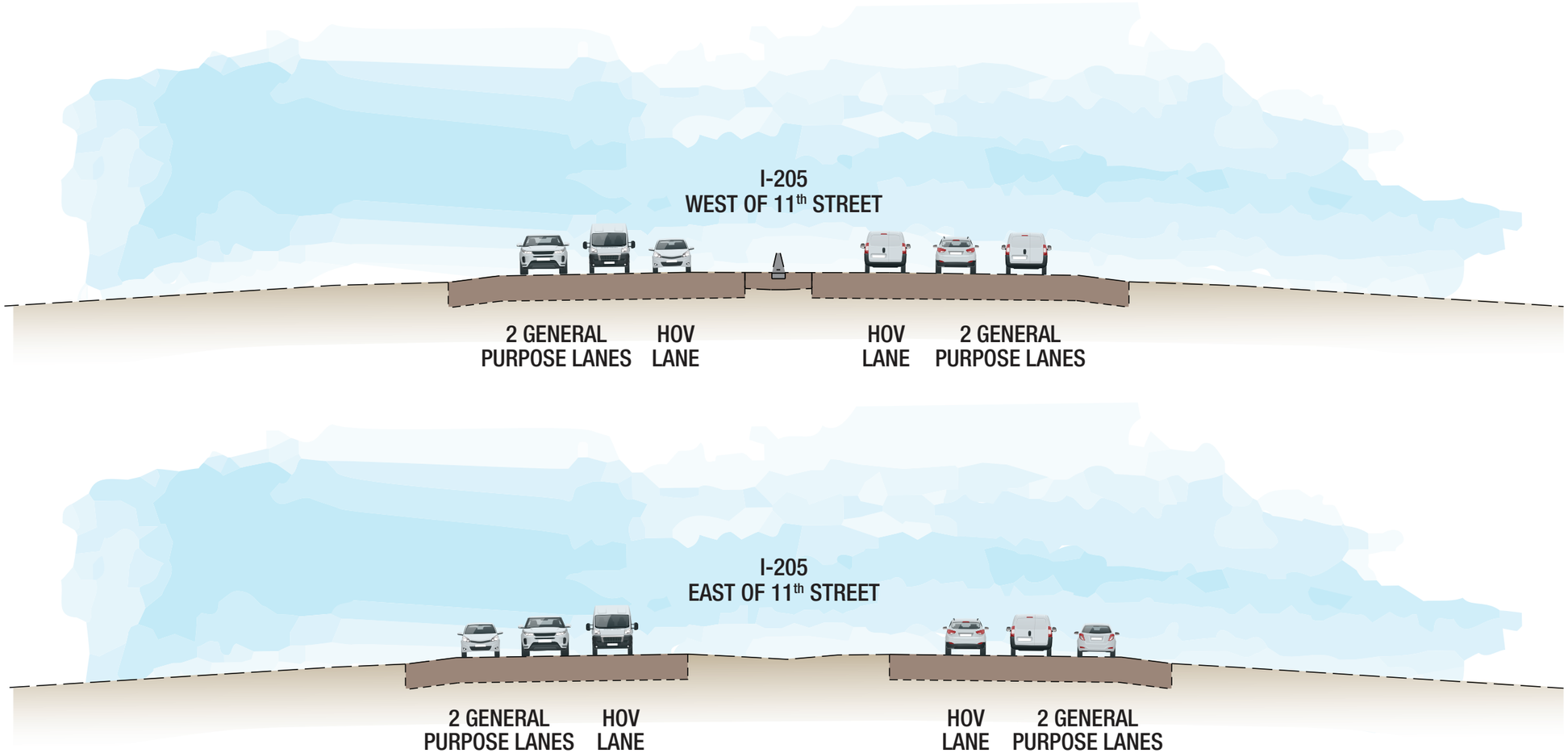
No-Build Alternative

ALTERNATIVE 1



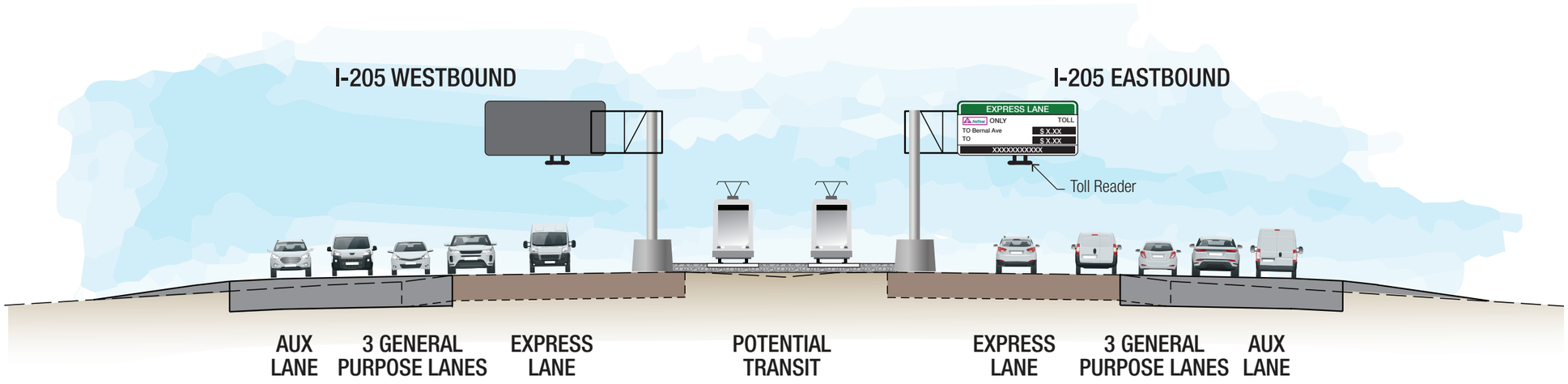
HOV Only Alternative:
Add a HOV Lane

ALTERNATIVE 2



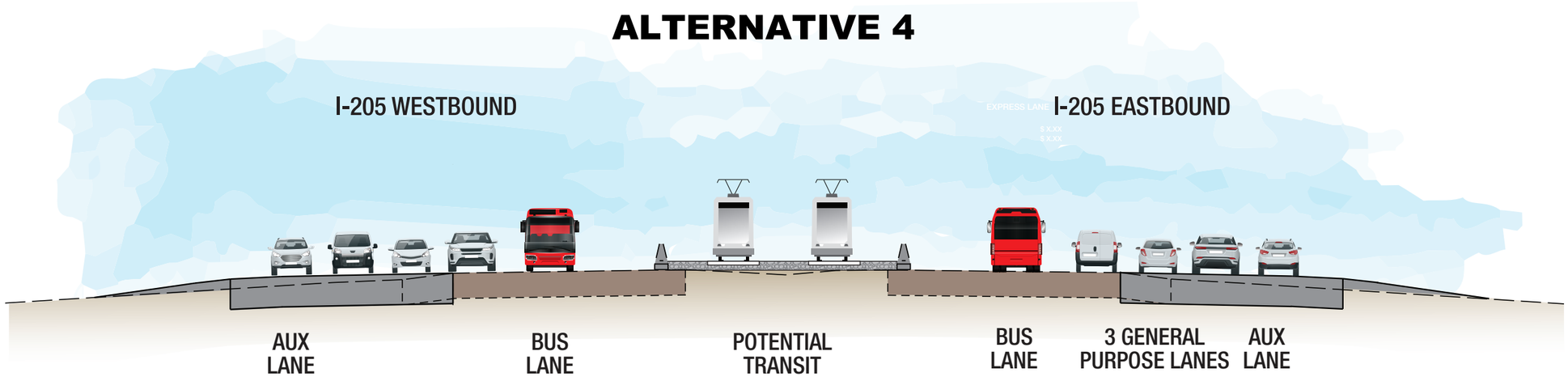
HOV Only Alternative:
Conversion of a General-Purpose Lane to HOV Lane

ALTERNATIVE 3



Express Lane Alternative:
Add an Express Lane
(Free access to vehicles that meet a minimum occupancy or vehicle type requirement with priced access to vehicles that do not)

ALTERNATIVE 4

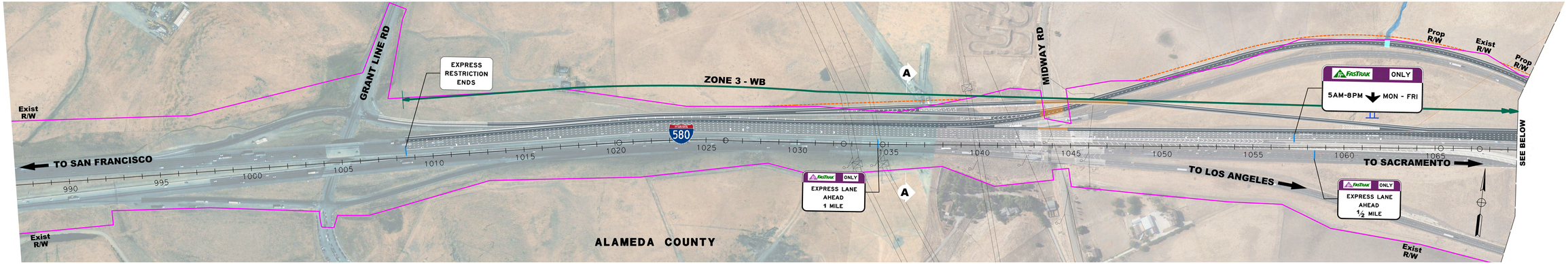


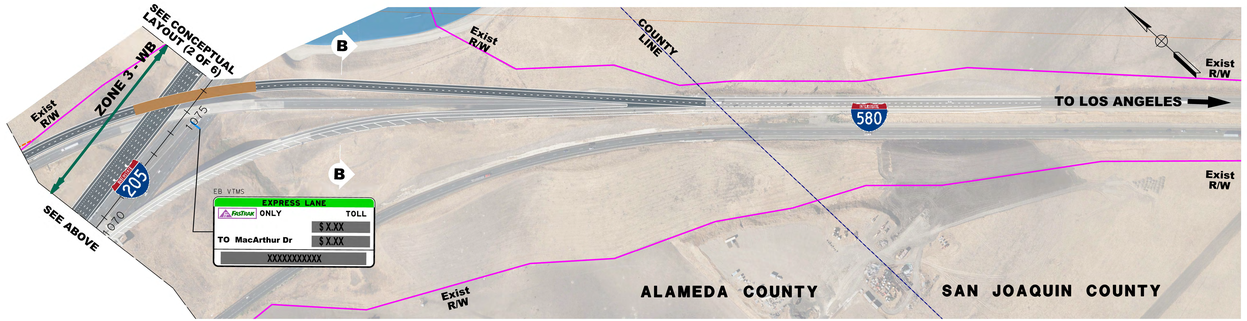
Transit Only Lane Alternative:
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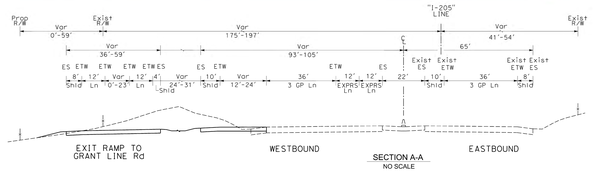
ALTERNATIVE 5

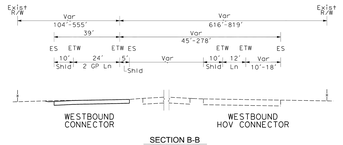
I-205 MANAGED LANES PROJECT

CONCEPTUAL LAYOUT (SHEET 1 OF 6)









LEGEND:

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- COUNTY LIMIT
- PROPOSED BRIDGE
- PROPOSED CULVERT
- PROPOSED PAVEMENT WIDENING
- PROPOSED ACCESS ROAD
- DRAINAGE BASIN
- PROPOSED EXPRESS LANE SIGN

Kimley»Horn

Caltrans

0 ft 100 ft 200 ft

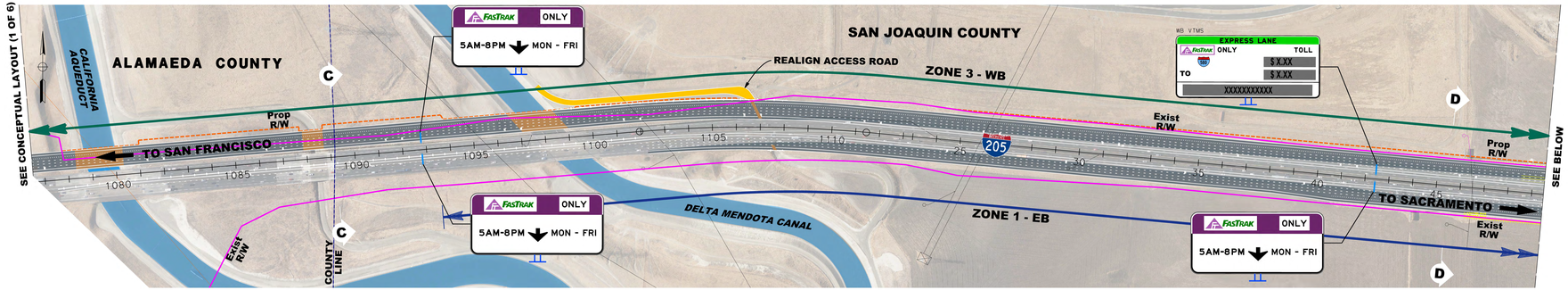
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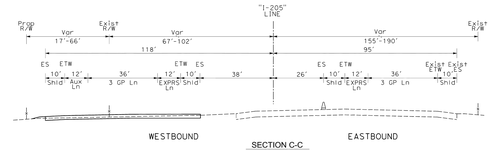
PRELIMINARY

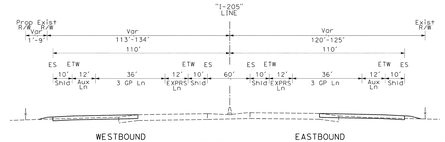
FOR DISCUSSION PURPOSES ONLY

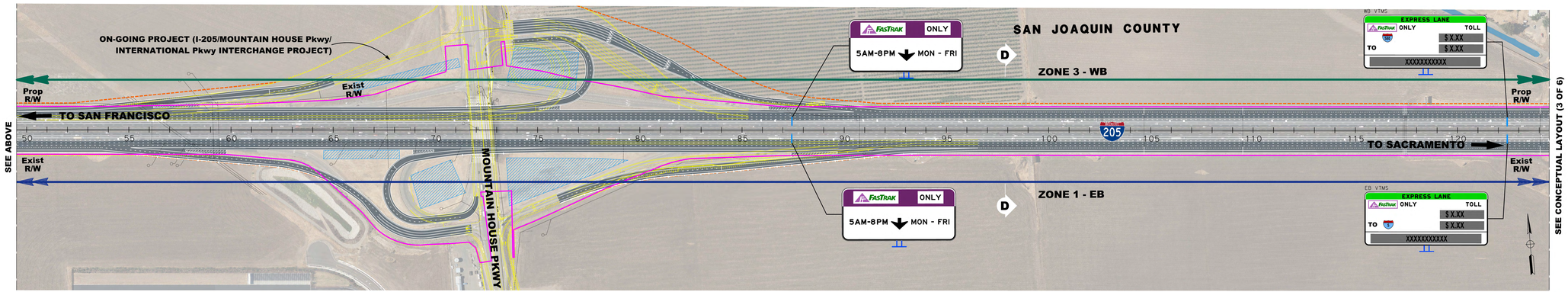
I-205 MANAGED LANES PROJECT

CONCEPTUAL LAYOUT (SHEET 2 OF 6)









LEGEND:

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- COUNTY LIMIT
- PROPOSED BRIDGE
- PROPOSED CULVERT
- PROPOSED PAVEMENT WIDENING
- PROPOSED ACCESS ROAD
- DRAINAGE BASIN
- PROPOSED EXPRESS LANE SIGN

Kimley»Horn

0 ft 100 ft 200 ft

Scale 1" = 100'

PRELIMINARY

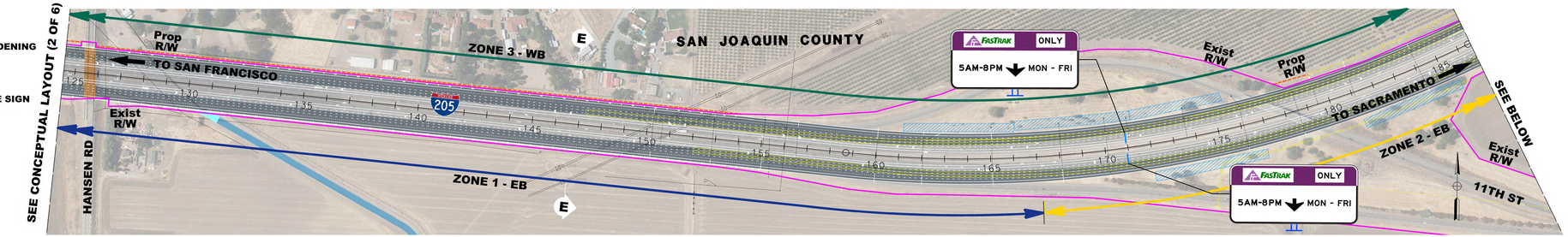
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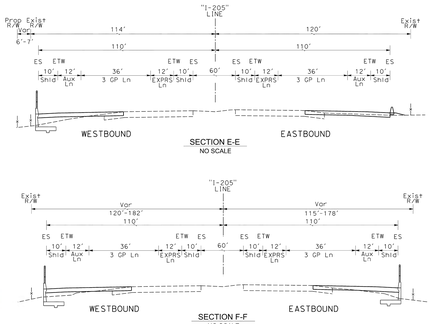
I-205 MANAGED LANES PROJECT

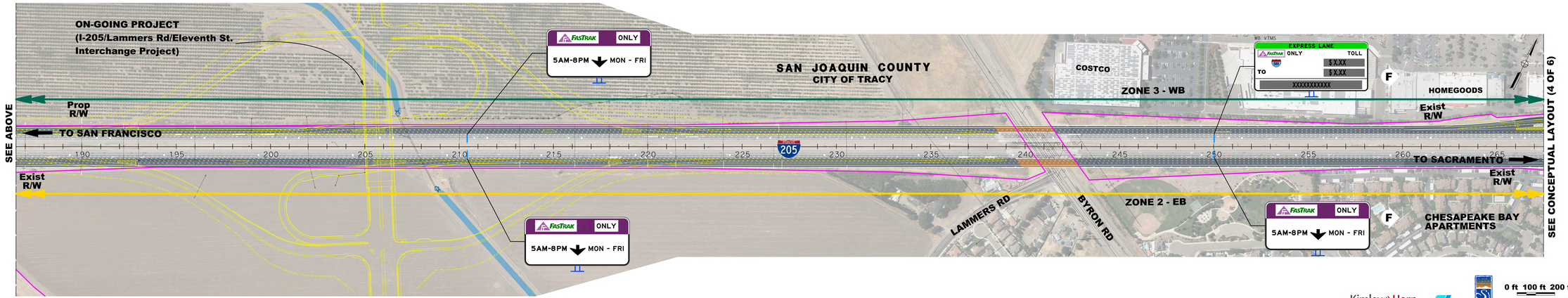
CONCEPTUAL LAYOUT (SHEET 3 OF 6)

LEGEND:

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- COUNTY LIMIT
- PROPOSED BRIDGE
- PROPOSED CULVERT
- PROPOSED PAVEMENT WIDENING
- PROPOSED ACCESS ROAD
- DRAINAGE BASIN
- PROPOSED EXPRESS LANE SIGN







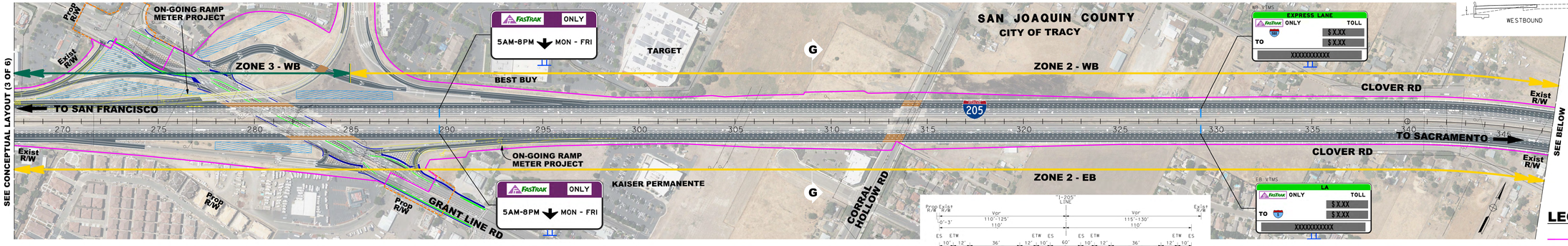
Kimley»Horn

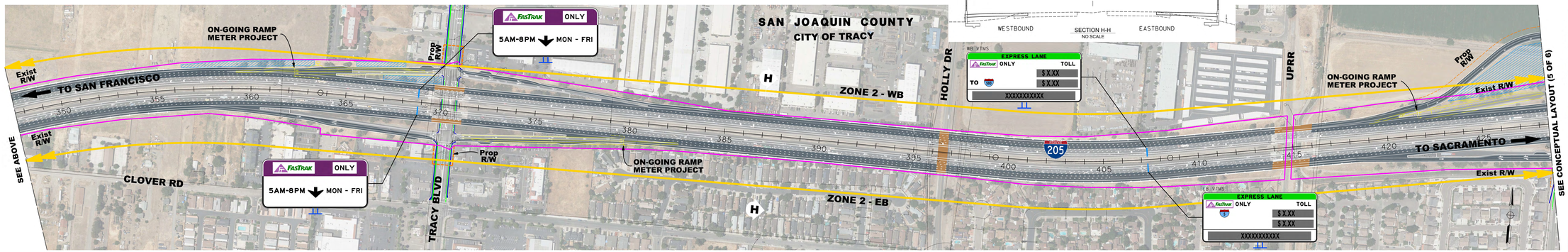
0 ft 100 ft 200 ft
Scale 1" = 100'

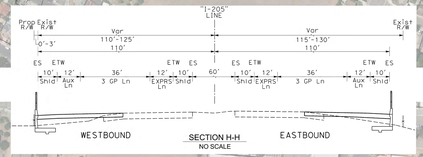
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FOR DISCUSSION PURPOSES ONLY

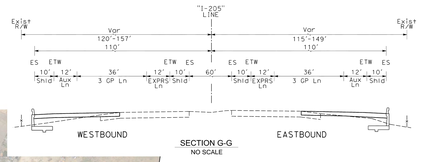
I-205 MANAGED LANES PROJECT

CONCEPTUAL LAYOUT (SHEET 4 OF 6)









LEGEND:

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- COUNTY LIMIT
- PROPOSED BRIDGE
- PROPOSED CULVERT
- PROPOSED PAVEMENT WIDENING
- PROPOSED ACCESS ROAD
- DRAINAGE BASIN
- PROPOSED EXPRESS LANE SIGN
- PROPOSED BIKE LANE
- PROPOSED SIDEWALK

Kimley»Horn

Caltrans

0 ft 100 ft 200 ft

Scale 1" = 100'

PRELIMINARY

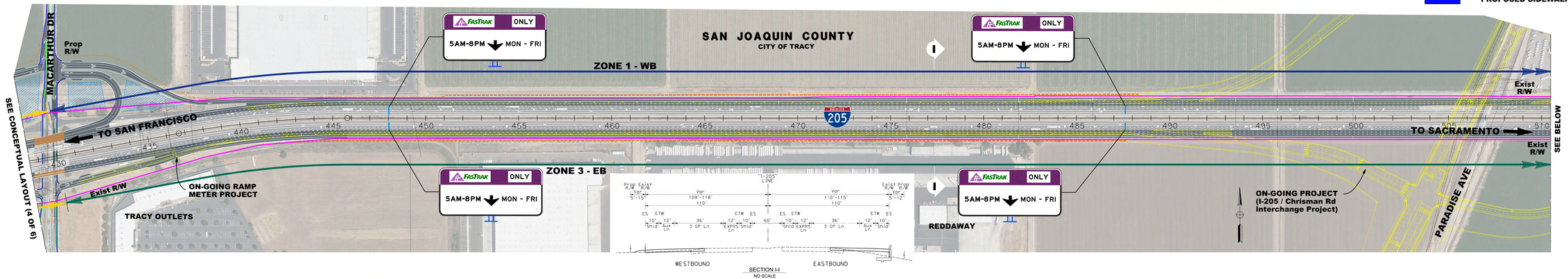
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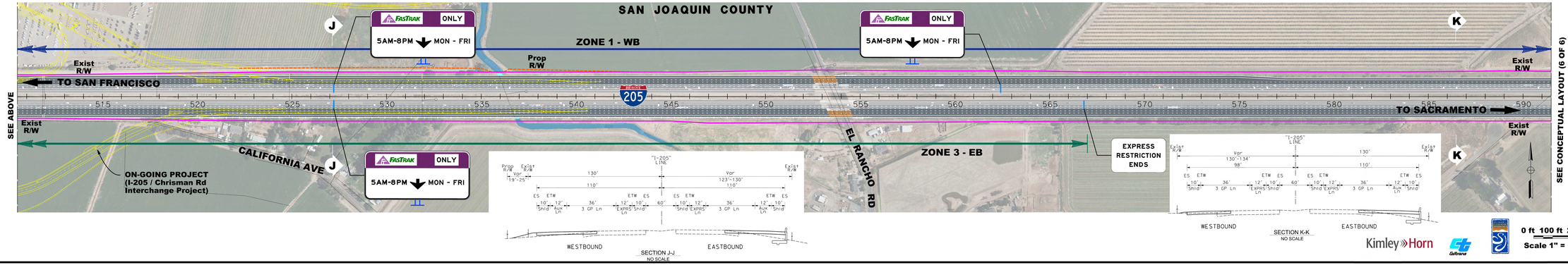
I-205 MANAGED LANES PROJECT

CONCEPTUAL LAYOUT (SHEET 5 OF 6)

LEGEND:

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- COUNTY LIMIT
- PROPOSED BRIDGE
- PROPOSED CULVERT
- PROPOSED PAVEMENT WIDENING
- PROPOSED ACCESS ROAD
- DRAINAGE BASIN
- PROPOSED EXPRESS LANE SIGN
- PROPOSED BIKE LANE
- PROPOSED SIDEWALK





Kimley»Horn

0 ft 100 ft 200 ft

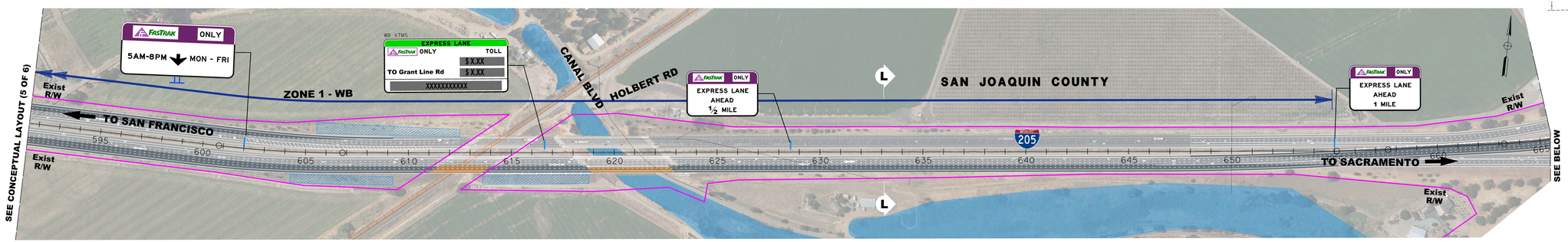
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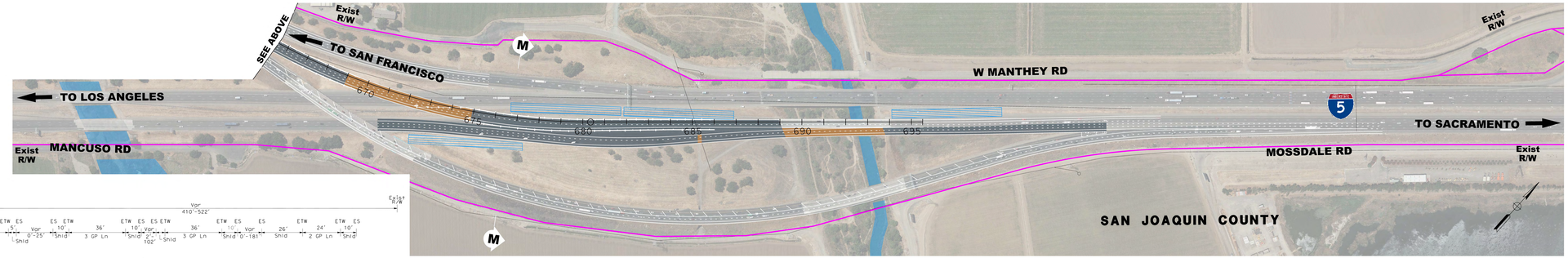
PRELIMINARY

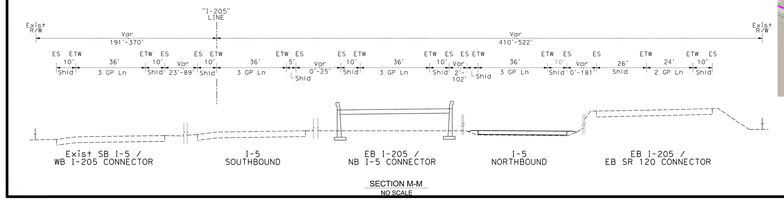
FOR DISCUSSION PURPOSES ONLY

I-205 MANAGED LANES PROJECT

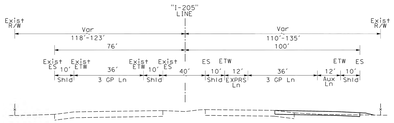
CONCEPTUAL LAYOUT (SHEET 6 OF 6)







SECTION M-M
NO SCALE



SECTION L-L
NO SCALE

LEGEND:

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- COUNTY LIMIT
- PROPOSED BRIDGE
- PROPOSED CULVERT
- PROPOSED PAVEMENT WIDENING
- PROPOSED ACCESS ROAD
- DRAINAGE BASIN
- PROPOSED EXPRESS LANE SIGN

Kimley»Horn

Caltrans

0 ft 100 ft 200 ft

Scale 1" = 100'

PRELIMINARY

FOR DISCUSSION PURPOSES ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

NOTES:

1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATIONS ARE SHOWN ON THE SUPERELEVATION DIAGRAMS.

LEGEND:

UPRR - UNION PACIFIC RAILROAD

[#] - EXISTING STRUCTURAL SECTION

TYPICAL PAVEMENT STRUCTURAL SECTIONS (PRELIMINARY)

[1]
- 0.75' CRCP
- 0.25' HMA (TYPE A)
- 0.60' CI 2 AS

[2]
- 0.20' RHMA (TYPE G)
- 0.55' HMA (TYPE A)
- 1.60' CI 3 AB
- 1.40' CI 4 AB

[3]
- 0.20' RHMA (TYPE G)
- 0.64' AC (TYPE B)
- 1.03' AB
- 1.62' AS

[4]
- 0.34' AC (TYPE B)
- 0.75' PCC
- 0.50' CTB
- 1.75' AS

[5]
- 0.20' RHMA (TYPE G)
- 0.64' AC (TYPE B)
- 1.03' AB
- 1.62' AS

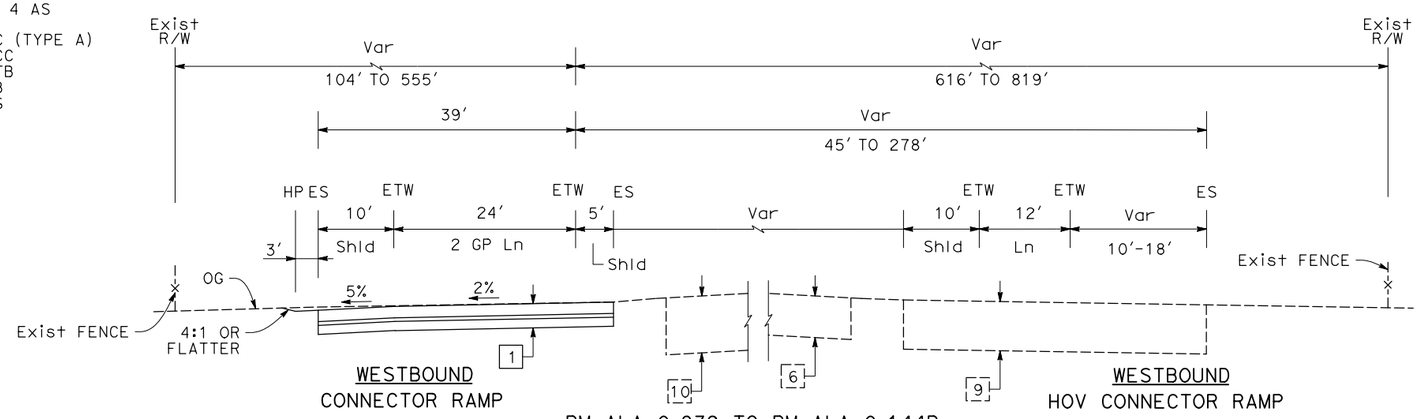
[6]
- 0.76' AC (TYPE A)
- 1.17' AB
- 0.66' AS

[7]
- 0.31' AC (TYPE B)
- 0.08' RAC (TYPE G)
- 0.75' PCC
- 0.50' CTB
- 1.75' AS

[8]
- 0.83' AC
- 2.90' AB

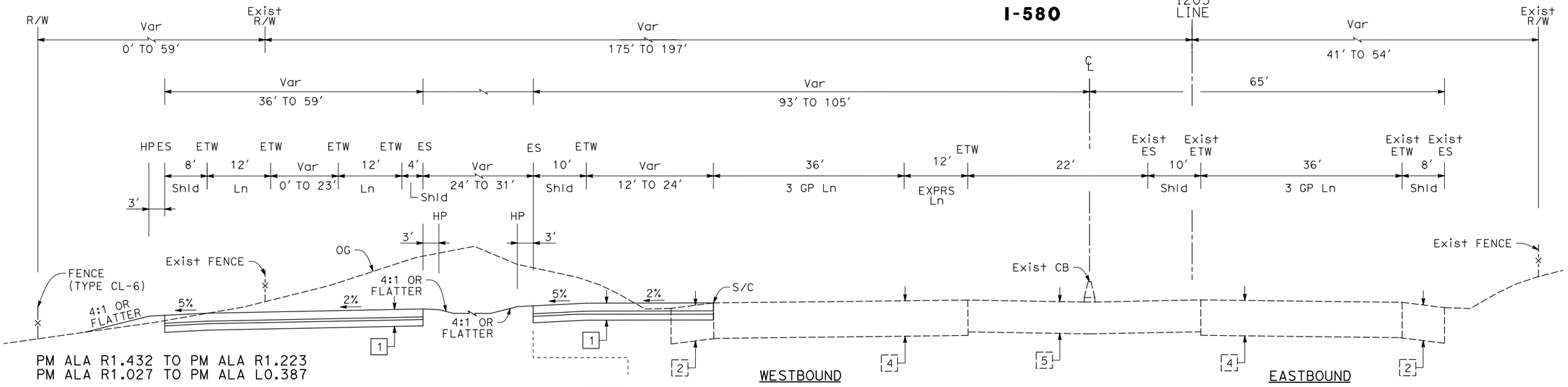
[9]
- 0.77' AC (TYPE A)
- 1.79' CI 2 AB
- 1.00' CI 4 AS

[10]
- 0.10' AC (TYPE A)
- 0.75' PCC
- 0.32' CTB
- 0.17' AB
- 2.75' AS



PM ALA 0.839 TO PM ALA 0.144R "I205"

I-580



PM ALA R1.432 TO PM ALA R1.223
PM ALA R1.027 TO PM ALA L0.387

OFF-RAMP - FROM WB I-580 TO GRANT LINE ROAD

PM ALA R1.223 TO PM ALA R1.027

PM ALA R1.432 TO PM ALA R1.223
PM ALA R1.027 TO PM ALA L0.387

I-580/I-205

TYPICAL CROSS SECTIONS

NO SCALE

X-1

PRELIMINARY PLANS SUBJECT TO REVISION

LAST REVISION | DATE PLOTTED => 02-JUN-2021
00-00-00 | TIME PLOTTED => 16:20

BORDER LAST REVISED 7/2/2010 | USERNAME => Taylor.Klauser | DGN FILE => 1000000001ca001.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE XXXXXXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

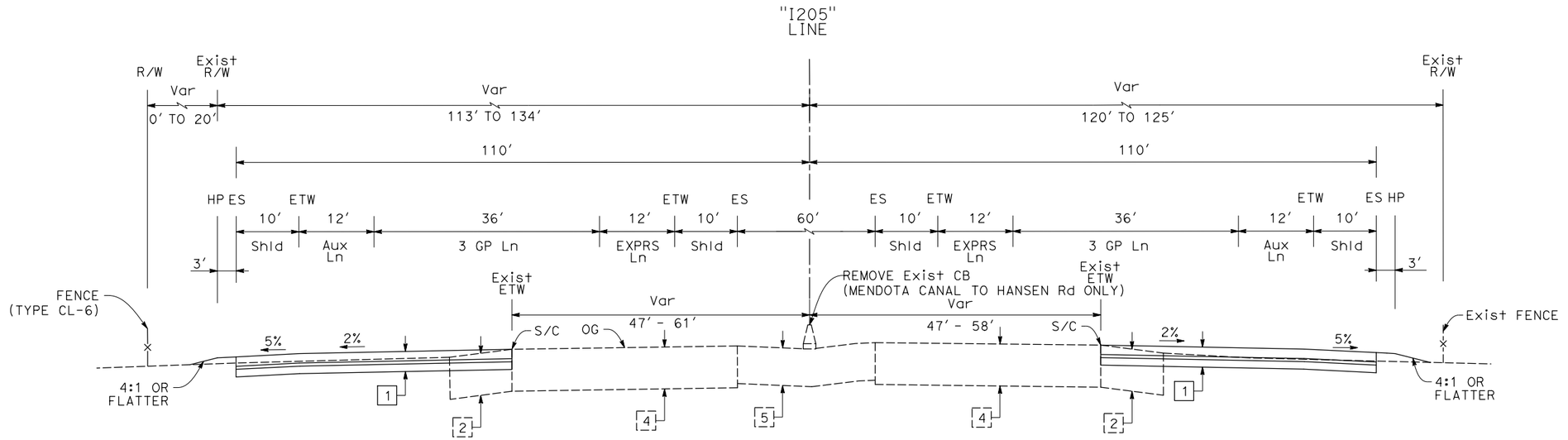
PLANS APPROVAL DATE

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KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

SJCOG
555 E WEBER AVE
STOCKTON, CA 95202



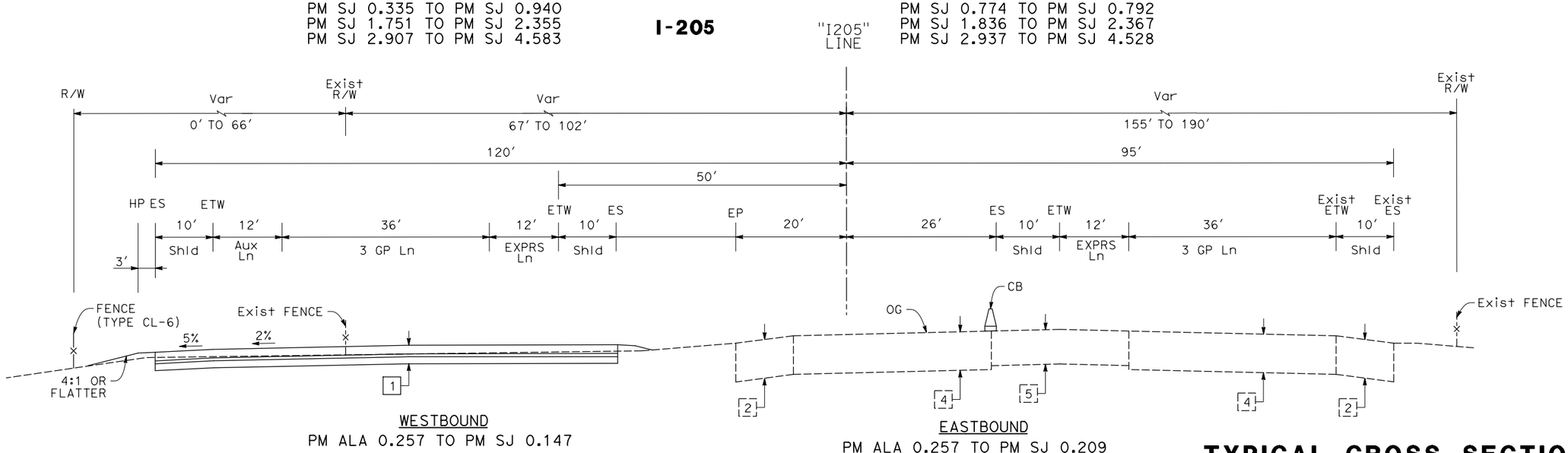
WESTBOUND

PM SJ 0.335 TO PM SJ 0.940
PM SJ 1.751 TO PM SJ 2.355
PM SJ 2.907 TO PM SJ 4.583

I-205

EASTBOUND

PM SJ 0.774 TO PM SJ 0.792
PM SJ 1.836 TO PM SJ 2.367
PM SJ 2.937 TO PM SJ 4.528



WESTBOUND

PM ALA 0.257 TO PM SJ 0.147

EASTBOUND

PM ALA 0.257 TO PM SJ 0.209

I-205

TYPICAL CROSS SECTIONS

NO SCALE

PRELIMINARY PLANS SUBJECT TO REVISION

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET X-1

X-2

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 02-JUN-2021 | TIME PLOTTED => 16:20

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REGISTERED CIVIL ENGINEER DATE

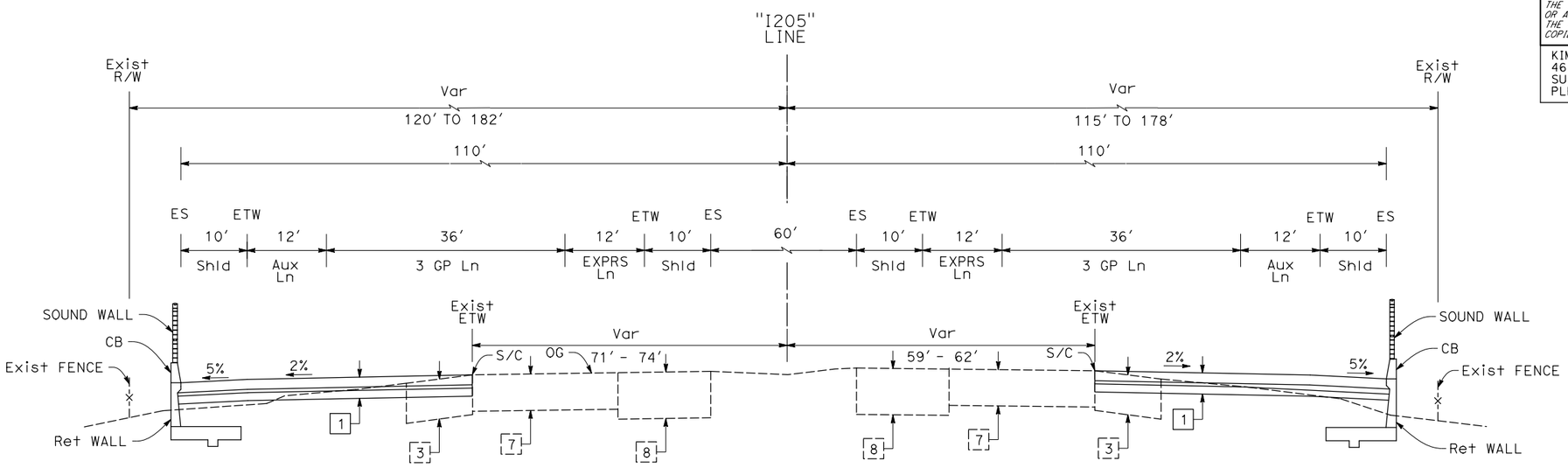
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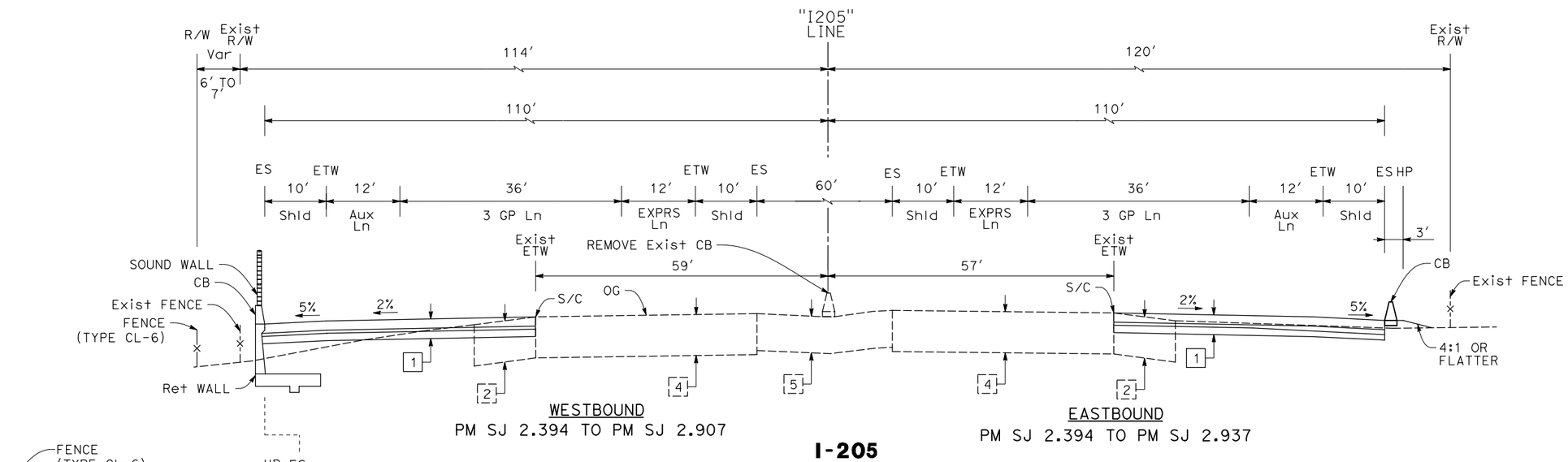
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202



WESTBOUND
PM SJ R4.583 TO PM SJ R4.935

I-205

EASTBOUND
PM SJ R4.610 TO PM SJ R5.097



WESTBOUND
PM SJ 2.394 TO PM SJ 2.907

I-205

EASTBOUND
PM SJ 2.394 TO PM SJ 2.937

TYPICAL CROSS SECTIONS

NO SCALE

X-3

PRELIMINARY PLANS SUBJECT TO REVISION

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET X-1

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CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

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Caltrans

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BORDER LAST REVISED 7/2/2010 | USERNAME => Taylor.Klauser | DGN FILE => 1000000001ca003.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE XXXXXXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

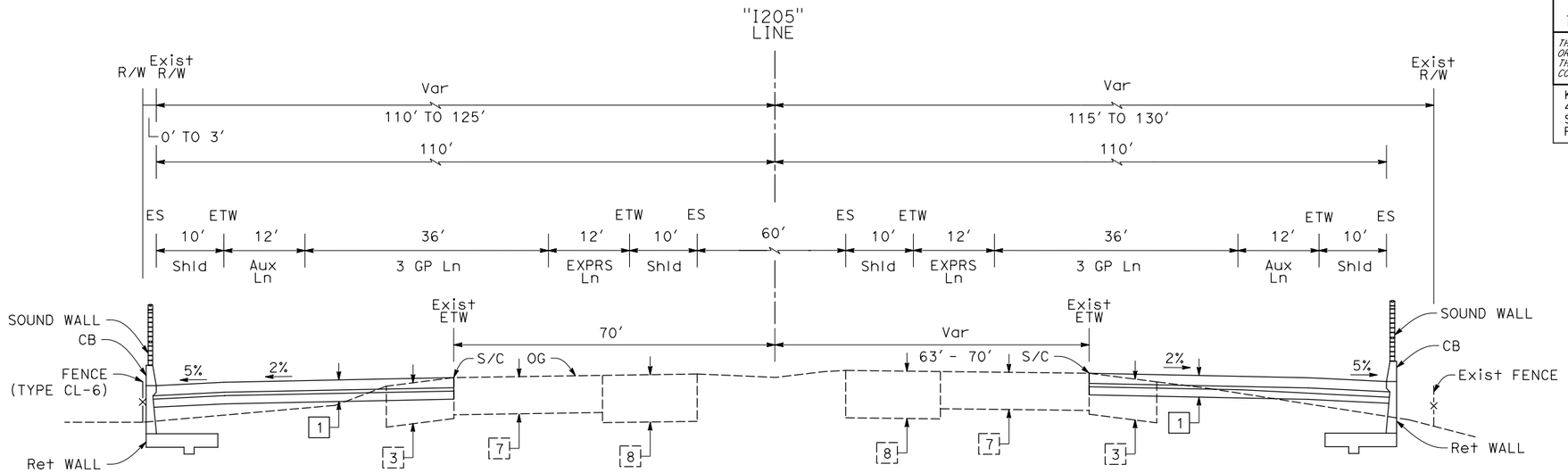
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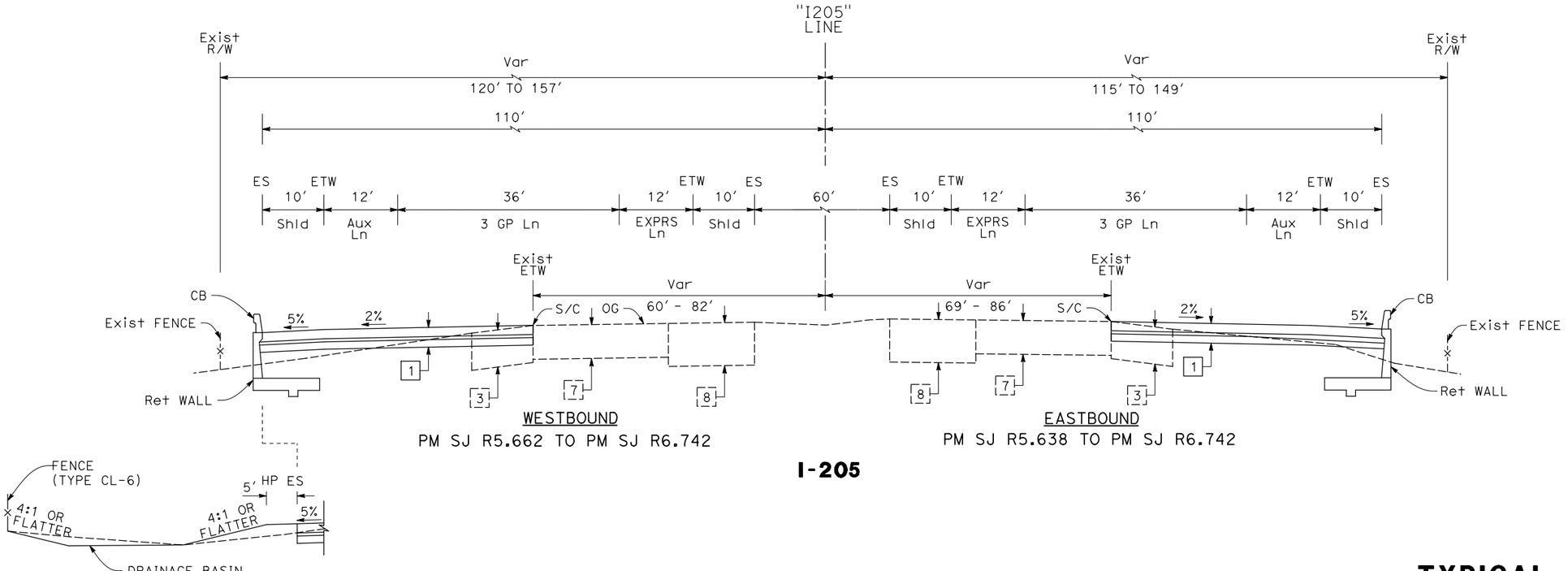
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202



WESTBOUND
PM SJ R7.270 TO PM SJ R7.842

EASTBOUND
PM SJ R7.270 TO PM SJ R7.929

I-205



WESTBOUND
PM SJ R5.662 TO PM SJ R6.742

EASTBOUND
PM SJ R5.638 TO PM SJ R6.742

I-205

TYPICAL CROSS SECTIONS

NO SCALE

X-4

PRELIMINARY PLANS SUBJECT TO REVISION

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET X-1

REVISED BY | DATE REVISED

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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LAST REVISION 00-00-00 | DATE PLOTTED => 02-JUN-2021 | TIME PLOTTED => 16:20

BORDER LAST REVISED 7/2/2010 | USERNAME => Taylor.Klauser | DGN FILE => 1000000001ca004.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE XXXXXXXX

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10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

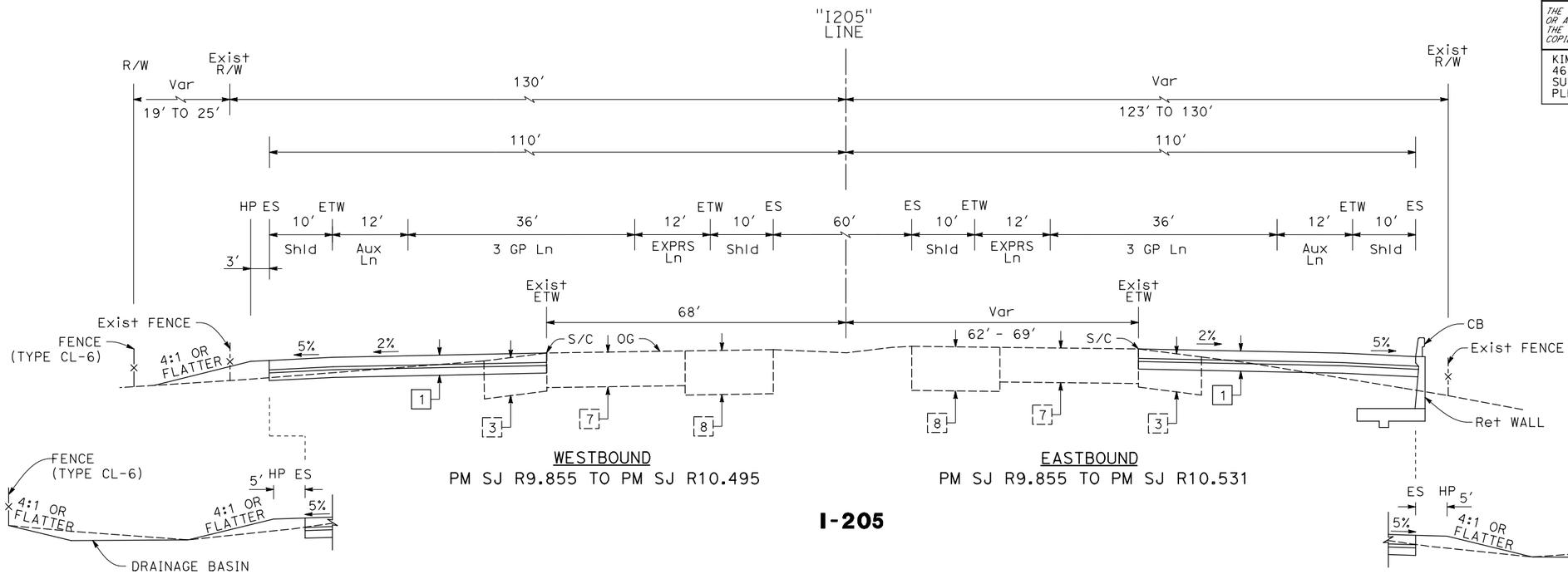
PLANS APPROVAL DATE

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PLEASANTON, CA 94588

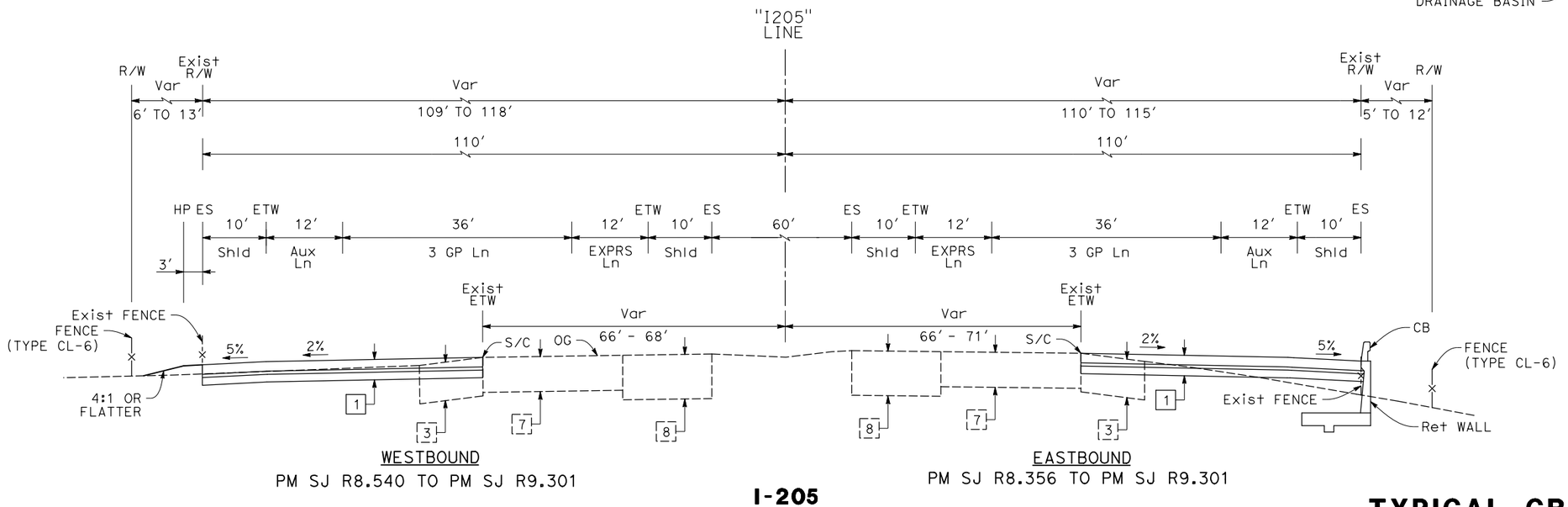
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202



WESTBOUND
PM SJ R9.855 TO PM SJ R10.495

EASTBOUND
PM SJ R9.855 TO PM SJ R10.531

I-205



WESTBOUND
PM SJ R8.540 TO PM SJ R9.301

EASTBOUND
PM SJ R8.356 TO PM SJ R9.301

I-205

TYPICAL CROSS SECTIONS

NO SCALE

PRELIMINARY PLANS SUBJECT TO REVISION

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET X-1

X-5

REVISED BY | DATE REVISED | CALCULATED-DESIGNED BY | CHECKED BY

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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LAST REVISION 00-00-00 | DATE PLOTTED => 02-JUN-2021 | TIME PLOTTED => 16:20

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

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PLEASANTON, CA 94588

SJCOG
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STOCKTON, CA 95202

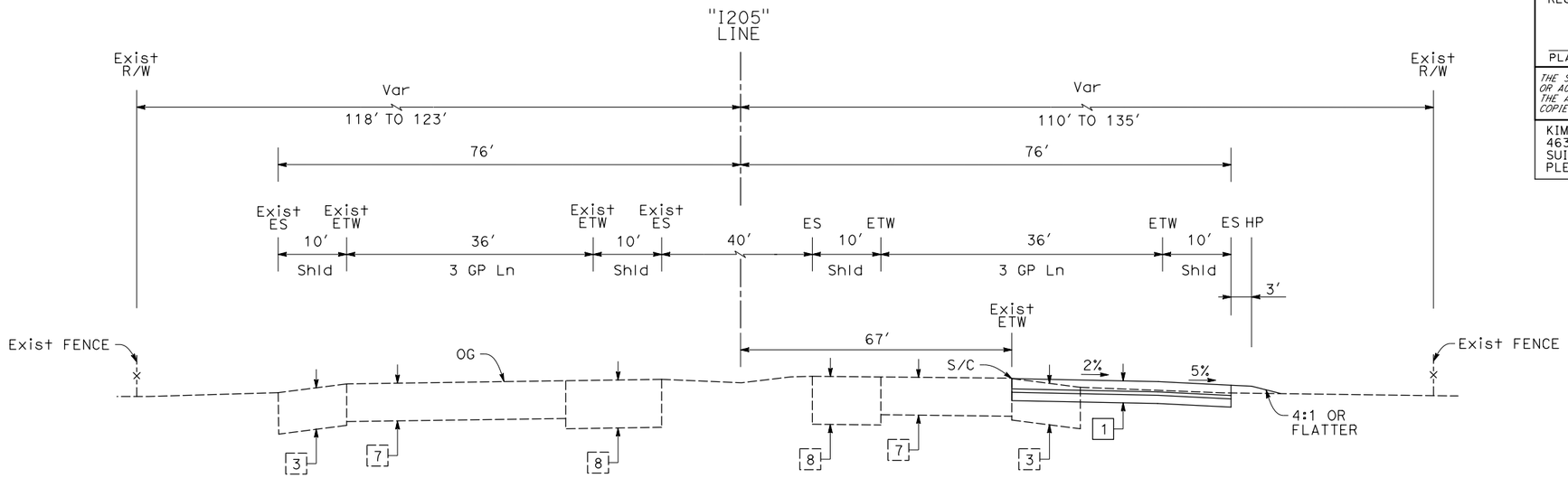
REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

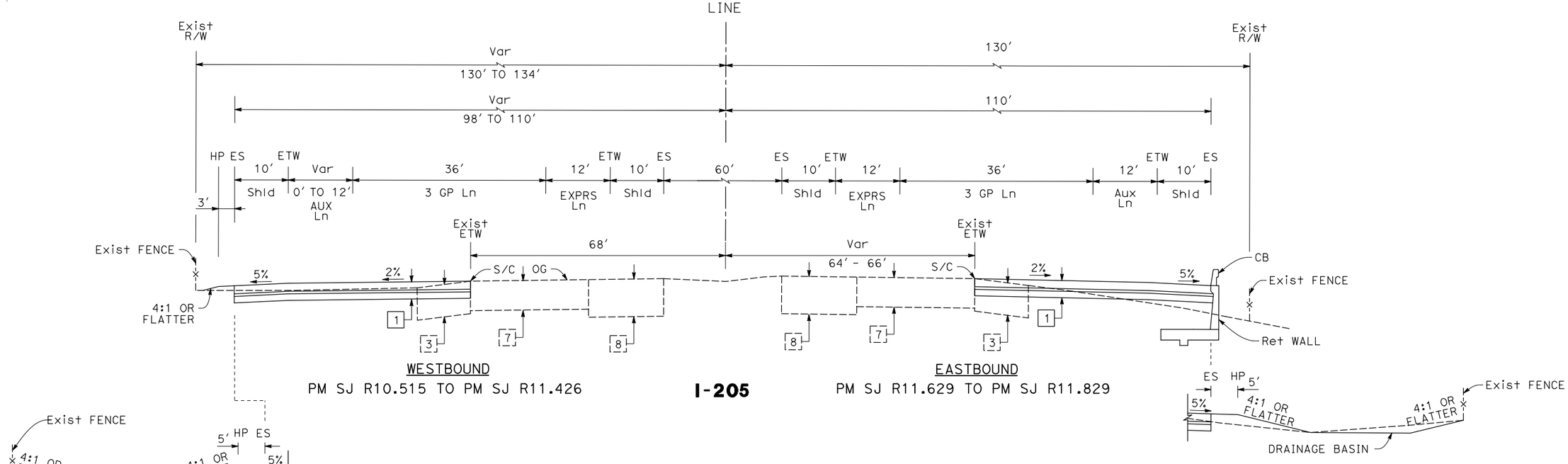
Caltrans



WESTBOUND
PM SJ R11.829 TO PM SJ R12.279

EASTBOUND
PM SJ R11.829 TO PM SJ R12.417

I-205



WESTBOUND
PM SJ R10.515 TO PM SJ R11.426

I-205

EASTBOUND
PM SJ R11.629 TO PM SJ R11.829

TYPICAL CROSS SECTIONS

NO SCALE

X-6

PRELIMINARY PLANS SUBJECT TO REVISION

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET X-1

LAST REVISION 00-00-00 | DATE PLOTTED => 02-JUN-2021 | TIME PLOTTED => 16:20

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

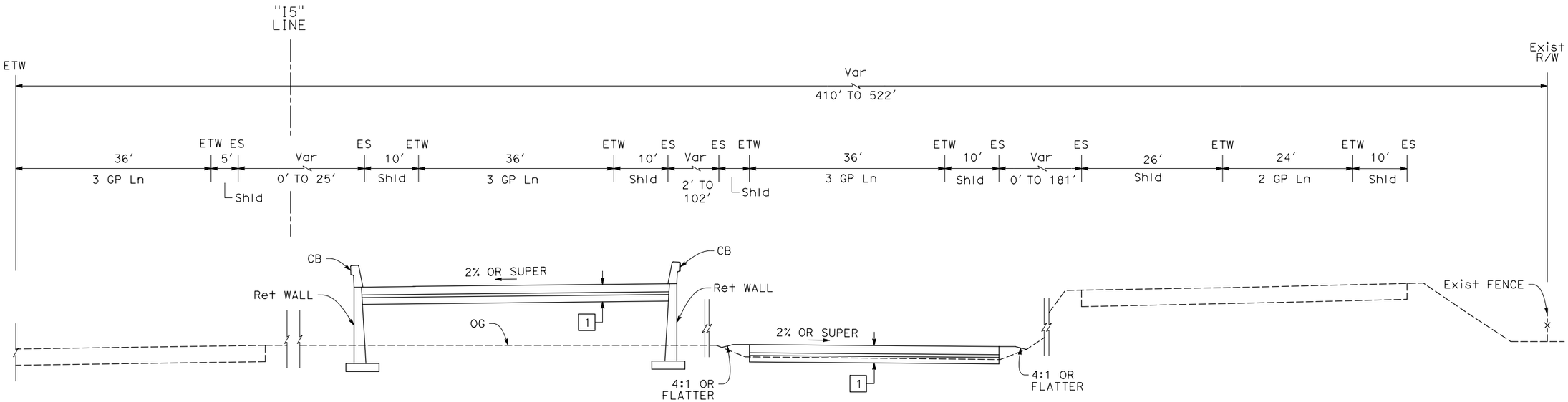
PLANS APPROVAL DATE

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KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

SJCOG
555 E WEBER AVE
STOCKTON, CA 95202



SOUTHBOUND

HOV CONNECTOR RAMP - FROM EB I-205 TO NB I-5

NORTHBOUND

CONNECTOR RAMP - FROM EB I-205 TO EB SR-120

PM SJ R12.741 TO PM SJ 12.953

I-5

TYPICAL CROSS SECTIONS

NO SCALE

X-7

PRELIMINARY PLANS SUBJECT TO REVISION

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET X-1

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY

CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 02-JUN-2021 | TIME PLOTTED => 16:20

NOTE:
SAME NUMBER AND ORIENTATION FOR ALL PLAN VIEW SHEETS.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

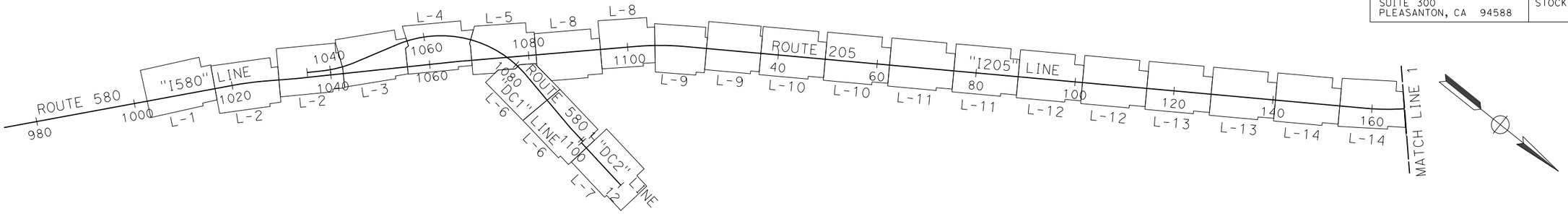
PLANS APPROVAL DATE

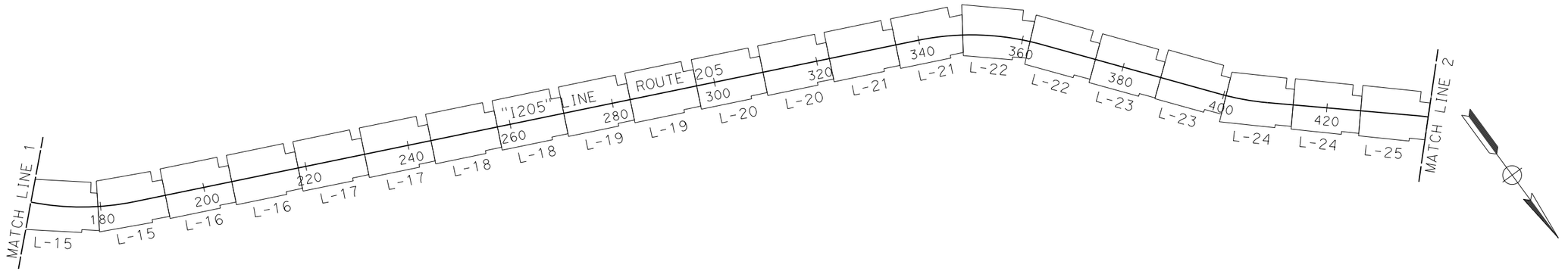
REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

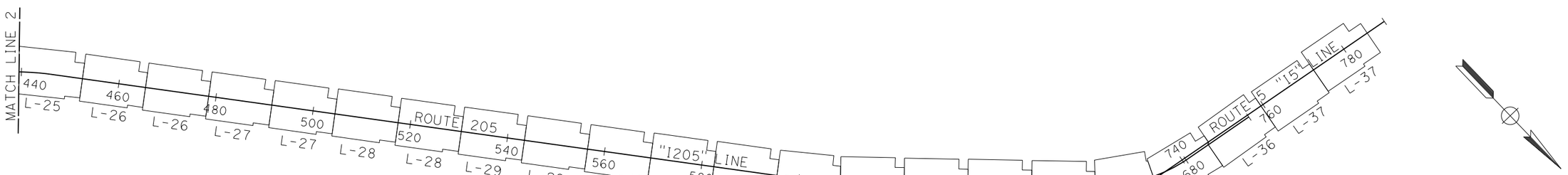
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KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

SJCOG
555 E WEBER AVE
STOCKTON, CA 95202







KEY MAP AND LINE INDEX

NO SCALE

K-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

CALCULATED-DESIGNED BY

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REVISED BY	DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 10-MAR-2021
TIME PLOTTED => 11:37

BORDER LAST REVISED 7/2/2010

USERNAME => Taylor.Klauser
DGN FILE => 1000000001da001.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE XXXXXXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

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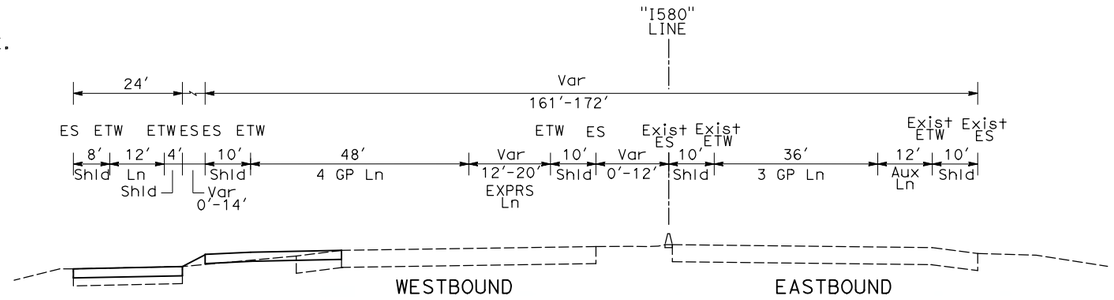
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

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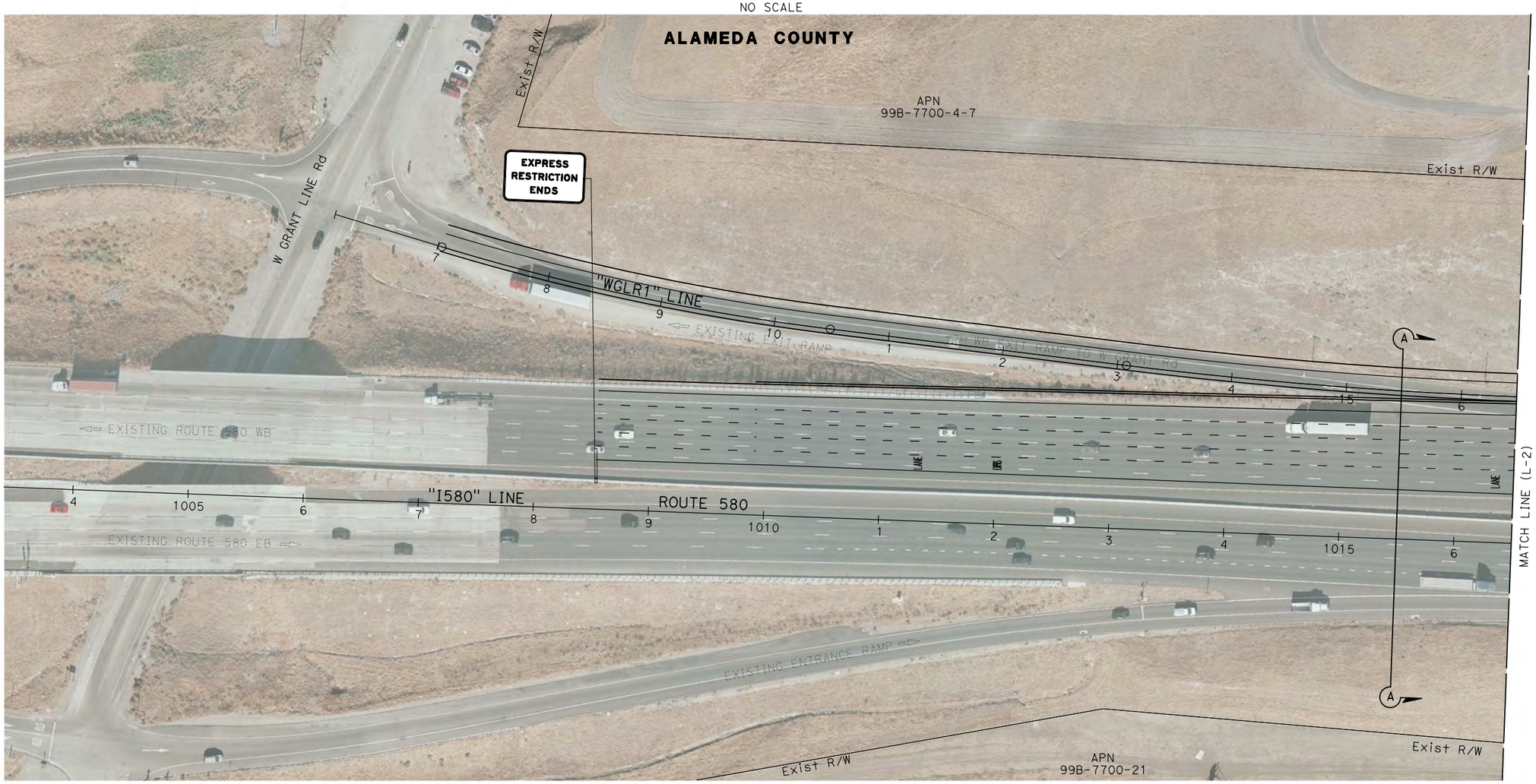
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

LEGEND:

DRAINAGE BASIN



SECTION A-A
NO SCALE



LAYOUT

SCALE: 1" = 50'

L-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

CALCULATED-DESIGNED BY

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REVISED BY | DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 20-JUL-2021
TIME PLOTTED => 13:52

BORDER LAST REVISED 7/2/2010

USERNAME => Devin.Schmidt
DGN FILE => 1000000001ea001.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE XXXXXXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

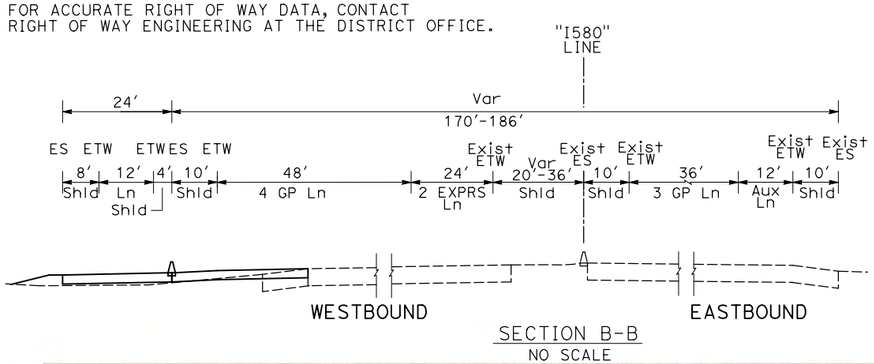
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KIMLEY-HORN
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SUITE 300
PLEASANTON, CA 94588

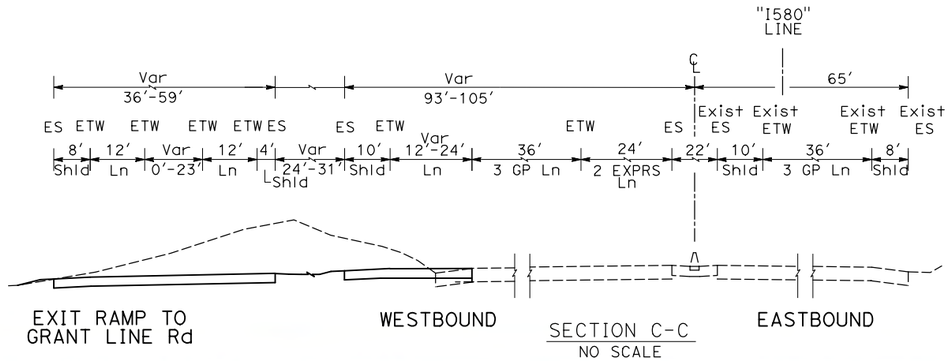
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

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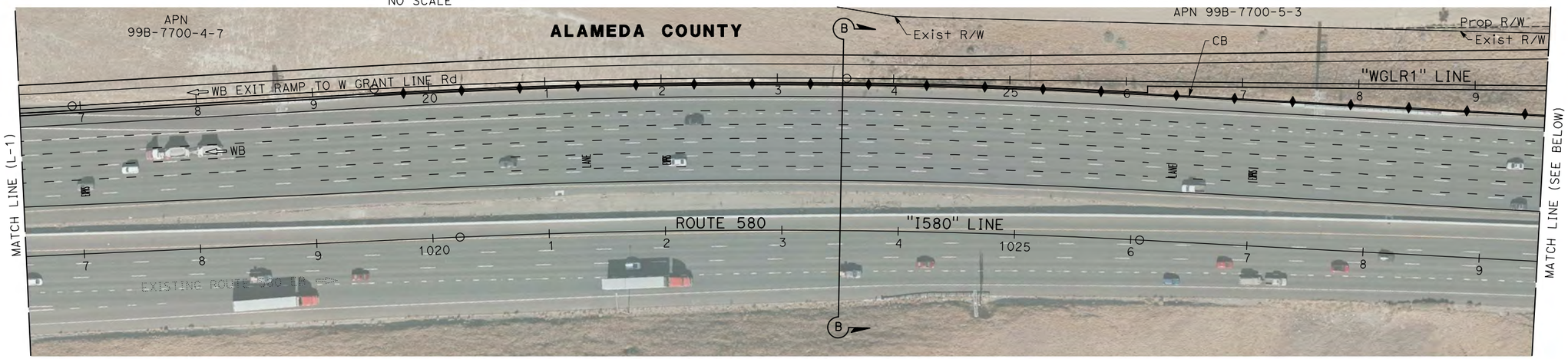
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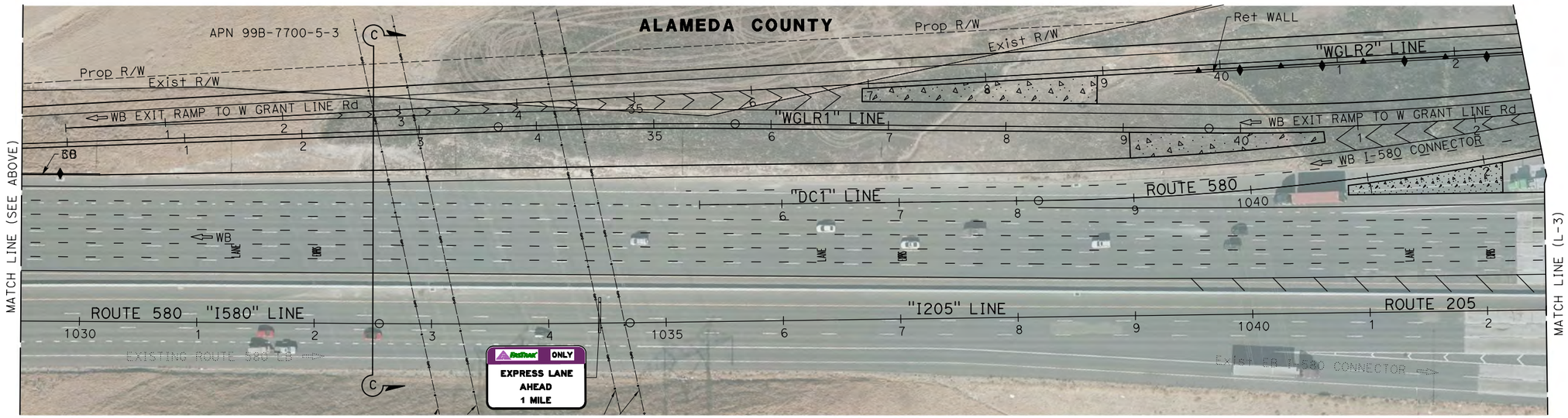


SECTION B-B
NO SCALE



SECTION C-C
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-2

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 20-JUL-2021 | TIME PLOTTED => 13:52

BORDER LAST REVISED 7/2/2010 | USERNAME => Devin.Schmidt | DGN FILE => 1000000001ea002.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE XXXXXXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

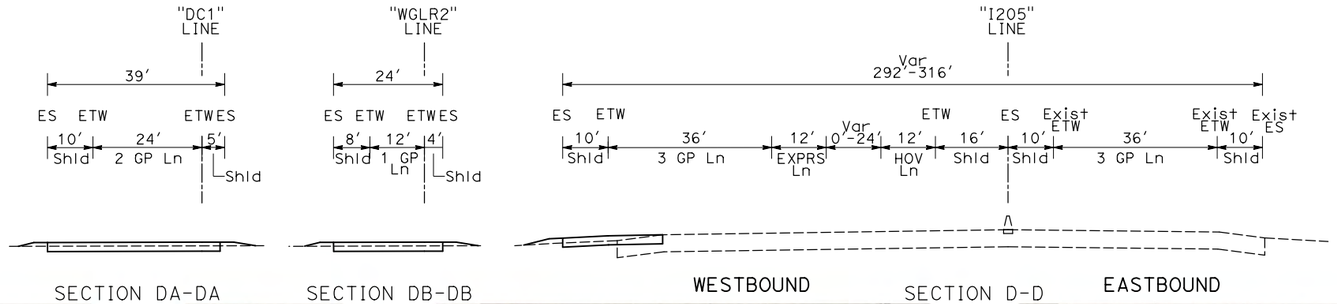
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4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

NOTE:

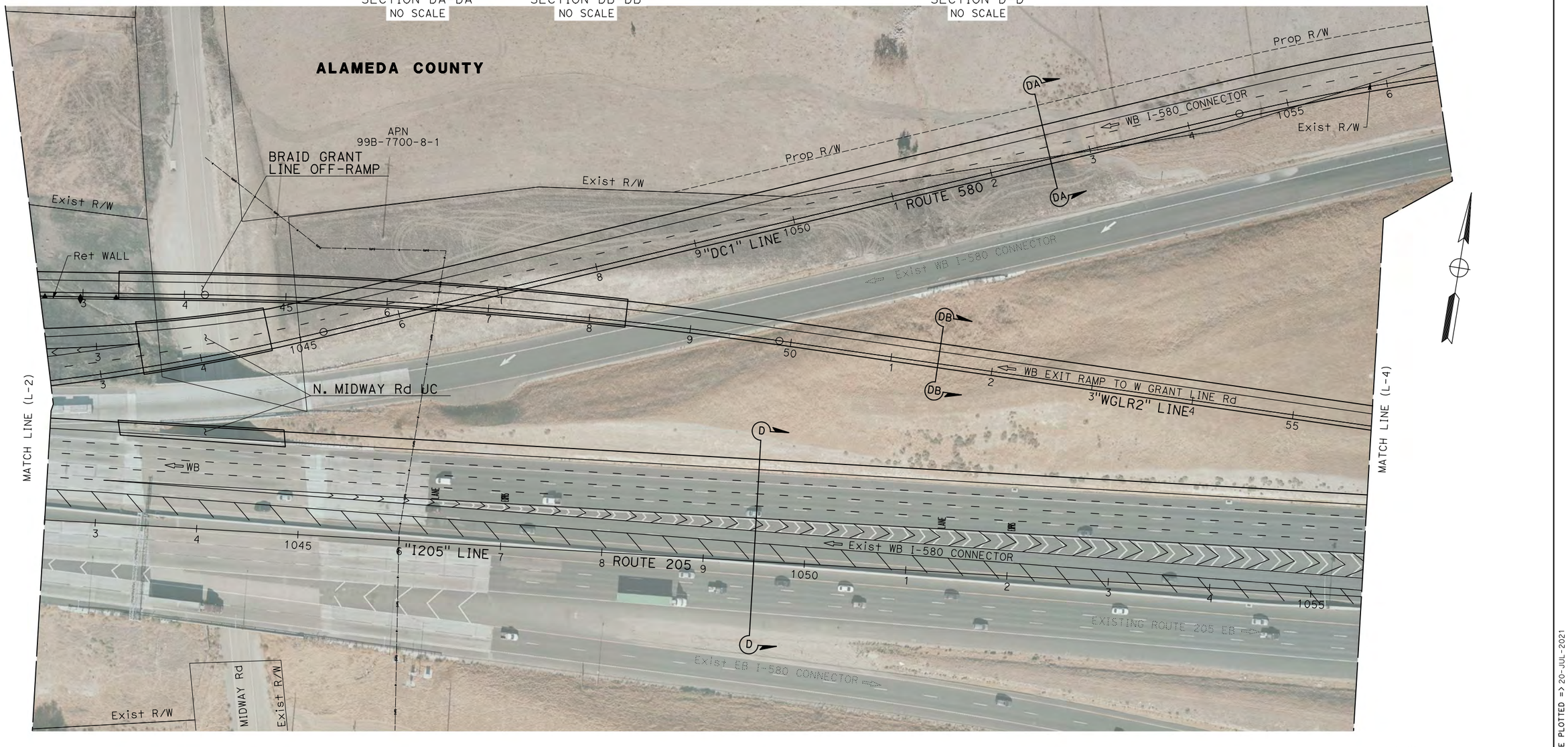
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION DA-DA
NO SCALE

SECTION DB-DB
NO SCALE

SECTION D-D
NO SCALE



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50′

L-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

CALCULATED-DESIGNED BY

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LAST REVISION | DATE PLOTTED => 20-JUL-2021 | TIME PLOTTED => 13:52 | 00-00-00

BORDER LAST REVISED 7/2/2010

USERNAME => Devin.Schmidt
DGN FILE => 1000000001ea003.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE XXXXXXXX

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

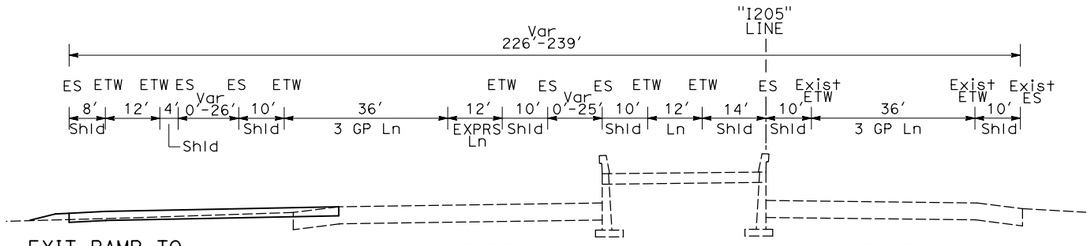
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4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

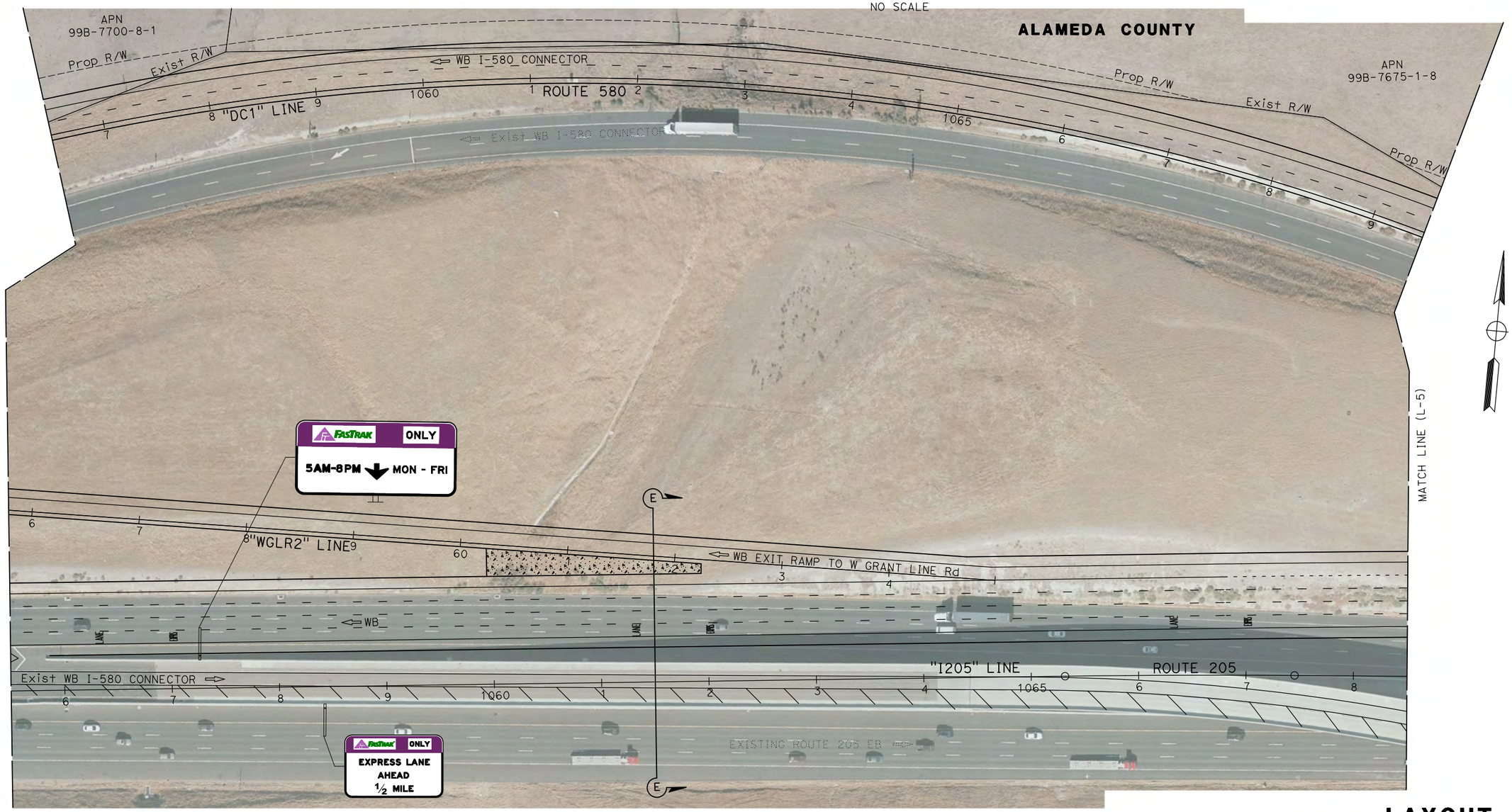
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION E-E
NO SCALE



LAYOUT

SCALE: 1" = 50'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

L-4

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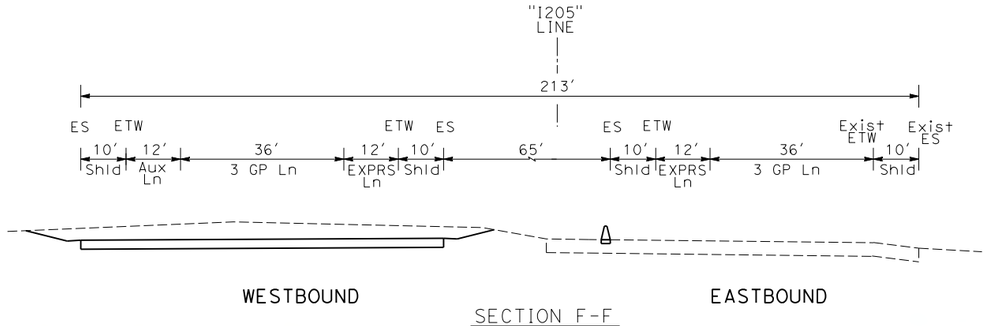
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

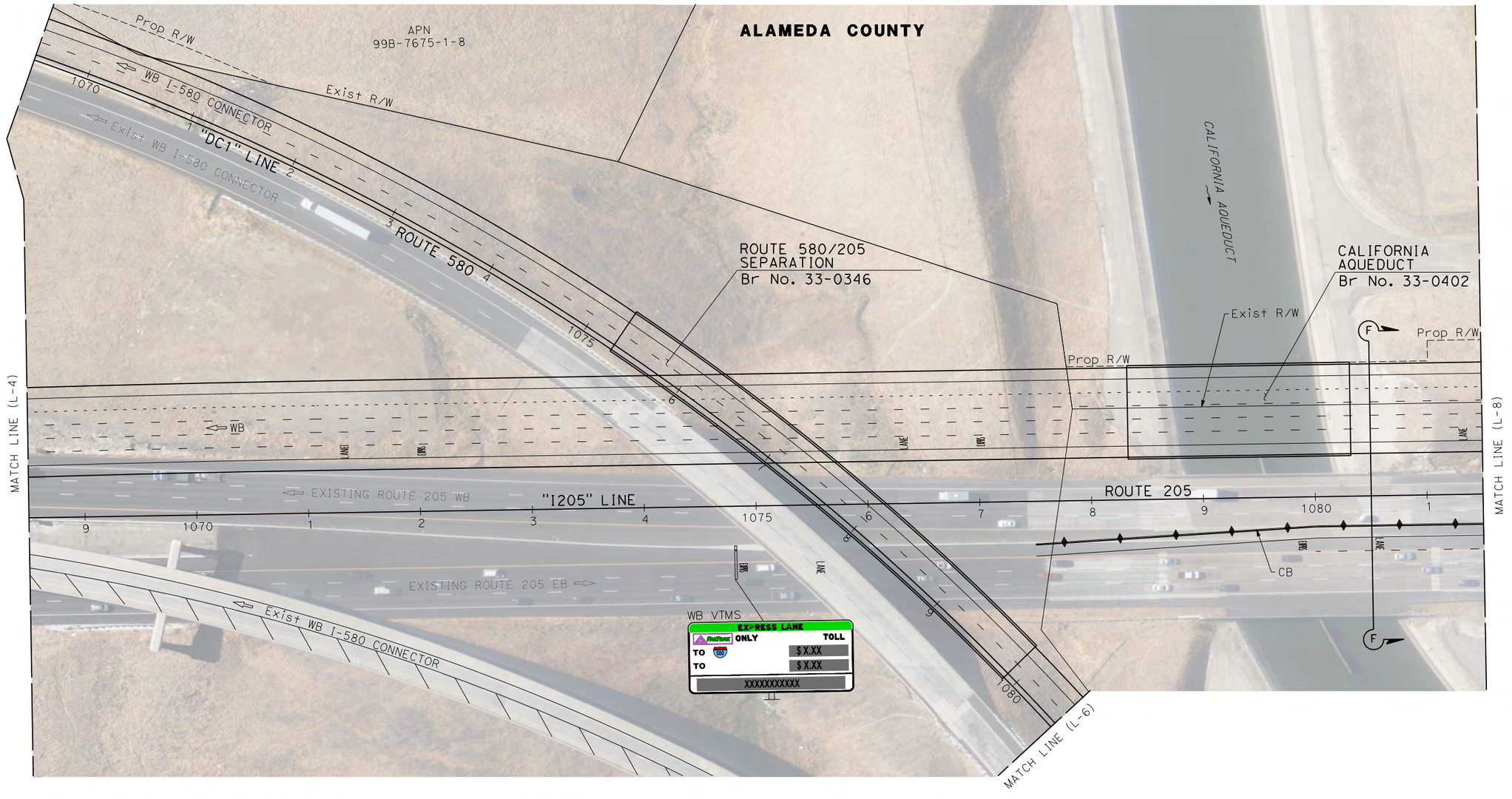
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NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION F-F
NO SCALE



FOR NOTES, ABBREVIATIONS AND
LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-5

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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SUITE 300
PLEASANTON, CA 94588

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STOCKTON, CA 95202

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LAST REVISION 00-00-00 | DATE PLOTTED => 07-JUN-2021 | TIME PLOTTED => 09:08

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

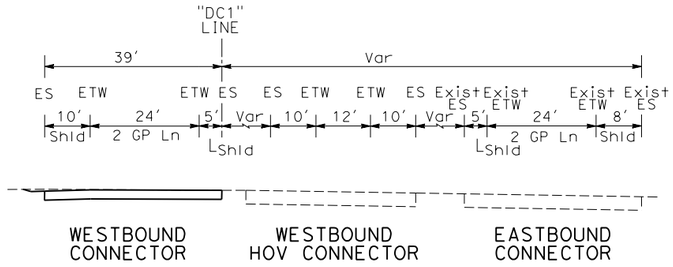
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SUITE 300
PLEASANTON, CA 94588

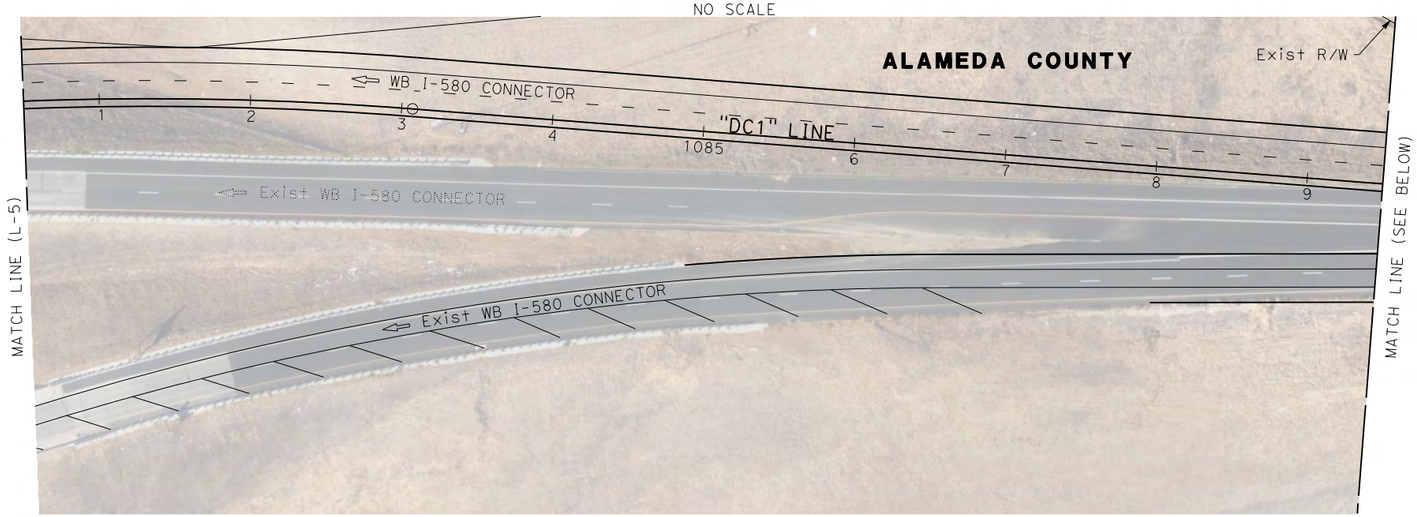
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION G-G
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-6

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LAST REVISION 00-00-00 | DATE PLOTTED => 07-JUN-2021 | TIME PLOTTED => 09:09

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

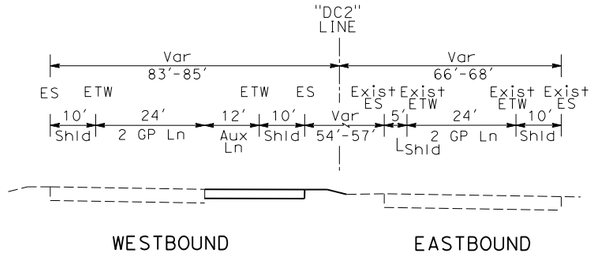
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SUITE 300
PLEASANTON, CA 94588

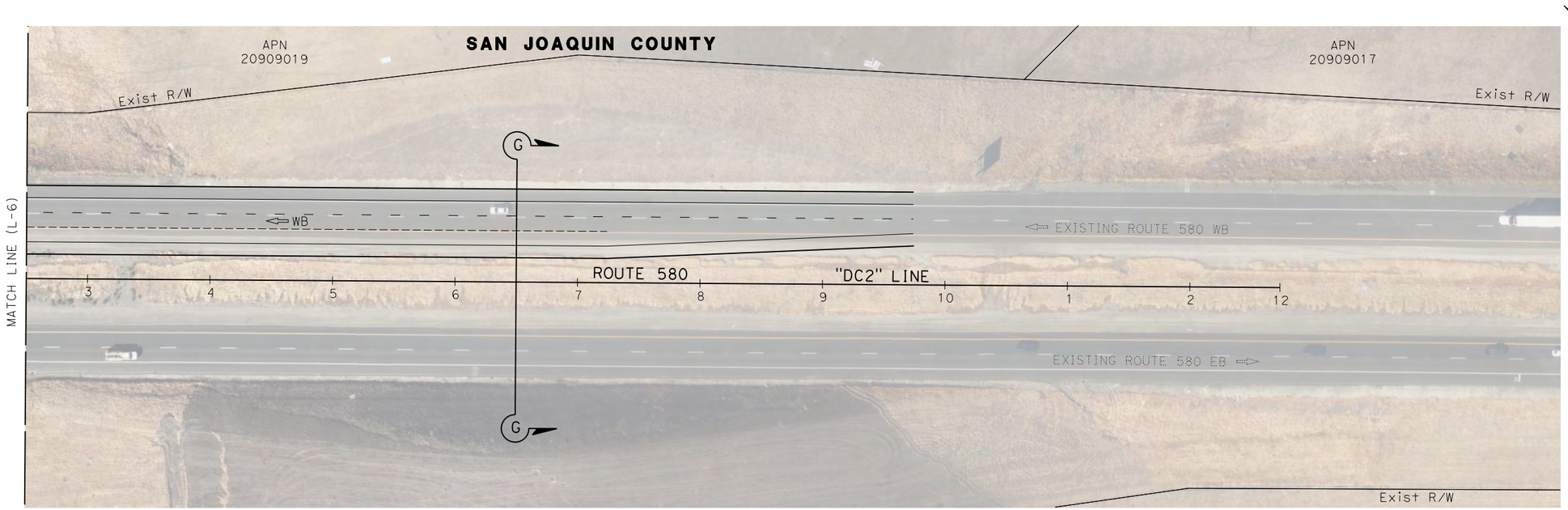
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION G-G
NO SCALE



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-7

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LAST REVISION DATE PLOTTED => 07-JUN-2021
TIME PLOTTED => 09:09
00-00-00

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USERNAME => Taylor.Klauser
DGN FILE => 1000000001ea007.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE XXXXXXXX

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

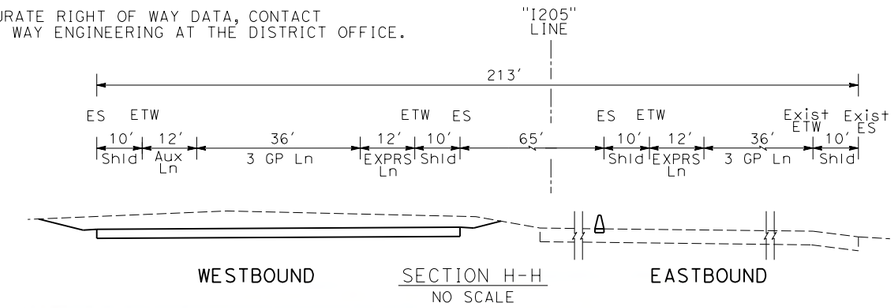
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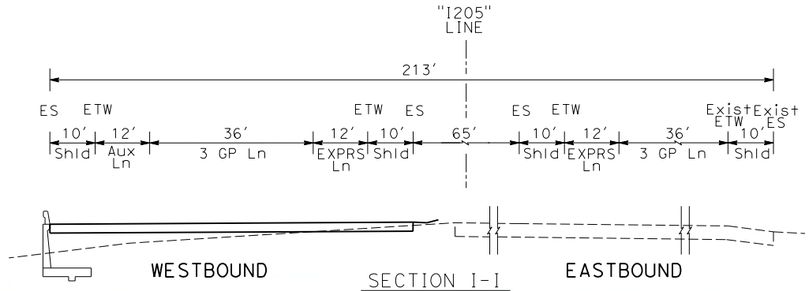
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555 E WEBER AVE
STOCKTON, CA 95202

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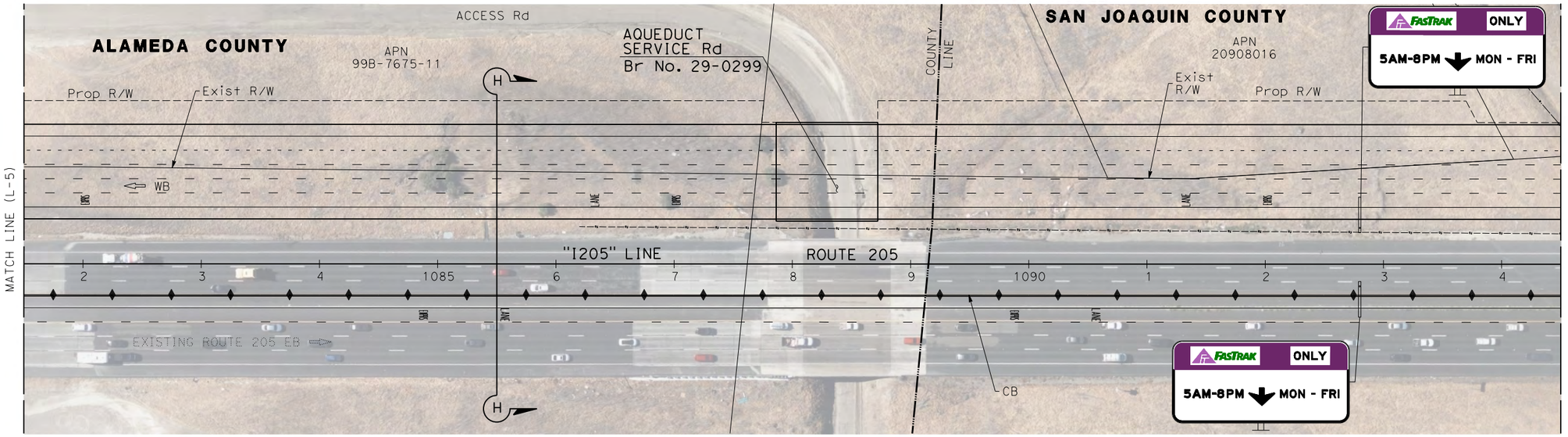
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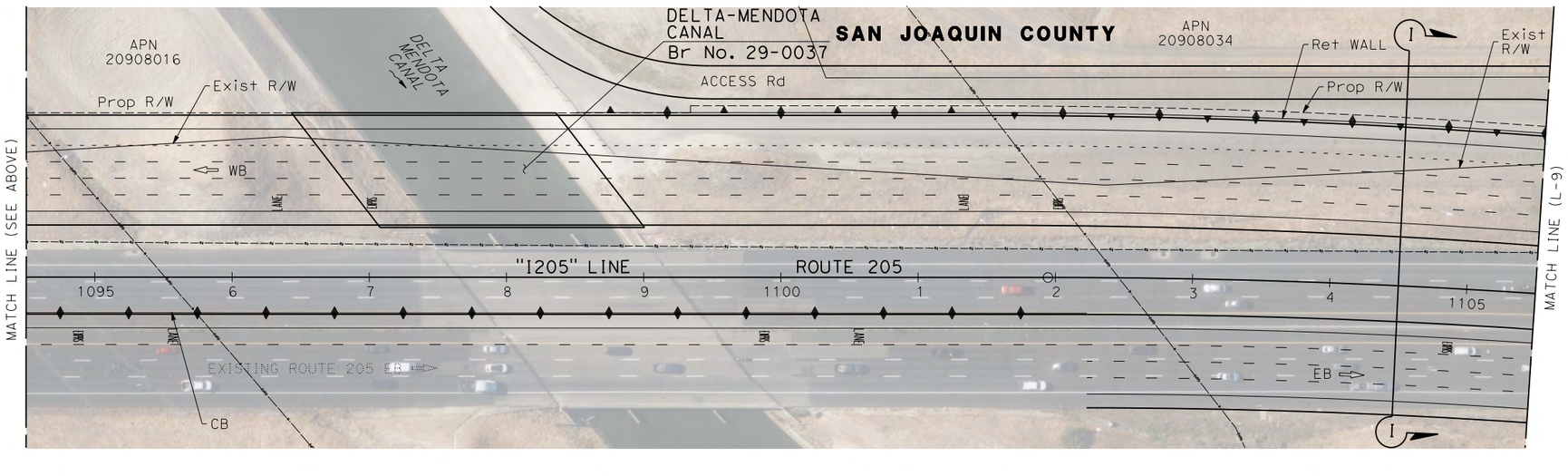


SECTION H-H
NO SCALE



SECTION I-I
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-8

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LAST REVISION 00-00-00 | DATE PLOTTED => 07-JUN-2021 | TIME PLOTTED => 09:09

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

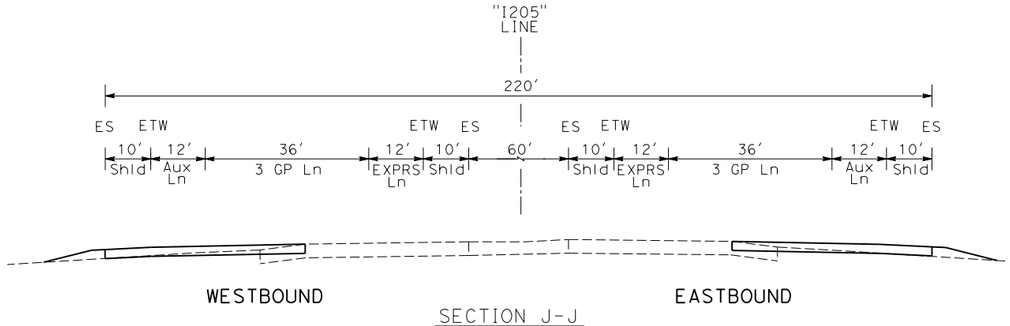
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SUITE 300
PLEASANTON, CA 94588

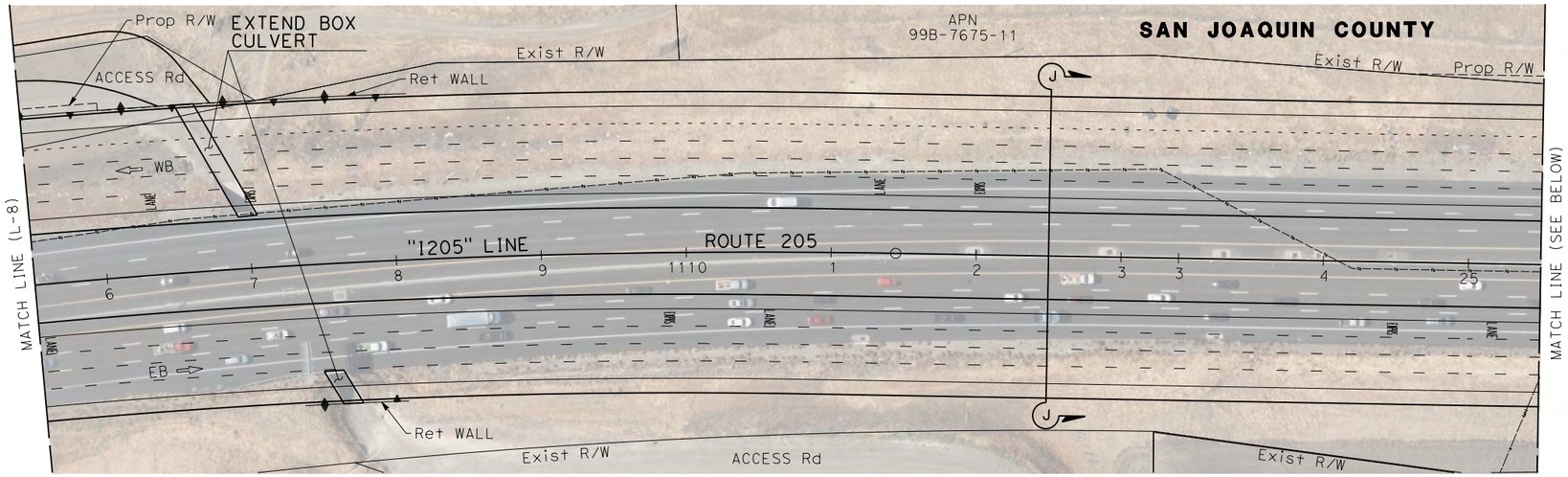
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

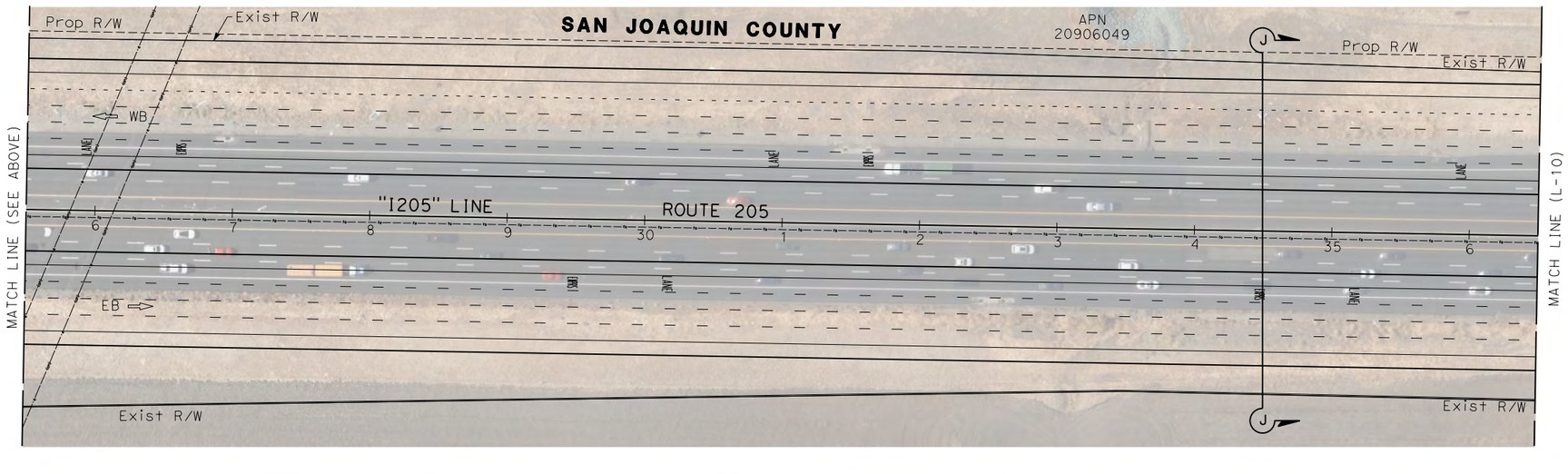
NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION J-J
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-9

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CALCULATED-DESIGNED BY

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PARAG G. MEHTA

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Caltrans

LAST REVISION DATE PLOTTED => 07-JUN-2021
00-00-00 TIME PLOTTED => 09:10

BORDER LAST REVISED 7/2/2010

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DGN FILE => 1000000001ea009.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE XXXXXXXX

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

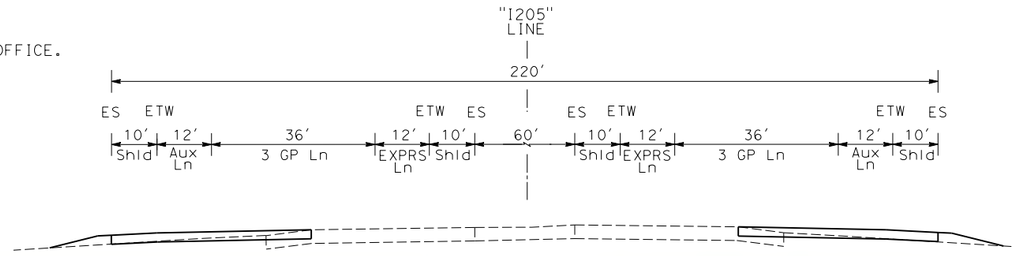
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SUITE 300
PLEASANTON, CA 94588

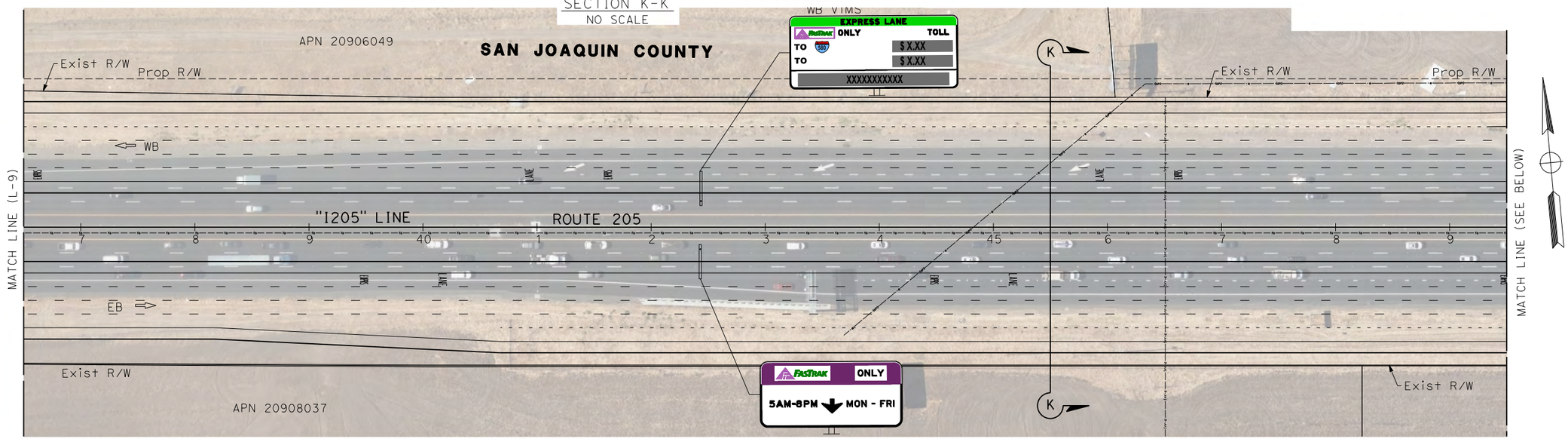
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555 E WEBER AVE
STOCKTON, CA 95202

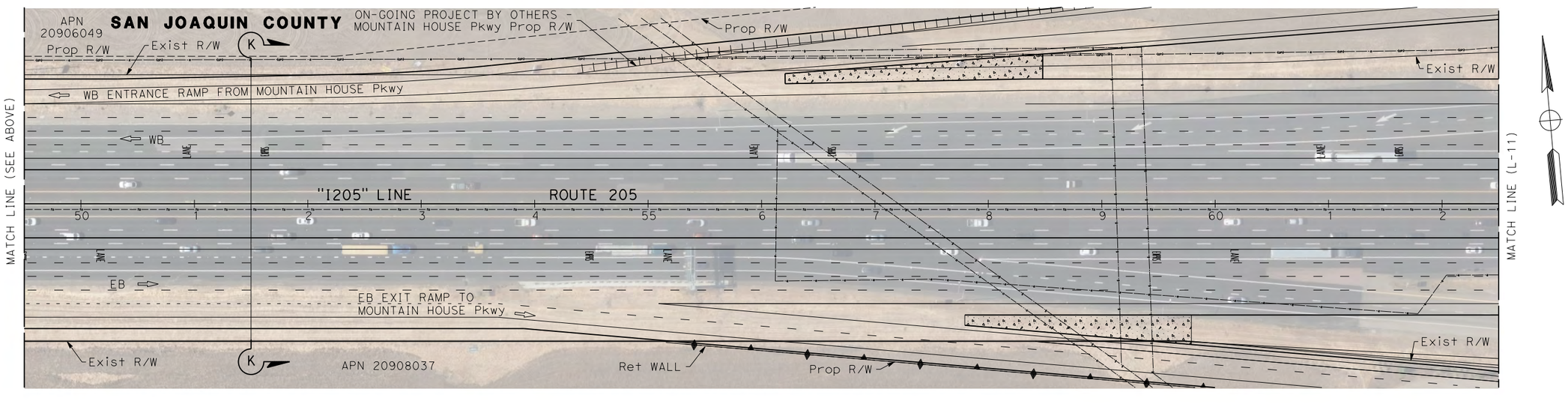
NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION K-K
NO SCALE





LAYOUT

SCALE: 1" = 50'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

L-10

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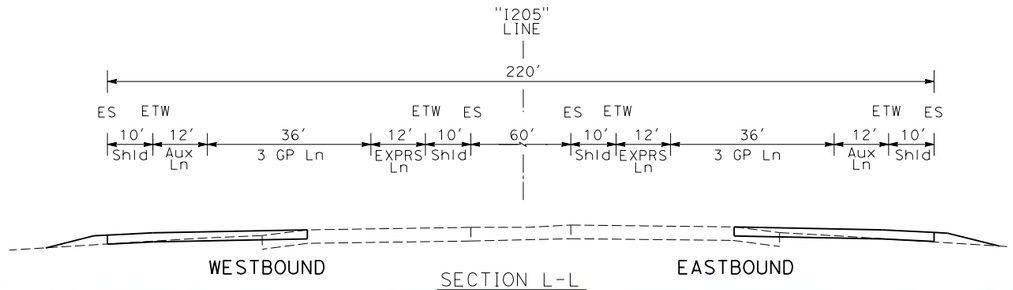
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KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
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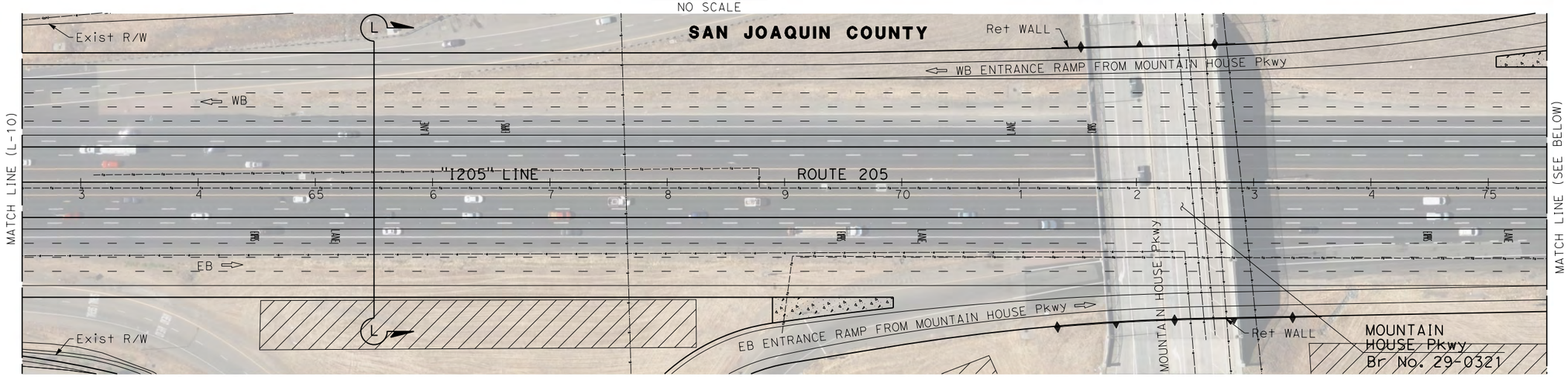
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

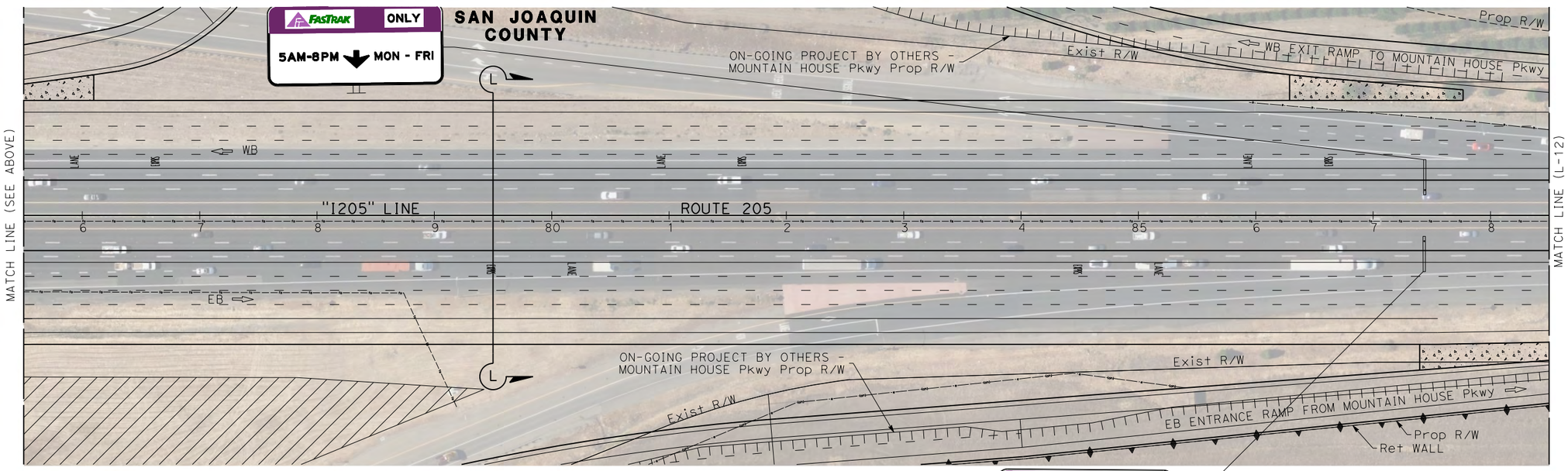
NOTE:

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SECTION L-L
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L - 11

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PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

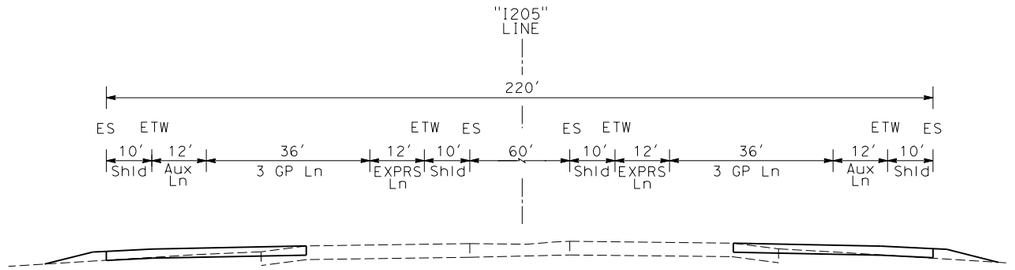
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SUITE 300
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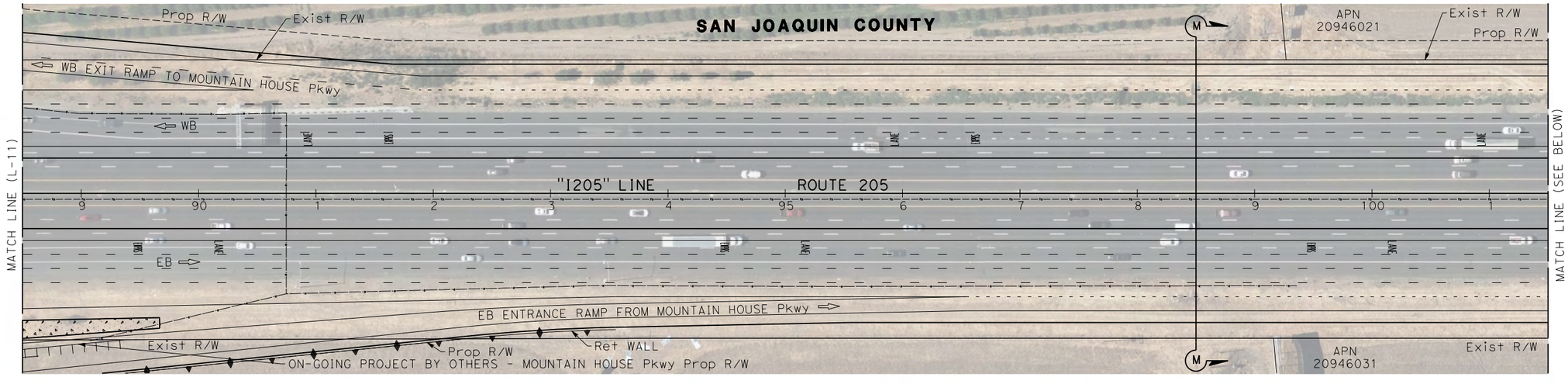
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

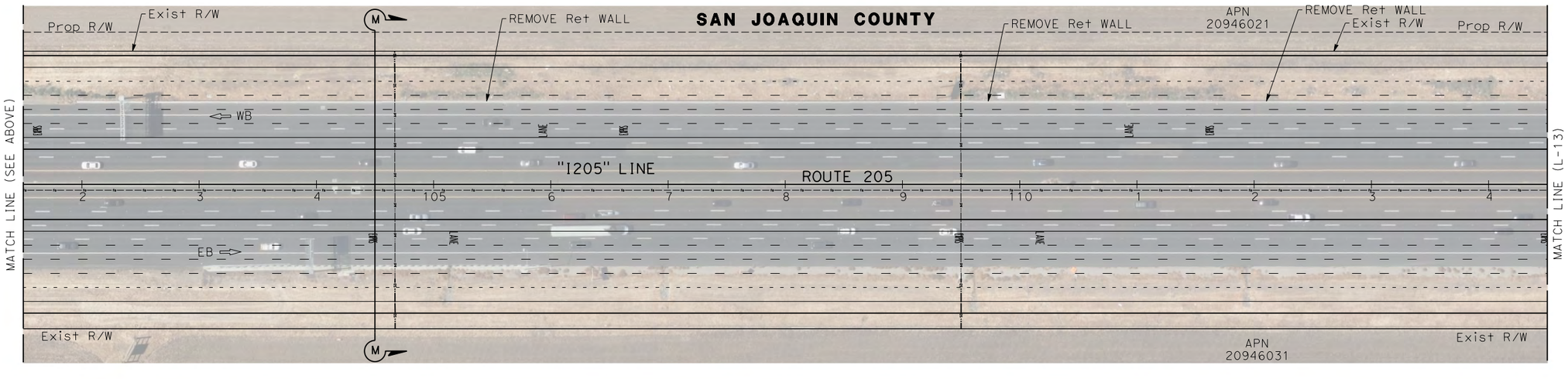
NOTE:

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SECTION M-M
NO SCALE





LAYOUT

SCALE: 1" = 50'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

L-12

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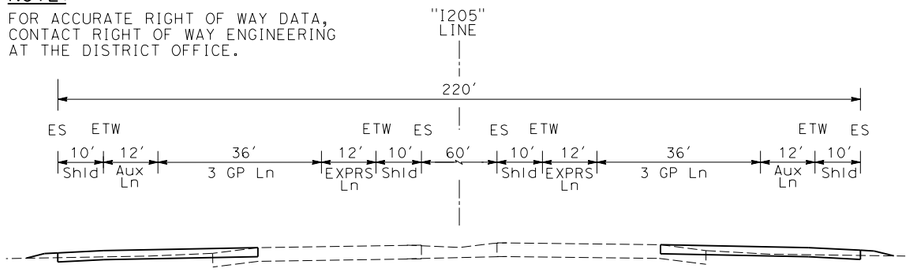
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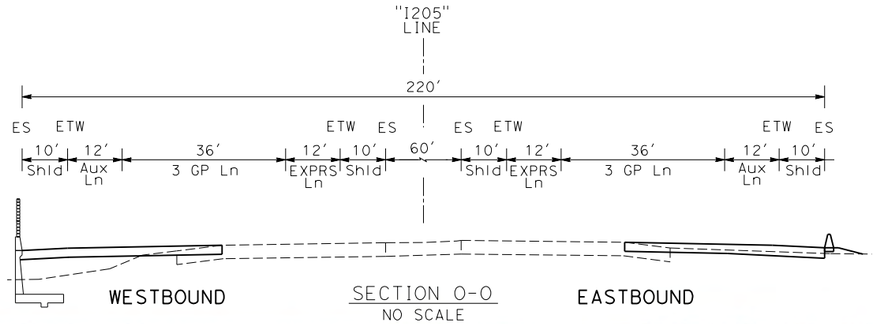
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555 E WEBER AVE
STOCKTON, CA 95202

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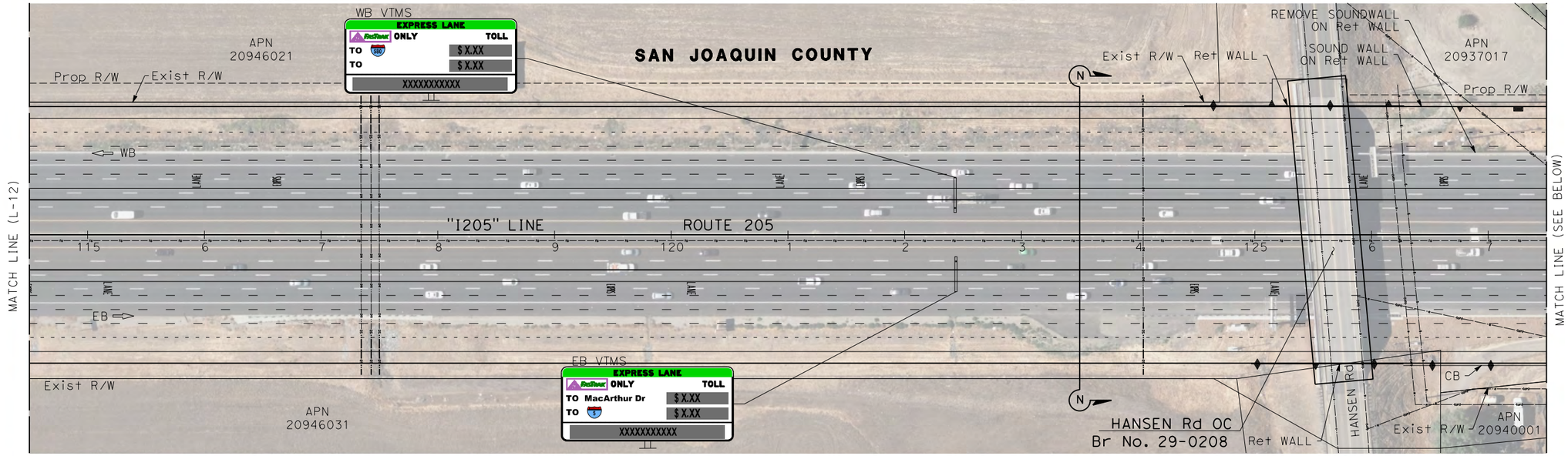
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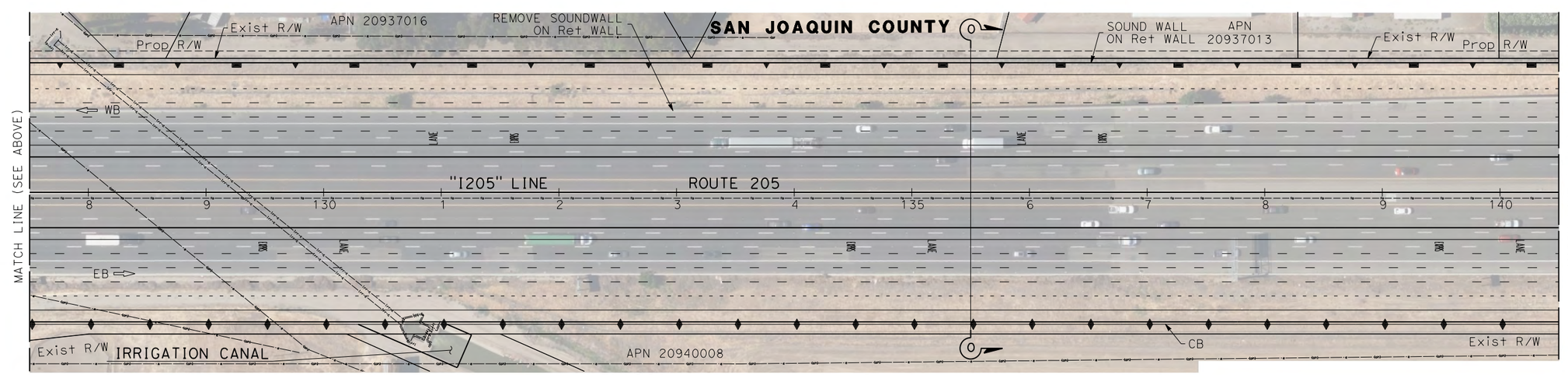


SECTION N-N
NO SCALE



SECTION O-O
NO SCALE





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LAYOUT

SCALE: 1" = 50'

L-13

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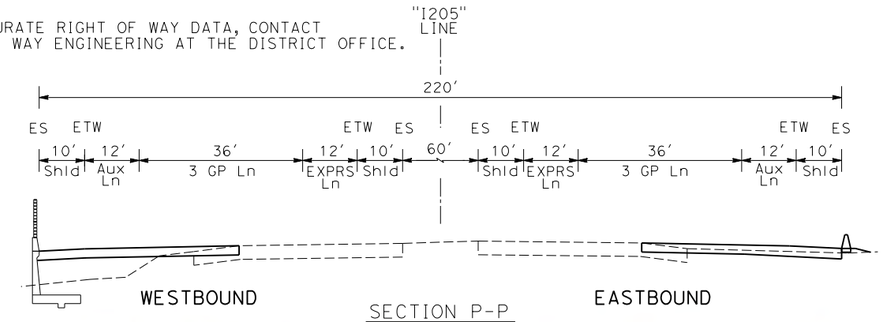
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PLEASANTON, CA 94588

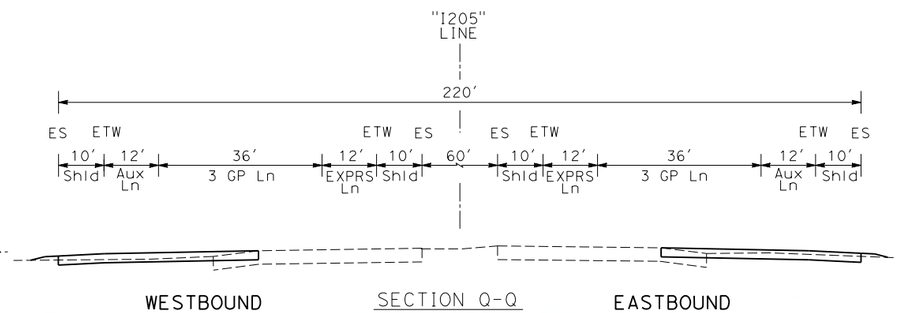
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

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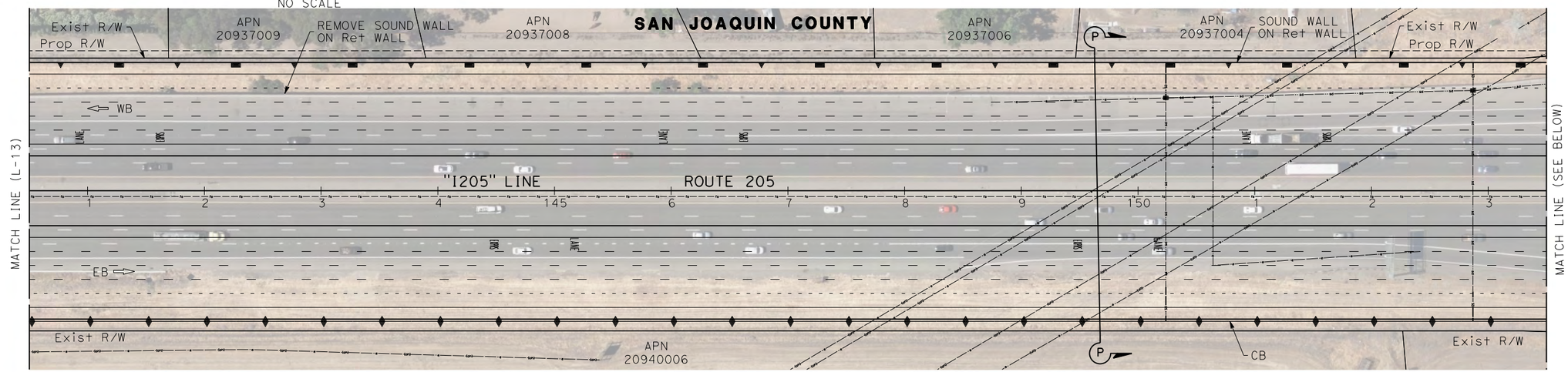
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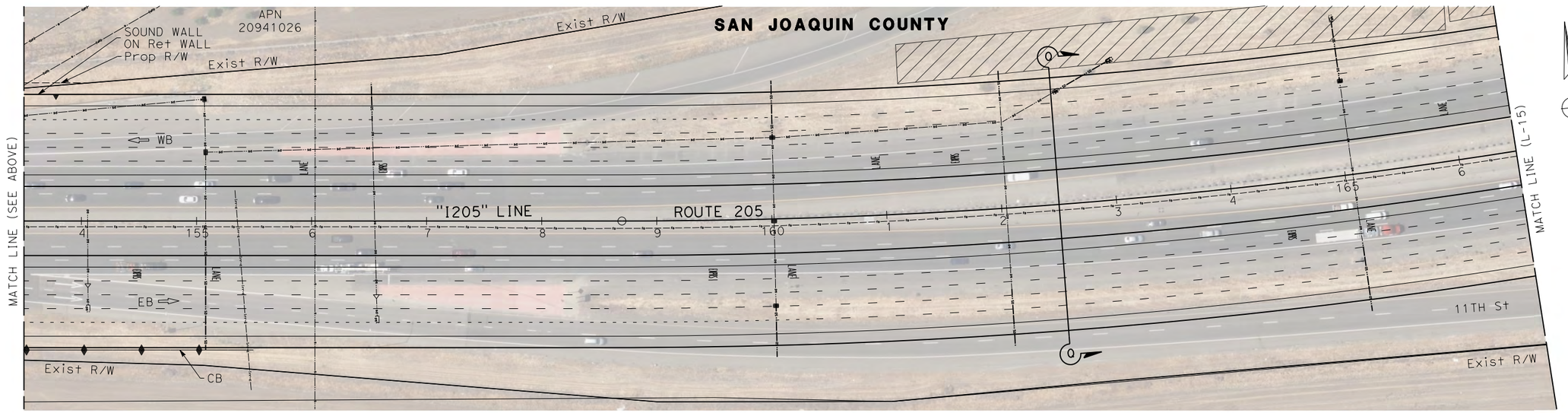


SECTION P-P
NO SCALE



SECTION Q-Q
NO SCALE





LAYOUT

SCALE: 1" = 50'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

L-14

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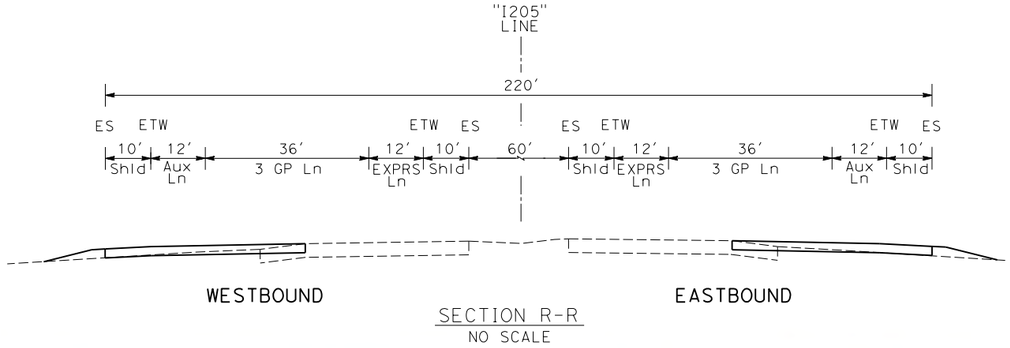
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SUITE 300
PLEASANTON, CA 94588

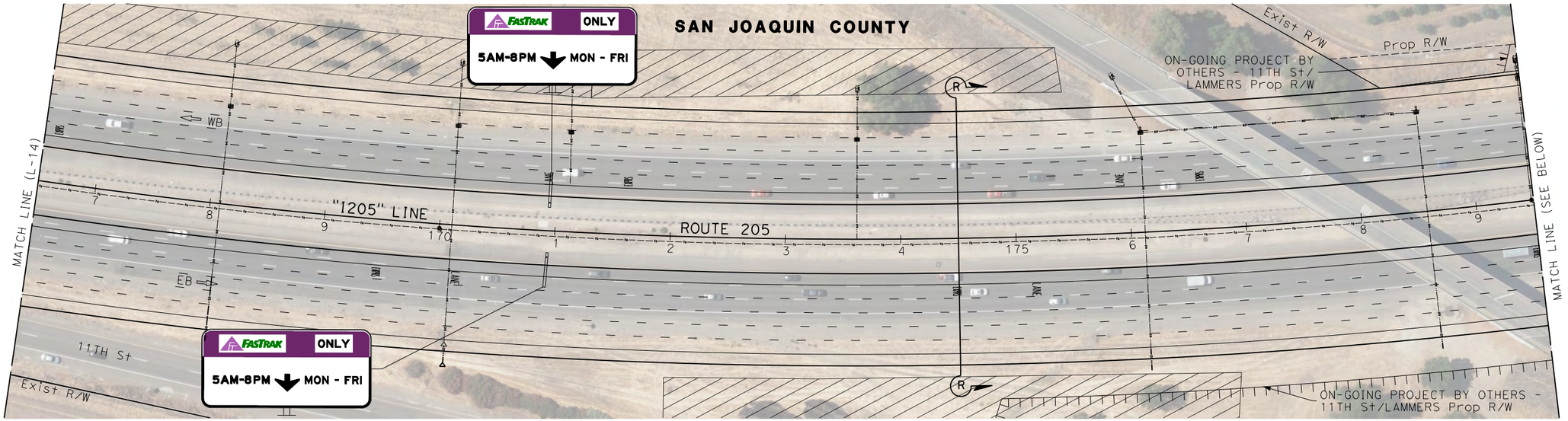
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

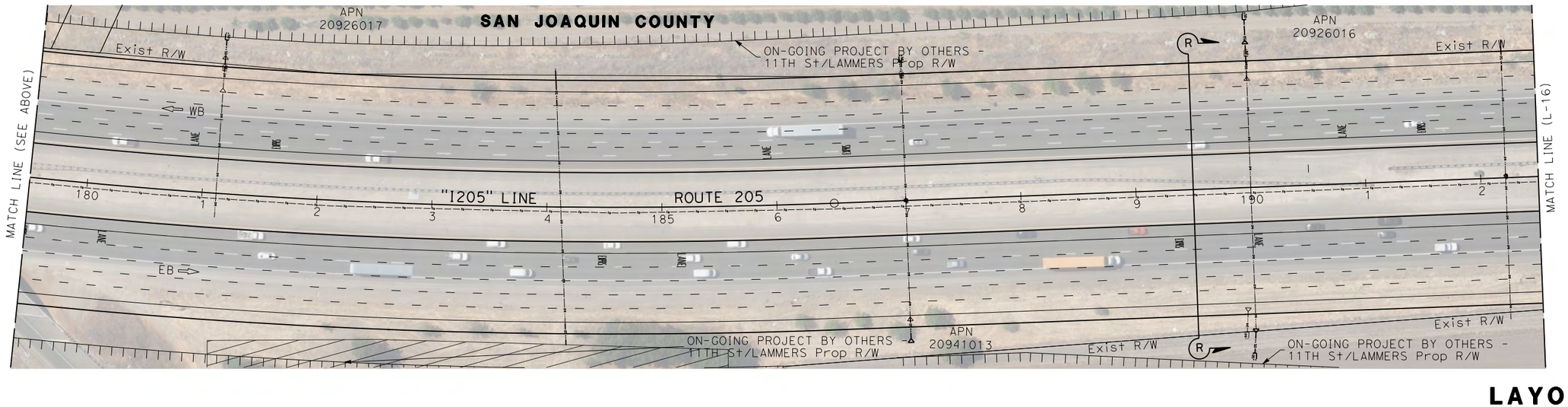
NOTE:

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SECTION R-R
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-15

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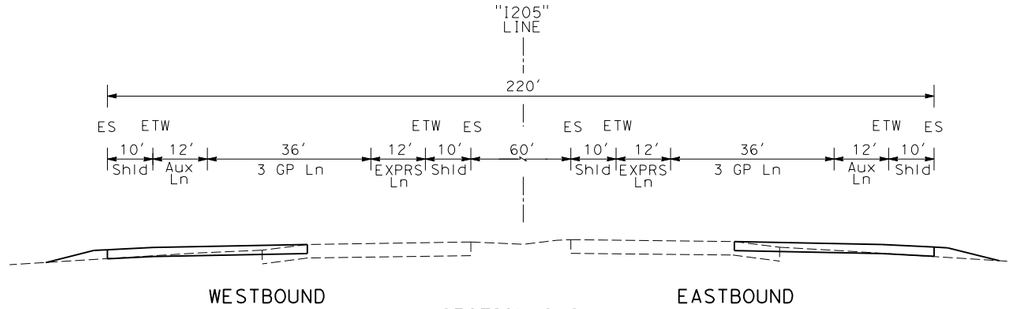
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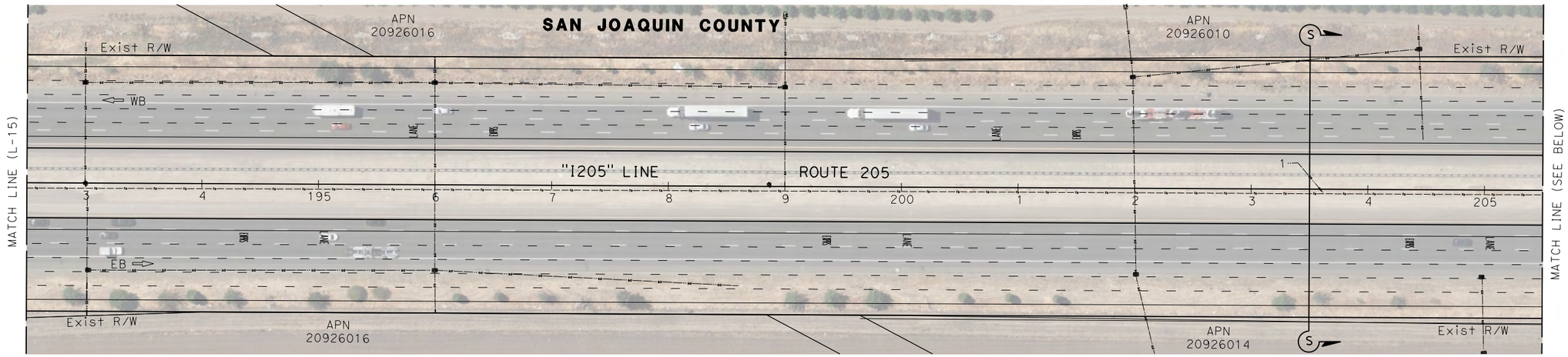
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

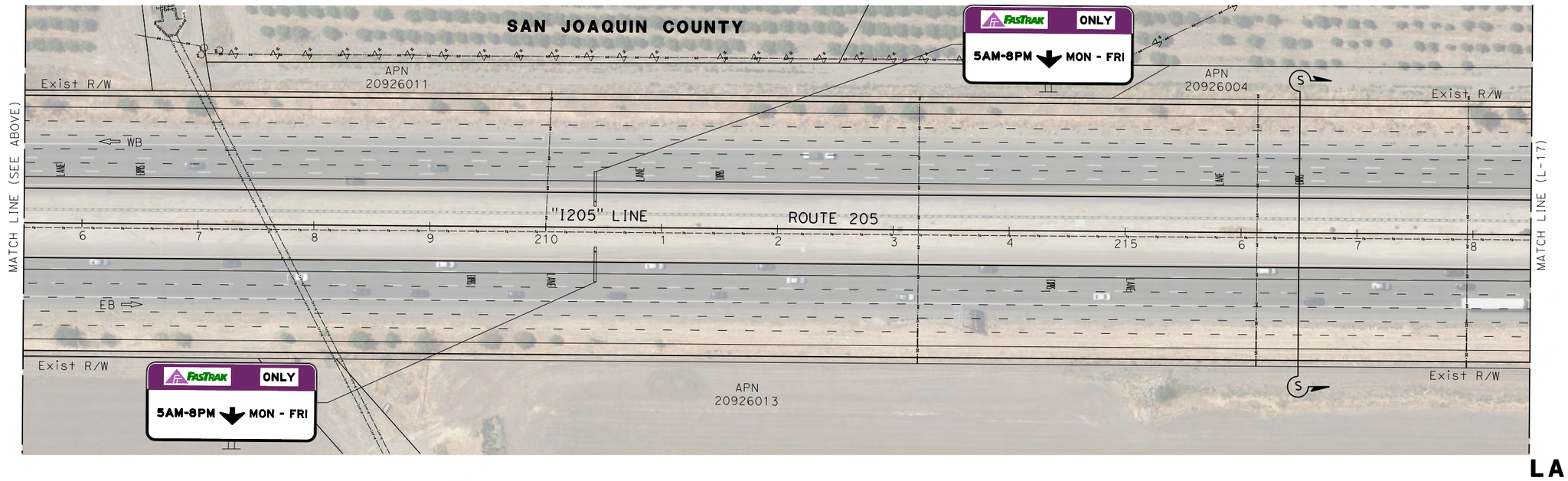
NOTE:

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SECTION S-S
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L - 16

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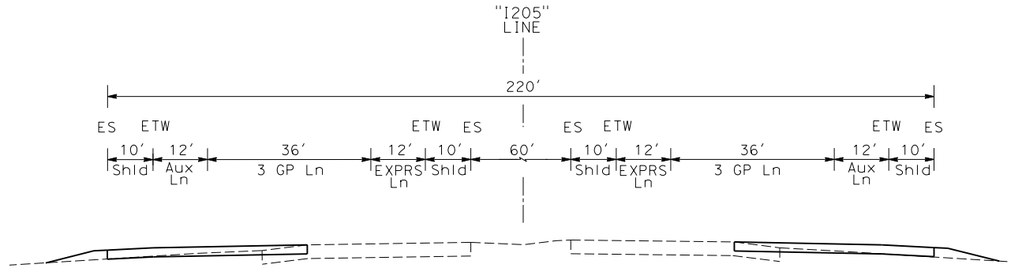
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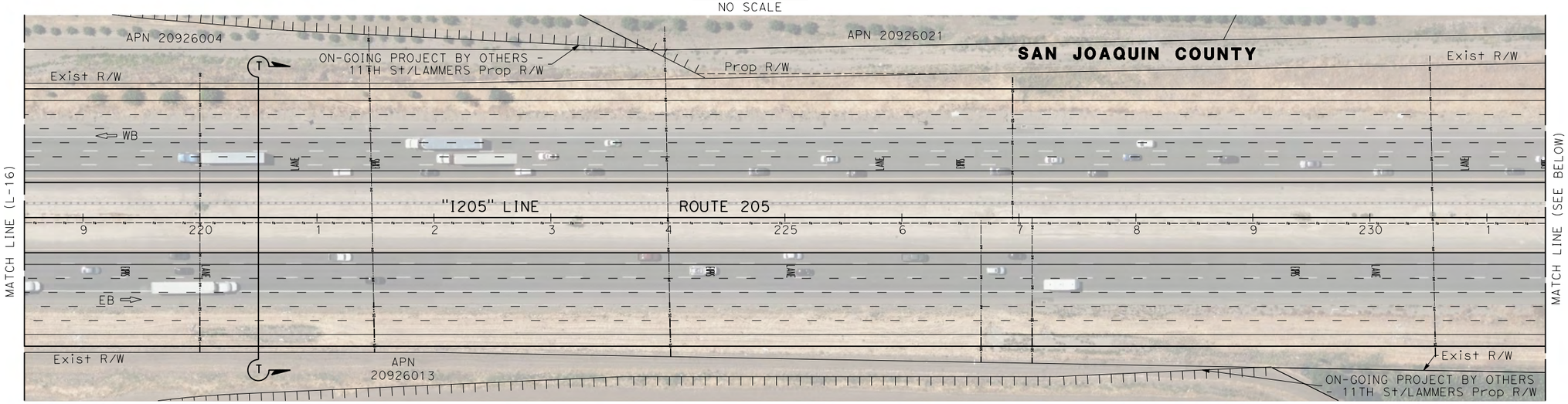
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

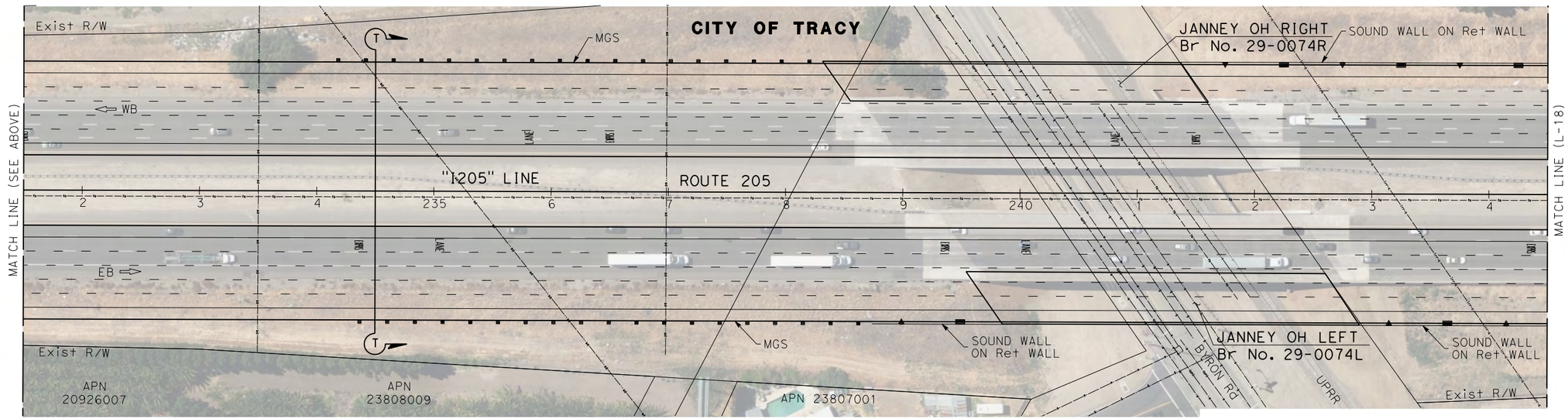
NOTE:

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SECTION T-T
NO SCALE





LAYOUT

SCALE: 1" = 50'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

L - 17

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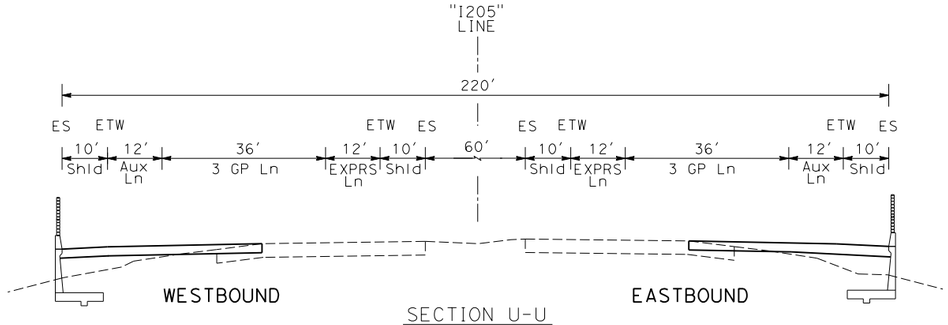
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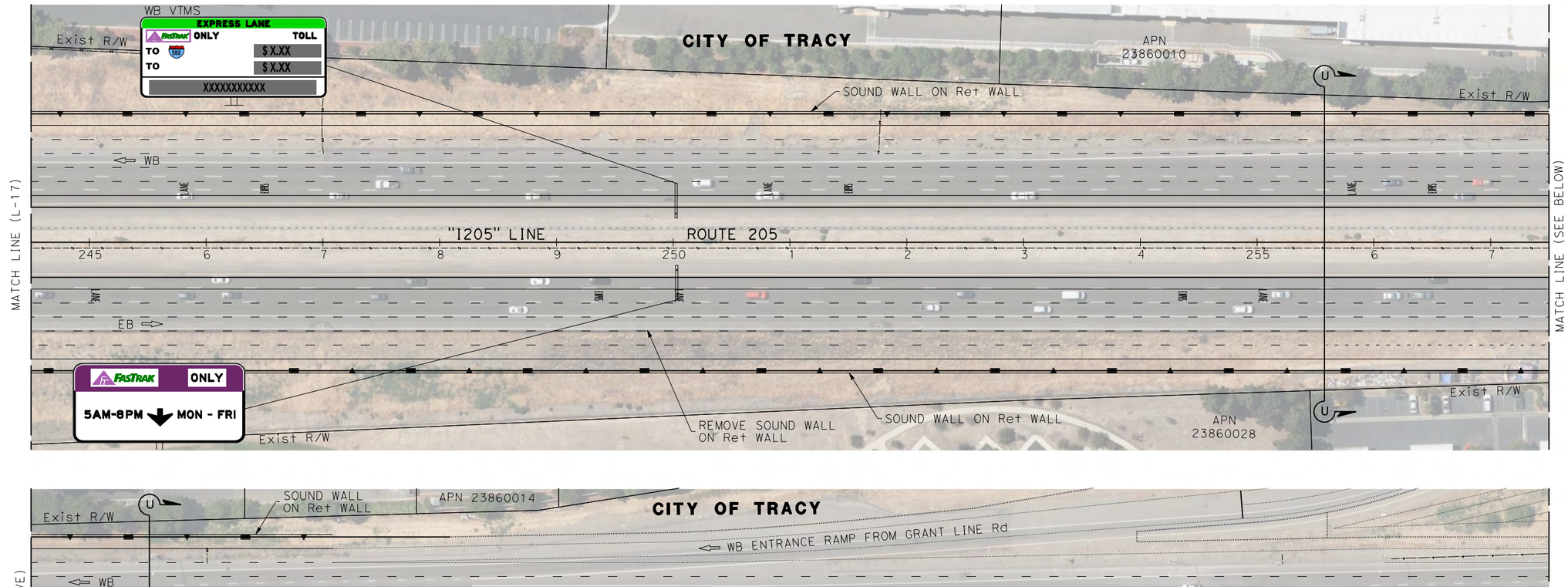
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

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SECTION U-U
NO SCALE



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L - 18

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10	ALA/SJ	205			

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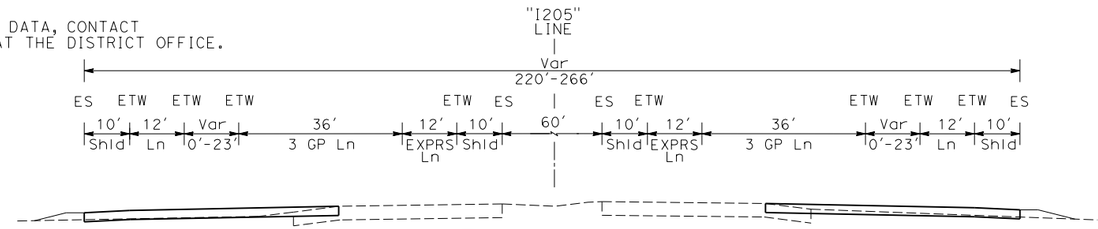
CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

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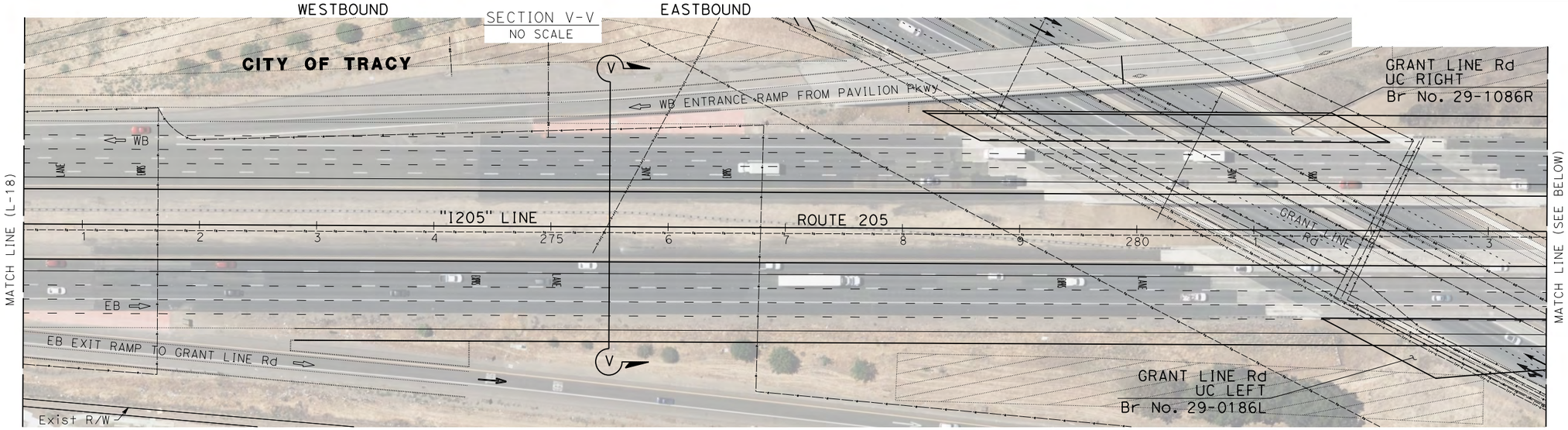
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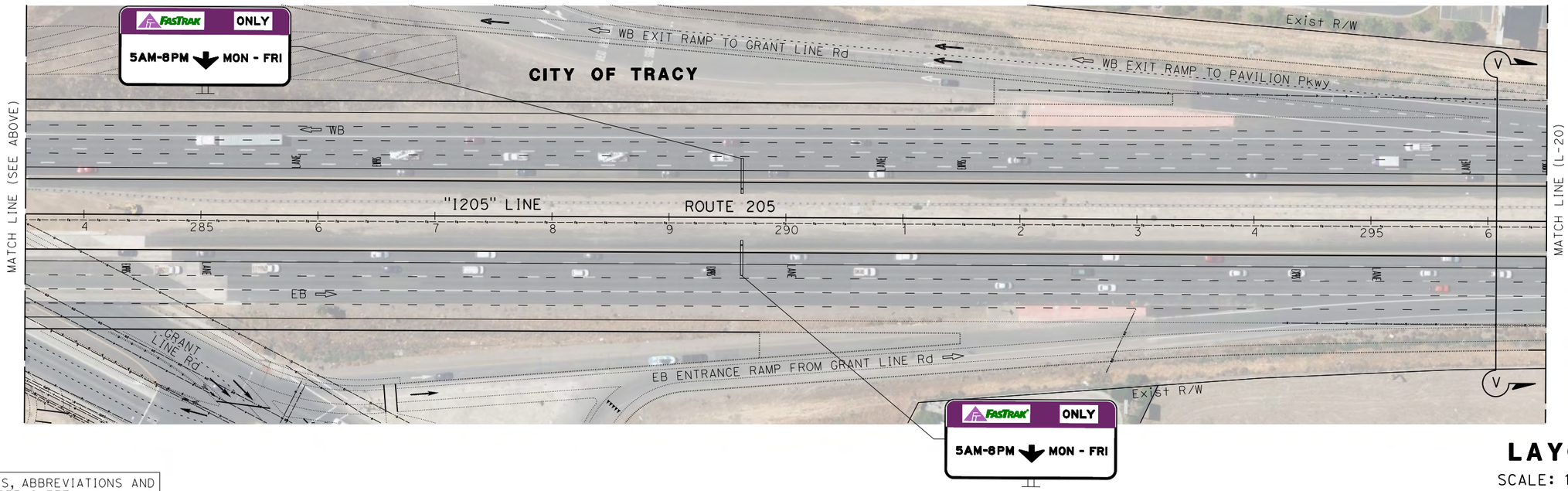
NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION V-V
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L - 19

LAST REVISION DATE PLOTTED => 07-JUN-2021
00-00-00 TIME PLOTTED => 09:13

BORDER LAST REVISED 7/2/2010 | USERNAME => Taylor.Klauser | DGN FILE => 1000000001ea019.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE XXXXXXXX

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

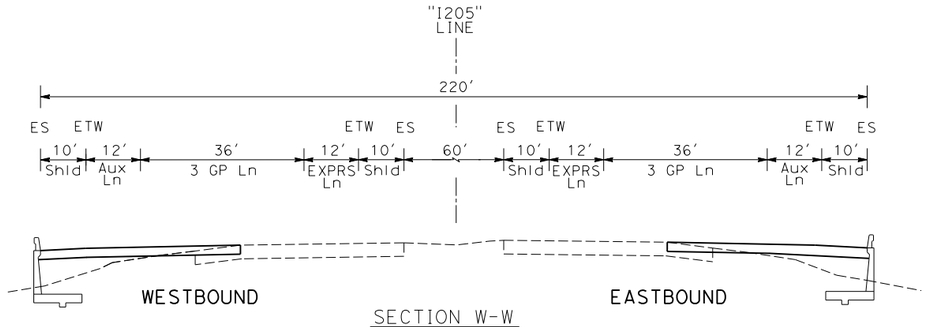
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KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

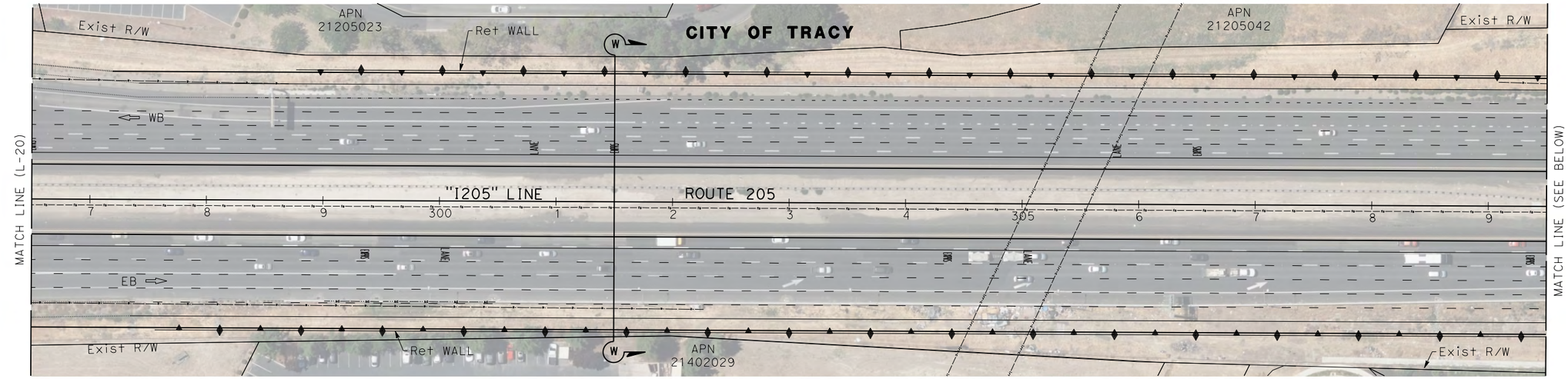
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

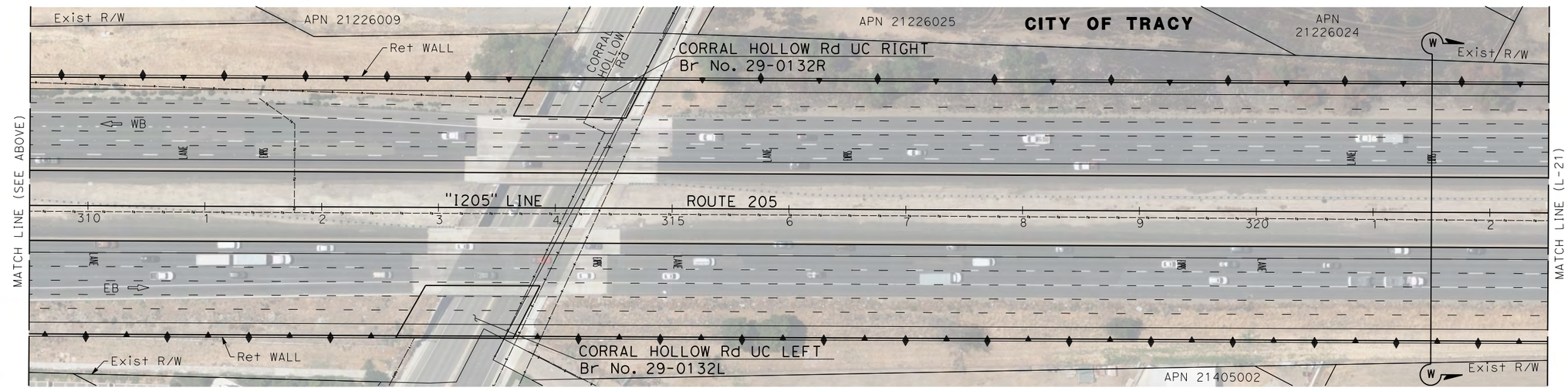
NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION W-W
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-20

REVISED BY	DATE REVISED

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CHECKED BY

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PARAG G. MEHTA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00
DATE PLOTTED => 07-JUN-2021
TIME PLOTTED => 09:14

BORDER LAST REVISED 7/2/2010
USERNAME => Taylor.Klauser
DGN FILE => 1000000001ea020.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE XXXXXXXX

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

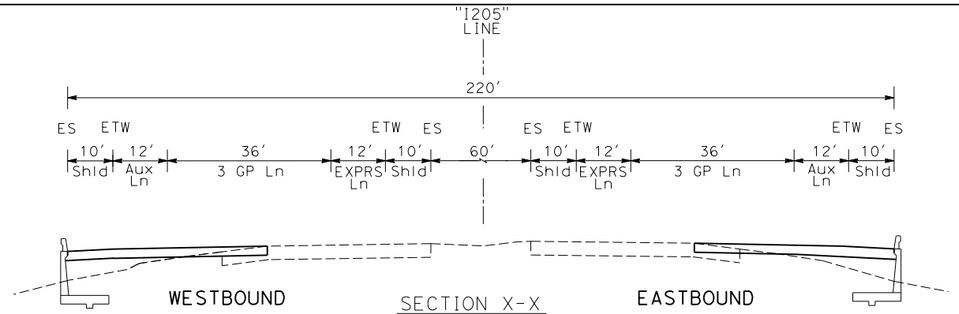
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4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

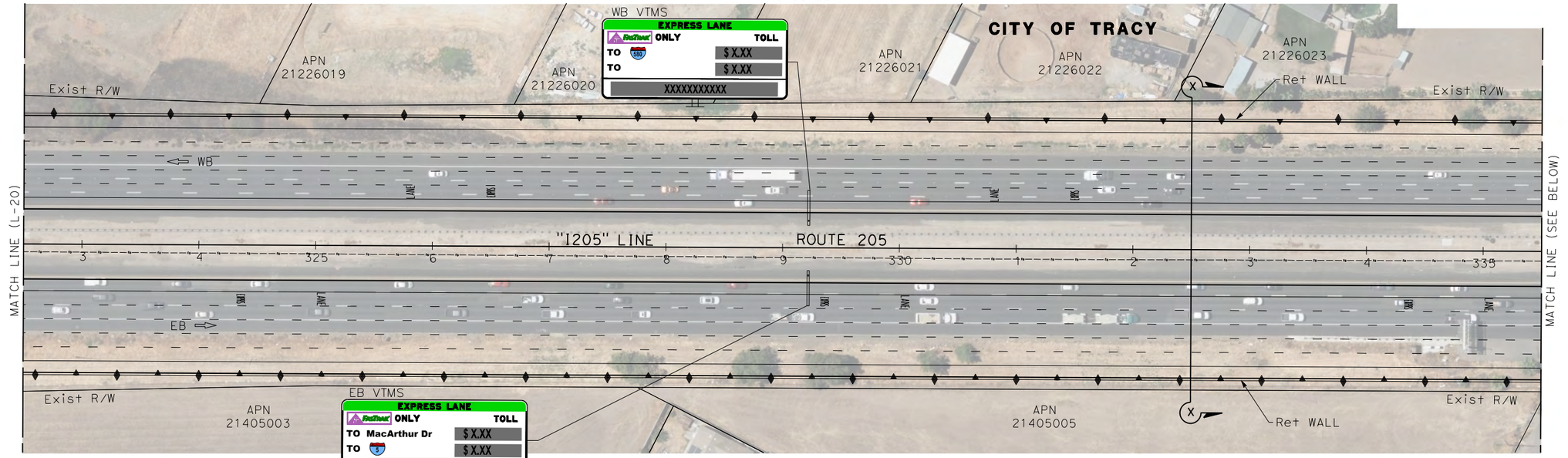
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

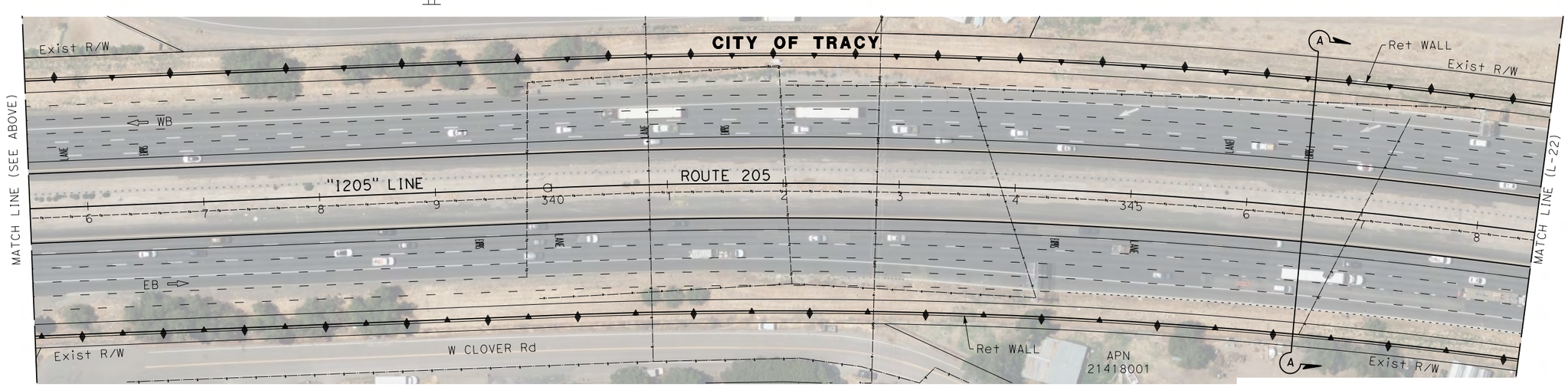
NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION X-X
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L - 21

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Caltrans

LAST REVISION DATE PLOTTED => 07-JUN-2021
00-00-00 TIME PLOTTED => 09:14

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

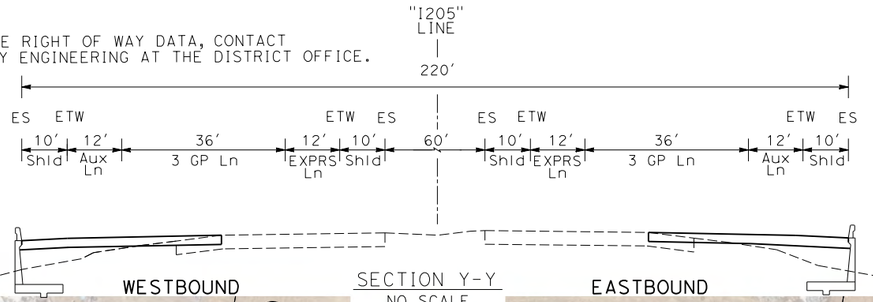
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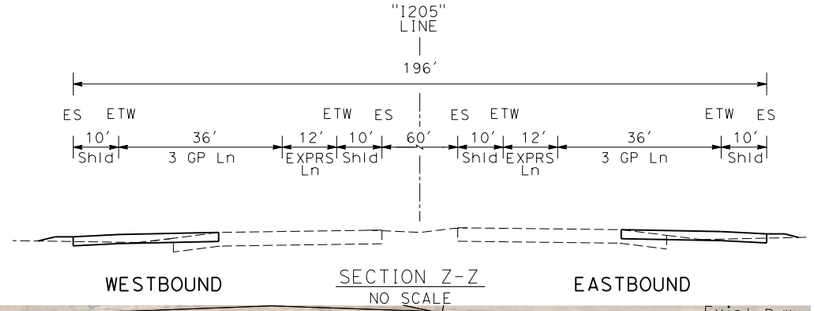
KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

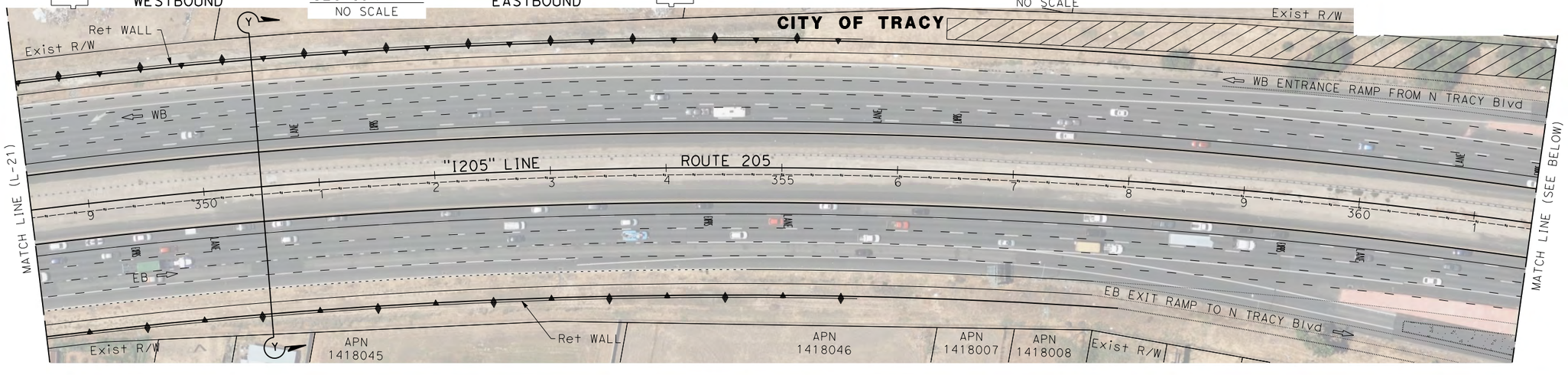
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

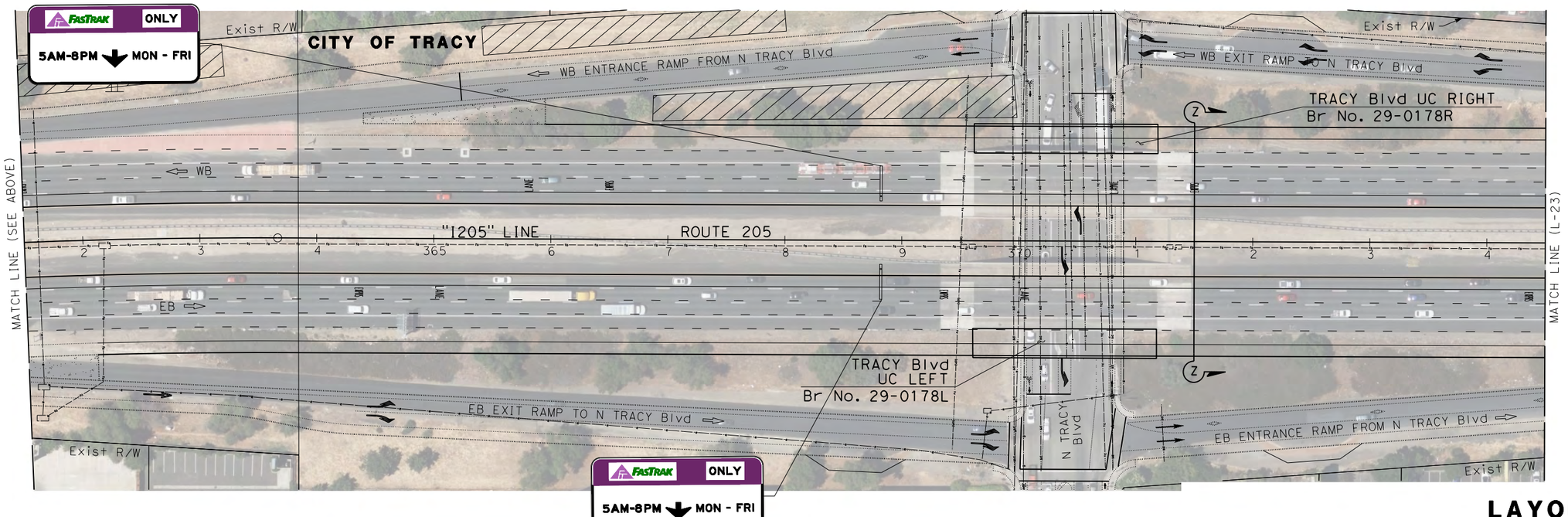
NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.









FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-22

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BORDER LAST REVISED 7/2/2010 | USERNAME => Taylor.Klauser | DGN FILE => 1000000001ea022.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE XXXXXXX

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10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

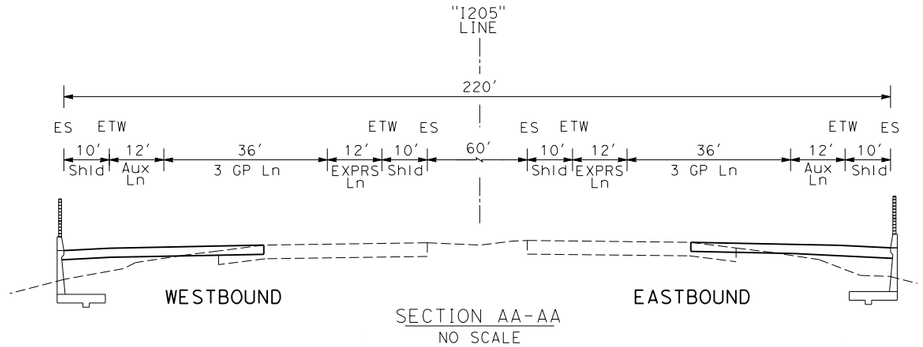
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KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

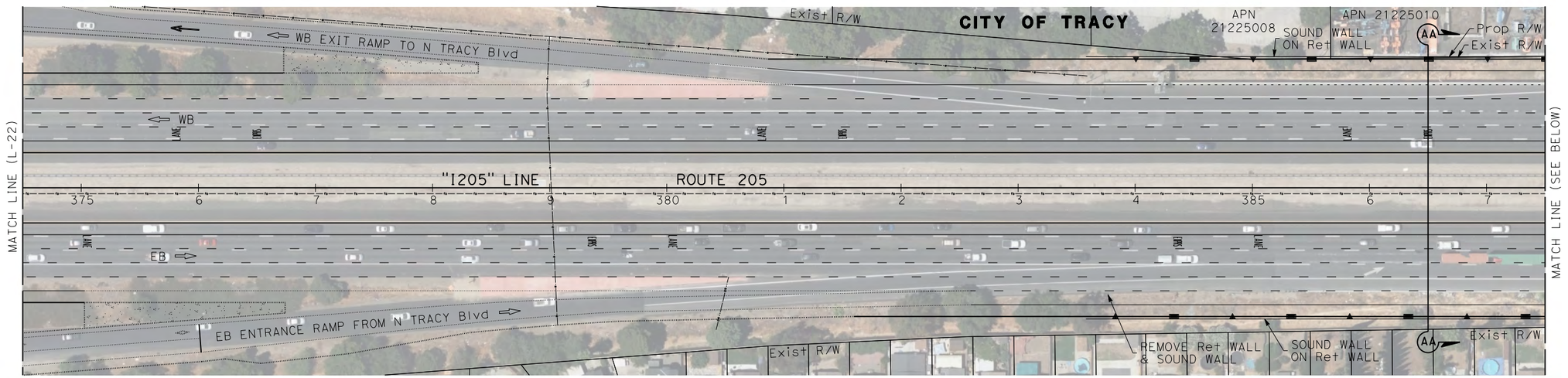
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

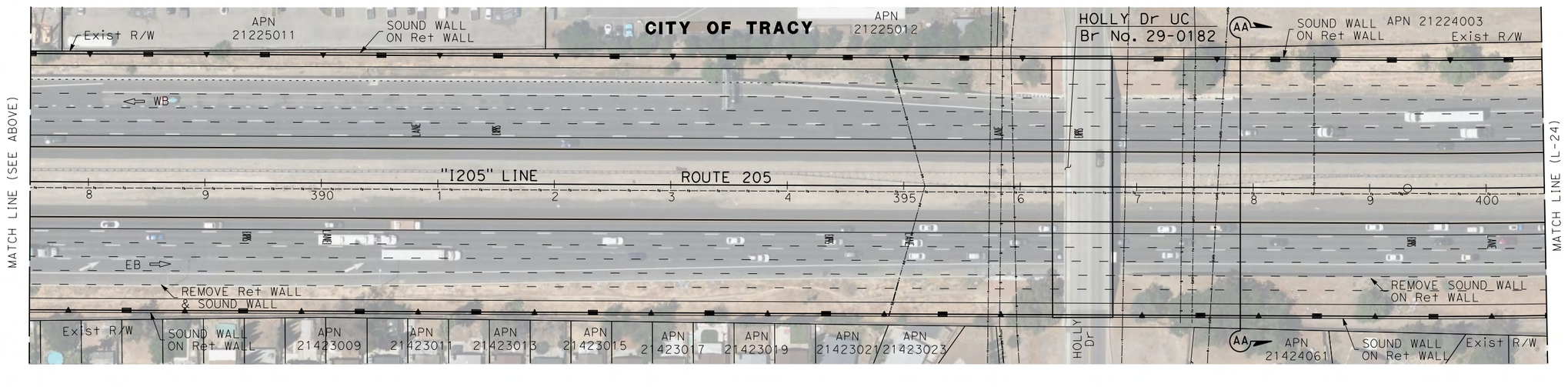
NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION AA-AA
NO SCALE





LAYOUT

SCALE: 1" = 50'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

L-23

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

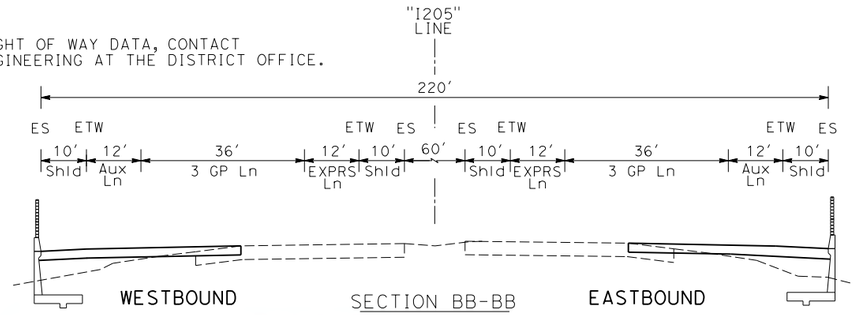
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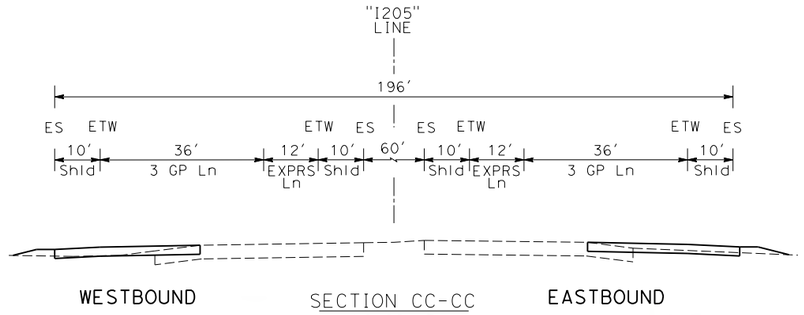
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RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION BB-BB
NO SCALE



SECTION CC-CC
NO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

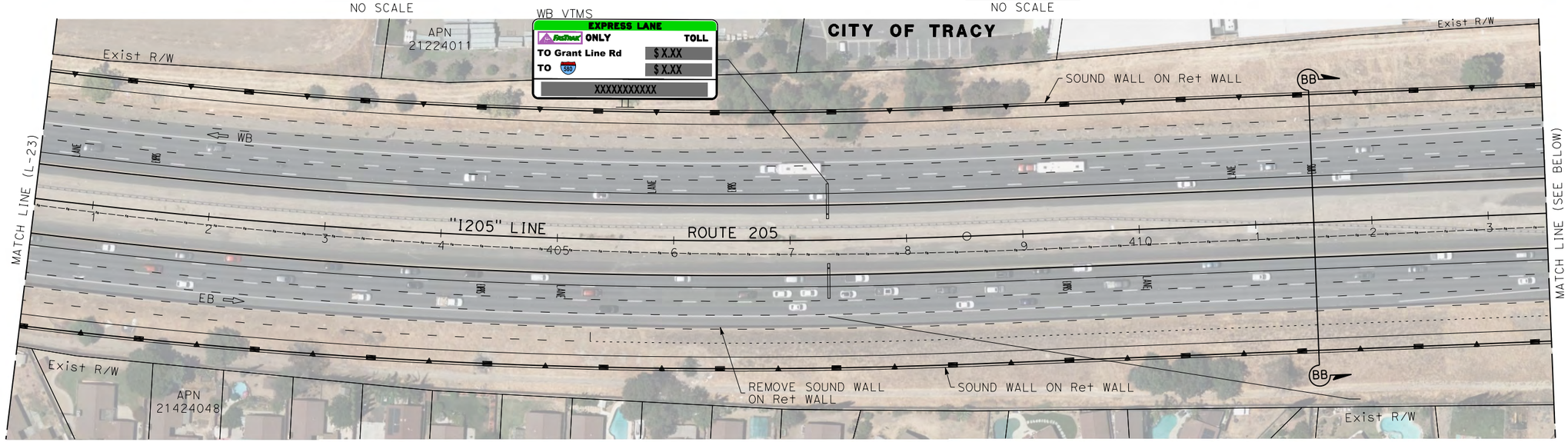
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

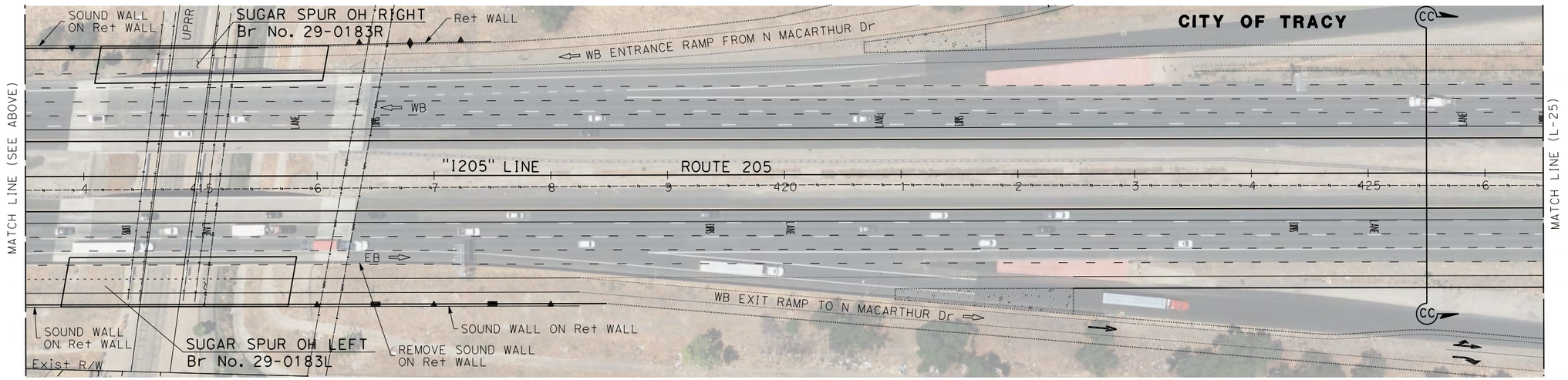
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4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

SJCOG
555 E WEBER AVE
STOCKTON, CA 95202



Exist R/W



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-24

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

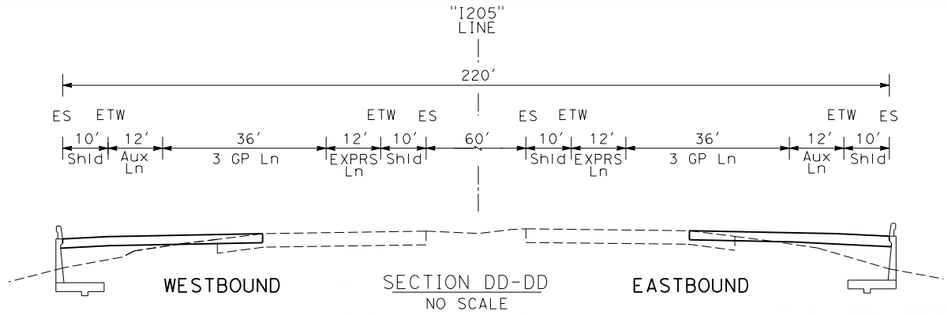
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RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION DD-DD
NO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

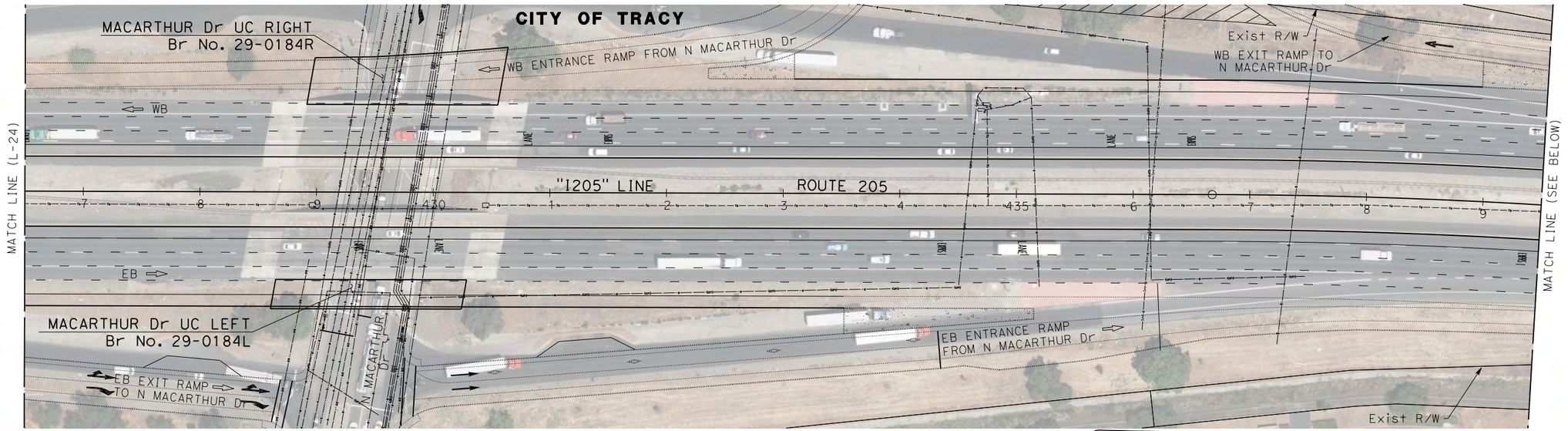
PLANS APPROVAL DATE

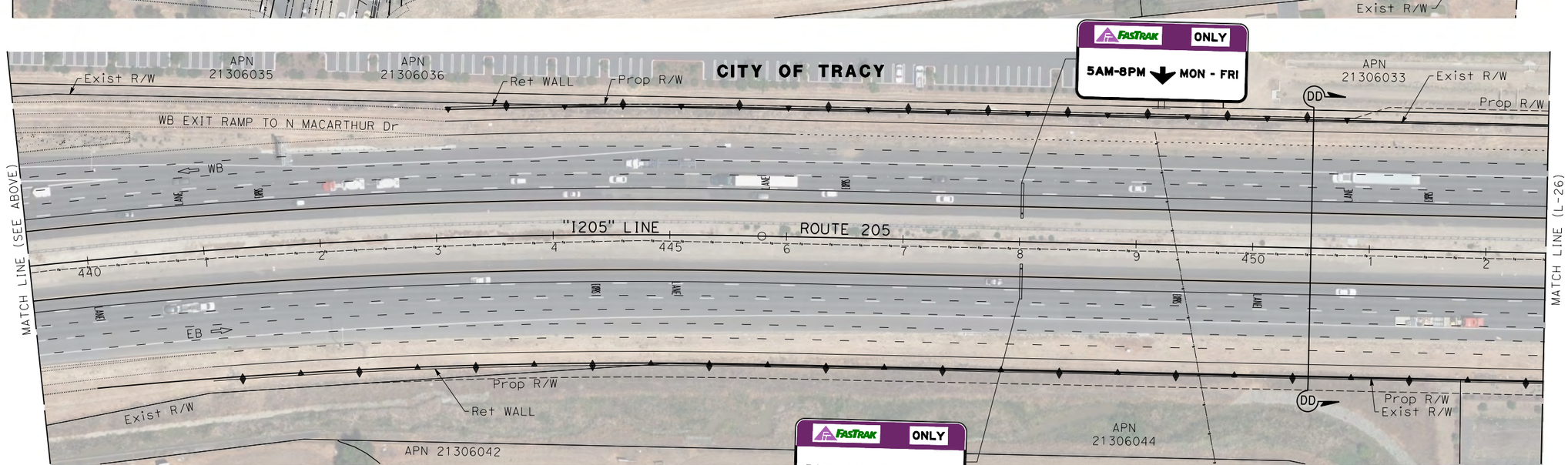
REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

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KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

SJCOG
555 E WEBER AVE
STOCKTON, CA 95202





LAYOUT

SCALE: 1" = 50'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

L - 25

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CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR
PARAG G. MEHTA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 07-JUN-2021 | TIME PLOTTED => 09:15

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

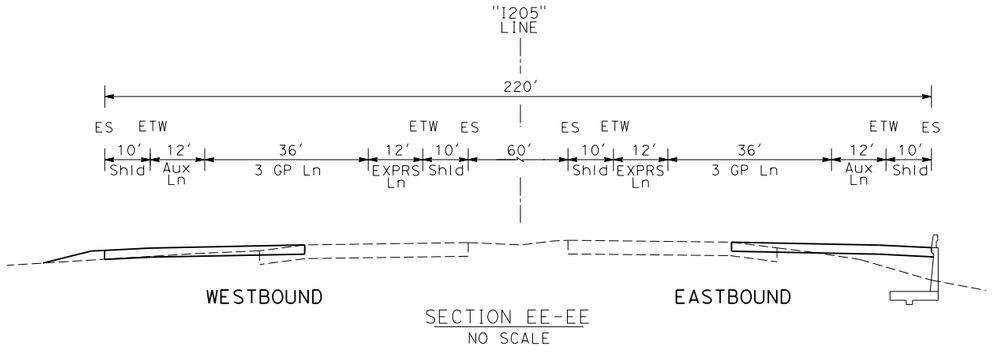
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KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

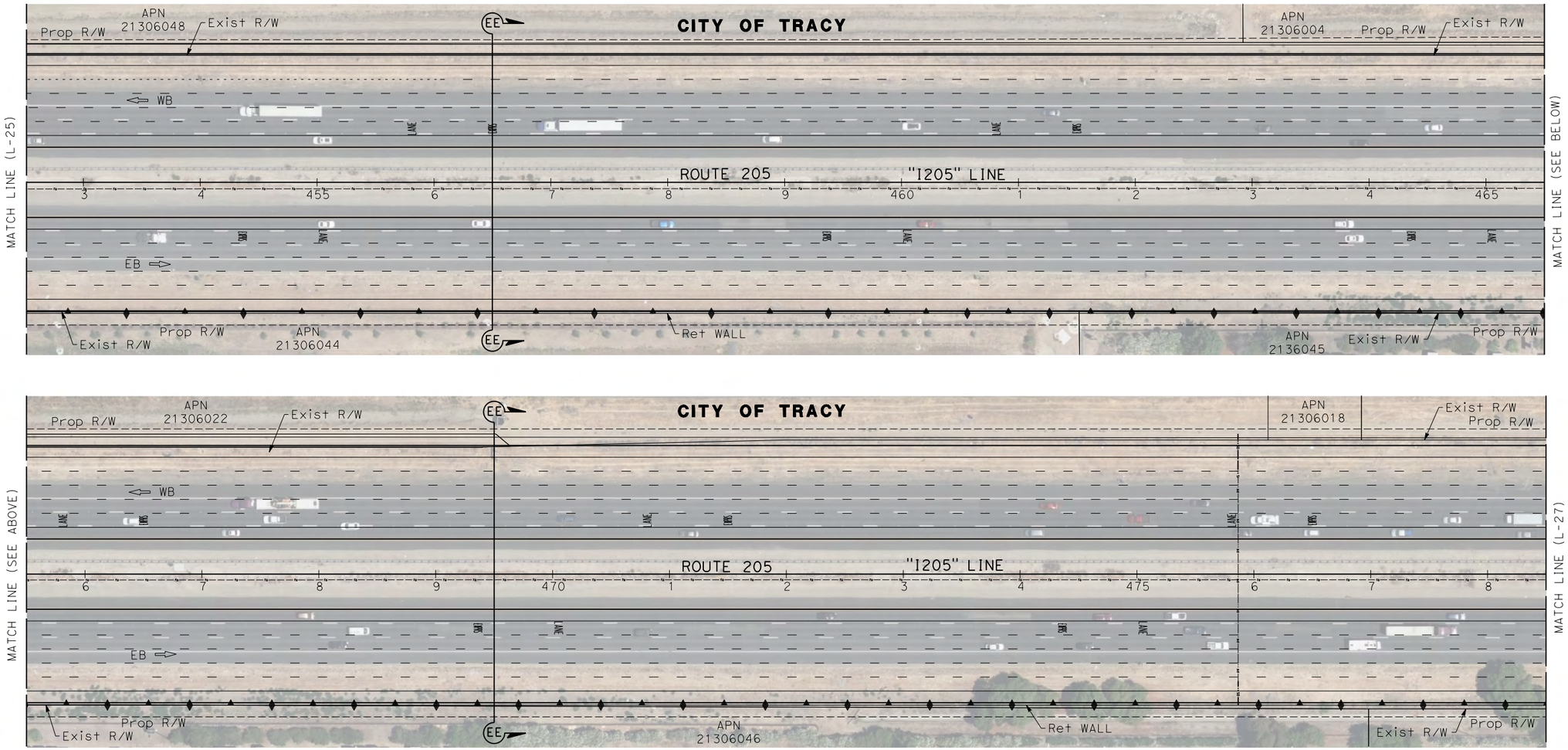
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



SECTION EE-EE
NO SCALE



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L - 26

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA
CALCULATED-DESIGNED BY
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DATE REVISED

LAST REVISION DATE PLOTTED => 07-JUN-2021
00-00-00 TIME PLOTTED => 09:16

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USERNAME => Taylor.Klauser
DGN FILE => 1000000001ea026.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE XXXXXXXX

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

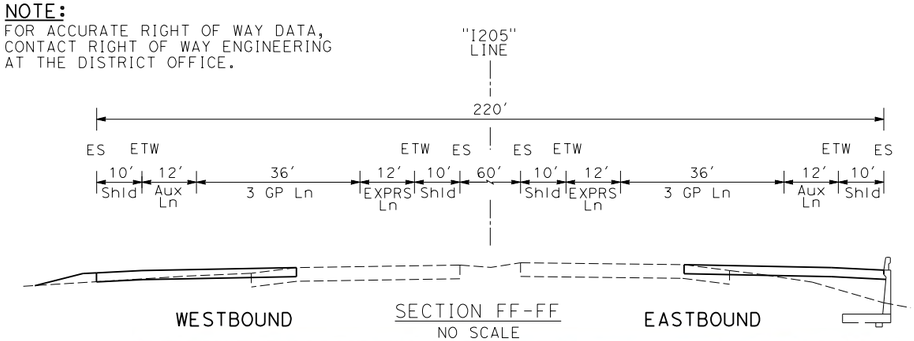
REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

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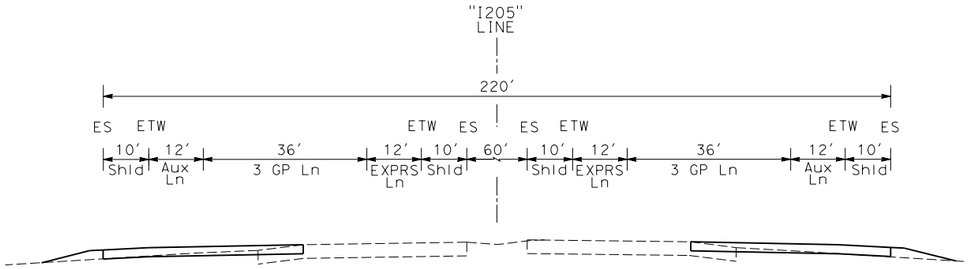
KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

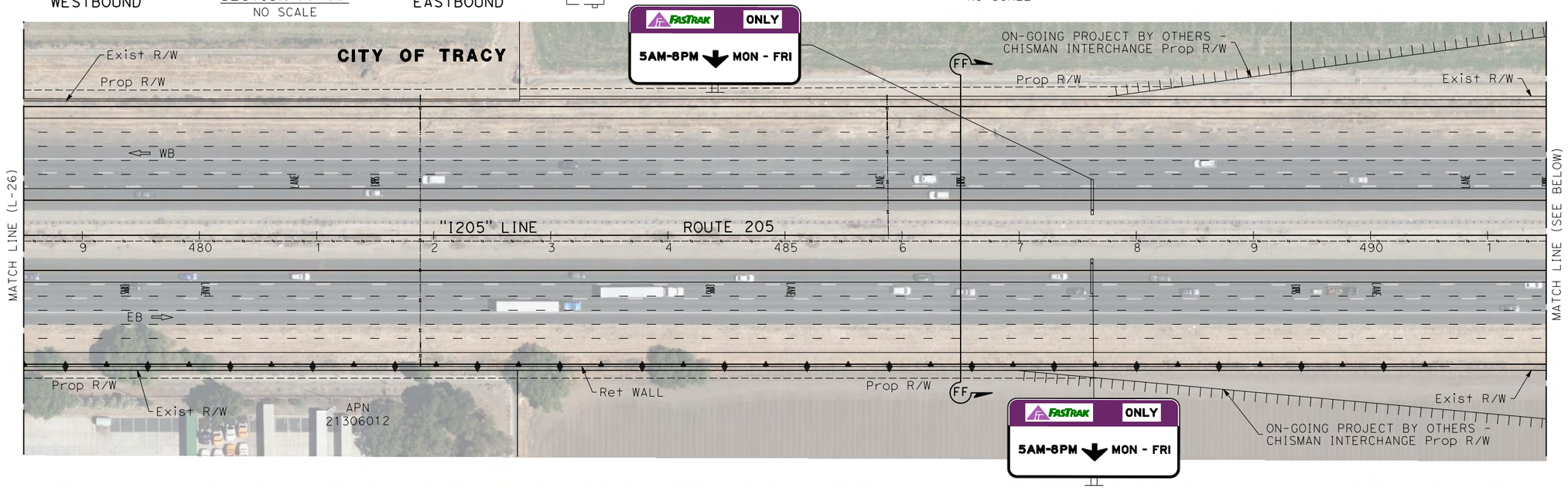
NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

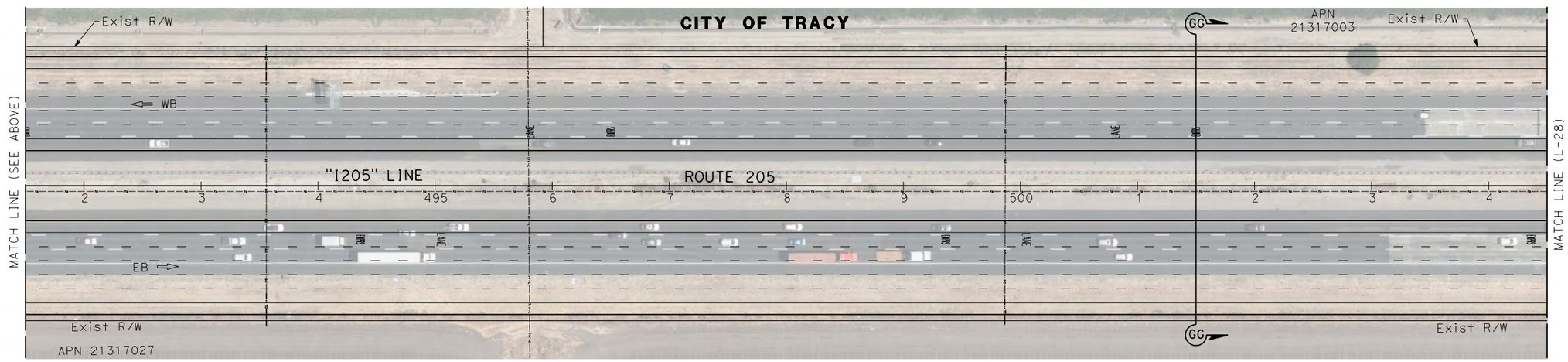


SECTION FF-FF
NO SCALE



SECTION GG-GG
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L - 27

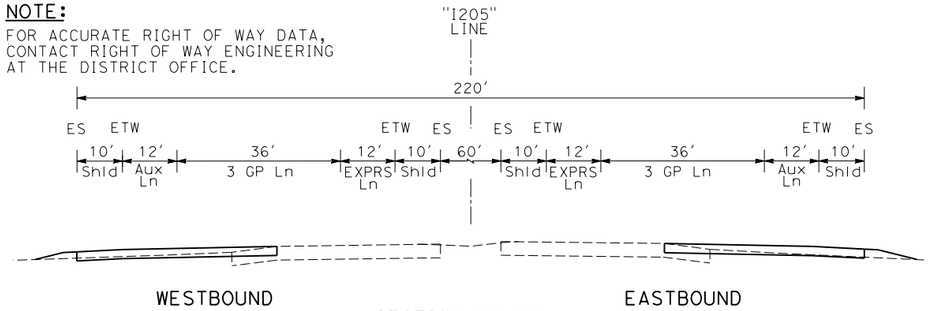
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA
CALCULATED-DESIGNED BY
CHECKED BY
REVISED BY
DATE REVISED

LAST REVISION 00-00-00
DATE PLOTTED => 07-JUN-2021
TIME PLOTTED => 09:16

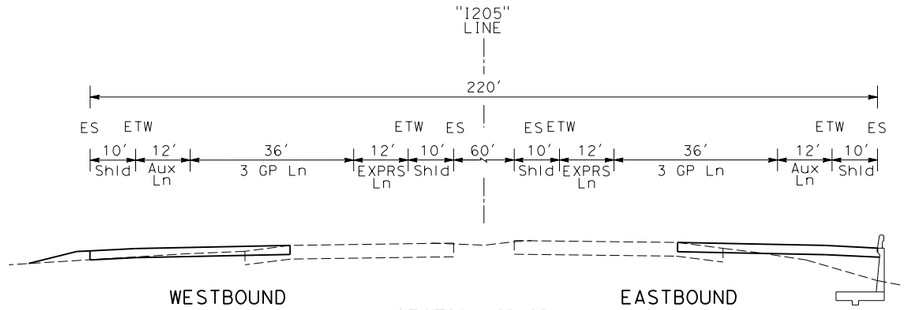
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DGN FILE => 1000000001ea027.dgn
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT 0000
PROJECT NUMBER & PHASE XXXXXXX

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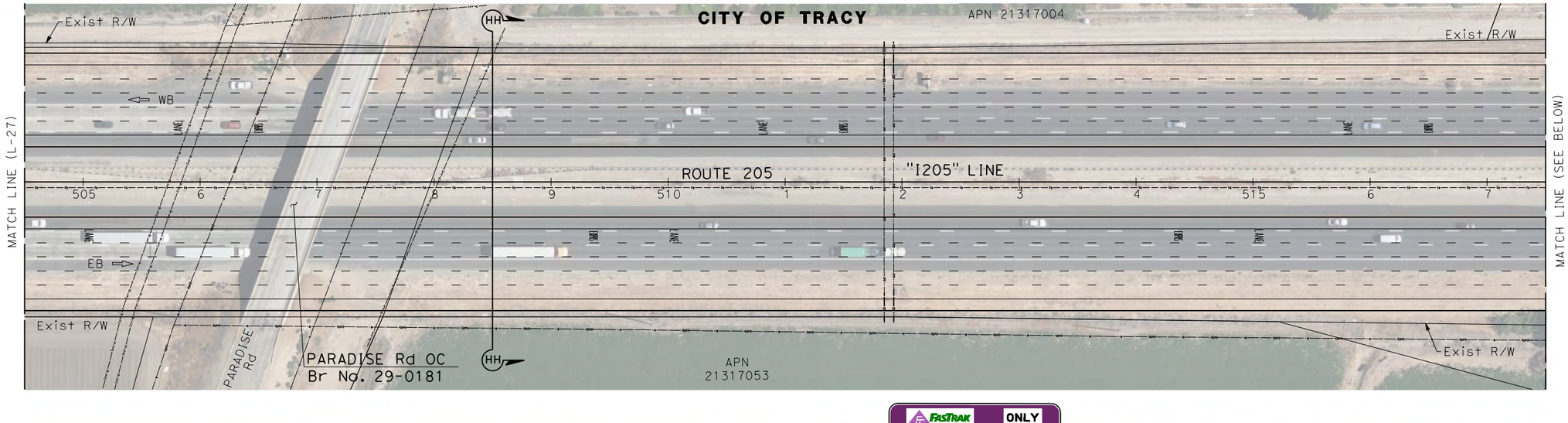
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FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

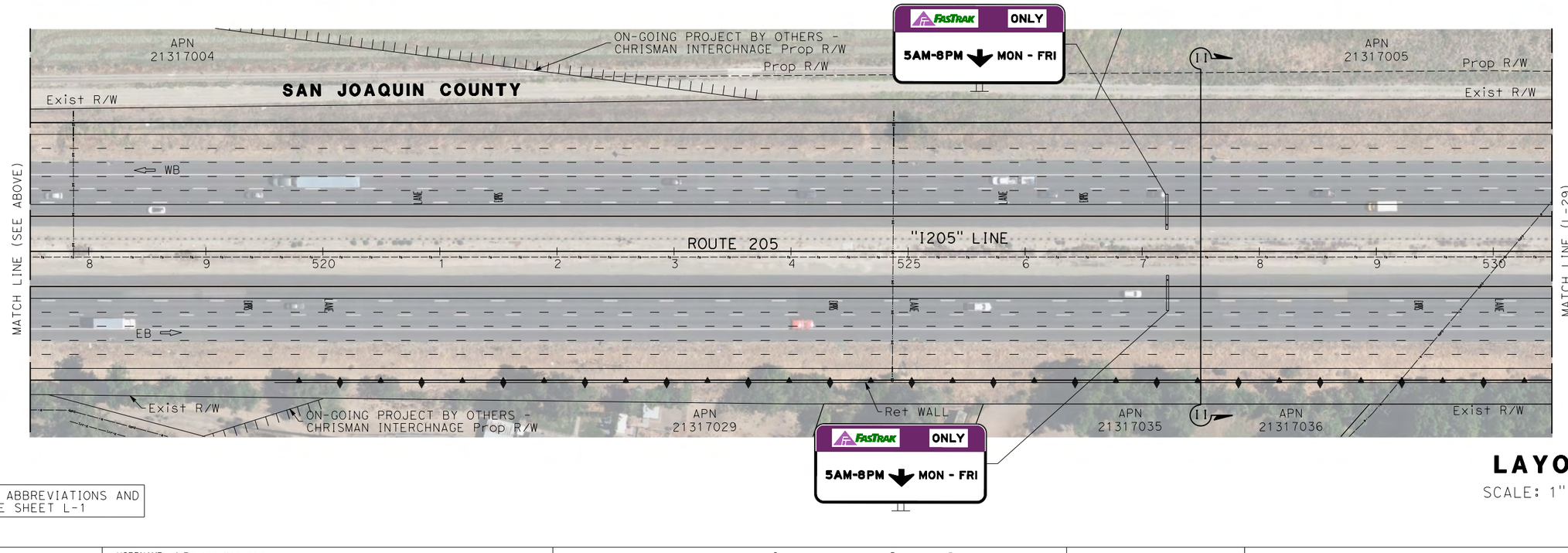


SECTION HH-HH
NO SCALE



SECTION II-II
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

REVISED BY | DATE REVISED
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CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

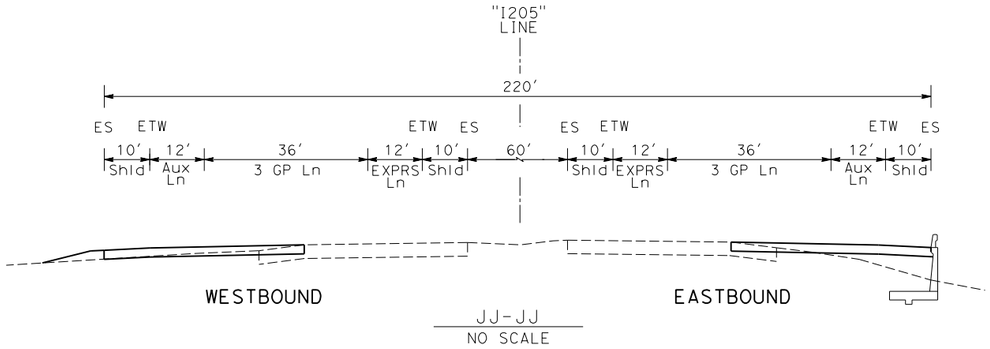
LAST REVISION: 00-00-00 | DATE PLOTTED => 07-JUN-2021 | TIME PLOTTED => 09:17

BORDER LAST REVISED 7/2/2010 | USERNAME => Taylor.Klauser | DGN FILE => 1000000001ea028.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE XXXXXXXX

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JJ-JJ
NO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

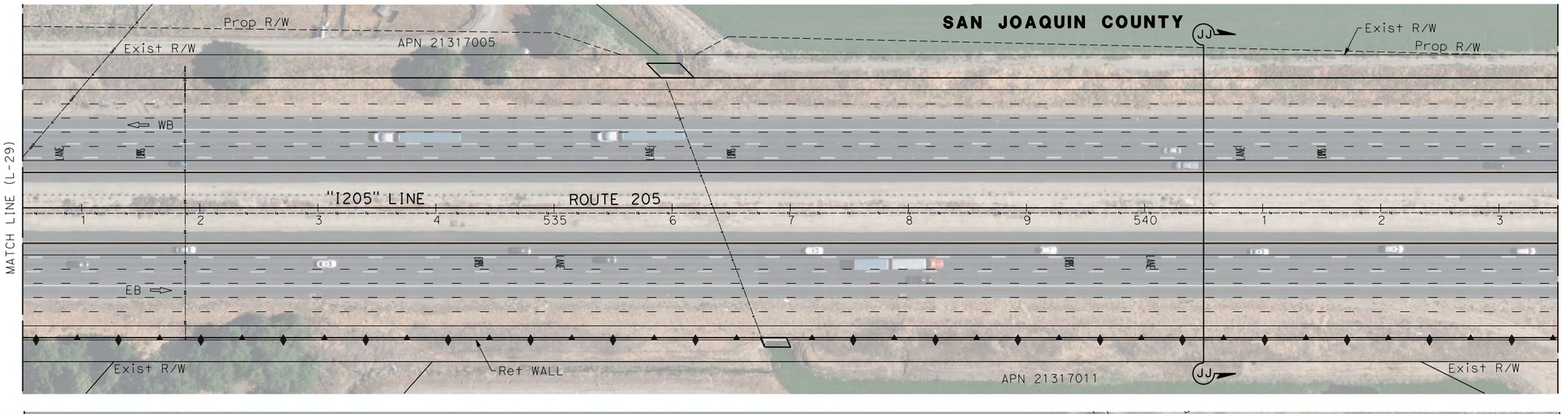
PLANS APPROVAL DATE

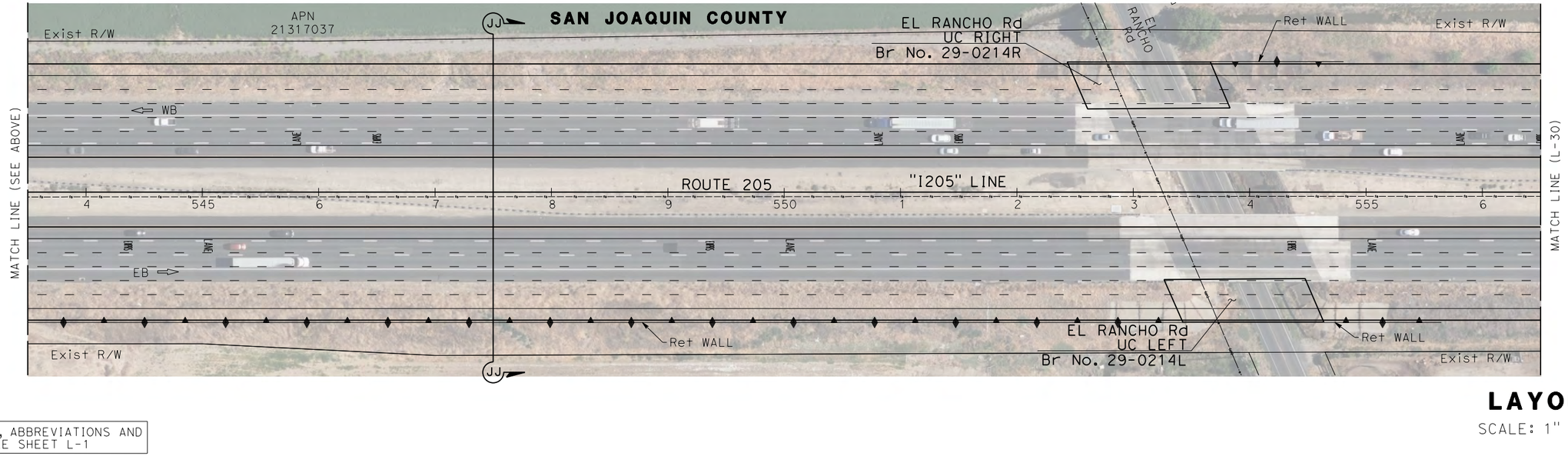
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STOCKTON, CA 95202





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-29

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DATE PLOTTED => 07-JUN-2021
TIME PLOTTED => 09:17

BORDER LAST REVISED 7/2/2010

USERNAME => Taylor.Klauser
DGN FILE => 1000000001ea029.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE XXXXXXXX

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

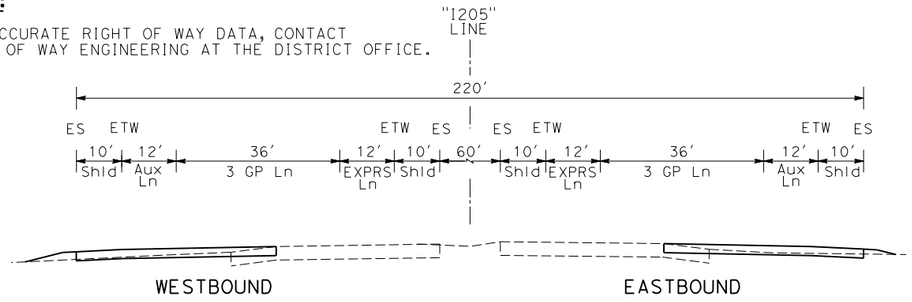
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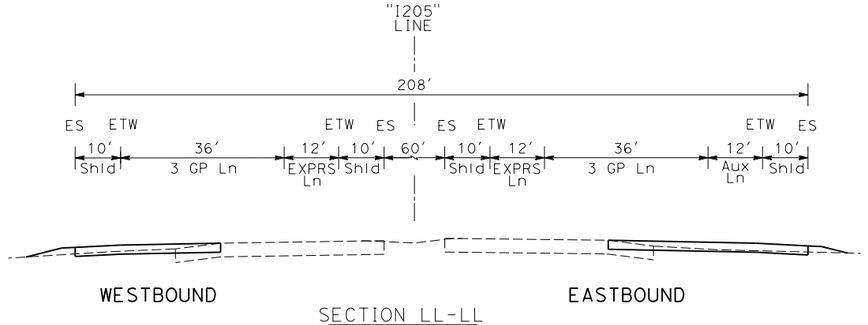
KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

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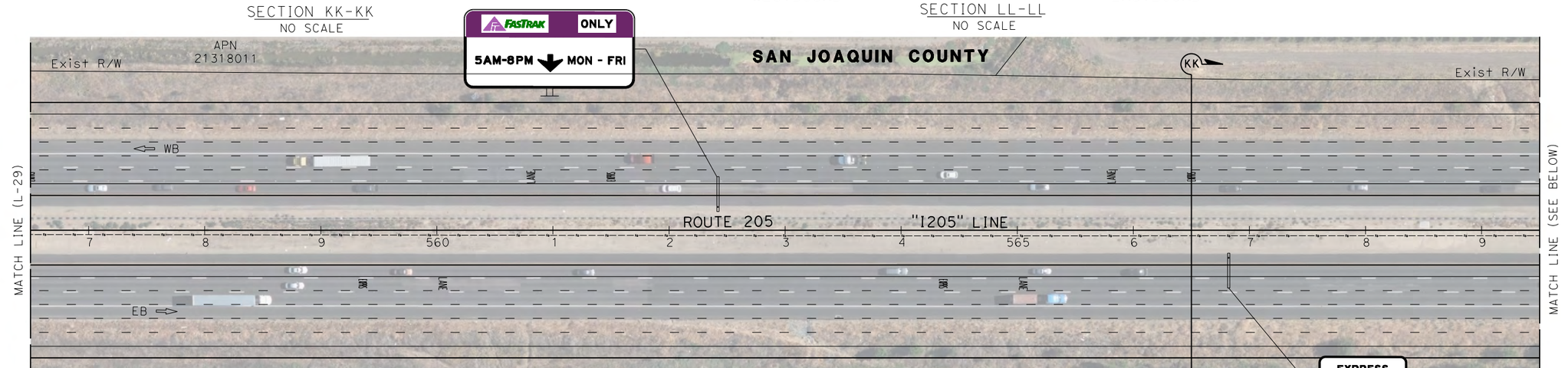
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

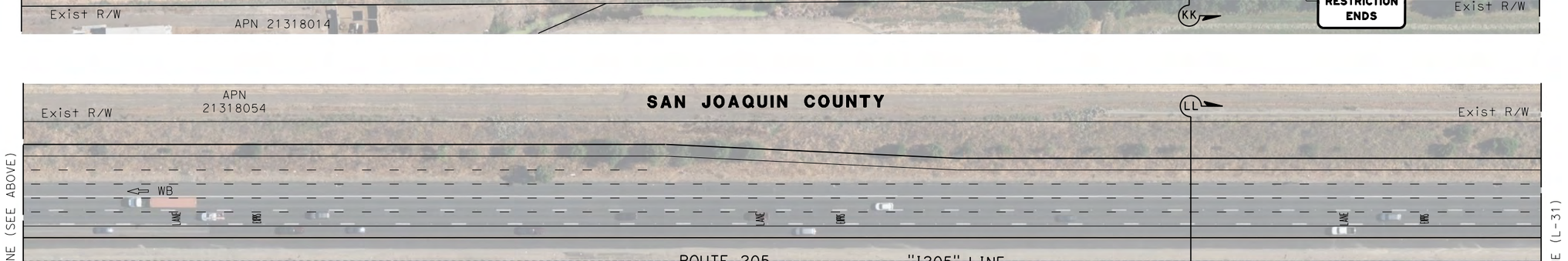




SECTION KK-KK
NO SCALE

SECTION LL-LL
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

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LAST REVISION 00-00-00 | DATE PLOTTED => 07-JUN-2021 | TIME PLOTTED => 09:18

BORDER LAST REVISED 7/2/2010 | USERNAME => Taylor.Klauser | DGN FILE => 1000000001ea030.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE XXXXXXXX

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

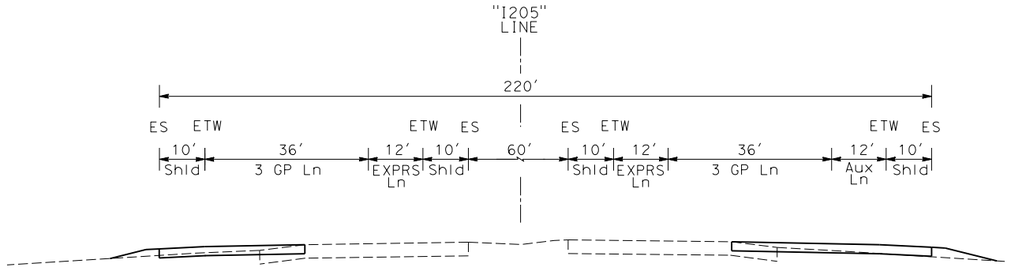
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SUITE 300
PLEASANTON, CA 94588

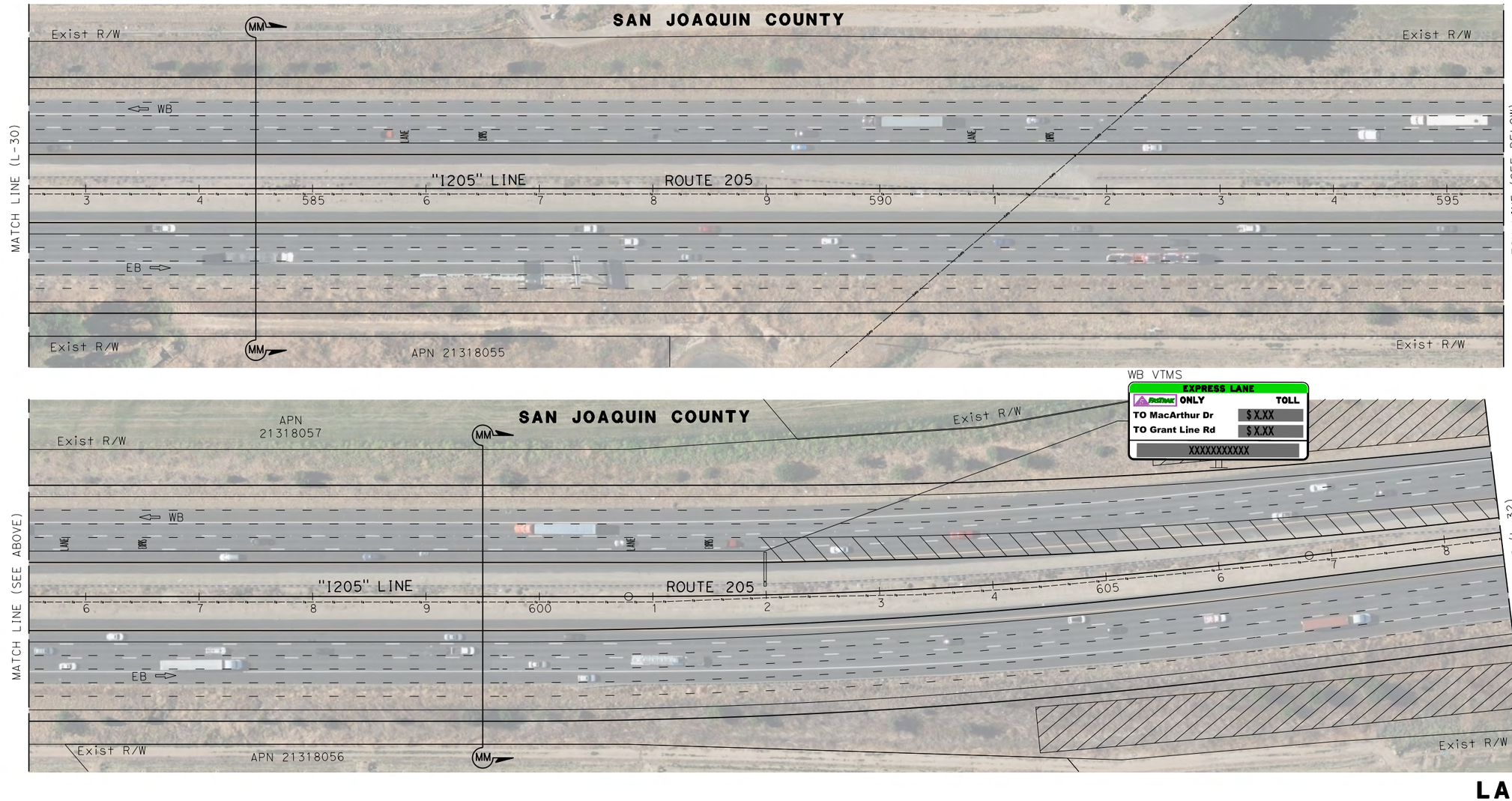
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

NOTE:

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SECTION MM-MM
NO SCALE



LAYOUT

SCALE: 1" = 50'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

L-31

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BORDER LAST REVISED 7/2/2010 | USERNAME => Taylor.Klauser | DGN FILE => 1000000001ea031.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE XXXXXXXX

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

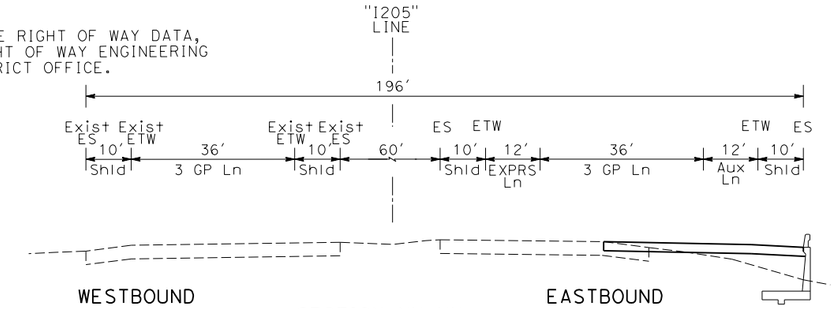
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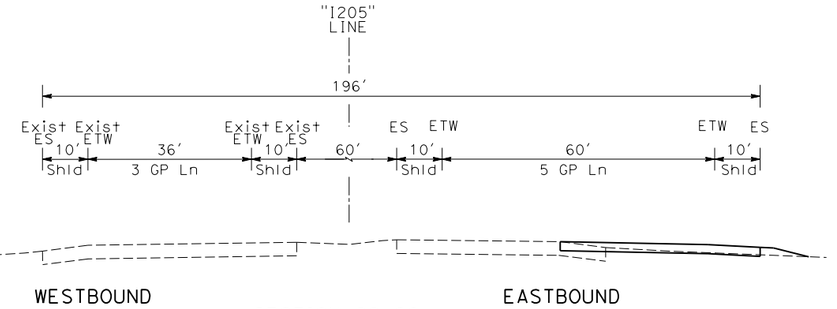
KIMLEY-HORN
4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

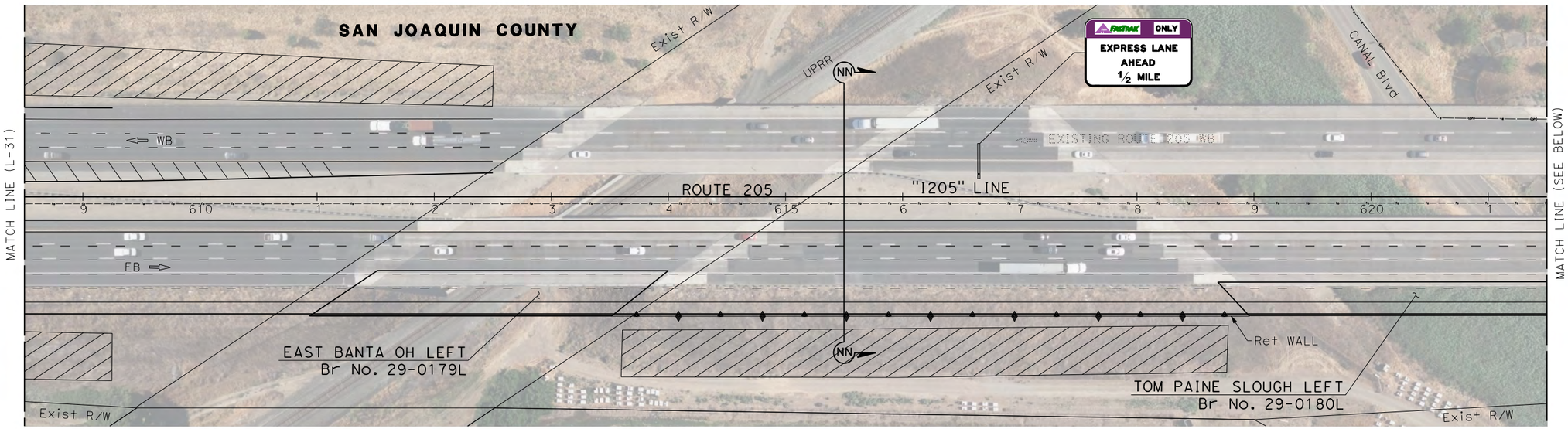
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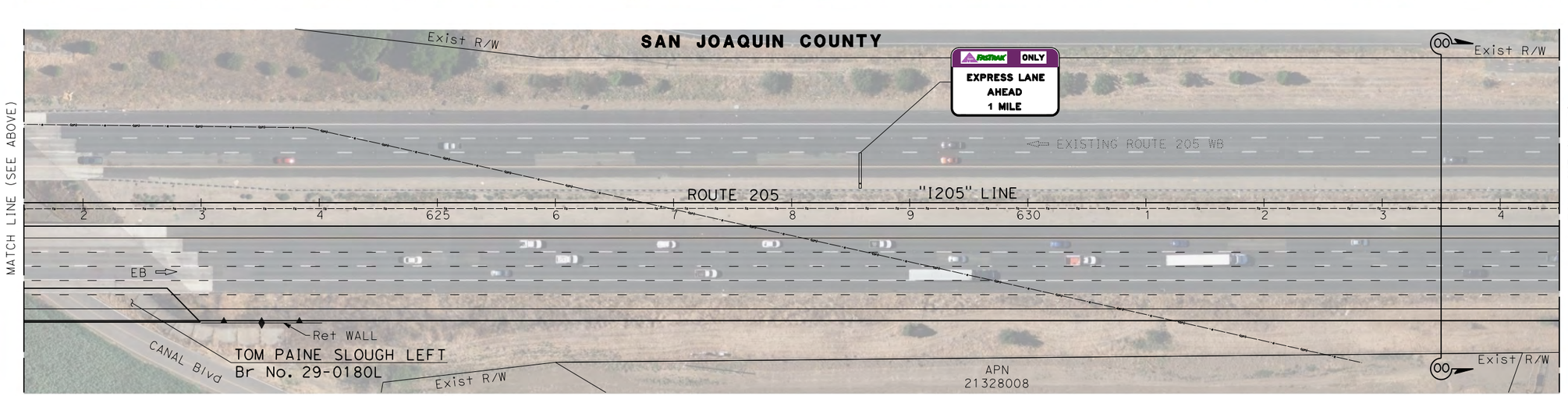


SECTION NN-NN
NO SCALE



SECTION OO-OO
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-32

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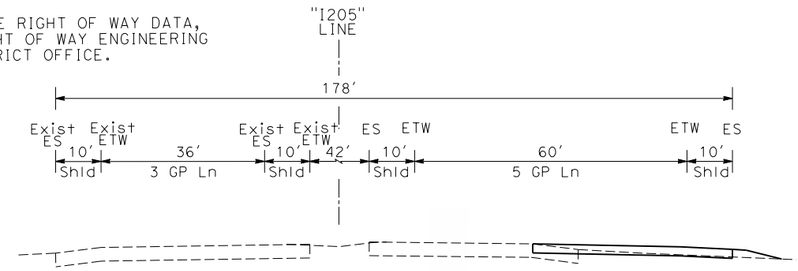
Caltrans

BORDER LAST REVISED 7/2/2010 | USERNAME => Taylor.Klauser | DGN FILE => 1000000001ea032.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0000 | PROJECT NUMBER & PHASE XXXXXXX

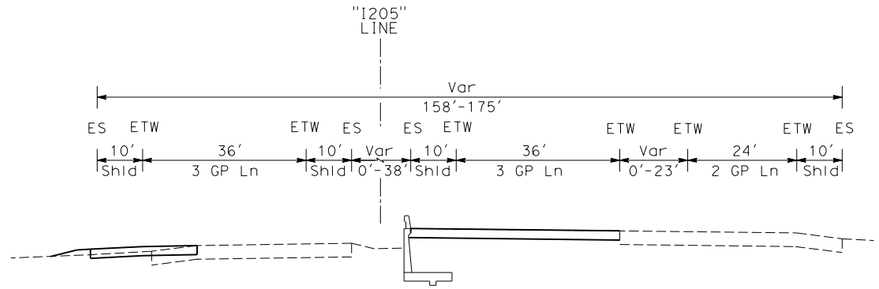
LAST REVISION | DATE PLOTTED => 07-JUN-2021 | TIME PLOTTED => 09:19 | 00-00-00

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SECTION PP-PP
NO SCALE



SECTION QQ-QQ
NO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

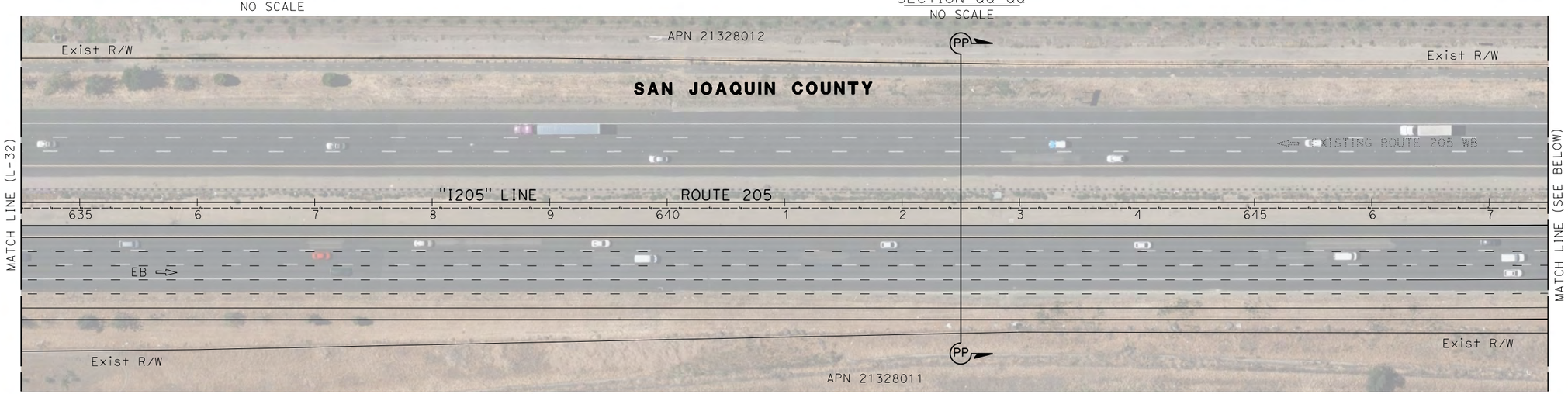
PLANS APPROVAL DATE

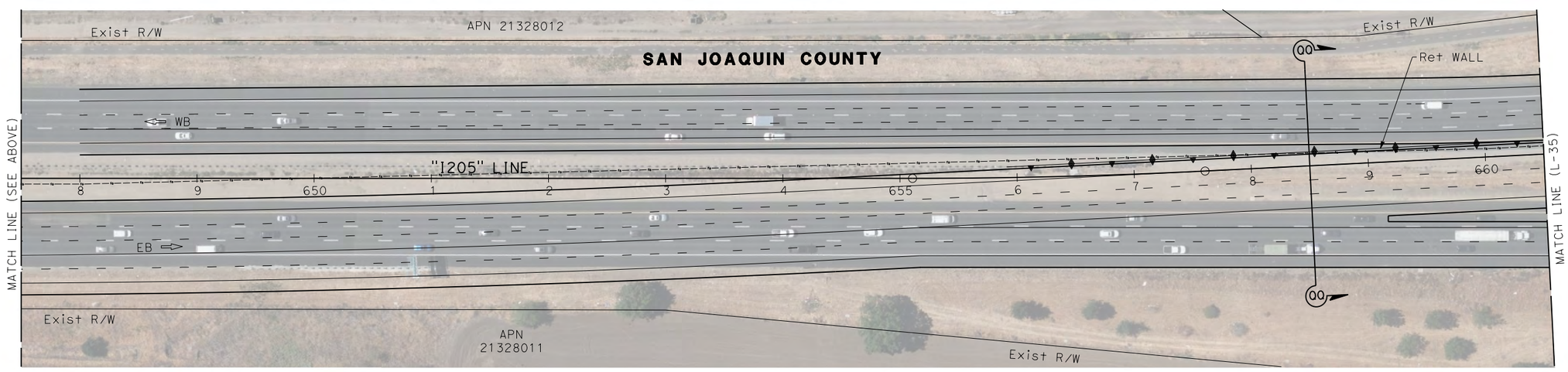
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4637 CHABOT DRIVE
SUITE 300
PLEASANTON, CA 94588

SJCOG
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STOCKTON, CA 95202





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-33

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

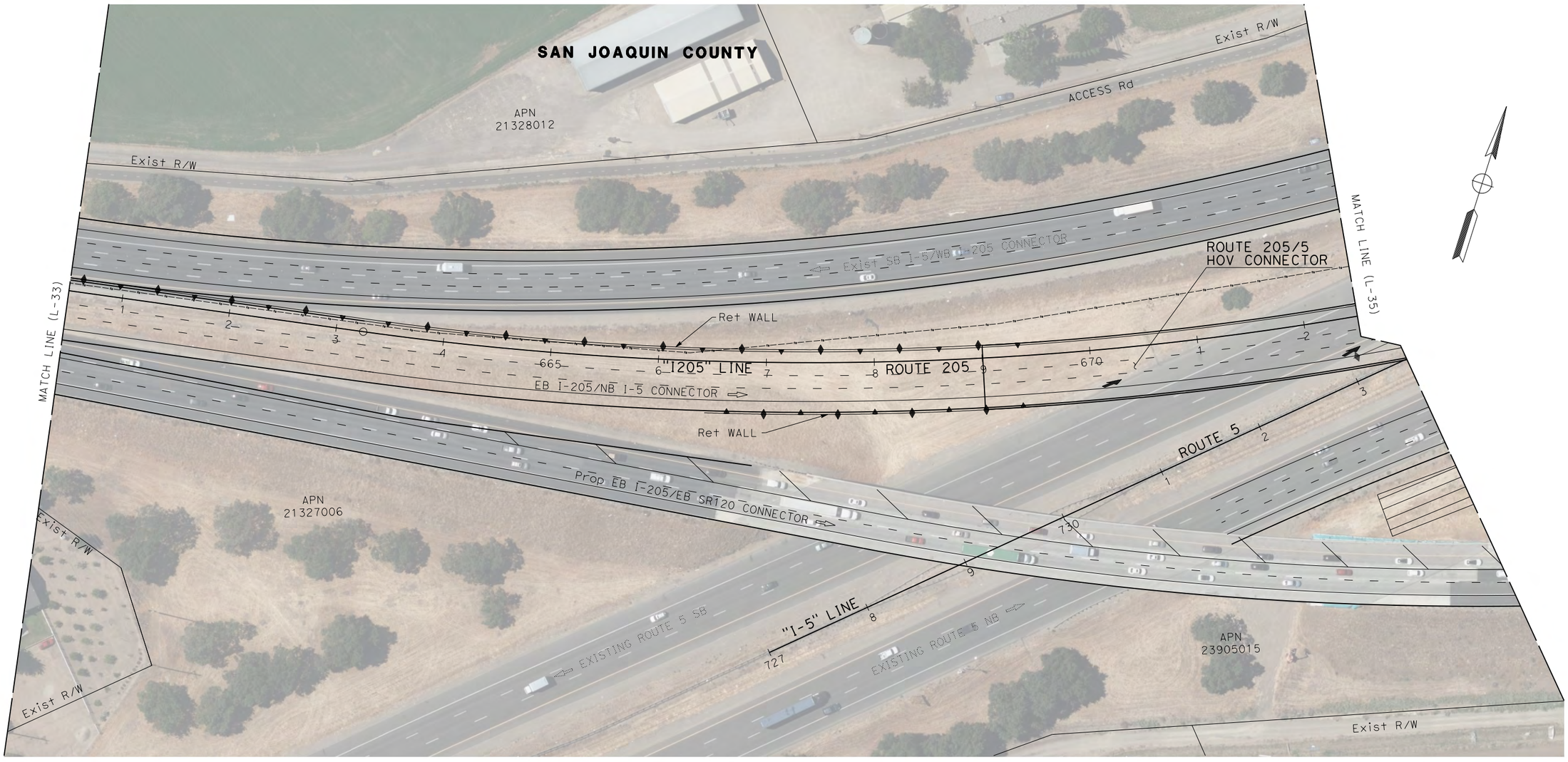
PLANS APPROVAL DATE

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STOCKTON, CA 95202



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-34

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	Caltrans

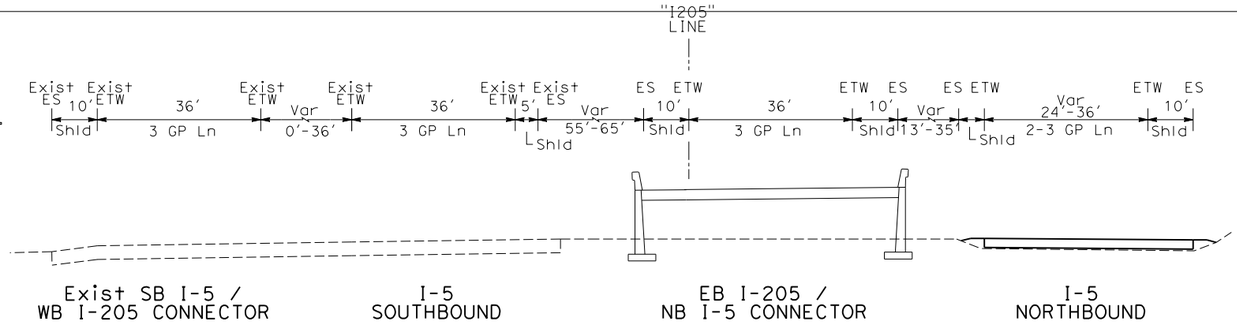
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SECTION RR-RR
NO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

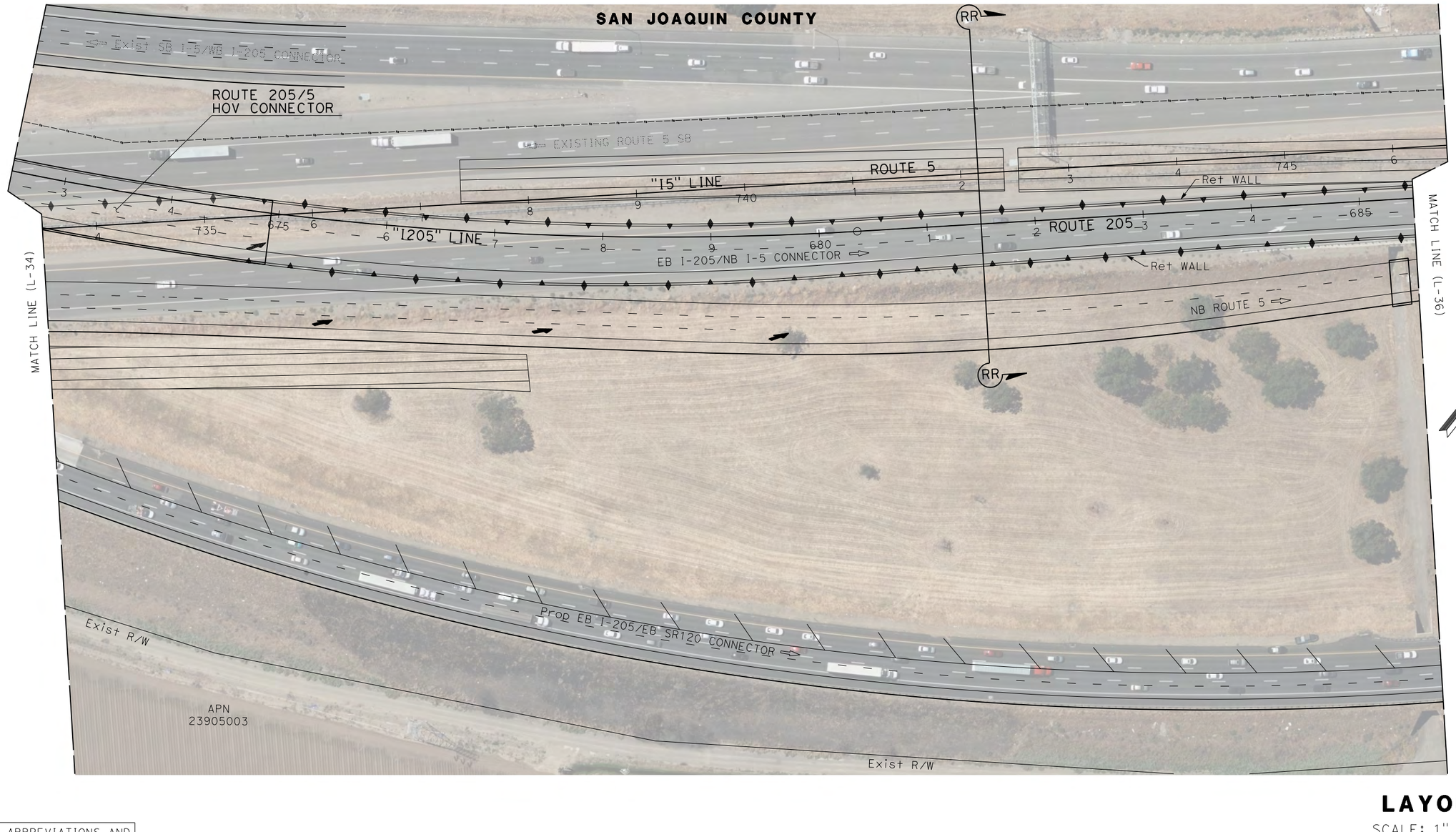
PLANS APPROVAL DATE

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SUITE 300
PLEASANTON, CA 94588

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STOCKTON, CA 95202



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L - 35

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LAST REVISION 00-00-00 | DATE PLOTTED => 07-JUN-2021 | TIME PLOTTED => 09:20

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

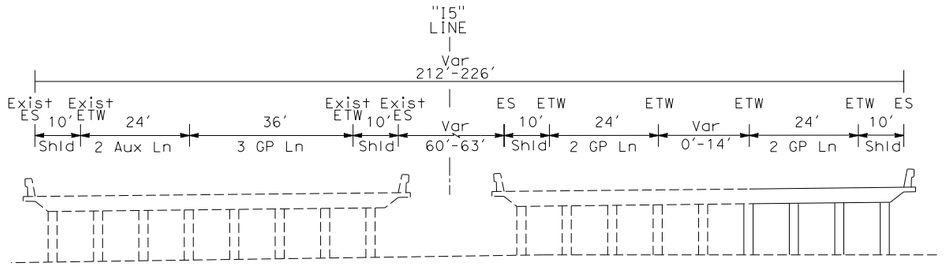
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SUITE 300
PLEASANTON, CA 94588

SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

NOTE:

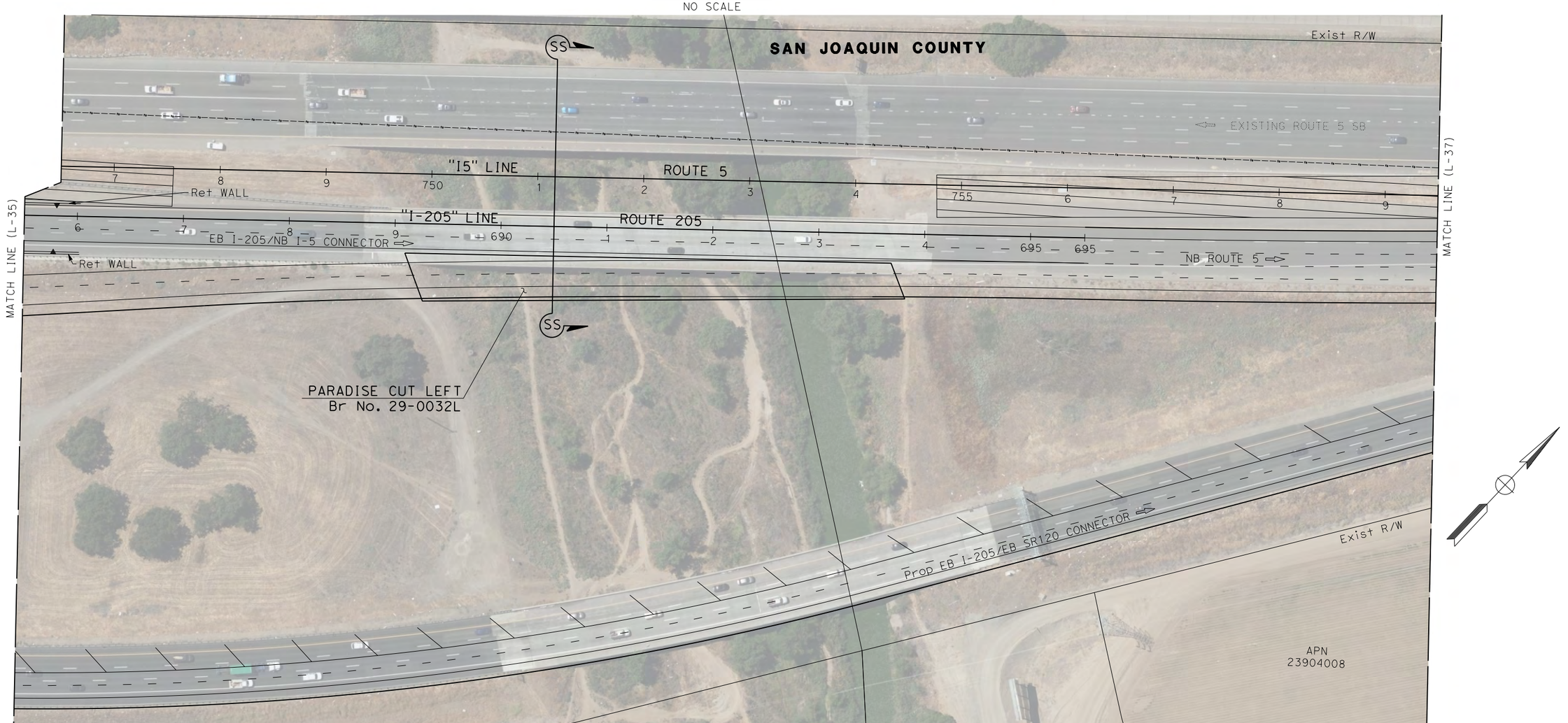
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



I-5 SOUTHBOUND

SECTION SS-SS
NO SCALE

I-5 NORTHBOUND



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-36

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CONSULTANT FUNCTIONAL SUPERVISOR: PARAG G. MEHTA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

LAST REVISION 00-00-00 | DATE PLOTTED => 07-JUN-2021 | TIME PLOTTED => 09:20

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	ALA/SJ	205			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

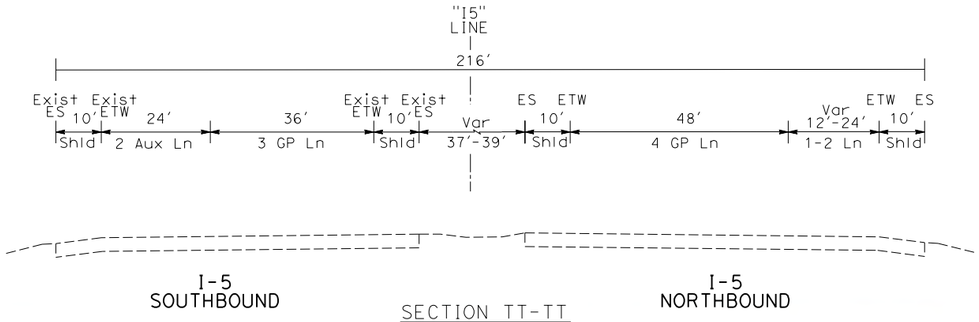
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SUITE 300
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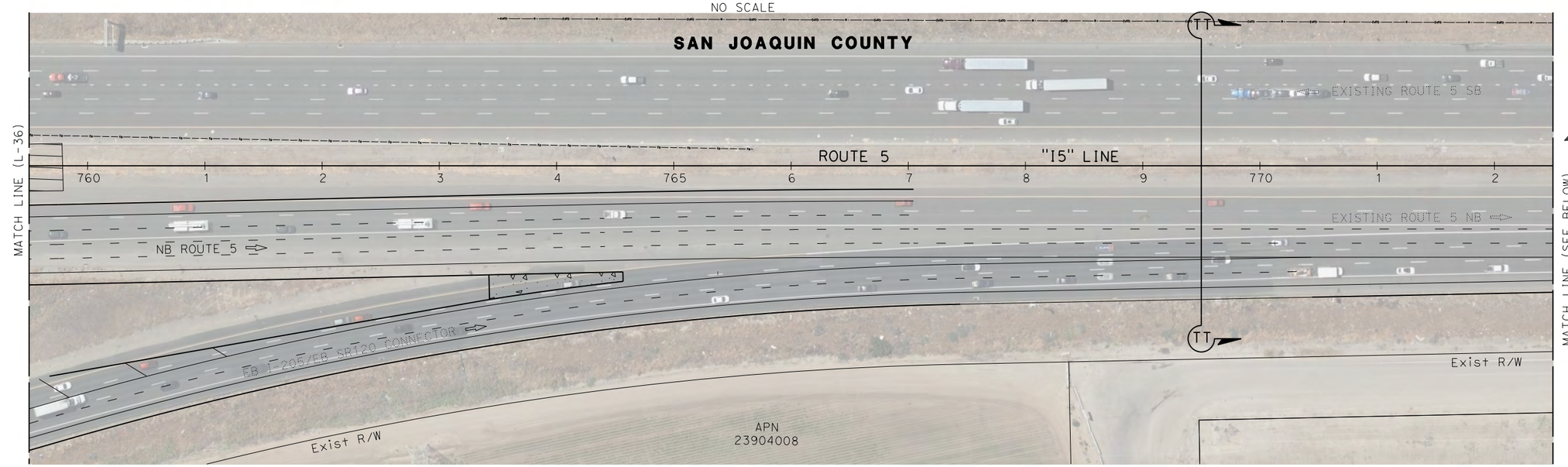
SJCOG
555 E WEBER AVE
STOCKTON, CA 95202

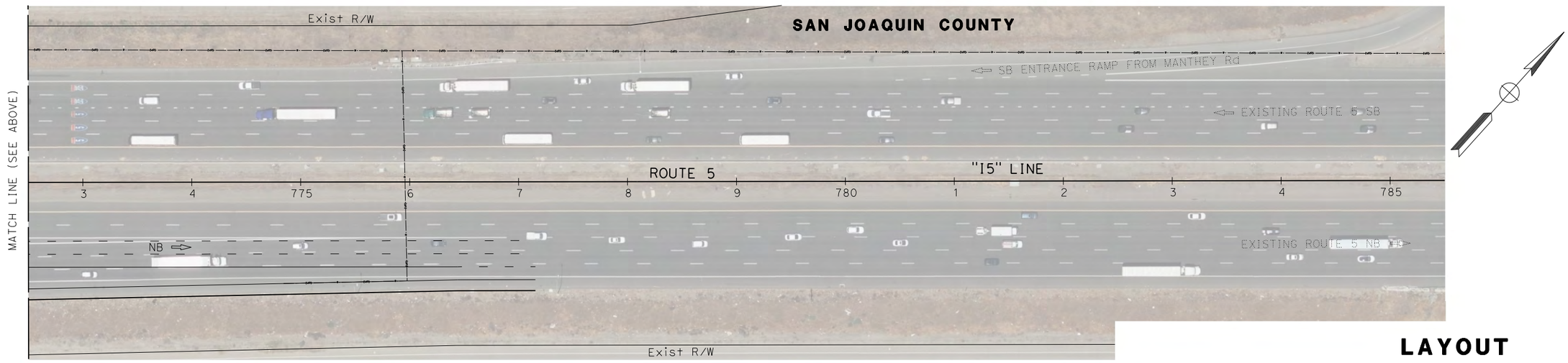
NOTE:

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SECTION TT-TT
NO SCALE





FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

SCALE: 1" = 50'

L-37

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CONSULTANT FUNCTIONAL SUPERVISOR	PARAG G. MEHTA
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	Caltrans

LAST REVISION => DATE PLOTTED => 07-JUN-2021
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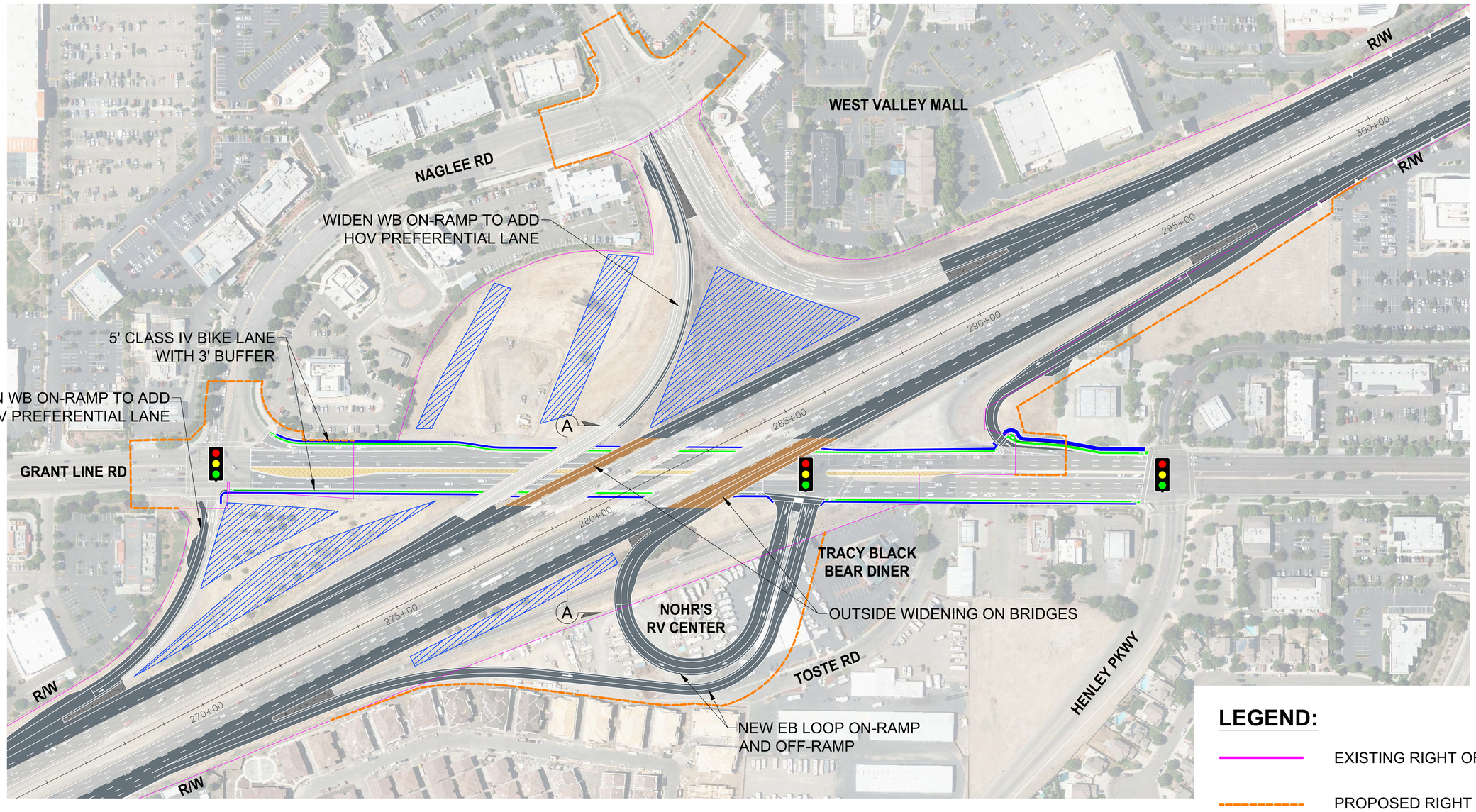
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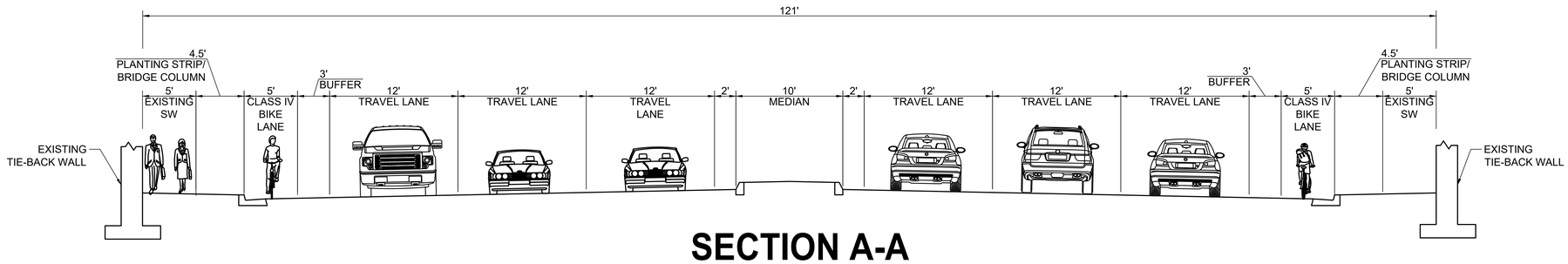
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I-205 MANAGED LANES PROJECT

GRANT LINE ROAD INTERCHANGE

ALTERNATIVE 1





SECTION A-A

LEGEND:

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED BRIDGE
- PROPOSED PAVEMENT
- PROPOSED BIKE PATH
- PROPOSED SIDEWALK
- PROPOSED MEDIAN ISLAND PAVING
- CONTRASTING SURFACE TREATMENT
- PROPOSED BASIN

Kimley»Horn

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SAN JOAQUIN COUNCIL OF GOVERNMENTS

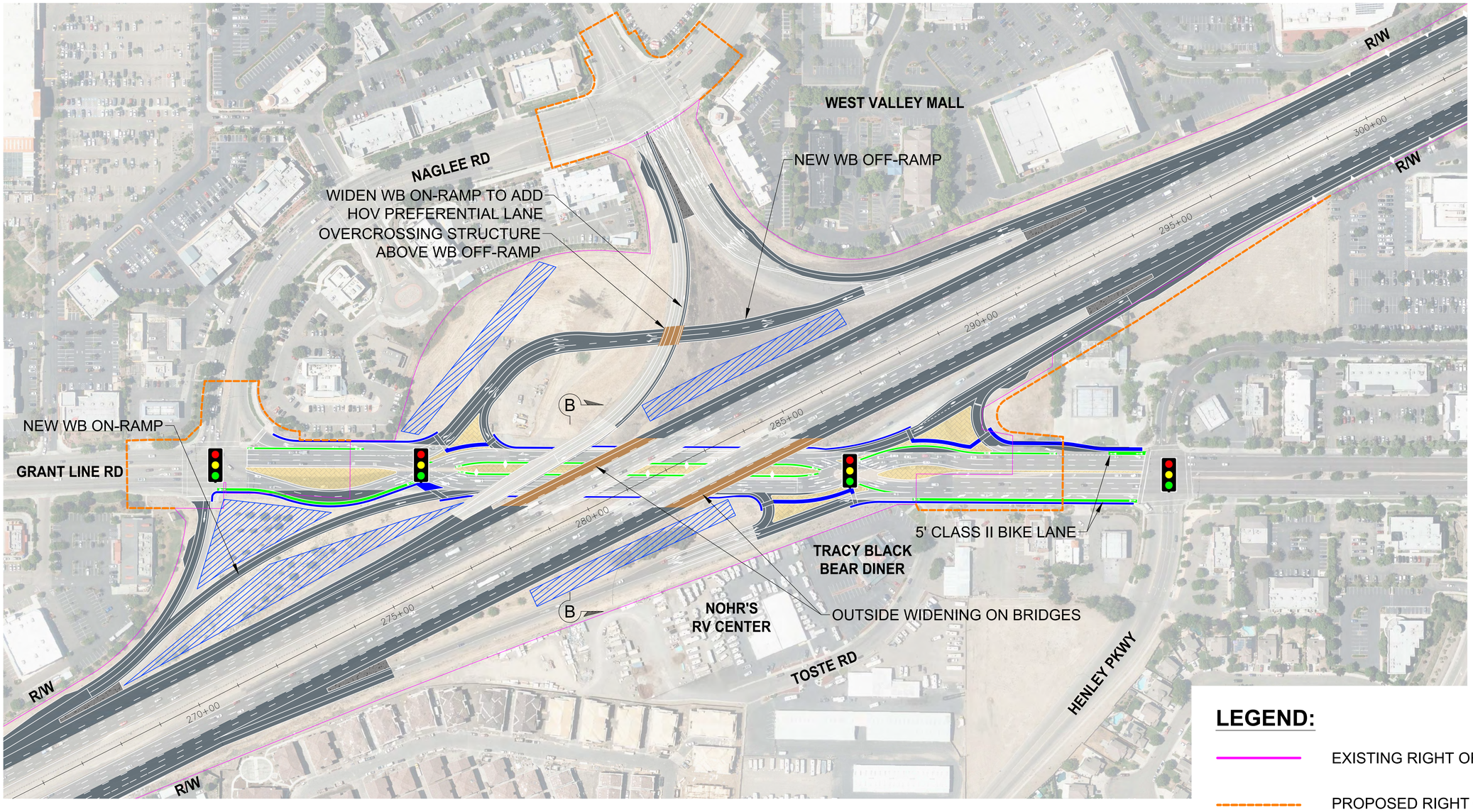
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FOR DISCUSSION PURPOSES ONLY

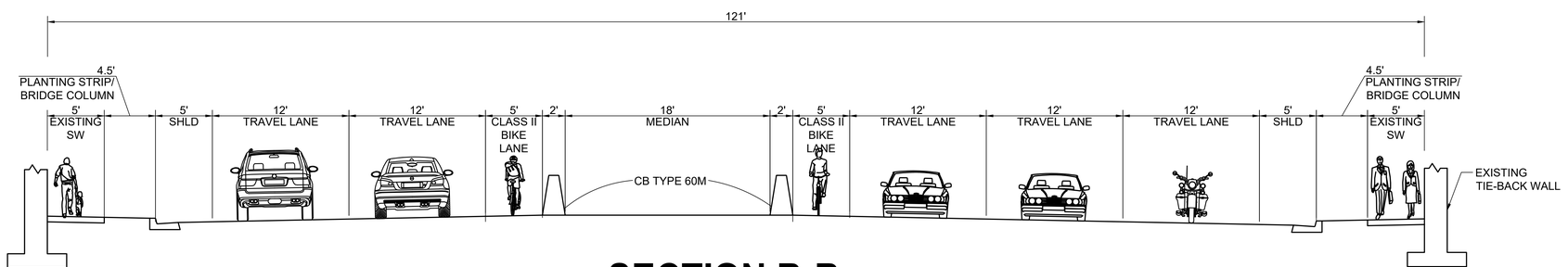
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SCALE: 1" = 100'

I-205 MANAGED LANES PROJECT

GRANT LINE ROAD INTERCHANGE

ALTERNATIVE 2





SECTION B-B

LEGEND:

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED BRIDGE
- PROPOSED PAVEMENT
- PROPOSED BIKE PATH
- PROPOSED SIDEWALK
- PROPOSED MEDIAN ISLAND PAVING
- CONTRASTING SURFACE TREATMENT
- PROPOSED BASIN

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SAN JOAQUIN COUNCIL OF GOVERNMENTS

PRELIMINARY
FOR DISCUSSION PURPOSES ONLY

100' 50' 0' 50' 100'
SCALE: 1" = 100'

I-205 MANAGED LANES PROJECT

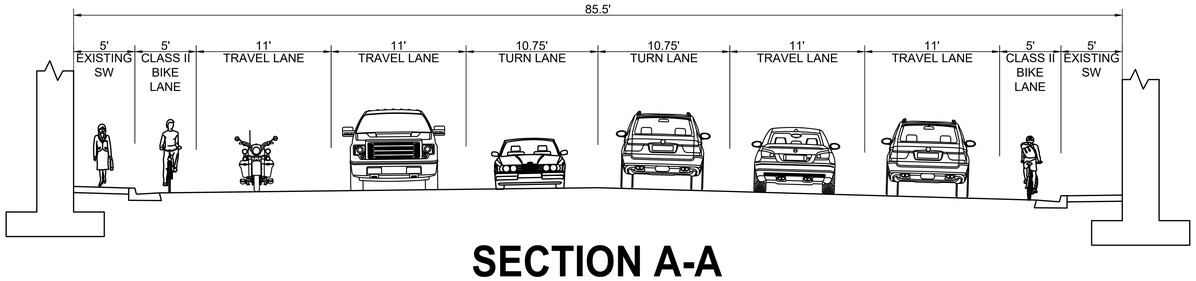
TRACY BOULEVARD INTERCHANGE

ALTERNATIVE 1



LEGEND:

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED BRIDGE
- PROPOSED PAVEMENT
- PROPOSED BIKE PATH
- PROPOSED SIDEWALK
- PROPOSED MEDIAN ISLAND PAVING
- CONTRASTING SURFACE TREATMENT
- PROPOSED BASIN



SECTION A-A

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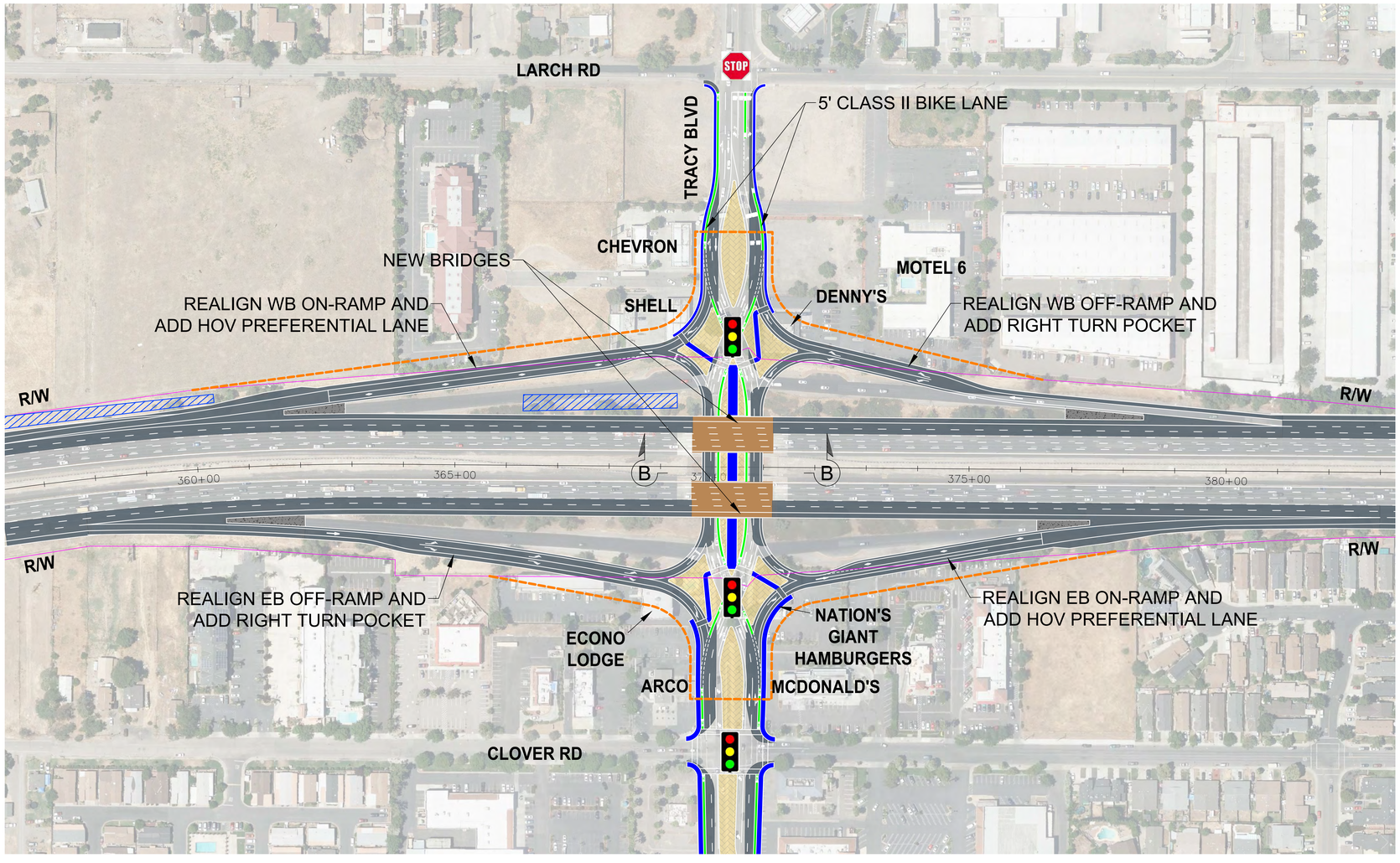
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FOR DISCUSSION PURPOSES ONLY

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I-205 MANAGED LANES PROJECT

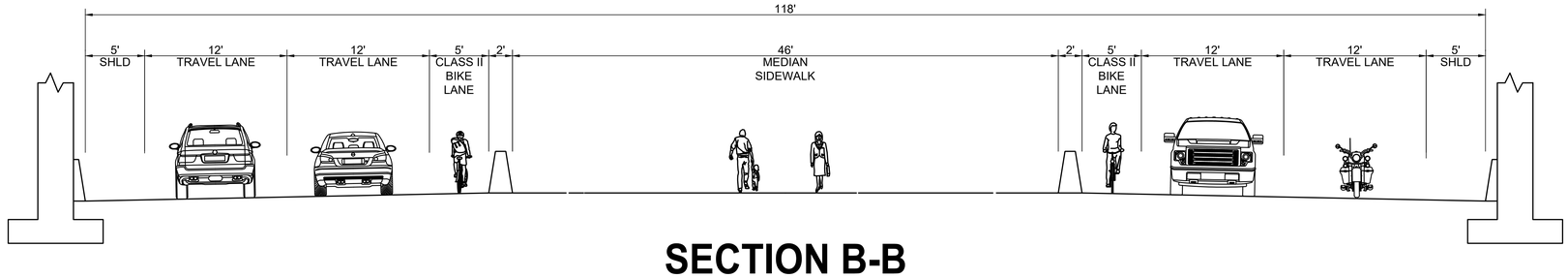
TRACY BOULEVARD INTERCHANGE

ALTERNATIVE 2



LEGEND:

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED BRIDGE
- PROPOSED PAVEMENT
- PROPOSED BIKE PATH
- PROPOSED SIDEWALK
- PROPOSED MEDIAN ISLAND PAVING
- CONTRASTING SURFACE TREATMENT
- PROPOSED BASIN



SECTION B-B

Kimley»Horn

MNS ENGINEERS INC

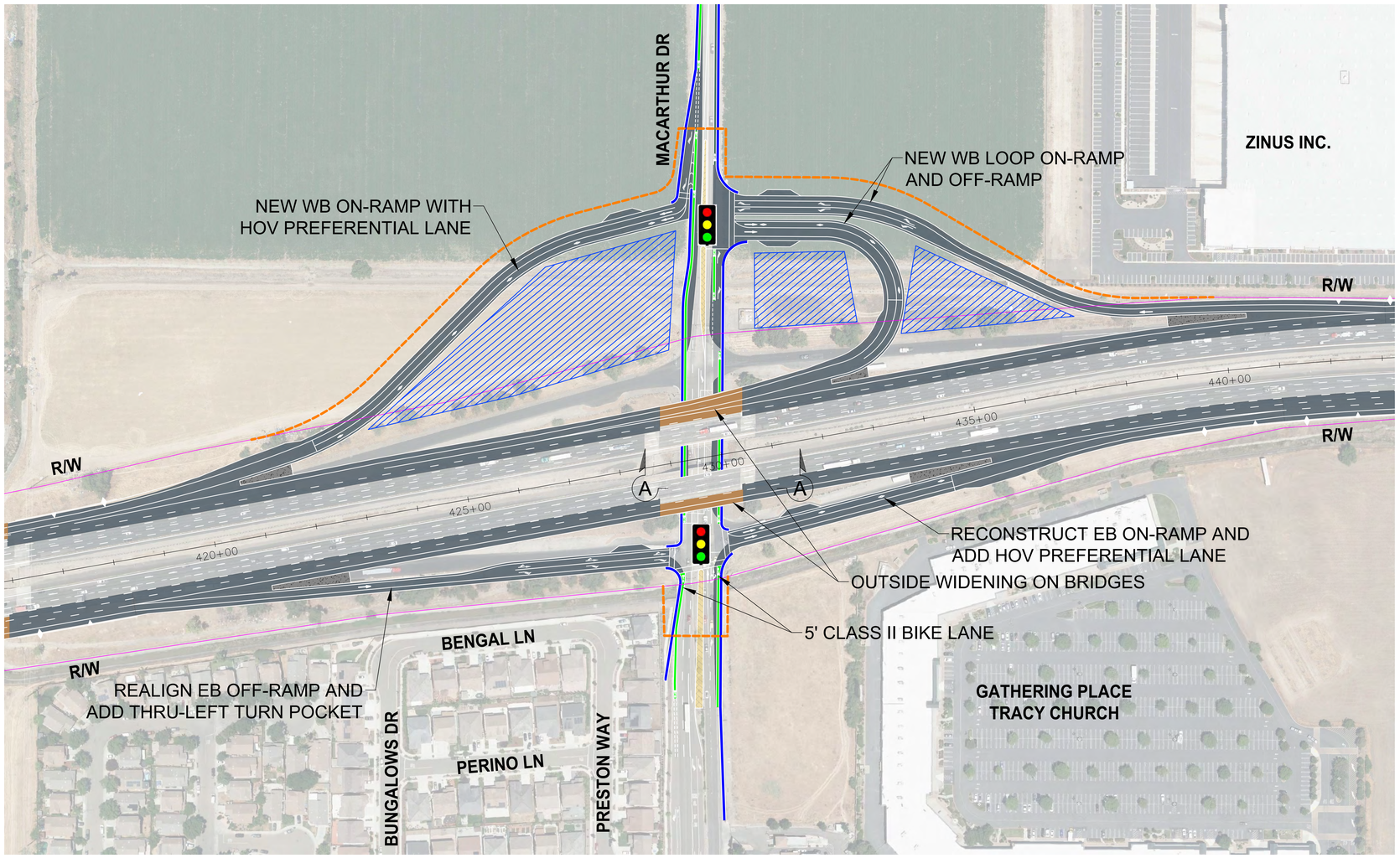
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SAN JOAQUIN COUNCIL OF GOVERNMENTS

PRELIMINARY
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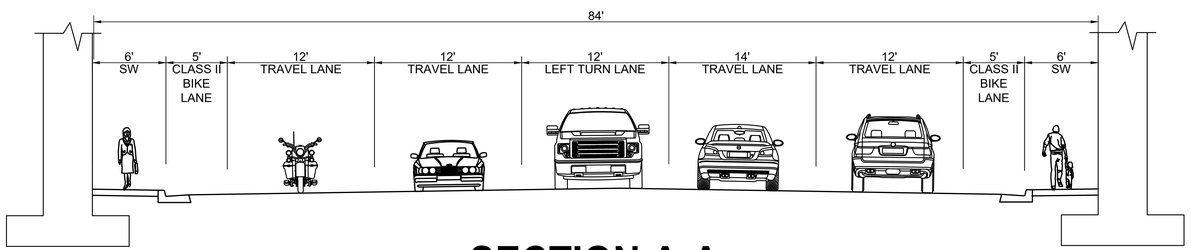
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SCALE: 1" = 100'

I-205 MANAGED LANES PROJECT
MACARTHUR DRIVE INTERCHANGE
ALTERNATIVE 1



LEGEND:

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED BRIDGE
- PROPOSED PAVEMENT
- PROPOSED BIKE PATH
- PROPOSED SIDEWALK
- PROPOSED MEDIAN ISLAND PAVING
- CONTRASTING SURFACE TREATMENT
- PROPOSED BASIN



SECTION A-A

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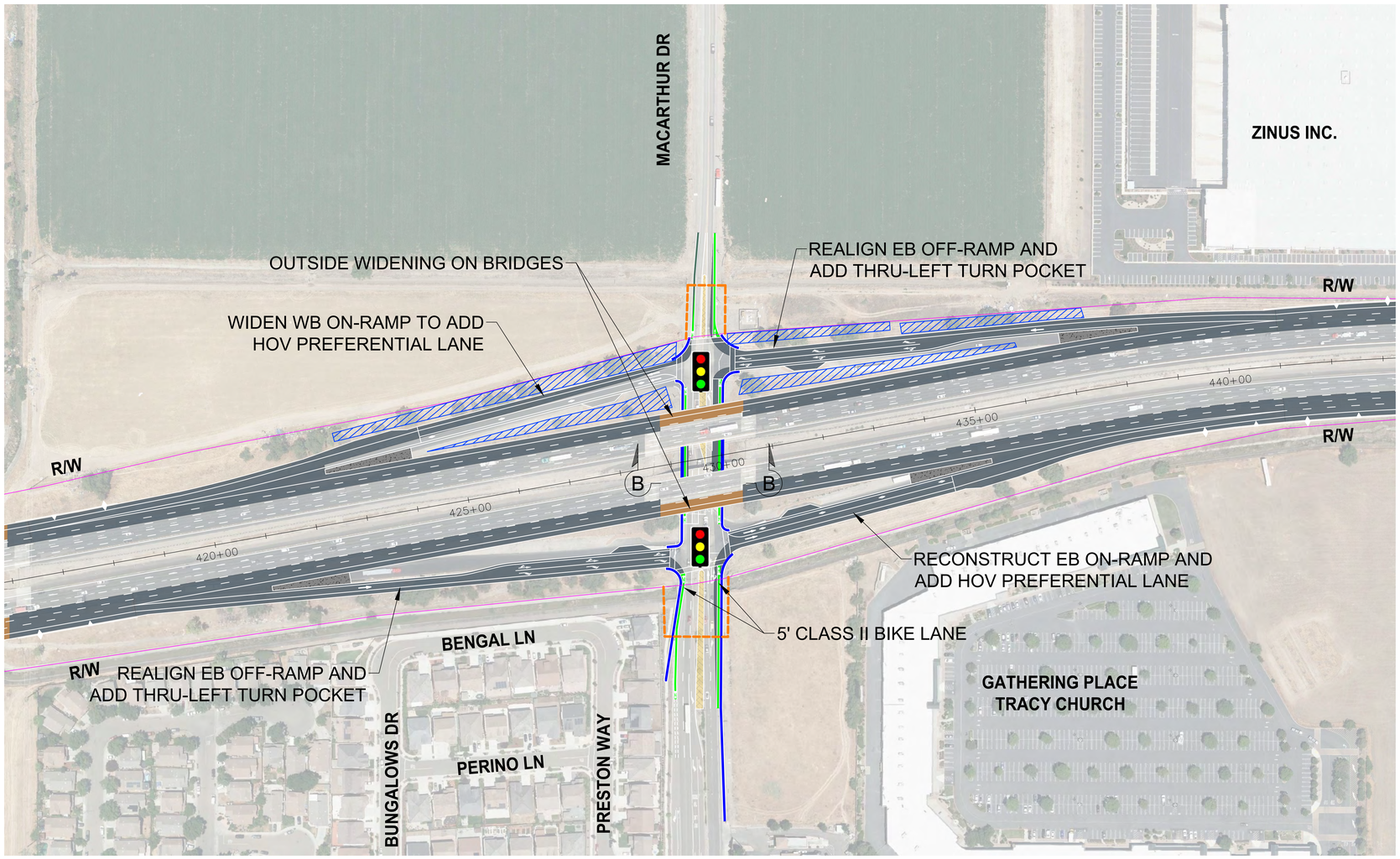
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SAN JOAQUIN COUNCIL OF GOVERNMENTS

PRELIMINARY
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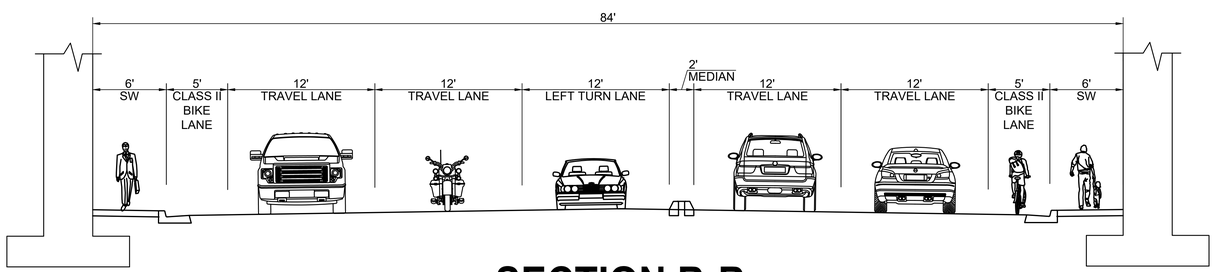
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SCALE: 1" = 100'

I-205 MANAGED LANES PROJECT
MACARTHUR DRIVE INTERCHANGE
ALTERNATIVE 2



LEGEND:

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED BRIDGE
- PROPOSED PAVEMENT
- PROPOSED BIKE PATH
- PROPOSED SIDEWALK
- PROPOSED MEDIAN ISLAND PAVING
- CONTRASTING SURFACE TREATMENT
- PROPOSED BASIN



SECTION B-B

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SCALE: 1" = 100'

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJC	205	2.27/13.6		

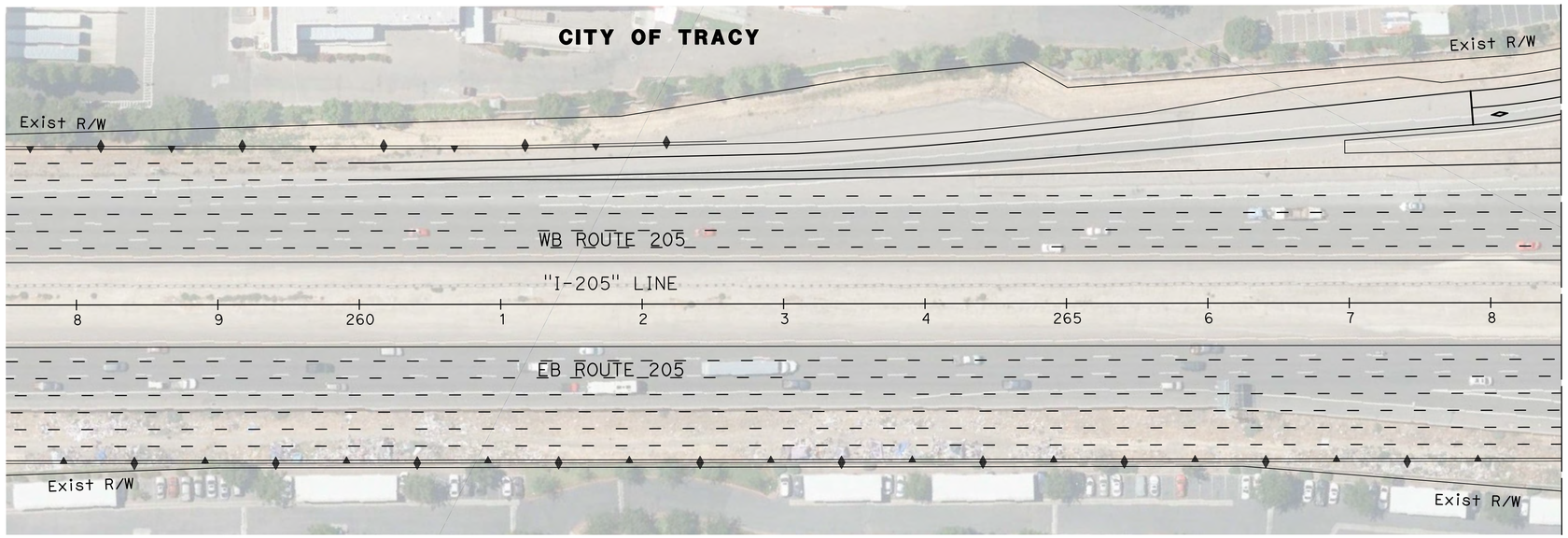
REGISTERED CIVIL ENGINEER — DATE 04/04/18

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. 6/30/19 — CIVIL — STATE OF CALIFORNIA

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/ GRANT LINE ROAD INTERCHANGE ALTERNATIVE 1

SCALE: 1" = 50'

L-1

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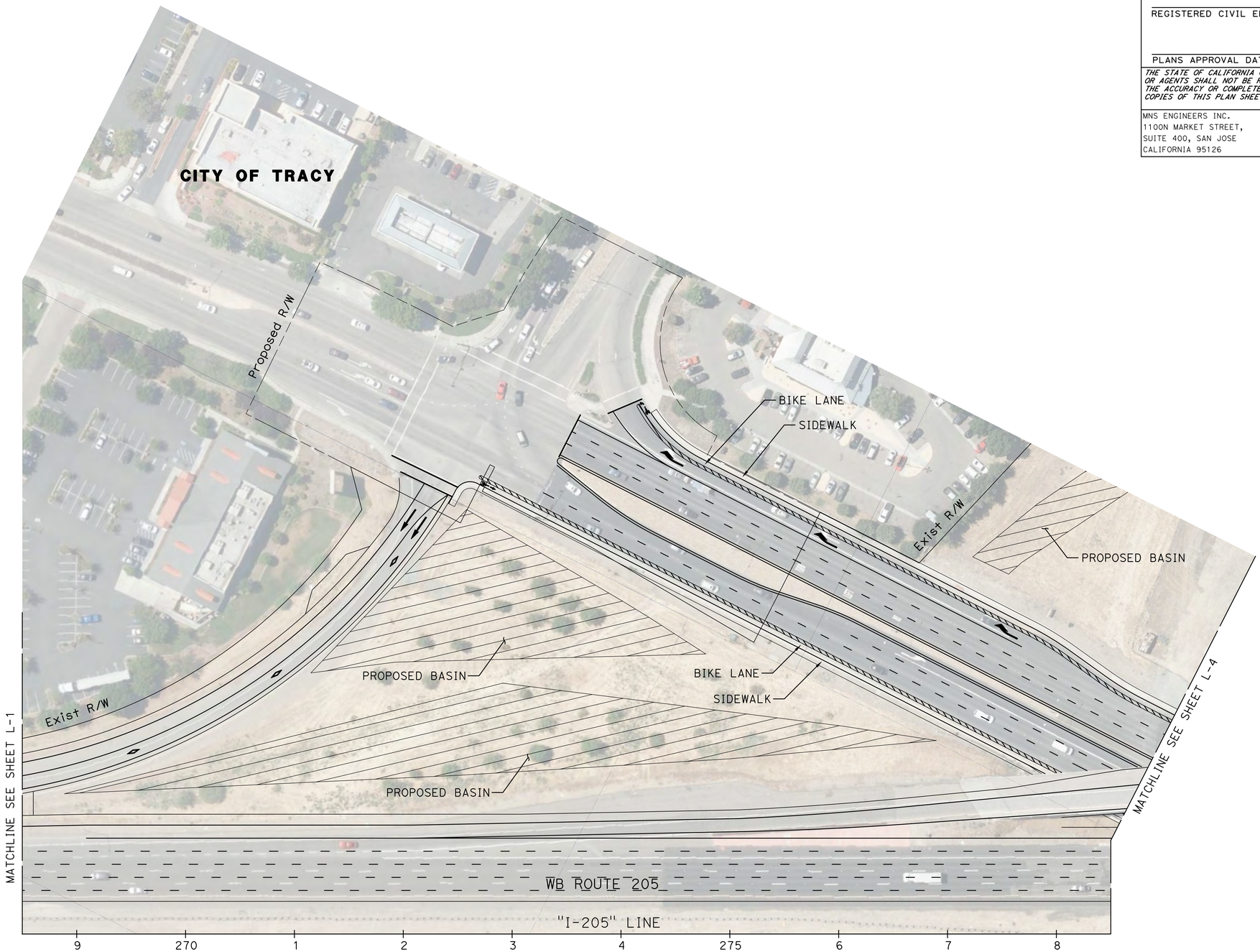
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NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJC	205	2.27/13.6		

04/04/18
REGISTERED CIVIL ENGINEER DATE

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No.
Exp. 6/30/19
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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/GRANT LINE ROAD INTERCHANGE ALTERNATIVE 1
SCALE: 1" = 50'

L-2

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJC	205	2.27/13.6		

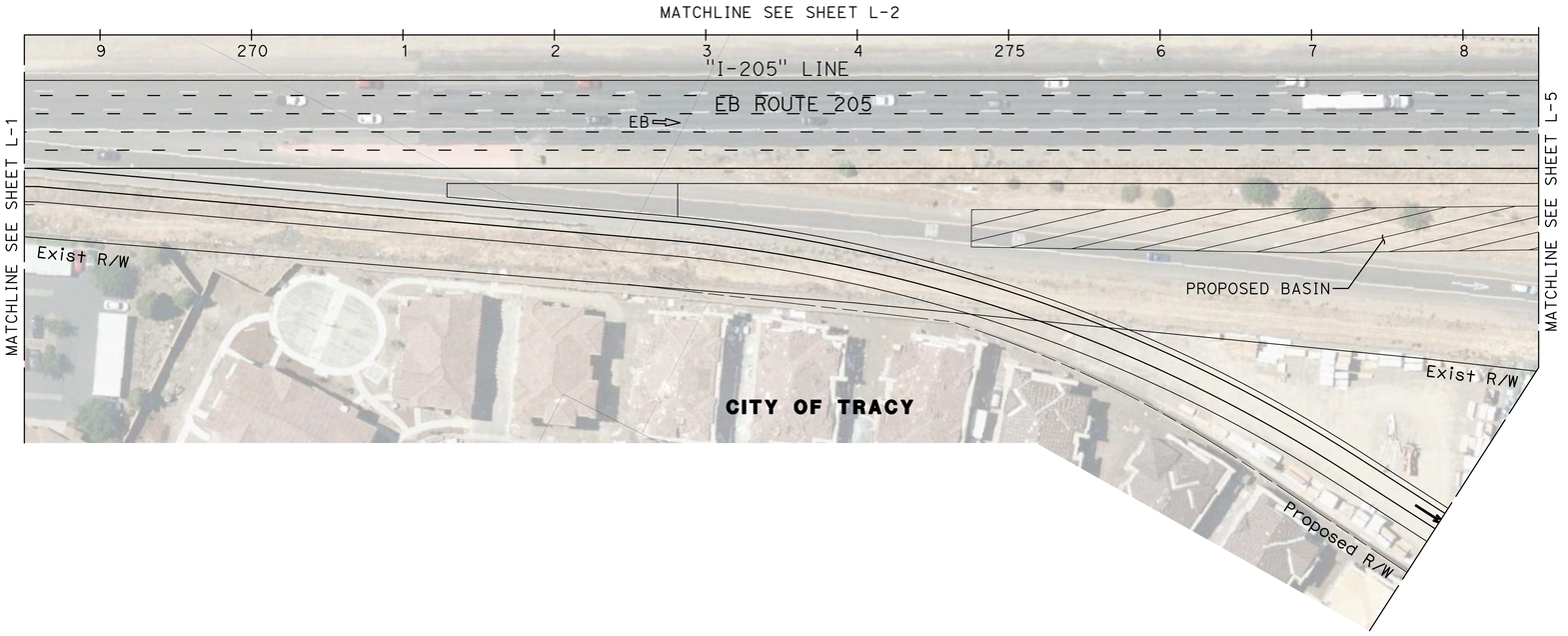
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PLANS APPROVAL DATE

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/ GRANT LINE ROAD
INTERCHANGE ALTERNATIVE 1
SCALE: 1" = 50'

L-3

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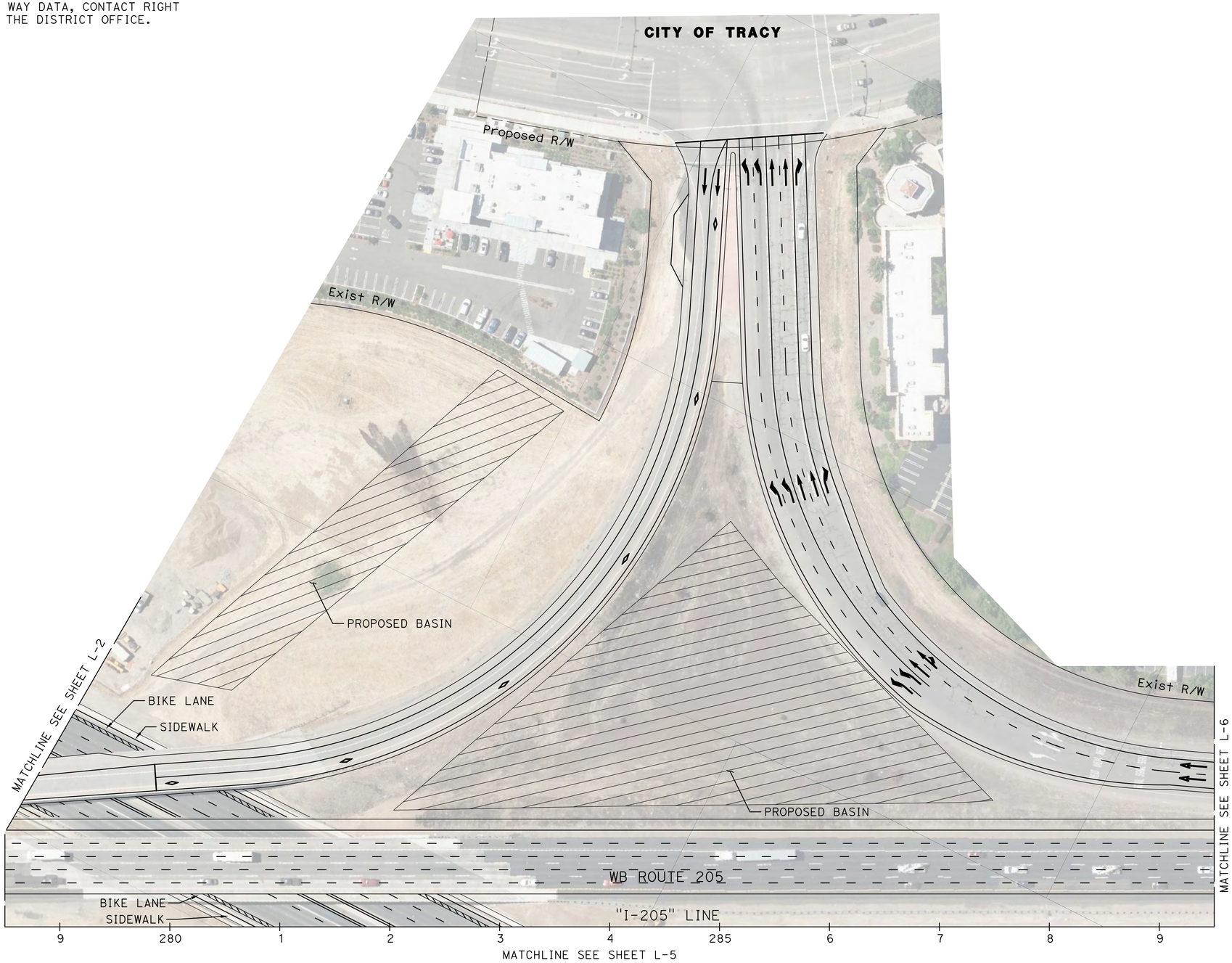
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FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJC	205	2.27/13.6		

04/04/18
REGISTERED CIVIL ENGINEER — DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp. 6/30/19
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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/GRANT LINE ROAD INTERCHANGE ALTERNATIVE 1
SCALE: 1" = 50'

L-4

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NOTE:

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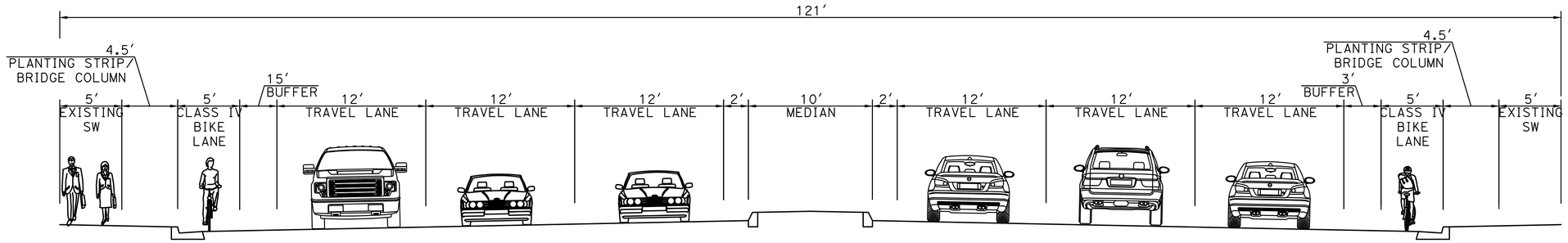
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PLANS APPROVAL DATE

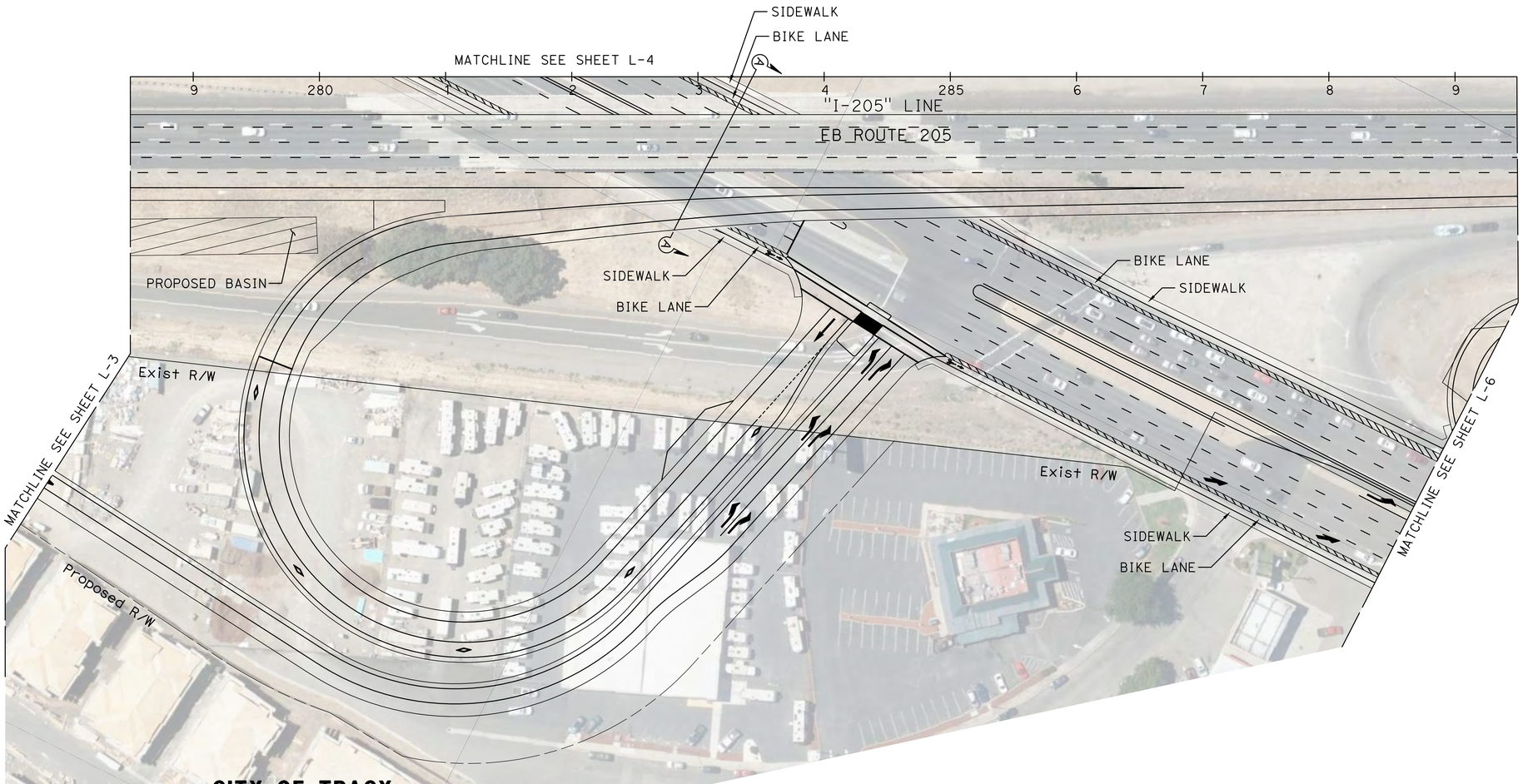
REGISTERED PROFESSIONAL ENGINEER — No. Exp. 6/30/19 CIVIL — STATE OF CALIFORNIA

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SECTION A-A
NO SCALE



LAYOUT
I-205/ GRANT LINE ROAD
INTERCHANGE ALTERNATIVE 1
SCALE: 1" = 50'

L-5

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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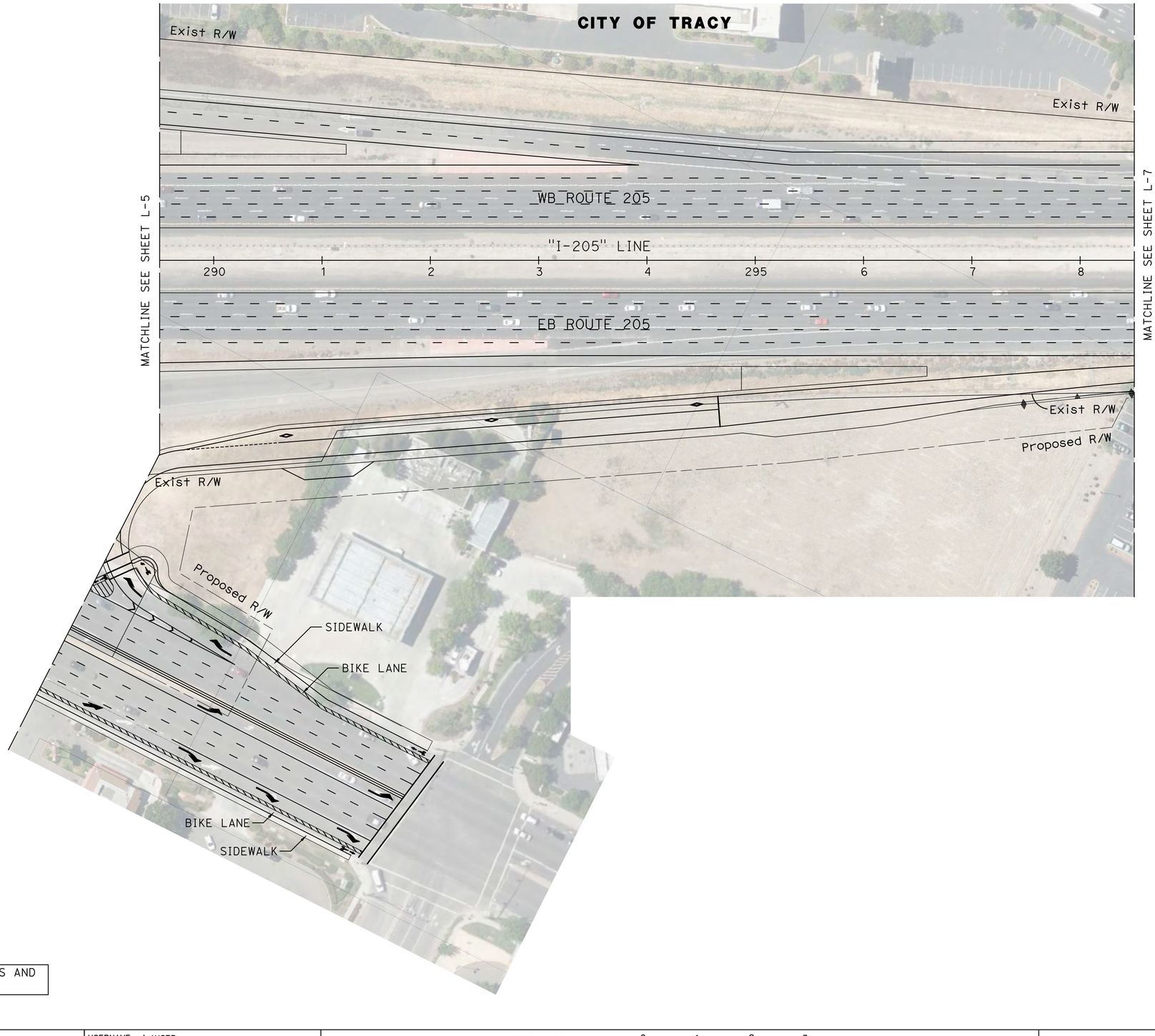
REGISTERED CIVIL ENGINEER — DATE 04/04/18

PLANS APPROVAL DATE

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/ GRANT LINE ROAD INTERCHANGE ALTERNATIVE 1

SCALE: 1" = 50'

L-6

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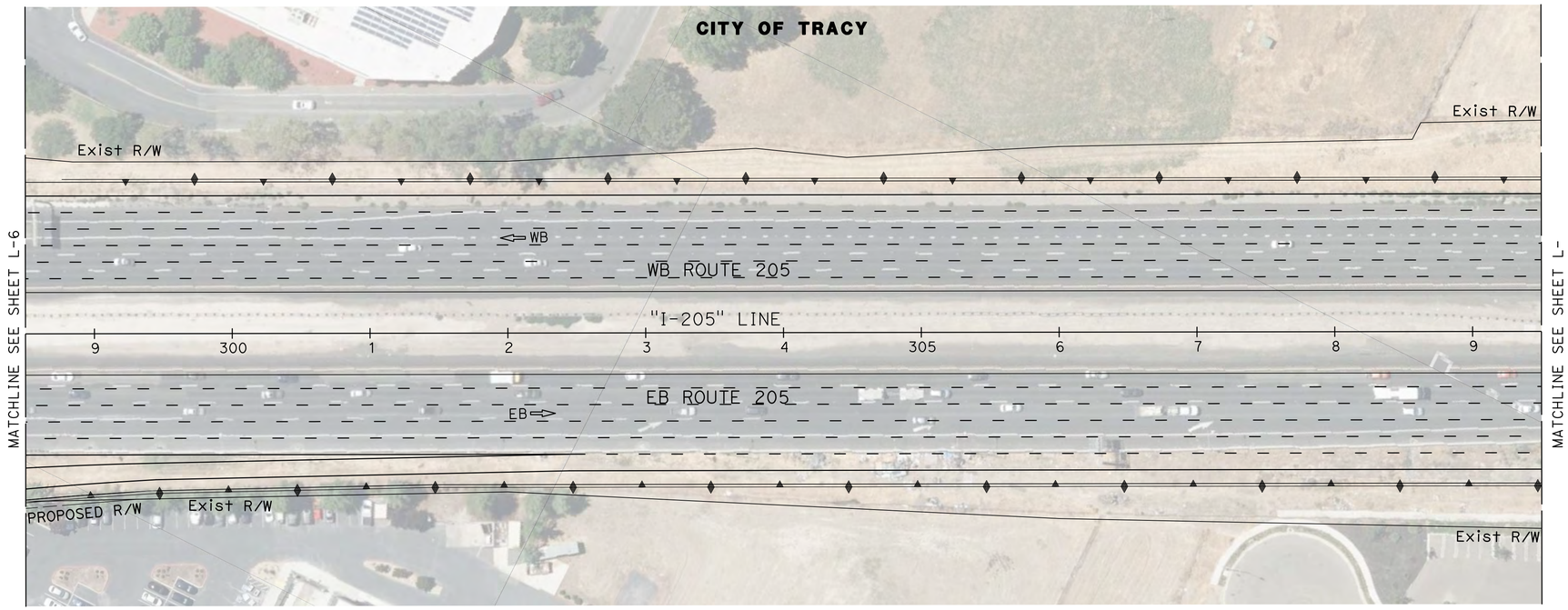
04/04/18
REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp. 6/30/19
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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/ GRANT LINE ROAD INTERCHANGE ALTERNATIVE 1
SCALE: 1" = 50'

L-7

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CONSULTANT FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

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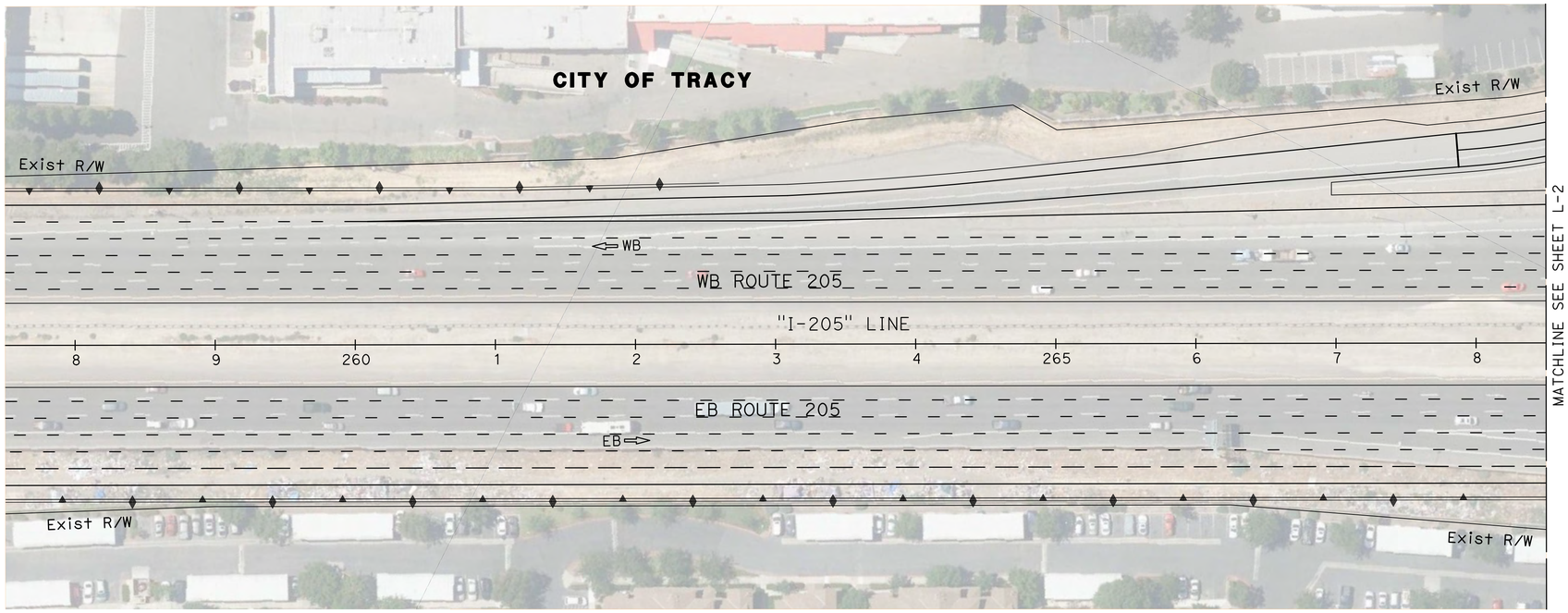
04/04/18
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/GRANT LINE ROAD INTERCHANGE ALTERNATIVE 2
SCALE: 1" = 50'

L-1

REVISED BY | DATE REVISED
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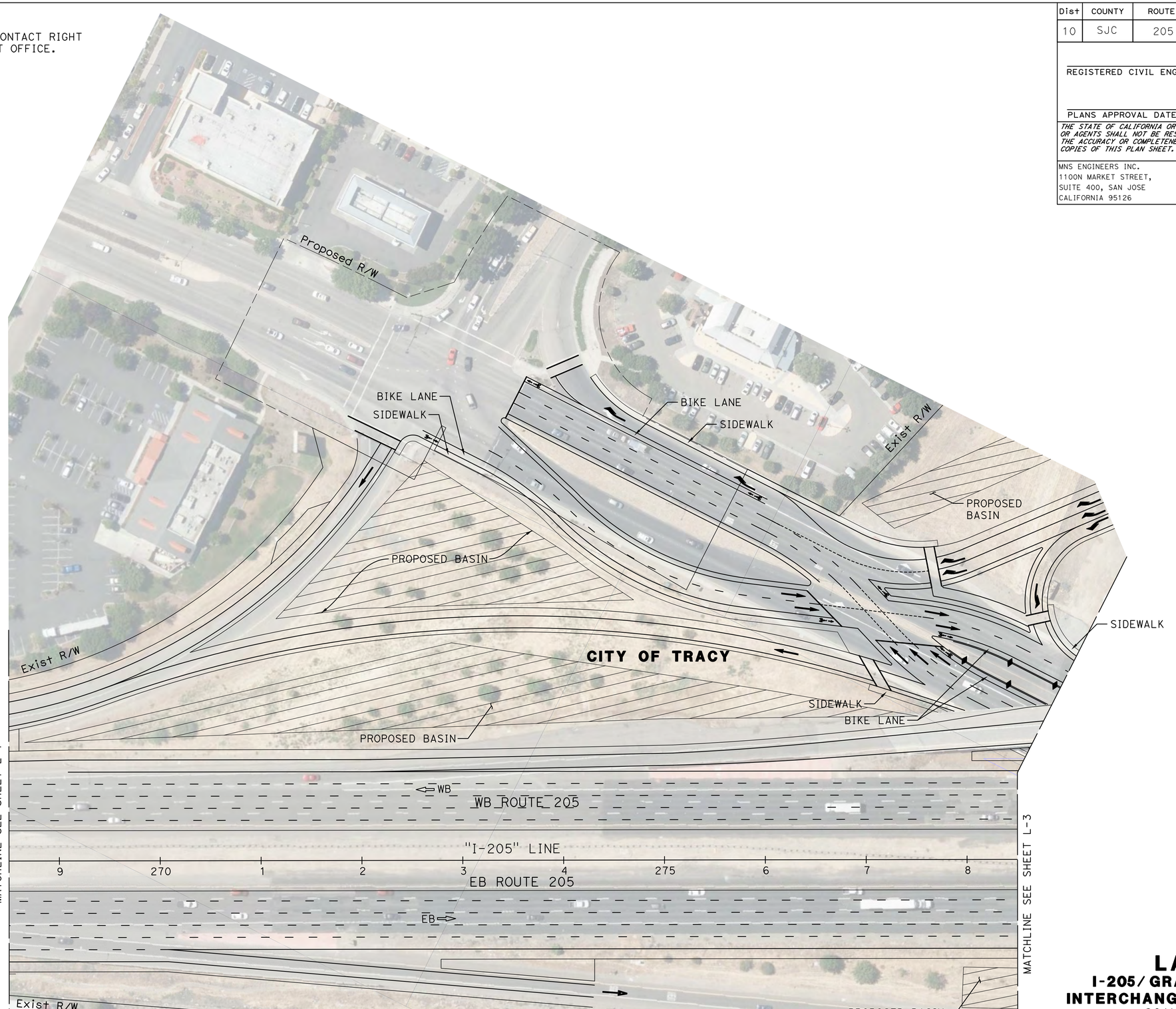
04/04/18
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp. 6/30/19
CIVIL
STATE OF CALIFORNIA

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CALIFORNIA 95126



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/ GRANT LINE ROAD INTERCHANGE ALTERNATIVE 2
SCALE: 1" = 50'

L-2

REVISED BY | DATE REVISED

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJC	205	2.27/13.6		

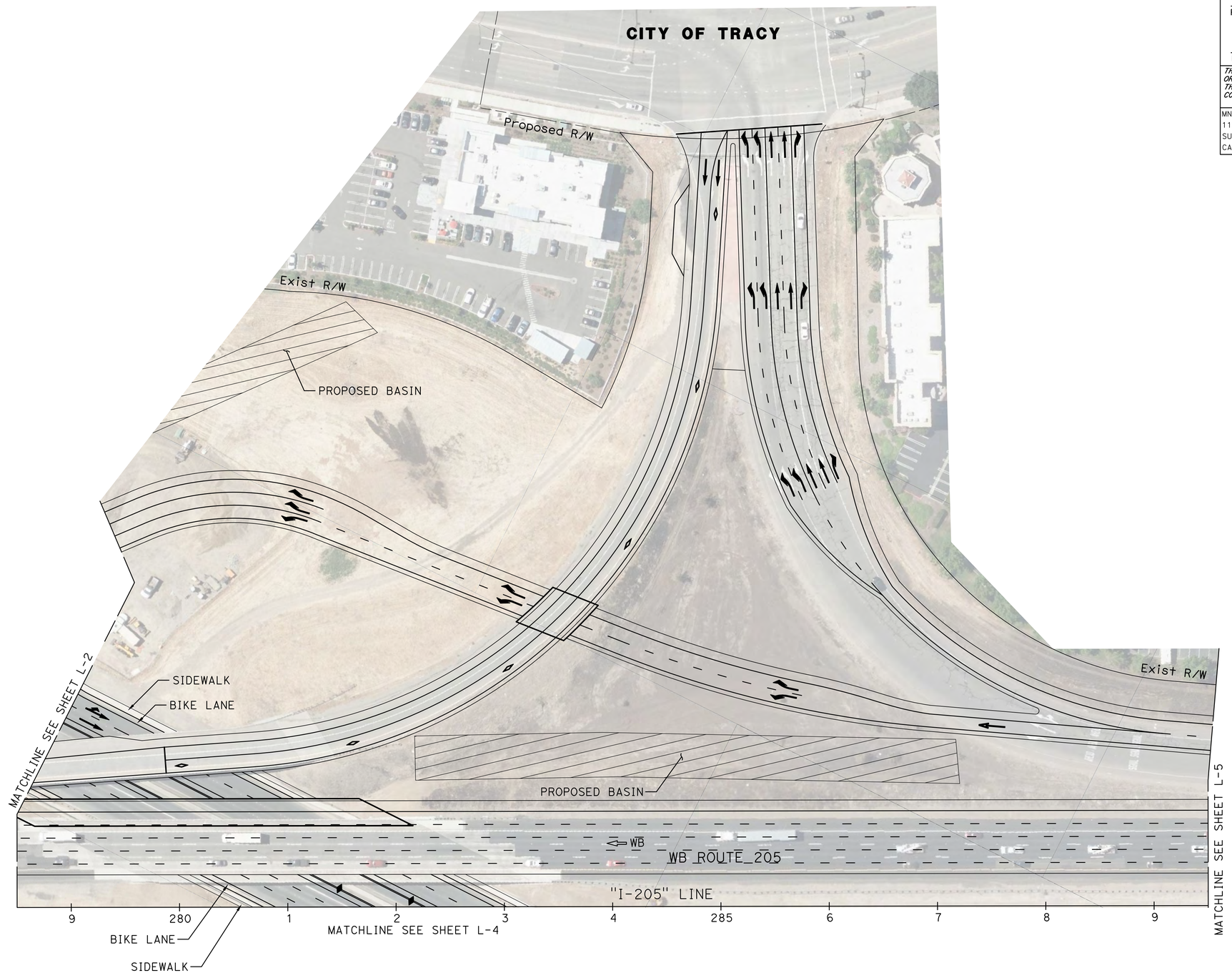
04/04/18
REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER
No.
Exp. 6/30/19
CIVIL
STATE OF CALIFORNIA

PLANS APPROVAL DATE

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/ GRANT LINE ROAD INTERCHANGE ALTERNATIVE 2
SCALE: 1" = 50'

L-3

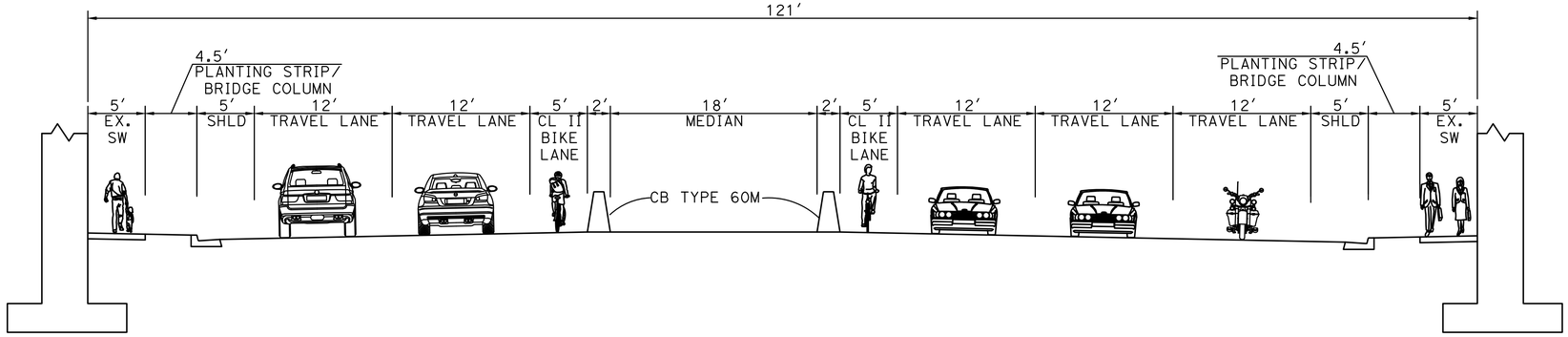
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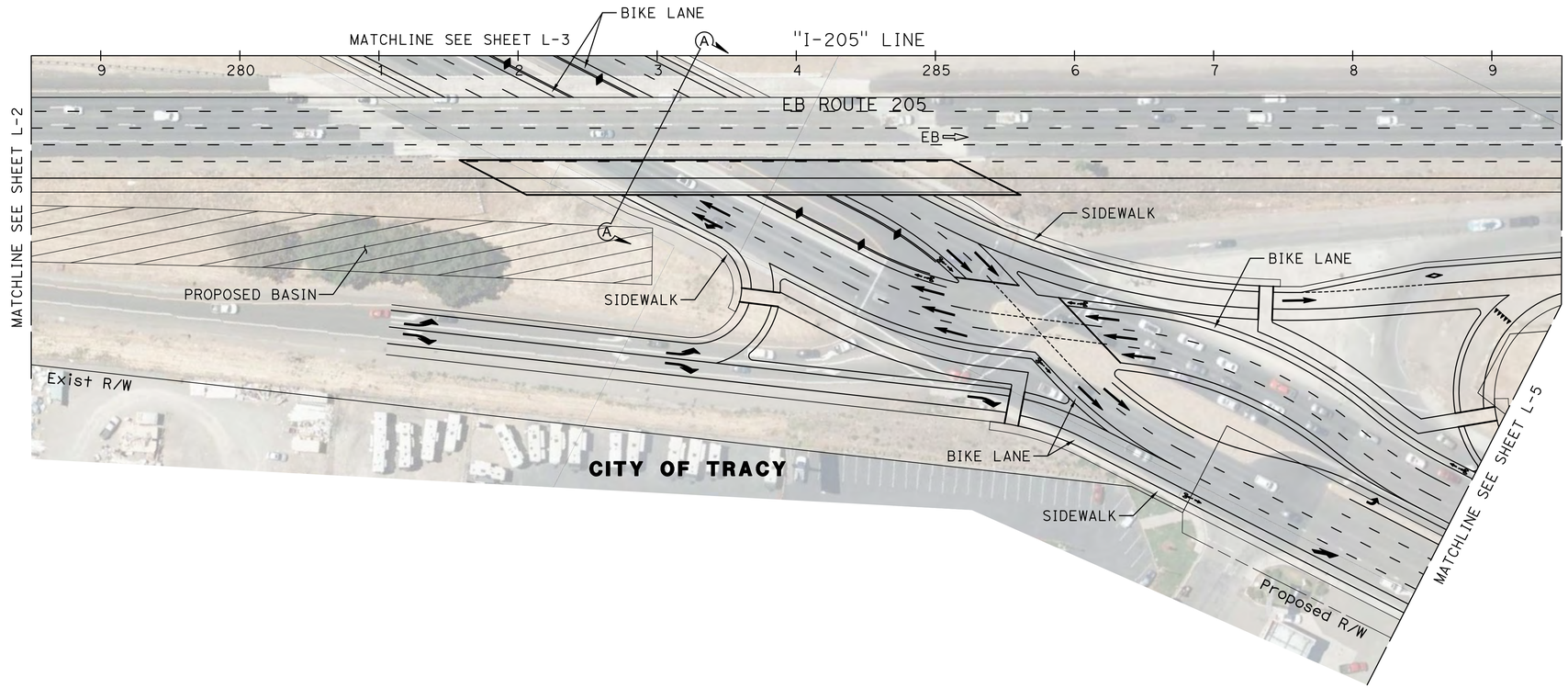
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NOTE:

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SECTION A-A
NO SCALE



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJC	205	2.27/13.6		

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LAYOUT
I-205/ GRANT LINE ROAD
INTERCHANGE ALTERNATIVE 2
SCALE: 1" = 50'

L-4

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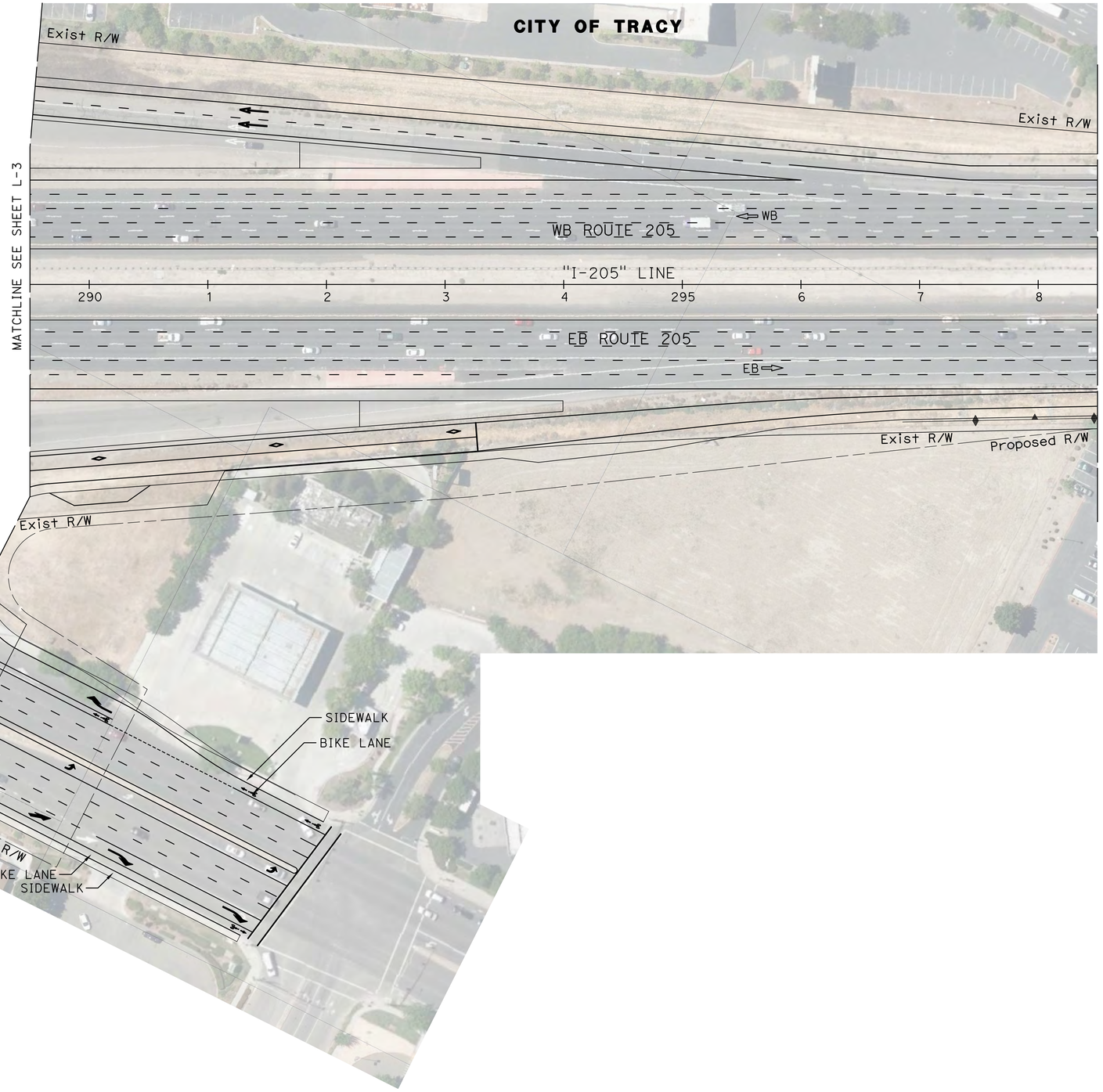
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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/ GRANT LINE ROAD INTERCHANGE ALTERNATIVE 2

SCALE: 1" = 50'

L-5

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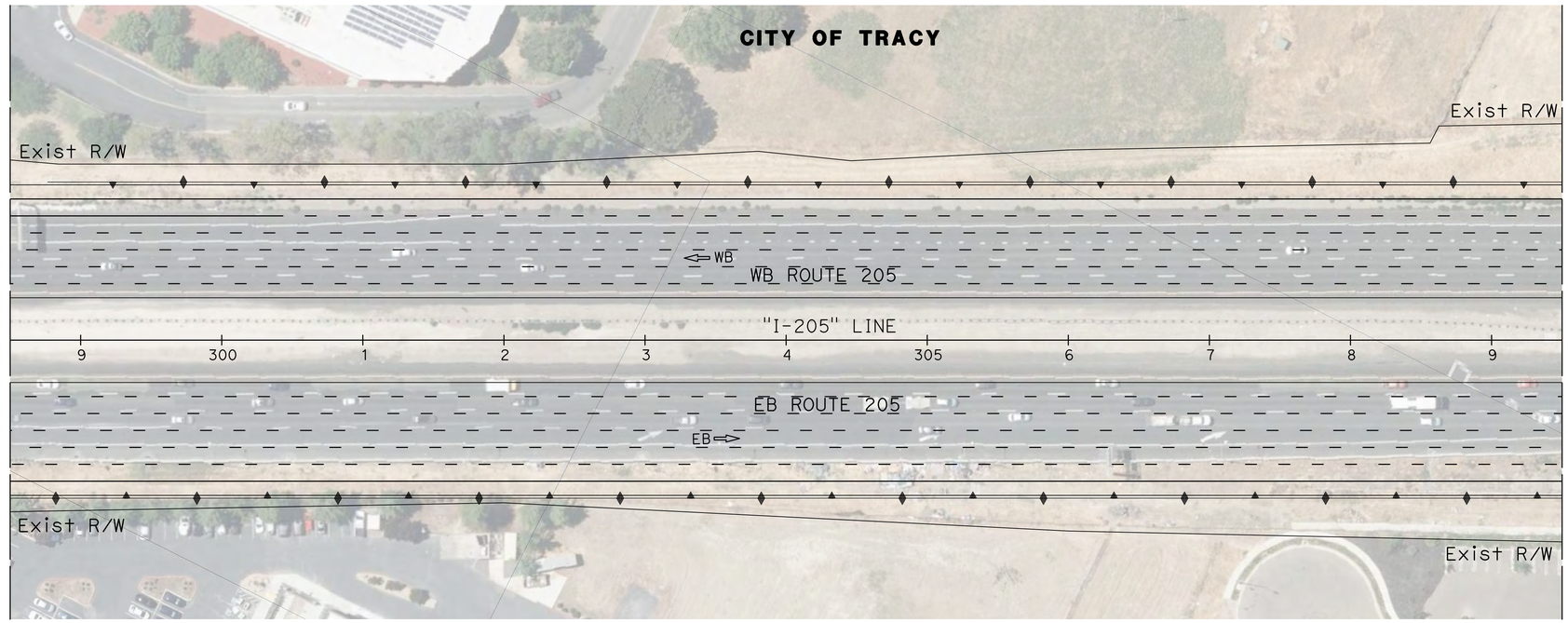
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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/ GRANT LINE ROAD INTERCHANGE ALTERNATIVE 2
SCALE: 1" = 50'

L-6

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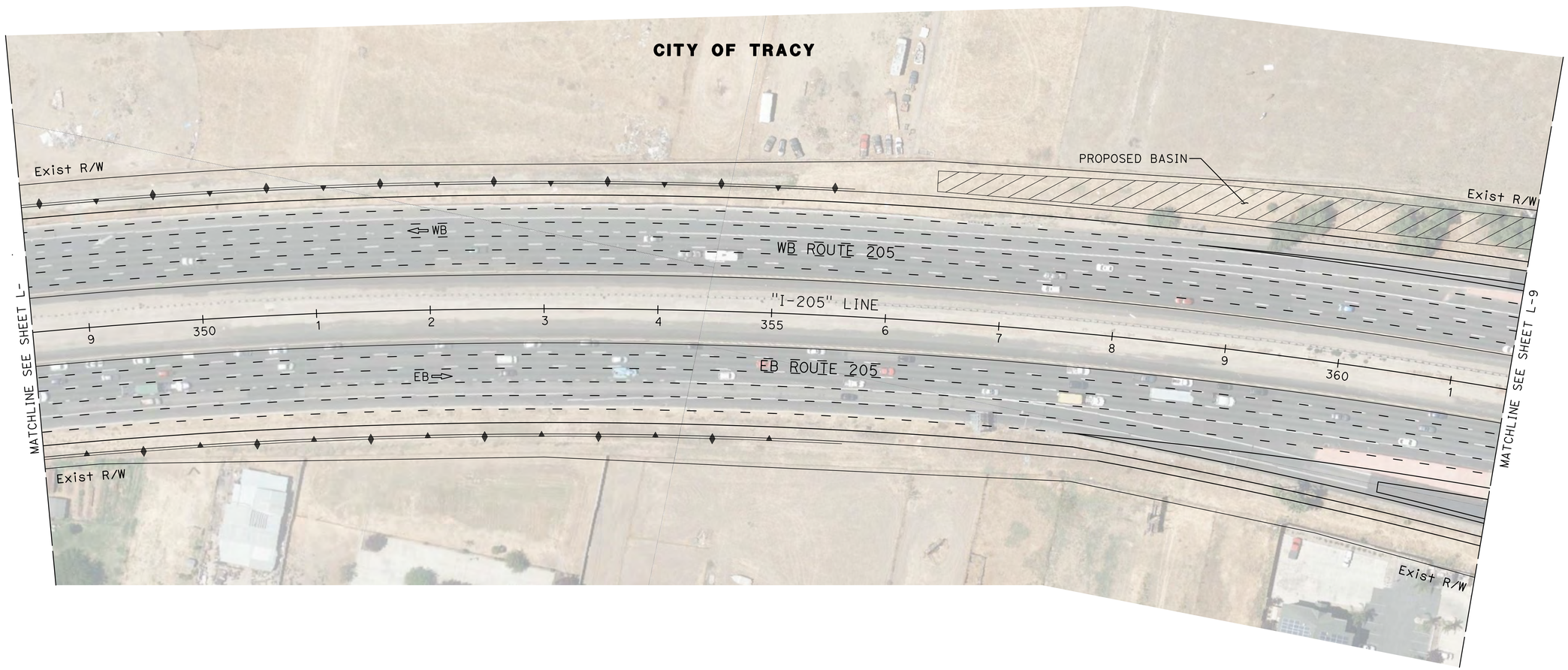
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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/TRACY BLVD
INTERCHANGE ALTERNATIVE 1
SCALE: 1" = 50'

L-8

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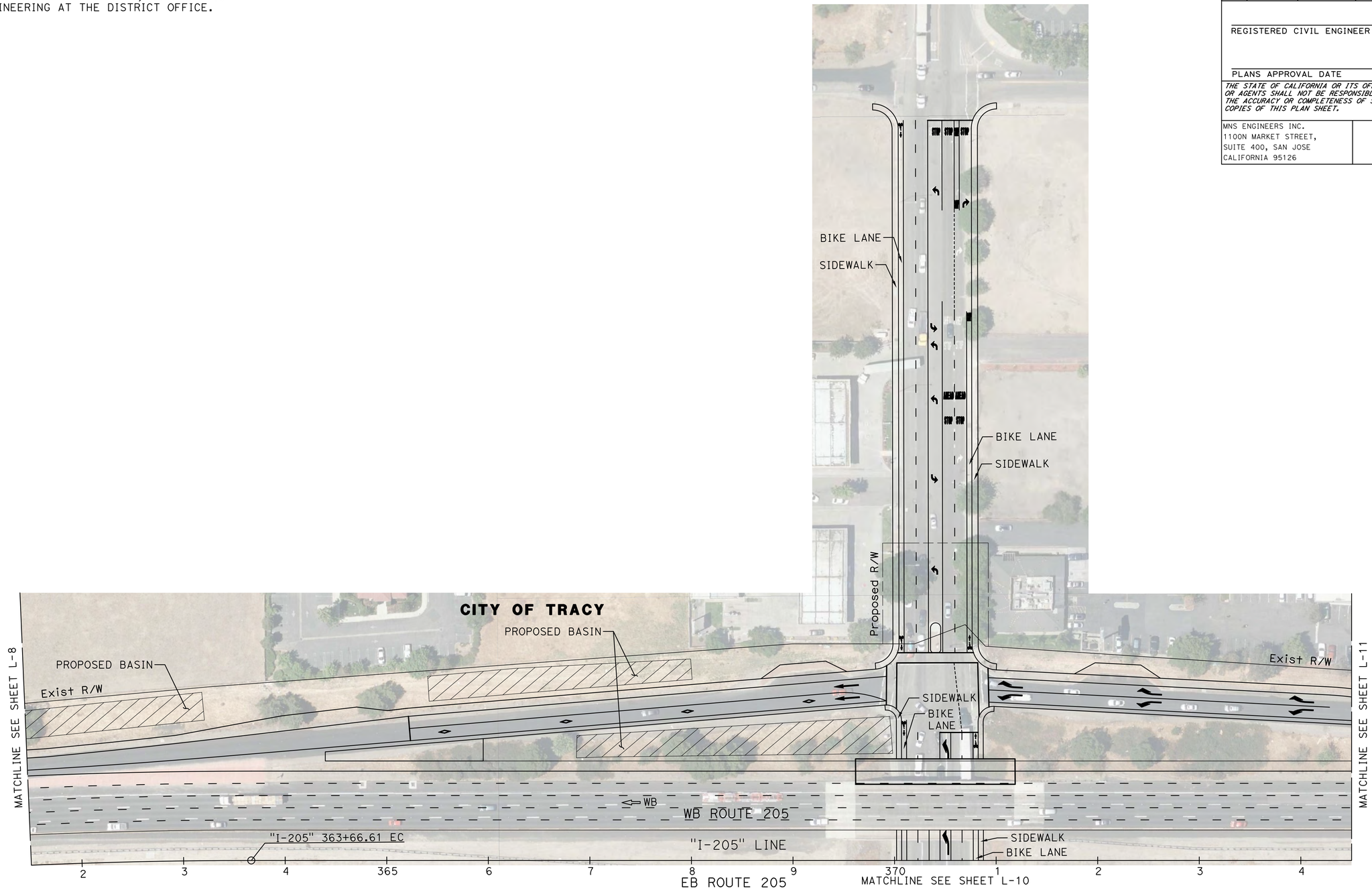
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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/ TRACY BLVD
INTERCHANGE ALTERNATIVE 1
SCALE: 1" = 50'

L-9

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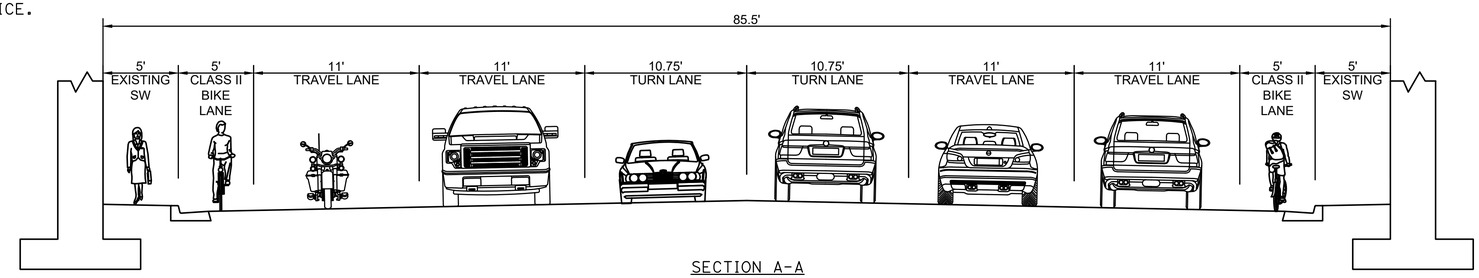
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SECTION A-A
NO SCALE

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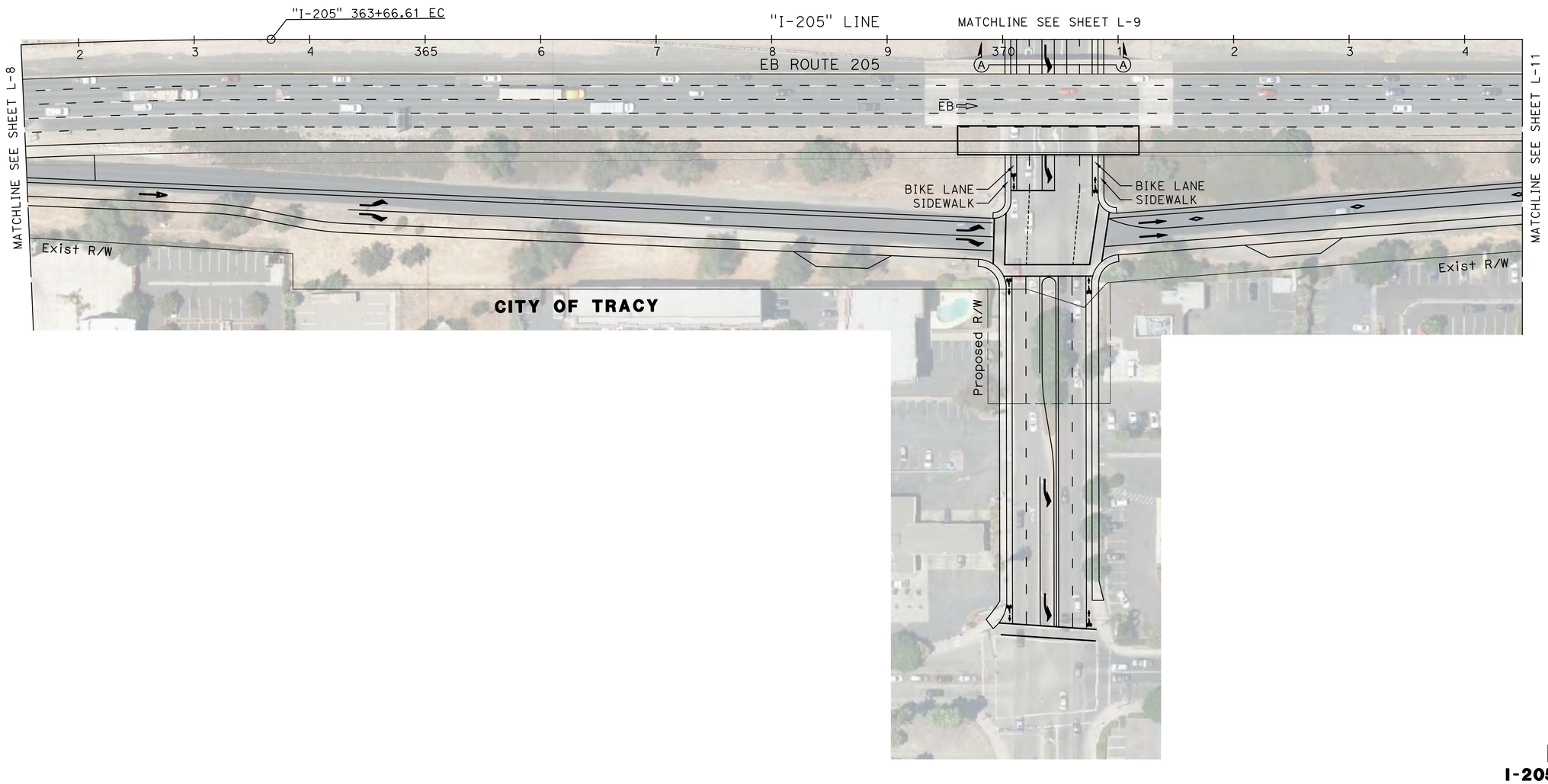
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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/TRACY BLVD
INTERCHANGE ALTERNATIVE 1
SCALE: 1" = 50'

L-10

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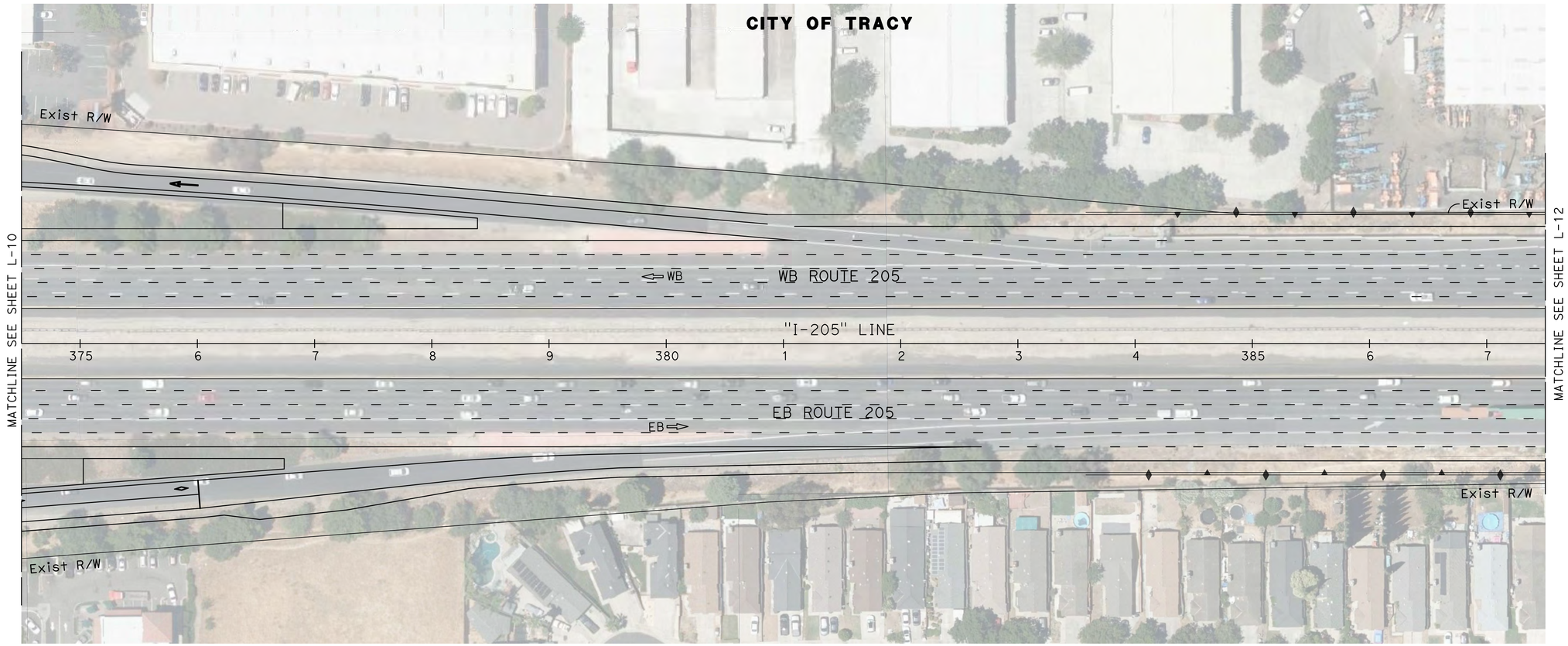
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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/TRACY BLVD
INTERCHANGE ALTERNATIVE 1
SCALE: 1" = 50'

L-11

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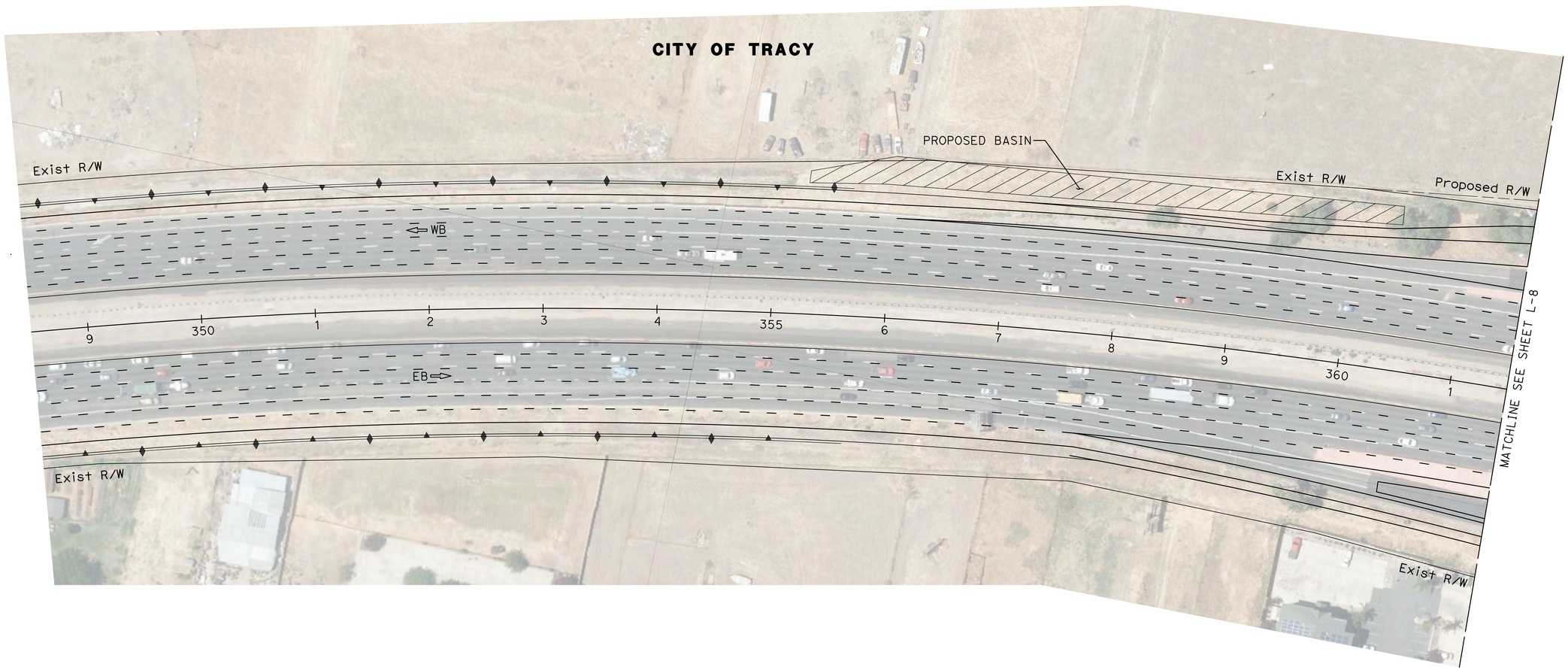
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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/TRACY BLVD
INTERCHANGE ALTERNATIVE 2
SCALE: 1" = 50'

L-7

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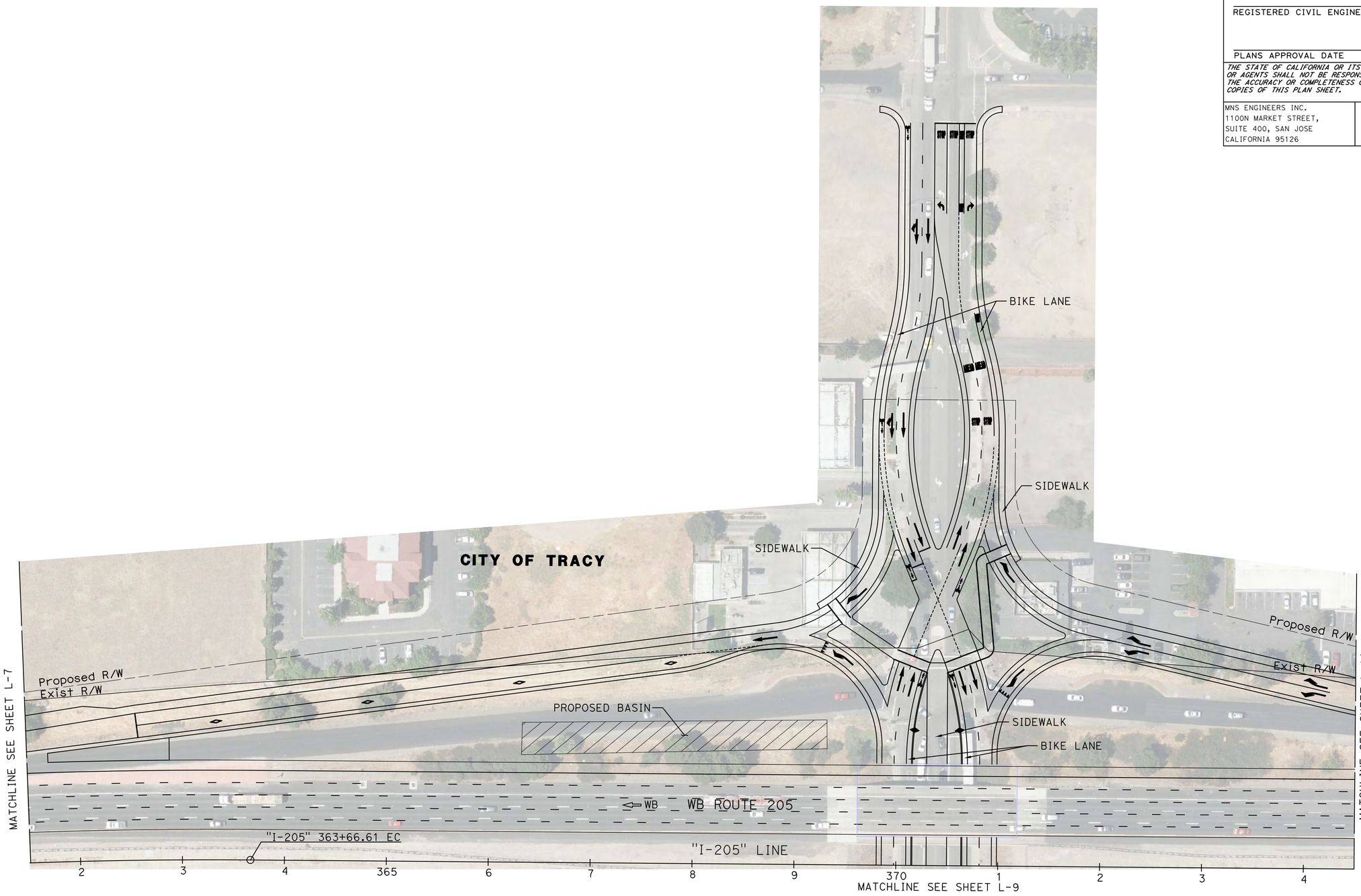
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LAYOUT
I-205/TRACY BLVD
INTERCHANGE ALTERNATIVE 2
SCALE: 1" = 50'

L-8

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

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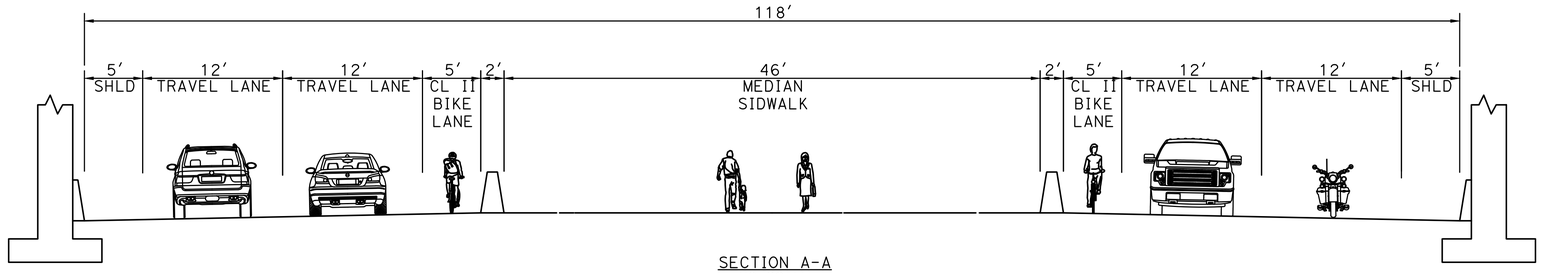
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SECTION A-A
NO SCALE

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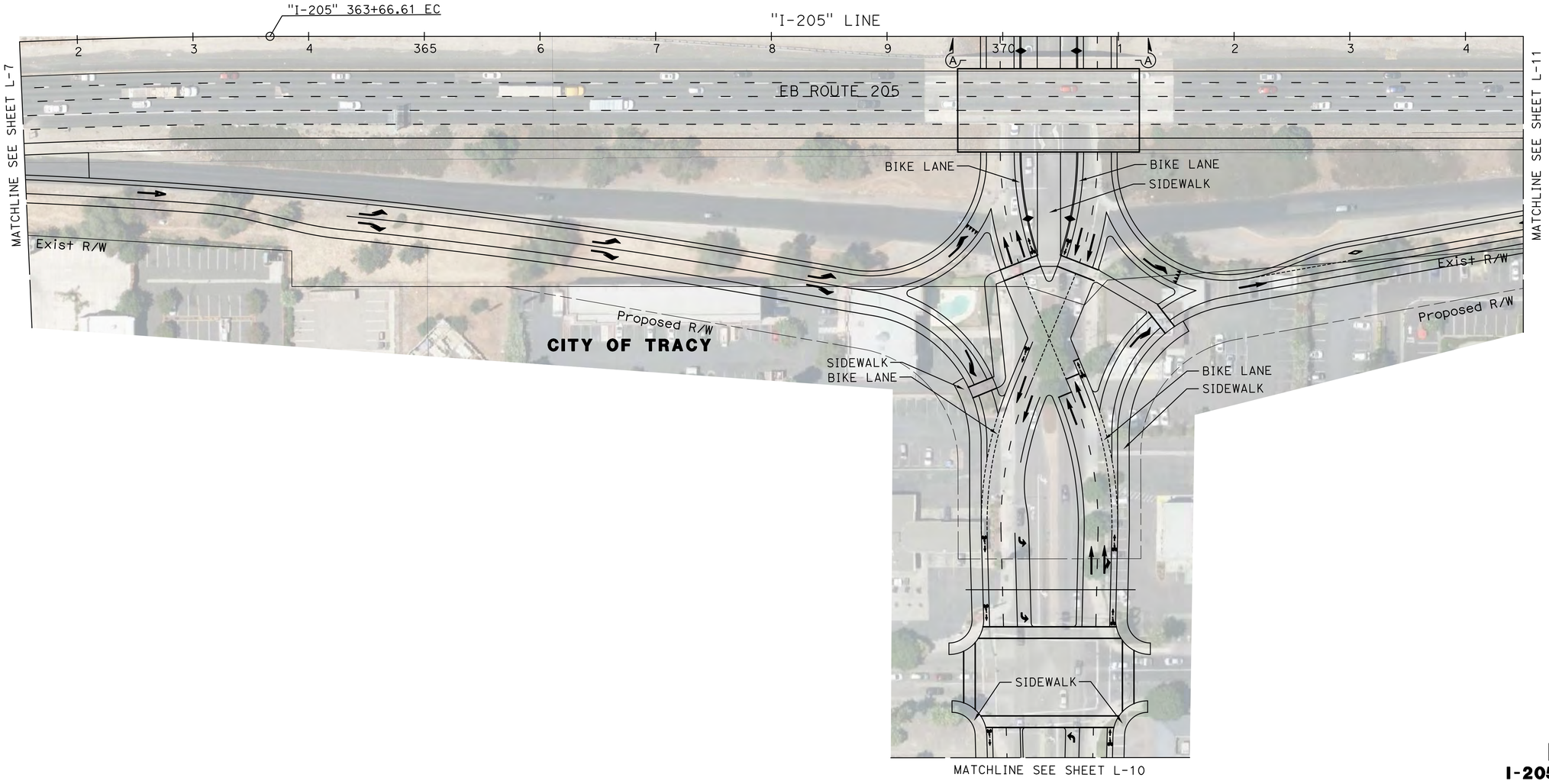
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MATCHLINE SEE SHEET L-8



MATCHLINE SEE SHEET L-10

LAYOUT
I-205/ TRACY BLVD
INTERCHANGE ALTERNATIVE 2
SCALE: 1" = 50′

L-9

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

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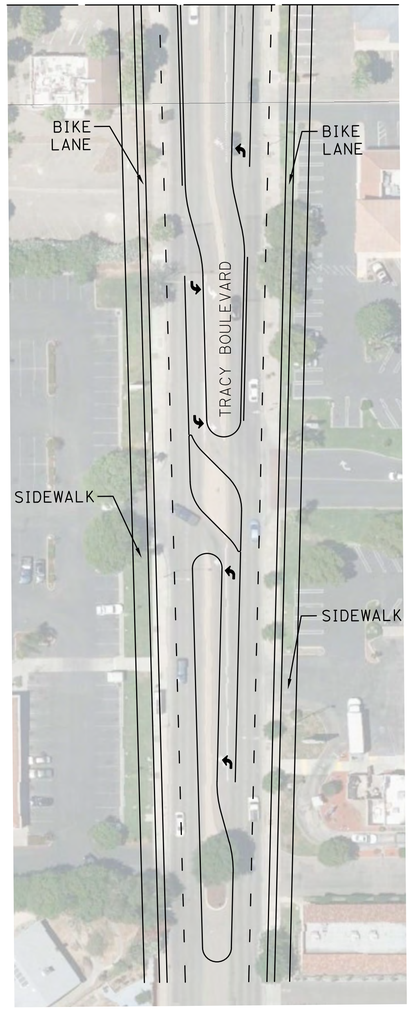
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MATCHLINE SEE SHEET L-9



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/ TRACY BLVD
INTERCHANGE ALTERNATIVE 2
SCALE: 1" = 50'

L-10

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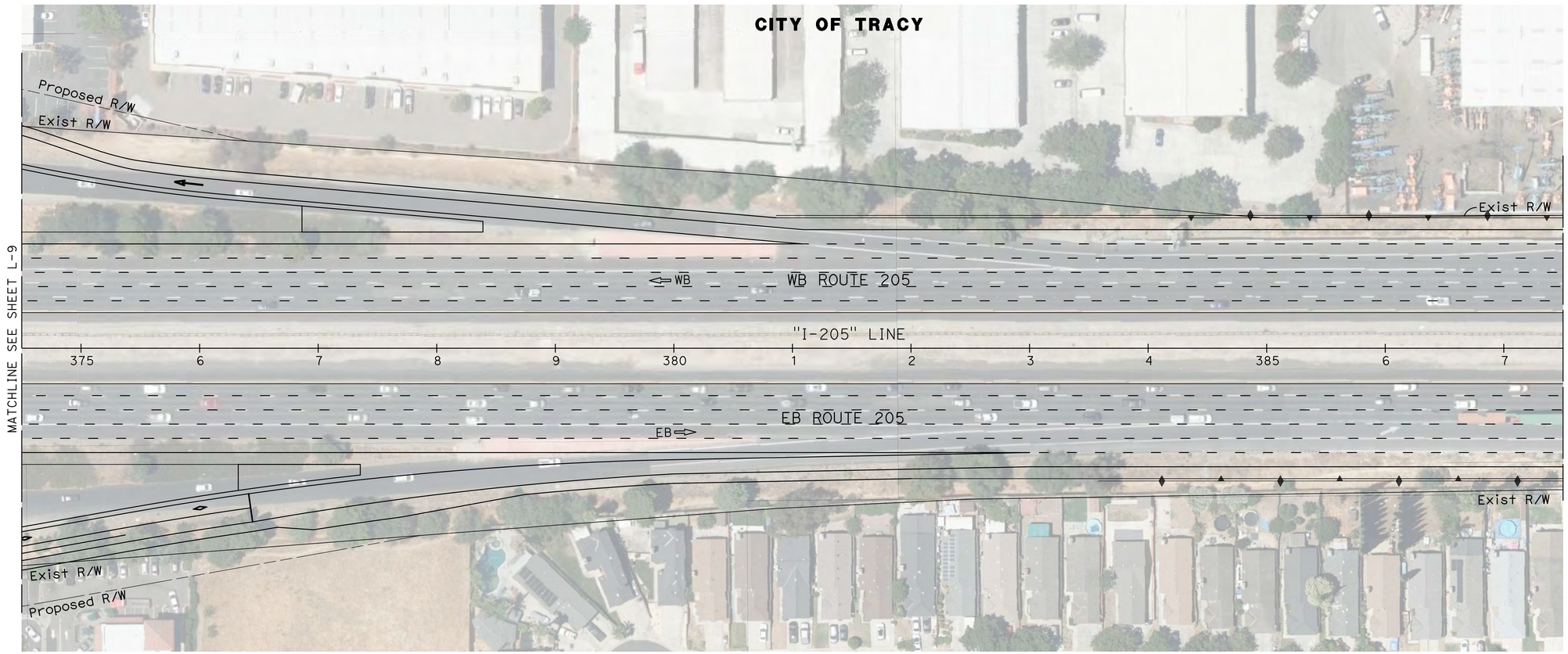
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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
I-205/TRACY BLVD
INTERCHANGE ALTERNATIVE 2
SCALE: 1" = 50'

L-11

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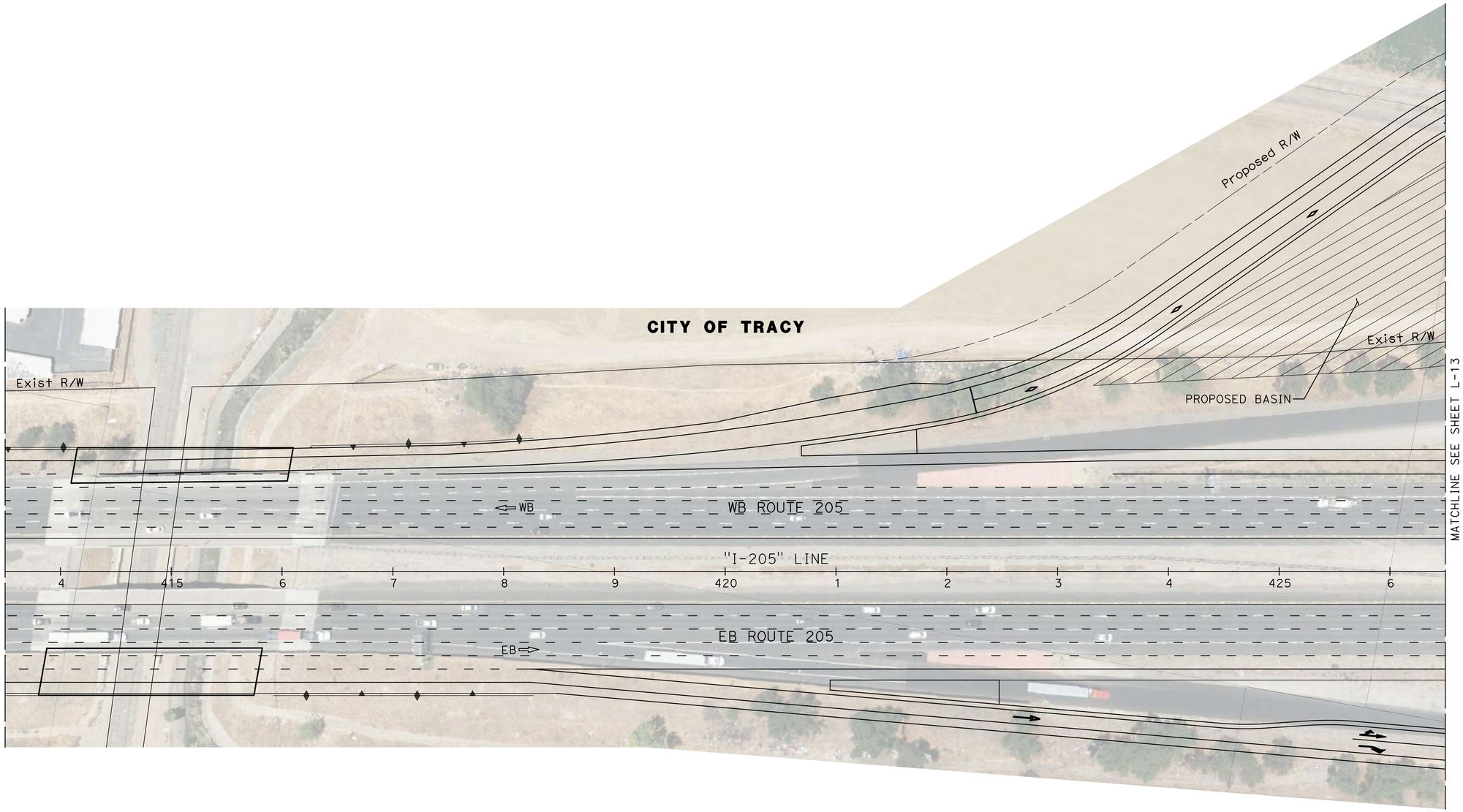
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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT

I-205/MACARTHUR AVE INTERCHANGE ALTERNATIVE 1

SCALE: 1" = 50'

L-12

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	SJC	205	2.27/13.6		

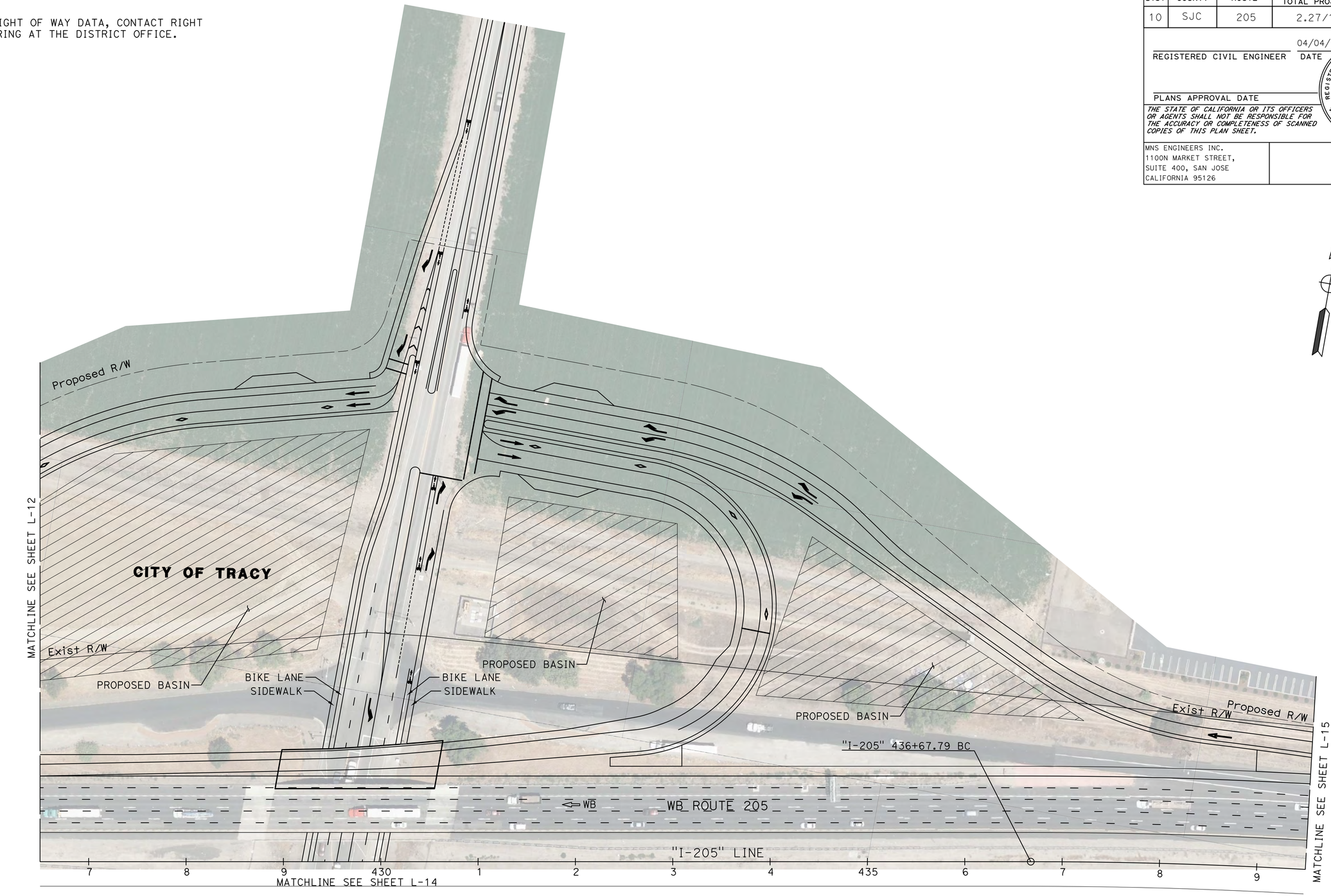
REGISTERED CIVIL ENGINEER — DATE 04/04/18

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. — Exp. 6/30/19 — CIVIL — STATE OF CALIFORNIA

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MNS ENGINEERS INC.
1100N MARKET STREET,
SUITE 400, SAN JOSE
CALIFORNIA 95126



LAYOUT
I-205/ MACARTHUR AVE INTERCHANGE ALTERNATIVE 1
SCALE: 1" = 50'

L-13

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

REVISED BY | DATE REVISED

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SUPERVISOR

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

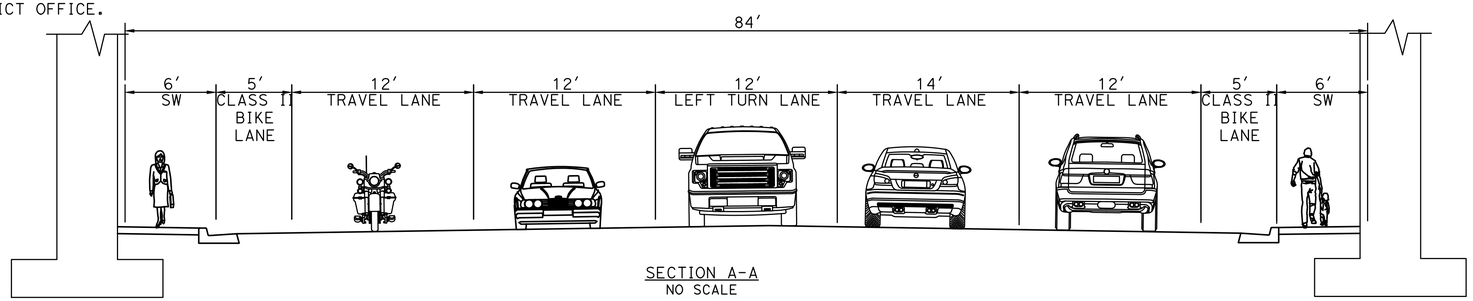
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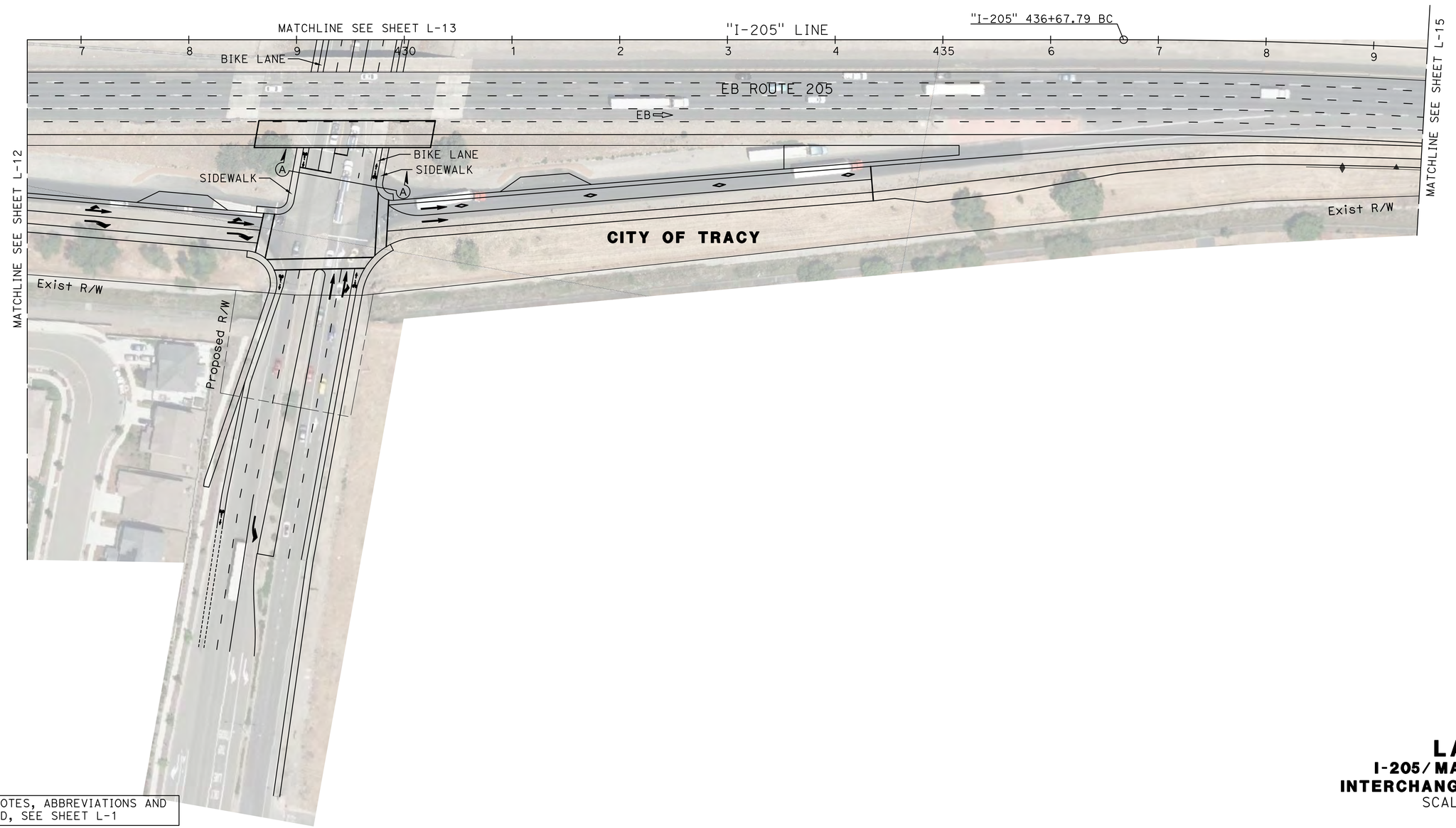
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SECTION A-A
NO SCALE



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INTERCHANGE ALTERNATIVE 1
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L-14

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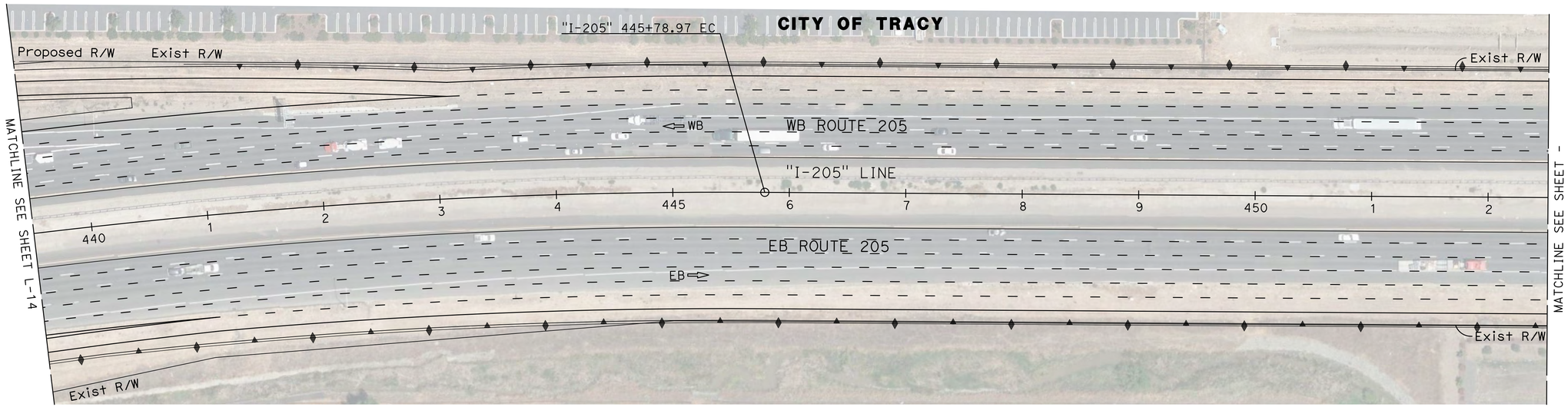
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L-15

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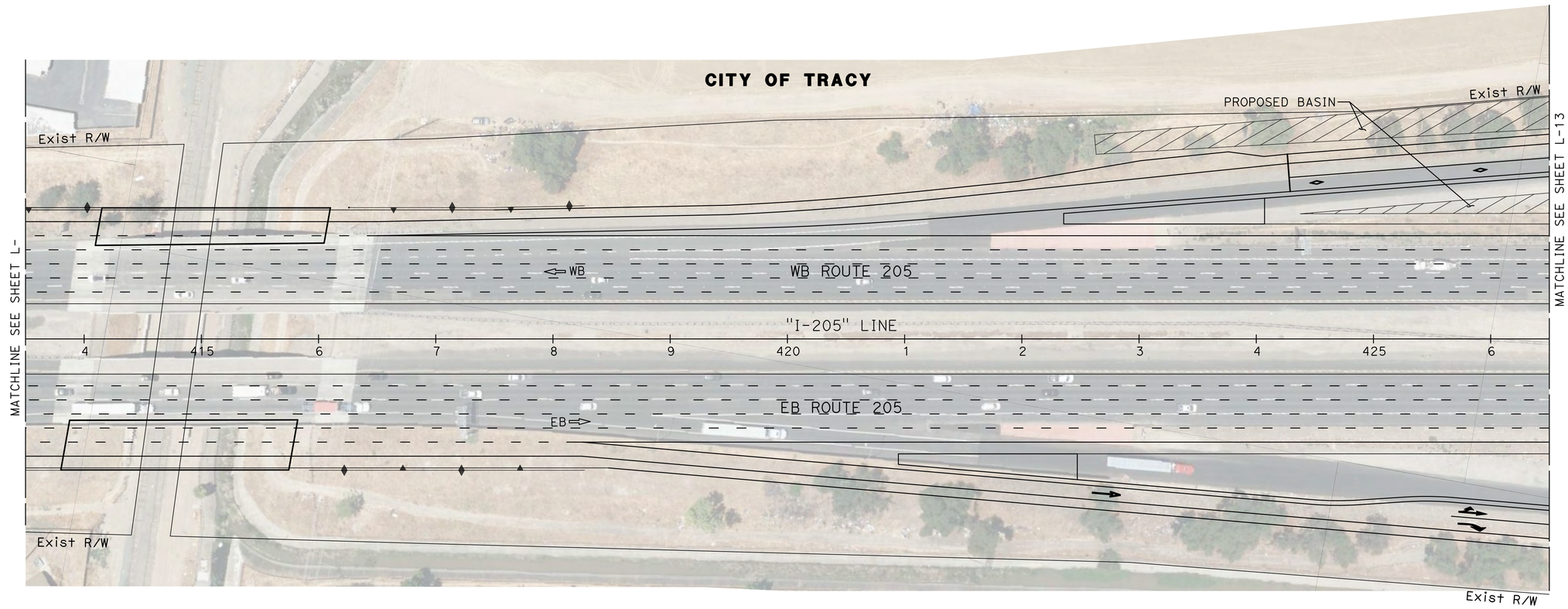
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LAYOUT
I-205/MACARTHUR AVE
INTERCHANGE ALTERNATIVE 2
SCALE: 1" = 50'

L-12

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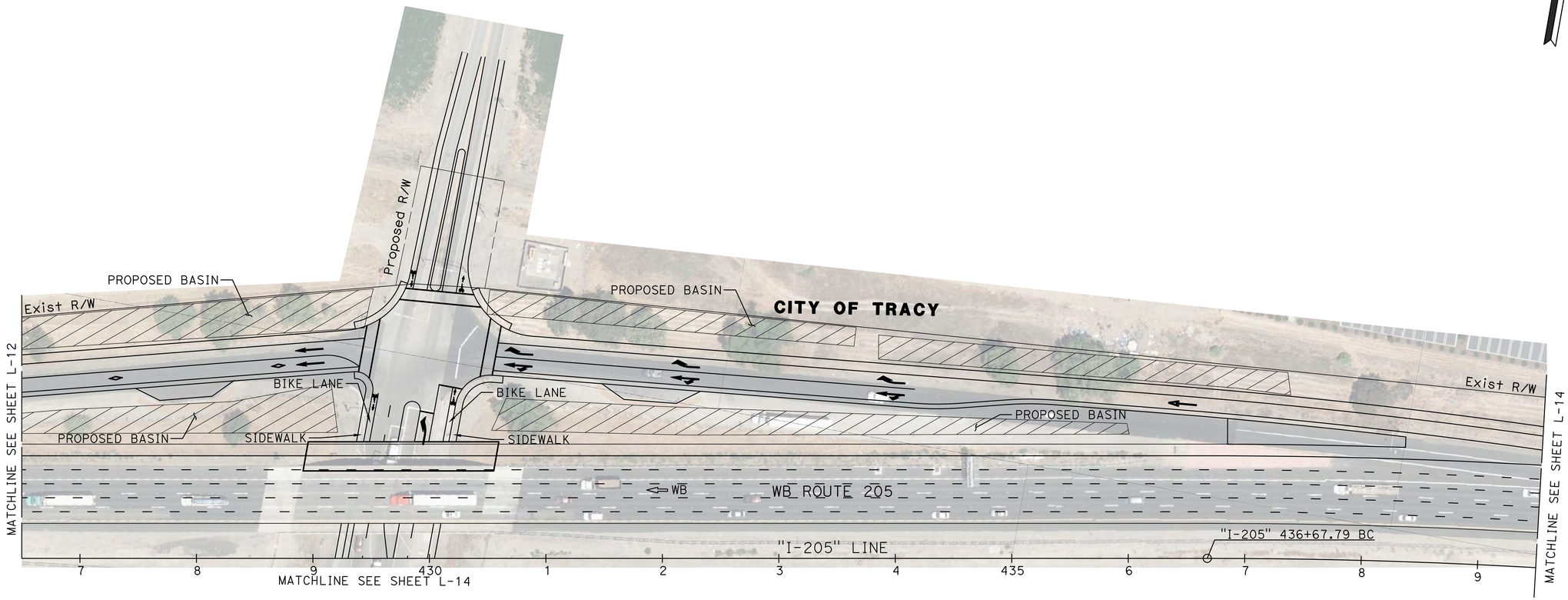
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L-13

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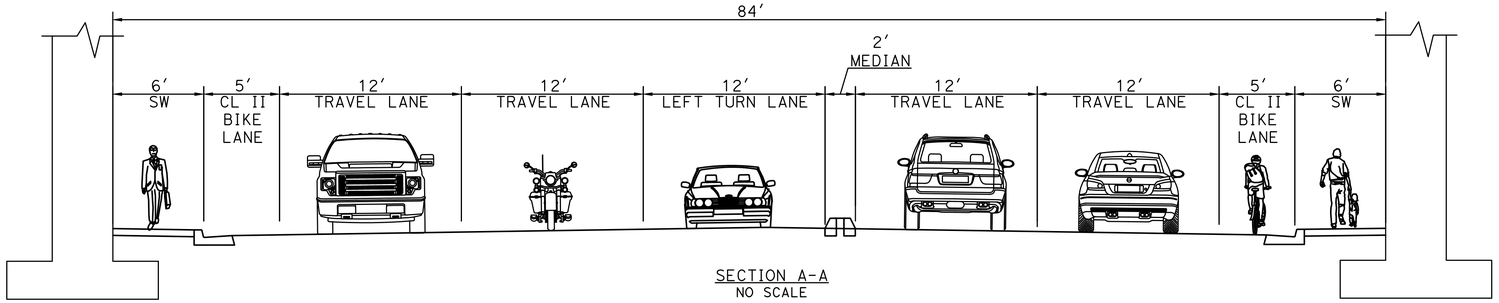
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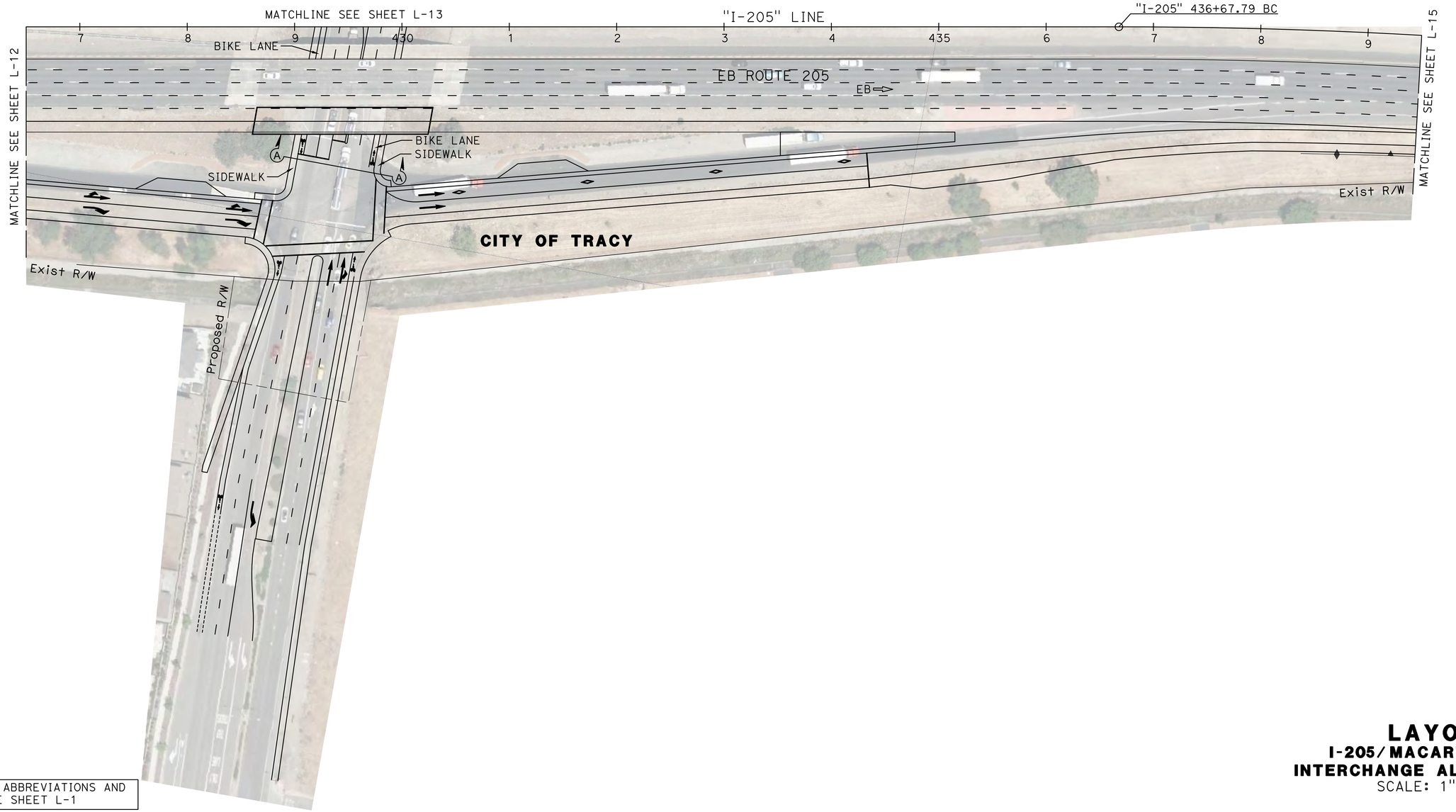
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NO SCALE



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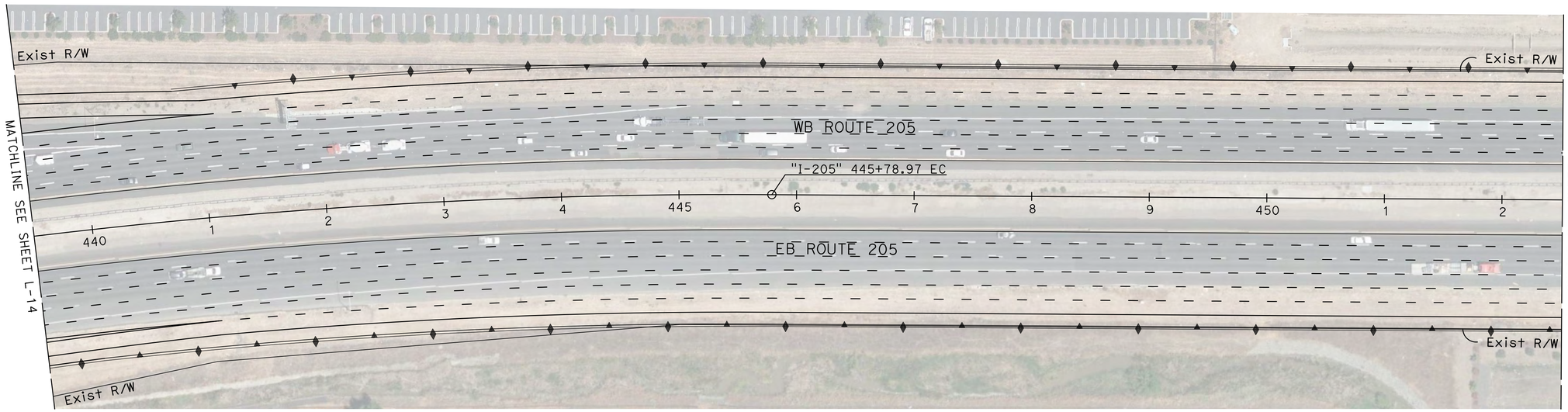
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Attachment C
Preliminary Project Cost Estimate

PROJECT

PRELIMINARY COST ESTIMATE

EA: 10-1H170 ***EA: 10-1H170 PID:***

PID:

District-County-Route: 4-ALA-580, 10-SJ-205, 10-SJ-5

PM: R1.7-0.8, L0.0-R13.2, R12.9-R13.5

Type of Estimate : Preliminary Cost Estimate

Program Code :

Project Limits : The I-580/West Grant Line Road interchange to the I-205/I-5 interchange.

Project Description: Widen I-205 to the outside to accommodate managed lanes and leave a 60-foot wide median space open for future transit improvements.

Scope : Freeway Widening, Structure Widening/Replacement, Retaining and Sound Walls, Integrated Corridor Management System, Transit Improvements, and modification of three interchanges at I-205 and Grant Line Rd, Tracy Blvd, and MacArthur Dr.

Alternative : Build

SUMMARY OF PROJECT COST ESTIMATE

	Current Year Cost	Escalated Cost
TOTAL ROADWAY COST	$ 472,121,100	$ 713,407,397
TOTAL STRUCTURES COST	$ 131,743,390	$ 199,073,307
SUBTOTAL CONSTRUCTION COST	$ 603,864,490	$ 912,480,704
TOTAL RIGHT OF WAY COST	$ 30,986,900	$ 39,662,898
TOTAL CAPITAL OUTLAY COSTS	**$ 634,852,000**	**$ 952,144,000**
PA/ED SUPPORT	$ 12,360,000	$ 12,360,000
PS&E SUPPORT	$ 50,000,000	$ 59,403,995
RIGHT OF WAY SUPPORT	$ 2,840,750	$ 3,492,007
CONSTRUCTION SUPPORT	$ 66,000,000	$ 107,156,400
TOTAL SUPPORT COST	**$ 131,201,000**	**$ 182,413,000**
TOTAL PROJECT COST	**$ 767,000,000**	**$ 1,135,000,000** *

Programmed Amount

	Month	Year
Date of Estimate (Month/Year)	6	2021
Estimated Construction Start (Month/Year)	9	2032
Number of Working Days =	1100	
Estimated Mid-Point of Construction (Month/Year)	12	2034
Estimated Construction End (Month/Year)	3	2037
Number of Plant Establishment Days =	750	

Estimated Project Schedule

PID Approval	11/4/2021
PA/ED Approval	1/31/2025
PS&E	4/1/2025
RTL	6/1/2032
Begin Construction	9/1/2032

Reviewed by District O.E. or Cost Estimate Certifier

Marie Santos	11/4/2021	(619) 744-0145
Office Engineer / Cost Estimate Certifier	**Date**	**Phone**

Approved by Project Manager

	xx/xx/xxxx	(xxx) xxx-xxxx
Project Manager	**Date**	**Phone**

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	30,790,000
2	**Pavement Structural Section**	$	73,607,200
3	**Drainage**	$	18,000,000
4	**Specialty Items**	$	43,981,600
5	**Environmental**	$	27,141,300
6	**Traffic Items**	$	93,014,200
7	**Detours**	$	650,000
8	**Minor Items**	$	20,103,000
9	**Roadway Mobilization**	$	30,728,800
10	**Supplemental Work**	$	15,579,400
11	**State Furnished**	$	2,150,000
12	**Time-Related Overhead**	$	21,951,600
13	**Total Roadway Contingency**	$	94,424,000
	TOTAL ROADWAY ITEMS	**$**	**472,121,100**

Estimate Prepared By :	Marie Santos	6/11/21	619-744-0145
	Name and Title	Date	Phone
Estimate Reviewed By :	Dipan Shah	6/8/21	925-398-4863
	Name and Title	Date	Phone

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

EA: 10-1H170 PID:

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost	
190101	Roadway Excavation	CY	1,500,000	x	20.00	=	$	30,000,000	
170103	Clearing & Grubbing	LS	1	x	740,000.00	=	$	740,000	
100100	Develop Water Supply	LS	1	x	50,000.00	=	$	50,000	
					TOTAL EARTHWORK SECTION ITEMS				**$ 30,790,000**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost	
400050	Continuously Reinforced Concrete Pavement	CY	192,111	x	260.00	=	$	49,948,860	
390132	Hot Mix Asphalt (Type A)	TON	141,858	x	90.00	=	$	12,767,220	
260203	Class 2 Aggregate Base	CY	156,866	x	50.00	=	$	7,843,300	
260303	Class 3 Aggregate Base	CY	5,560	x	55.00	=	$	305,800	
XXXXXX	Lime Stabilized Subbase	CY	23,070	x	50.00	=	$	1,153,500	
731530	Minor Concrete (Textured Paving)	CY	1,590	x	650.00	=	$	1,033,500	
731502	Minor Concrete (Miscellaneous Construction)	CY	1,070	x	500.00	=	$	535,000	
394060	Data Core	LS	1	x	20,000	=	$	20,000	
					TOTAL PAVEMENT STRUCTURAL SECTION ITEMS				**$ 73,607,200**

Effective immediately, districts must input estimated item quantities in blue text above in the PRSM database for the pay items listed in the Design Memo, dated April 9, 2018, when Project Report is approved (Milestone 200). Link to Desgin Memo.

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost	
XXXXXX	Drainage	LS	1	x	18,000,000	=	$	18,000,000	
							TOTAL DRAINAGE ITEMS	**$**	**18,000,000**

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost	
080050	Progress Schedule (Critical Path Method)	LS	1	x	15,000.00	=	$	15,000	
582001	Sound Wall (Masonry Block)	SQFT	230,864	x	30.00	=	$	6,925,920	
60005X	Remove Sound Wall	LF	13,171	x	100.00	=	$	1,317,100	
070030	Lead Compliance Plan	LS	1	x	5,000.00	=	$	5,000	
839774	Remove Concrete Barrier	LF	100	x	30.00	=	$	3,000	
839752	Remove Guardrail	LF	810	x	10.00	=	$	8,100	
800360	Chain Link Fence (Type CL-6)	LF	5,510	x	45.00	=	$	247,950	
832005	Midwest Guard Railing System	LF	1,300	x	85.00	=	$	110,500	
839581	End Anchor Assembly (Type SFT)	EA	4	x	4,400.00	=	$	17,600	
839584	Alternative In-line Terminal System	EA	2	x	4,000.00	=	$	8,000	
839585	Alternative Flared Terminal System	EA	3	x	6,000.00	=	$	18,000	
839640	Concrete Barrier (60M)	LF	1,800	x	175.00	=	$	315,000	
470010A	Retaining Wall	SQFT	349,880	x	100.00	=	$	34,988,000	
839543	Transition Railing (Type WB-31)	EA	1	x	2,400.00	=	$	2,400	
							TOTAL SPECIALTY ITEMS	**$**	**43,981,600**

Effective immediately, districts must input estimated item quantities in blue text above in the PRSM database for the pay items listed in the Design Memo,

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost		
	Biological Mitigation	LS	1	x	50,000.00	=	$	50,000		
	Biological Resources	LS	1	x	80,000.00	=	$	80,000		
								Subtotal Environmental Mitigation	*$*	*130,000*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost		
200010A	Landscape/Irrigation	SF	1,267,200	x	11.00	=	$	13,939,200		
								Subtotal Landscape and Irrigation	*$*	*13,939,200*

5C - EROSION CONTROL

Item code		Unit	Quantity		Unit Price ($)			Cost		
XXXXXX	Design Polution Prevention BMPs	LS	1	x	5,000,000.00	=	$	5,000,000		
XXXXXX	Treatment BMPs	ACRE	167	x	8,500.00	=	$	1,419,500		
XXXXXX	Construction Site BMPs	LS	1	x	6,250,000.00	=	$	6,250,000		
XXXXXX	Stormwater Monitoring	LS	1	x	142,000.00	=	$	142,000		
								Subtotal Erosion Control	*$*	*12,811,500*

5D - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost		
130300	Prepare SWPPP	LS	1	x	36,600.00	=	$	36,600		
130100	Job Site Management	LS	1	x	150,000.00	=	$	150,000		
130330	Storm Water Annual Report	EA	2	x	2,000.00	=	$	4,000		
130310	Rain Event Action Plan	EA	20	x	500.00	=	$	10,000		
130320	Storm Water Sampling and Analysis Day	EA	30	x	2,000.00	=	$	60,000		
								Subtotal NPDES	*$*	*260,600*

								TOTAL ENVIRONMENTAL	**$**	**27,141,300**

Supplemental Work for NPDES

066595	Water Pollution Control Maintenance Sharing*	LS	1	x	20,000.00	=	$	20,000		
								Subtotal Supplemental Work for NDPS	*$*	*20,000*

*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		
870400	Signal and Lighting System (Loc 1)	LS	1	x	300,000	=	$	300,000		
860201	Signal and Lighting System (Loc 2)	LS	1	x	500,000	=	$	500,000		
860201	Signal and Lighting System (Loc 3)	LS	1	x	300,000	=	$	300,000		
870510	Ramp Metering System	LS	8	x	150,000	=	$	1,200,000		
5602XX	Install Sign Structure	EA	39	x	200,000	=	$	7,800,000		
568046	Remove Sign Structure	EA	39	x	4,000	=	$	156,000		
XXXXXX	ITS Improvements	LS	1	x	53,500,000	=	$	53,500,000		
XXXXXX	Traffic Operation System	LS	1	x	1,900,000	=	$	1,900,000		
								Subtotal Traffic Electrical	*$*	*65,656,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost		
820840	Roadside Sign - One Post	EA	135	x	350	=	$	47,250		
820850	Roadside Sign - Two Post	EA	24	x	450	=	$	10,800		
150742	Remove Roadside Sign	EA	80	x	150	=	$	12,000		
152390	Relocate Roadside Sign	EA	35	x	300	=	$	10,500		
840502	Thermoplastic Traffic Stripe (Enhanced Wet Night	LF	81,060	x	3	=	$	202,650		
846012	Thermoplastic Crosswalk and Pavement Marking (Enhanced Wet Night Visibility)	SQFT	7,920	x	6	=	$	47,520		
120090	Construction Area Signs	LS	3	x	25,000	=	$	75,000		
810230	Pavement Marker (Reflective)	EA	1,760	x	4	=	$	7,040		
XXXXXX	Signing and Striping	LS	1	x	10,000,000	=	$	10,000,000		
								Subtotal Traffic Signing and Striping	*$*	*10,412,760*

6C - Traffic Management Plan

Item code		*Unit*	*Quantity*		*Unit Price ($)*			*Cost*		
12865X	Portable Changeable Message Sign	LS	18	x	$ 20,000	=	$	360,000		
								Subtotal Traffic Management Plan	*$*	*360,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost		
120100	Traffic Control System	LS	3	x	300,000	=	$	900,000		
129110	Temporary Crash Cushion	EA	840	x	300	=	$	252,000		
129000	Temporary Railing (Type K)	LF	21,670	x	20	=	$	433,400		
XXXXXX	Temporary Traffic Control System/Staging	LS	1	x	15,000,000	=	$	15,000,000		
								Subtotal Stage Construction and Traffic Handling	*$*	*16,585,400*

TOTAL TRAFFIC ITEMS	**$**	**93,014,200**

EA: 10-1H170 PID:

SECTION 7: DETOURS

Includes constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)		Cost
120090	Construction Area Signs	LS	1	x	400,000.00	= $	400,000
XXXXXX	Maintain Traffic Detour Plan	LS	1	x	200,000.00	= $	200,000
XXXXXX	Speed Zone Reduction Plan	LS	1	x	50,000.00	= $	50,000

TOTAL DETOURS **$ 650,000**

SUBTOTAL SECTIONS 1 through 7 $ 287,184,300

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items						
	ADA Items			1.0%	$	2,871,843
8B - Bike Path Items						
	Bike Path Items			1.0%	$	2,871,843
8C - Other Minor Items						
	Other Minor Items			5.0%	$	14,359,215
	Total of Section 1-7	$	287,184,300	x 7.0%	= $	20,102,901

TOTAL MINOR ITEMS **$ 20,103,000**

SECTIONS 9: ROADWAY MOBILIZATION *

Item code						
999990	Total Section 1-8	$	307,287,300	x 10%	= $	30,728,730

TOTAL ROADWAY MOBILIZATION **$ 30,728,800**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)		Cost
066094	Value Analysis	LS	1	x	60,000.00	= $	60,000
066070	Maintain Traffic	LS	1	x	90,000.00	= $	90,000
090210	Dispute Resolution Board	LS	1	x	45,000.00	= $	45,000
	*Cost of **NPDES** Supplemental Work specified in Section 5D*					= $	20,000
	Total Section 1-8	$	307,287,300		5%	= $	15,364,365

TOTAL SUPPLEMENTAL WORK **$ 15,579,400**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066105	Resident Engineers Office	LS	1	x	1,000,000.00	=	$1,000,000
066063	Traffic Management Plan - Public Information	LS	1	x	150,000.00	=	$150,000
066062	COZEEP Contract	LS	1	x	1,000,000.00	=	$1,000,000
	Total Section 1-8		$ 307,287,300		0%	= $	-
						TOTAL STATE FURNISHED	**$2,150,000**

SECTION 12: TIME-RELATED OVERHEAD

Total of Roadway and Structures Contract Items excluding Mobilization $439,030,690 (used to calculate total TRO)

Total Construction Cost (excluding TRO and Contingency) $487,488,890 (used to check if project capital cost is greater than $5 million including contingency)

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

Item code		Unit	Quantity		Unit Price ($)		Cost
090100	Time-Related Overhead	WD	1,100	X	$19,956	=	$21,951,600
						TOTAL TIME-RELATED OVERHEAD	**$21,951,600**

SECTION 13: ROADWAY CONTINGENCY*

Risk Amount from Risk Register	(for Known Risks)			1%		$2,000,000
Additional or Residual Contingency	(for Unknown/Undefined Risks)			24%		$92,424,275
Total Section 1-12	$	377,697,100	x	**25%**	=	$94,424,000
					TOTAL CONTINGENCY*	**$94,424,000**

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Bridge Name	Braid Grant Line Off-Ramp	N. Midway Road UC	N. Midway Road UC
Bridge Number	New	New	0
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	28 LF	43 LF	18 LF
Total Bridge Length (Feet)	504 LF	126 LF	164 LF
Total Area (Square Feet)	13860 SQFT	5355 SQFT	2952 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$420	$320	$450
COST OF EACH	**$5,821,200**	**$1,713,600**	**$1,328,400**

	Bridge 4	Bridge 5	Bridge 6
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Bridge Name	580-205 Separation	California Aqueduct	Aqueduct Service Road
Bridge Number	33 0346	33 0402	29 0299
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	43 LF	84 LF	84 LF
Total Bridge Length (Feet)	466 LF	200 LF	86 LF
Total Area (Square Feet)	19805 SQFT	16700 SQFT	7181 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$420	$420	$320
COST OF EACH	**$8,318,100**	**$7,014,000**	**$2,297,920**

	Bridge 7	Bridge 8	Bridge 9
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	Delta-Mendota Canal	Mountain House Parkway	Hansen Road OC
Bridge Number	29 0037	29 0321	29 0208
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	84 LF	20 LF	50 LF
Total Length (Feet)	193 LF	358 LF	262 LF
Total Area (Square Feet)	16116 SQFT	7160 SQFT	13100 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$420	$250	$320
COST OF EACH	**$6,768,510**	**$1,790,000**	**$4,192,000**

	Bridge 10	Bridge 11	Bridge 12
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	Janney OH	Janney OH	Grant Line Road UC
Bridge Number	29 0074R	29 0074L	29 0186R
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	34 LF	48 LF	36 LF
Total Length (Feet)	306 LF	306 LF	354 LF
Total Area (Square Feet)	10404 SQFT	14688 SQFT	12744 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$450	$450	$500
COST OF EACH	**$4,681,800**	**$6,609,600**	**$6,372,000**

	Bridge 13	Bridge 14	Bridge 15
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	Grant Line Road UC	Corral Hollows Road UC	Corral Hollows Road UC
Bridge Number	29 0186L	29 0132R	29 0132L
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	42 LF	33 LF	45 LF
Total Length (Feet)	354 LF	96 LF	96 LF
Total Area (Square Feet)	14868 SQFT	3168 SQFT	4320 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$500	$380	$380
COST OF EACH	**$7,434,000**	**$1,203,840**	**$1,641,600**

	Bridge 16	Bridge 17	Bridge 18
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	Tracy Blvd UC	Tracy Blvd UC	Holly Drive OC
Bridge Number	29 0178R	29 0179L	29 0182
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	42 LF	39 LF	50 LF
Total Length (Feet)	156 LF	156 LF	258 LF
Total Area (Square Feet)	6552 SQFT	6084 SQFT	12900 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$420	$420	$320
COST OF EACH	**$2,751,840**	**$2,555,280**	**$4,128,000**

	Bridge 19	Bridge 20	Bridge 21
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	Sugar Spur OH	Sugar Spur OH	MacArthur Drive UC
Bridge Number	29 0183R	29 0183L	29 0184R
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	32 LF	42 LF	40 LF
Total Length (Feet)	194 LF	194 LF	161 LF
Total Area (Square Feet)	6208 SQFT	8148 SQFT	6440 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$420	$420	$420
COST OF EACH	**$2,607,360**	**$3,422,160**	**$2,704,800**

	Bridge 22	Bridge 23	Bridge 24
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	MacArthur Drive UC	Paradise Road OC	El Rancho Road UC
Bridge Number	29 0184L	29 0181	29 0214R
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	40 LF	36 LF	41 LF
Total Length (Feet)	161 LF	284 LF	120 LF
Total Area (Square Feet)	6440 SQFT	10224 SQFT	4920 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$420	$320	$420
COST OF EACH	**$2,704,800**	**$3,271,680**	**$2,066,400**

	Bridge 25	Bridge 26	Bridge 27
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	El Rancho Road UC	East Banta OH	Tom Paine Slough
Bridge Number	29 0214L	29 0179R	29 0180R
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	38 LF	39 LF	39 LF
Total Length (Feet)	120 LF	242 LF	403 LF
Total Area (Square Feet)	4560 SQFT	9438 SQFT	15717 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$420	$420	$500
COST OF EACH	**$1,915,200**	**$3,963,960**	**$7,858,500**

	Bridge 28	Bridge 29	Bridge 30
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	205 NB to I-5 NB HOV Connector	Paradise Cut	Old US 50 (11th Street) OC
Bridge Number	New	290032R	29 0203
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	60 LF	34 LF	20 LF
Total Length (Feet)	602 LF	458 LF	317 LF
Total Area (Square Feet)	36120 SQFT	15572 SQFT	6340 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$380	$420	$250
COST OF EACH	**$13,725,600**	**$6,540,240**	**$1,585,000**

	Bridge 31	Bridge 32	Bridge 33
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Name	Ped OC for transit station	Ped UC for transit station	Grant Line Road Alt 2 WB onramp OC
Bridge Number	New	New	New
Structure Type	prefab steel structure	prefab steel structure	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	LF	LF	42 LF
Total Length (Feet)	LF	LF	60 LF
Total Area (Square Feet)	0 SQFT	0 SQFT	2520 SQFT
Structure Depth (Feet)	0 LF	0 LF	5 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	Spread
Cost Per Square Foot			$300
COST OF EACH	**$1,250,000**	**$750,000**	**$756,000**

TOTAL COST OF BRIDGES		**$131,743,390**
TOTAL COST OF BUILDINGS		**$0**
Time-Related Overhead	0%	**$0**
STRUCTURES MOBILIZATION	0%	**$0**
STRUCTURES CONTINGENCY*	0%	**$0**
TOTAL COST OF STRUCTURES		**$131,743,390**

Estimate Prepared By: _____ _____

XXXXXXXXXXXXXXXX ------ Division of Structures Date

EA: 10-1H170 PID:

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way Data Sheet.

				Current Value Future Use		*Escalated Value*
A)	A1)	Acquisition, including Excess Land, Fees, Damages, Goodwill	$	28,779,344	$	35,352,447
	A2)	Acquisition of Offsite Mitigation	$	0	$	0
	A3)	Railroad Acquisition	$	0	$	0
B)	B1)	Utility Relocation (State Share)	$	500,000	$	614,198
	B2)	Potholing (Design Phase)	$	15,000	$	18,426
C)	Utility - Advance Engineering Estimate (Encumber with State Only Funds)		$	0	$	0
D)	RAP and/or Last Resort Housing		$	0	$	0
E)	Clearance & Demolition		$	300,000	$	368,519
F)	Relocation Assistance (RAP and/or Last Resort Housing Costs)		$	1,250,000	$	1,535,496
G)	Title and Escrow		$	142,500	$	175,047
H)	Environmental Review		$	0	$	0
I)	Condemnation Settlements	0%	$	0	$	0
J)	Design Appreciation Factor	0%	$	0	$	0
K)	Utility Relocation (Construction Cost)		$	0	$	0

L)	**TOTAL RIGHT OF WAY ESTIMATE**	**$30,986,900**
M)	**TOTAL R/W ESTIMATE: Escalated**	**$39,662,898**
N)	**RIGHT OF WAY SUPPORT**	**$3,492,007**

Support Cost Estimate Prepared By _____ Project Coordinator[1] _____ Phone

Utility Estimate Prepared By _____ Utility Coordinator[2] _____ Phone

R/W Acquisition Estimate Prepared By _____ Right of Way Estimator[3] _____ 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
Transportation Planning Scoping Information Sheet

Transportation Planning Scoping Information Sheet

The Transportation Planning Scoping Information sheet (TPSIS) is a communication document to present the planning level purpose and need to the Project Nomination Scoping Team early in the project initiation phase. The Project Scoping Teams (PST) should use the TPSIS to verify that the proposed project remains consistent with the planning level purpose and need and is consistent with planning concepts, statewide goals, and planning decisions.

Project EA/ID: 10-1H170K/1017000116	**Co/Route/PM: SJ/205/0.0-12.5**
Project Description: **I-205 HOV 8 lane widening (I-580 to I-5)**	

Project Scoping Team Information		
Title	**Name**	**Phone Number**
TPSIS Information Sheet Point of Contact	Nhan Cao	209-948-7112
Consultant Project Manager	Lee Taubeneck	650-518-6747
Caltrans Project Manager	Mike Cook	209-470-2909
Caltrans Oversight Design Engineer	Sheikh Alam	209-942-6172
Environmental Planner	Jaycee Azevedo	209-941-1919

Transportation Planning Stakeholder Information		
Title	**Name**	**Phone Number**
Regional Planner	Joshua Swearingen	209-948-7142
System Planner	Michael Robinson	209-948-7575
Local Development Intergovernmental Review (LD-IGR) Planner	Joshua Swearingen	209-948-7142
Sustainable Planning Grant Coordinator	Joshua Swearingen	209-948-7142
Goods Movement Planner	Michael Robinson	209-948-7575
Transit Planner	Joshua Swearingen	209-948-7142
Bicycle and Pedestrian Coordinator		
Park and Ride Coordinator		
Native American Liaison		
Climate Change Coordinators/Liaison		

Prepared By (Consultant):

Lee Taubeneck 12/7/17

Lee Taubeneck (Date)
Consultant Project Manager

Reviewed by (K-Phase):

12/7/17

Nhan Cao, PE (Date)
District Office of Project Initiation

12/7/17

Mike Cook (Date)
Caltrans Project Manager

Transportation Planning Scoping Information Sheet

It is recognized that not every proposed project will require each section in the Transportation Planning Scoping Information Sheet to be filled out.

Section 1: System Planning

ROUTE SEGMENT AND PROJECT INFORMATION			
	Co/Route/P.M.	**Project EA/ID**	**Project Description**
Pavement	10-SJ-205, 0.0-R12.541	10-1H170K 1017000116	I-205 Tracy HOV – 8 lane widening (Ala. Co. Line to 0.51 mi. w/o I-5)
Planned/Programmed Project (IGR)-			
Planned/Programmed Project (MPO/RTPA)-			
Planned/Programmed Project (TCR) -			
Planned/Programmed Project (Grant/Feasibility) -			

ROUTE DESIGNATIONS			
Freeway and Expressway	✓	Scenic Highway	No
National Highway System	✓	Truck Network Designation	STAA
Strategic Highway Network	✓	Interregional Road System	High Emphasis
Federal Functional Classification	Interstate	Other	ICES

Major Truck Route?: ☒ Yes ☐ No | Truck Volumes: 13,680/ day (max, seg 1) | Truck Percentages: 12.38% max (seg. 1)

Please describe how the project will impact modal and intermodal facilities: Recent Cordes Ranch (CR) tenant data indicates that CR to PoS and CR to PoO data trips are increasing since 2015. Also, CR to SCK (airport) trips, and vice versa, are increasing since2015. Transit districts from Stockton, Tracy and Modesto are anticipated to take advantage of the dedicated HOV lanes.

Please identify if the project is consistent with the following documents:

☐ Transportation Concept Report (TCR)

☒ District System Management Plan (DSMP)

☒ Corridor System Management Plan (CSMP)

☒ Interregional Transportation Strategic Plan (ITSP)

☒ California Freight Mobility Plan (CFMP)

☐ Other (Feasibility Study, District Bike and Ped Plan, Regional Concept of Transportation Operations etc):

RTE PM	Bridge No.	TRAVEL FORECASTING						ADT Truck Volume (2017)
		ADT		V/C		Free Flow Speeds		
		Current Year 2017	Horizon Year 2040	Current Year 2017	Horizon Year 2040	Current Year 2017	Horizon Year 2040	
		117,000[1]		0.83[2]		65[3]	65[3]	14,039 (seg. 1)

[1]2017 ADTs are not available yet. Base Year is 2015 & location is Ala-SJ County line. (Caltrans Division of Traffic Operations, 2015.) [2]Max (actual) ADT is 9000, located at the SJ-Ala County line. (Caltrans Div of Traff Operations, 2015.)

V/C is speculative for peak hour based on (theoretical) 1800 vphpl & 6 lanes. [3]Free flow occurs outside of peak hours. [4]ADT Truck Volume is for 2015, as 2017 ADTs are not available yet. CT Division of Traffic Operations, 2015.

2015 Traffic Volumes on California State Highways

Dist	Route	County		Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
04	205	ALA		.213	JCT. RTE. 580				9000	126000	117000
04	205	ALA		.447	ALAMEDA/SAN JOAQUIN COUNTY LINE	9000	126000	117000			
10	205	SJ	L	0	ALAMEDA/SAN JOAQUIN COUNTY LINE				9000	126000	117000
10	205	SJ		1.377	PATTERSON PASS ROAD	8300	106000	103000	8400	113000	106000
10	205	SJ	R	3.369	OLD ROUTE 50	7600	103000	89000	6600	97000	83000
10	205	SJ	R	8.127	TRACY, MAC ARTHUR DRIVE	8900	109000	107000	8700	131000	123000
10	205	SJ	R	12.686	JCT. RTE. 5	6900	116000	97000			

2015 Daily Truck Traffic

RTE	DIST	CNTY	POST MILE	L E G	DESCRIPTION	VEHICLE AADT TOTAL	TRUCK AADT TOTAL	TRUCK % TOT VEH	TRUCK By Axle 2	TRUCK By Axle 3	TRUCK By Axle 4	TRUCK By Axle 5+	TOTAL % 2	TRUCK % 3	AADT By Axle 4	AADT By Axle 5+	EAL 2-WAY (1000)	YEAR VER/ EST
205	4	ALA	0.213	A	JCT. RTE. 580	117,000	14,039	12.00	4,060	592	345	9,042	28.92	4.22	2.46	64.40	3,367	06V
205	10	SJ	R3.369	B	OLD ROUTE 50	89,000	10,679	12.00	3,153	682	319	6,525	29.52	6.39	2.99	61.10	2,471	04E
205	10	SJ	R8.127	A	TRACY, MAC ARTHUR DRIVE	123,000	13,734	11.17	4,556	895	357	7,926	33.17	6.52	2.60	57.71	3,030	15V
205	10	SJ	R12.686	B	JCT. RTE. 5	97,000	11,087	11.43	3,273	708	332	6,774	29.52	6.39	2.99	61.10	2,566	04V

Section 2: Local Development – Intergovernmental Review

LD-IGR	
Please provide the below LD-IGR information (if available) for any proposed local projects that may impact, directly or indirectly, the project. Describe the land uses along the segment. Identify major sites, destinations and trip generators within or adjacent to the corridor and recreational trails. *These can include: residential parks, recreation centers, religious institutions, schools, town centers, shopping centers, large employment centers and so forth.*	
Local Agency Name/Project Name: City of Tracy, *Tracy Hills Specific Plan* Ms. Victoria Lombardo Sr. Planner, City of Tracy	**Phone Number:** 209-831-6428 **Email:** Victoria.lombardo@ci.tracy.ca.us
Project Distance to Development(s): approx.. 4 miles	
California Environmental Quality Act (CEQA) Status and Implementation Date: approved, April 2016	
Using the Geo-Based Tracking System (GTS) or older project files, is there promised transportation mitigation within the project vicinity?	☒ Yes (Please describe below) ☐ No
Traffic Impact Fees	
Are there projects in Capital Improvement Programs, Regional Transportation Plans, or Encroachment Permits that would need to be coordinated with this proposed project from a timing perspective?	☒ Yes (Please describe below) ☐ No
Interregional (SJCOG & SACOG) TDM program (www.sjcog.org/index.aspx:nid=219),	

Transportation Planning Scoping Information Sheet

LD-IGR
I-205/ MHP Interchange Improvements, I-580/ MHP Interchange Improvements; Msr K Strategic Plan: www.sjcog.org/DocumentCenter/View/1777

LD-IGR	
Please provide the below LD-IGR information (if available) for any proposed local projects that may impact, directly or indirectly, the project. Describe the land uses along the segment. Identify major sites, destinations and trip generators within or adjacent to the corridor and recreational trails. *These can include: residential parks, recreation centers, religious institutions, schools, town centers, shopping centers, large employment centers and so forth.*	
Local Agency Name/Project Name: City of Tracy, *Harvest in Tracy* Ms. Victoria Lombardo, Sr. Planner, City of Tracy	**Phone Number:**209-831-6428 **Email:**Victoria.lombardo@ci.tracy.ca.us
Project Distance to Development(s): approx.. 1 mile	
California Environmental Quality Act (CEQA) Status and Implementation Date: City Plng Comsn, 2017 (current)	
Using the Geo-Based Tracking System (GTS) or older project files, is there promised transportation mitigation within the project vicinity?	☒ Yes (Please describe below) ☐ No
Traffic Impact Fees	
Are there projects in Capital Improvement Programs, Regional Transportation Plans, or Encroachment Permits that would need to be coordinated with this proposed project from a timing perspective?	☐ Yes (Please describe below) ☒ No
Interregional (SJCOG & SACOG) TDM program (www.sjcog.org/index.aspx:nid=219)	

LD-IGR	
Please provide the below LD-IGR information (if available) for any proposed local projects that may impact, directly or indirectly, the project. Describe the land uses along the segment. Identify major sites, destinations and trip generators within or adjacent to the corridor and recreational trails. *These can include: residential parks, recreation centers, religious institutions, schools, town centers, shopping centers, large employment centers and so forth.*	
Local Agency Name/Project Name: City of Tracy, *Rocking Horse* Ms. Victoria Lombardo, Sr. Planner, City of Tracy	**Phone Number:**209-831-6428 **Email:**Victoria.lombardo@ci.tracy.ca.us
Project Distance to Development(s): approx.. 1 mile	
California Environmental Quality Act (CEQA) Status and Implementation Date: Tracy Plng Comsn, 2015	
Using the Geo-Based Tracking System (GTS) or older project files, is there promised transportation mitigation within the project vicinity?	☒ Yes (Please describe below) ☐ No

Transportation Planning Scoping Information Sheet

LD-IGR	
Traffic Impact Fees	
Are there projects in Capital Improvement Programs, Regional Transportation Plans, or Encroachment Permits that would need to be coordinated with this proposed project from a timing perspective?	☐ Yes (Please describe below) ☒ No

LD-IGR	
Please provide the below LD-IGR information (if available) for any proposed local projects that may impact, directly or indirectly, the project. Describe the land uses along the segment. Identify major sites, destinations and trip generators within or adjacent to the corridor and recreational trails. *These can include: residential parks, recreation centers, religious institutions, schools, town centers, shopping centers, large employment centers and so forth.*	
Local Agency Name/Project Name: City of Tracy, *Aspire II* Ms. Victoria Lombardo, Sr. Planner, City of Tracy	**Phone Number:** :209-831-6428 **Email:** Victoria.lombardo@ci.tracy.ca.us
Project Distance to Development(s): approx.. 1 mile	
California Environmental Quality Act (CEQA) Status and Implementation Date: City Plng Comsn, 2015	
Using the Geo-Based Tracking System (GTS) or older project files, is there promised transportation mitigation within the project vicinity?	☒ Yes (Please describe below) ☐ No
Traffic Impact Fees	
Are there projects in Capital Improvement Programs, Regional Transportation Plans, or Encroachment Permits that would need to be coordinated with this proposed project from a timing perspective?	☐ Yes (Please describe below) ☒ No
Interregional (SJCOG & SACOG) TDM program (www.sjcog.org/index.aspx:nid=219)	

LD-IGR	
Please provide the below LD-IGR information (if available) for any proposed local projects that may impact, directly or indirectly, the project. Describe the land uses along the segment. Identify major sites, destinations and trip generators within or adjacent to the corridor and recreational trails. *These can include: residential parks, recreation centers, religious institutions, schools, town centers, shopping centers, large employment centers and so forth.*	
Local Agency Name/Project Name: City of Tracy, *Home2Suites* Ms. Victoria Lombardo, Sr. Planner, City of Tracy	**Phone Number:** 209-831-6428 **Email:** Victoria.lombardo@ci.tracy.ca.us
Project Distance to Development(s): approx.. 1 mile	
California Environmental Quality Act (CEQA) Status and Implementation Date: City Plng Comsn, 2017	
Using the Geo-Based Tracking System (GTS) or older project files, is there promised transportation mitigation within the project vicinity?	☒ Yes (Please describe below) ☐ No

Transportation Planning Scoping Information Sheet

LD-IGR	
Traffic Impact Fees	
Are there projects in Capital Improvement Programs, Regional Transportation Plans, or Encroachment Permits that would need to be coordinated with this proposed project from a timing perspective?	☐ Yes (Please describe below) ☒ No

LD-IGR	
Please provide the below LD-IGR information (if available) for any proposed local projects that may impact, directly or indirectly, the project. Describe the land uses along the segment. Identify major sites, destinations and trip generators within or adjacent to the corridor and recreational trails. *These can include: residential parks, recreation centers, religious institutions, schools, town centers, shopping centers, large employment centers and so forth.*	
Local Agency Name/Project Name: City of Tracy, *Cordes Ranch SP* Ms. Victoria Lombardo, Sr. Planner, City of Tracy	**Phone Number:** 209-831-6428 **Email:** Victoria.lombardo@ci.tracy.ca.us
Project Distance to Development(s): approx.. 0.25 miles	
California Environmental Quality Act (CEQA) Status and Implementation Date: FEIR approv'd 2013	
Using the Geo-Based Tracking System (GTS) or older project files, is there promised transportation mitigation within the project vicinity?	☒ Yes (Please describe below) ☐ No
Traffic Impact Fees	
Are there projects in Capital Improvement Programs, Regional Transportation Plans, or Encroachment Permits that would need to be coordinated with this proposed project from a timing perspective?	☒ Yes (Please describe below) ☐ No
I-205/ MHP Interchange Improvements, I-580/ MHP Interchange Improvements; Interregional (SJCOG & SACOG) TDM program (www.sjcog.org/index.aspx:nid=219)	

LD-IGR	
Please provide the below LD-IGR information (if available) for any proposed local projects that may impact, directly or indirectly, the project. Describe the land uses along the segment. Identify major sites, destinations and trip generators within or adjacent to the corridor and recreational trails. *These can include: residential parks, recreation centers, religious institutions, schools, town centers, shopping centers, large employment centers and so forth.*	
Local Agency Name/Project Name: City of Tracy, *Grant Line Apartments* Ms. Victoria Lombardo, Sr. Planner, City of Tracy	**Phone Number:** 209-831-6428 **Email:** Victoria.lombardo@ci.tracy.ca.us
Project Distance to Development(s): approx.. 0.5 miles	
California Environmental Quality Act (CEQA) Status and Implementation Date: MND Apprvd 2011	

Transportation Planning Scoping Information Sheet

LD-IGR	
Using the Geo-Based Tracking System (GTS) or older project files, is there promised transportation mitigation within the project vicinity?	☒ Yes (Please describe below) ☐ No
Traffic Impact Fees	
Are there projects in Capital Improvement Programs, Regional Transportation Plans, or Encroachment Permits that would need to be coordinated with this proposed project from a timing perspective?	☐ Yes (Please describe below) ☒ No

LD-IGR	
Please provide the below LD-IGR information (if available) for any proposed local projects that may impact, directly or indirectly, the project. Describe the land uses along the segment. Identify major sites, destinations and trip generators within or adjacent to the corridor and recreational trails. *These can include: residential parks, recreation centers, religious institutions, schools, town centers, shopping centers, large employment centers and so forth.*	
Local Agency Name/Project Name: City of Tracy, *Berg Road Project* Ms. Victoria Lombardo, Sr. Planner, City of Tracy	**Phone Number:** 209-831-6428 **Email:** Victoria.lombardo@ci.tracy.ca.us
Project Distance to Development(s): approx.. 1 mile	
California Environmental Quality Act (CEQA) Status and Implementation Date: City Plng Comsn, 2017	
Using the Geo-Based Tracking System (GTS) or older project files, is there promised transportation mitigation within the project vicinity?	☒ Yes (Please describe below) ☐ No
Traffic Impact Fees	
Are there projects in Capital Improvement Programs, Regional Transportation Plans, or Encroachment Permits that would need to be coordinated with this proposed project from a timing perspective?	☐ Yes (Please describe below) ☒ No

LD-IGR	
Please provide the below LD-IGR information (if available) for any proposed local projects that may impact, directly or indirectly, the project. Describe the land uses along the segment. Identify major sites, destinations and trip generators within or adjacent to the corridor and recreational trails. *These can include: residential parks, recreation centers, religious institutions, schools, town centers, shopping centers, large employment centers and so forth.*	
Local Agency Name/Project Name: City of Tracy, *Ellis SP* Ms. Victoria Lombardo, Sr. Planner, City of Tracy	**Phone Number:** 209-831-6428 **Email:** Victoria.lombardo@ci.tracy.ca.us
Project Distance to Development(s): approx. 3 miles	
California Environmental Quality Act (CEQA) Status and Implementation Date: FEIR approved 2012	
	☒ Yes (Please describe below)

Transportation Planning Scoping Information Sheet

LD-IGR	
Using the Geo-Based Tracking System (GTS) or older project files, is there promised transportation mitigation within the project vicinity?	☐ No
Traffic Impact Fees	
Are there projects in Capital Improvement Programs, Regional Transportation Plans, or Encroachment Permits that would need to be coordinated with this proposed project from a timing perspective?	☐ Yes (Please describe below) ☒ No
Interregional (SJCOG & SACOG) TDM program (www.sjcog.org/indes.aspx:nid=219)	

LD-IGR	
Please provide the below LD-IGR information (if available) for any proposed local projects that may impact, directly or indirectly, the project. Describe the land uses along the segment. Identify major sites, destinations and trip generators within or adjacent to the corridor and recreational trails. *These can include: residential parks, recreation centers, religious institutions, schools, town centers, shopping centers, large employment centers and so forth.*	
Local Agency Name/Project Name: City of Tracy, *Holly Sugar Sports Cntr,* Ms. Victoria Lombardo, Sr. Planner, City of Tracy	Phone Number: 209-831-6428 Email: Victoria.lombardo@ci.tracy.ca.us
Project Distance to Development(s): approx.. 1 mile	
California Environmental Quality Act (CEQA) Status and Implementation Date: City Plng Comsn, 2010	
Using the Geo-Based Tracking System (GTS) or older project files, is there promised transportation mitigation within the project vicinity?	☒ Yes (Please describe below) ☐ No
Traffic Impact Fees	
Are there projects in Capital Improvement Programs, Regional Transportation Plans, or Encroachment Permits that would need to be coordinated with this proposed project from a timing perspective?	☐ Yes (Please describe below) ☒ No

LD-IGR	
Please provide the below LD-IGR information (if available) for any proposed local projects that may impact, directly or indirectly, the project. Describe the land uses along the segment. Identify major sites, destinations and trip generators within or adjacent to the corridor and recreational trails. *These can include: residential parks, recreation centers, religious institutions, schools, town centers, shopping centers, large employment centers and so forth.*	
Local Agency Name/Project Name: City of Tracy, *Winco* Ms. Victoria Lombardo, Sr. Planner, City of Tracy	Phone Number: 209-831-6428 Email: Victoria.lombardo@ci.tracy.ca.us
Project Distance to Development(s): approx.. 1.5 miles	
California Environmental Quality Act (CEQA) Status and Implementation Date: SEIR apprvd 2007	
	☒ Yes (Please describe below)

Transportation Planning Scoping Information Sheet

LD-IGR	
Using the Geo-Based Tracking System (GTS) or older project files, is there promised transportation mitigation within the project vicinity?	☐ No
Traffic Impact Fees	
Are there projects in Capital Improvement Programs, Regional Transportation Plans, or Encroachment Permits that would need to be coordinated with this proposed project from a timing perspective?	☐ Yes (Please describe below) ☒ No

LD-IGR	
Please provide the below LD-IGR information (if available) for any proposed local projects that may impact, directly or indirectly, the project. Describe the land uses along the segment. Identify major sites, destinations and trip generators within or adjacent to the corridor and recreational trails. *These can include: residential parks, recreation centers, religious institutions, schools, town centers, shopping centers, large employment centers and so forth.*	
Local Agency Name/Project Name: City of Tracy, , *Walmart Expansion,* Ms. Victoria Lombardo, Sr. Planner, City of Tracy	**Phone Number:** 209-831-6428 **Email:** Victoria.lombardo@ci.tracy.ca.us
Project Distance to Development(s): approx.. 0.5 miles	
California Environmental Quality Act (CEQA) Status and Implementation Date: FEIR apprvd 2008	
Using the Geo-Based Tracking System (GTS) or older project files, is there promised transportation mitigation within the project vicinity?	☒ Yes (Please describe below) ☐ No
Traffic Impact Fees	
Are there projects in Capital Improvement Programs, Regional Transportation Plans, or Encroachment Permits that would need to be coordinated with this proposed project from a timing perspective?	☐ Yes (Please describe below) ☒ No

LD-IGR	
Please provide the below LD-IGR information (if available) for any proposed local projects that may impact, directly or indirectly, the project. Describe the land uses along the segment. Identify major sites, destinations and trip generators within or adjacent to the corridor and recreational trails. *These can include: residential parks, recreation centers, religious institutions, schools, town centers, shopping centers, large employment centers and so forth.*	
Local Agency Name/Project Name: City of Tracy, *Filios/ Dobler,* Ms. Victoria Lombardo, Sr. Planner, City of Tracy	**Phone Number:** 209-831-6428 **Email:** Victoria.lombardo@ci.tracy.ca.us

Transportation Planning Scoping Information Sheet

LD-IGR	
Project Distance to Development(s): approx.. 0.5 miles	
California Environmental Quality Act (CEQA) Status and Implementation Date: FEIR, 2011	
Using the Geo-Based Tracking System (GTS) or older project files, is there promised transportation mitigation within the project vicinity?	☒ Yes (Please describe below) ☐ No
Traffic Impact Fees	
Are there projects in Capital Improvement Programs, Regional Transportation Plans, or Encroachment Permits that would need to be coordinated with this proposed project from a timing perspective?	☐ Yes (Please describe below) ☒ No

Section 3: Smart Mobility, Complete Streets, and Regional Planning

SMART MOBILITY FRAMEWORK PLACE TYPES			
Identify the SMF Place Type(s):			
☐ Urban Center	☐ Close-In Center	☒ Suburban Center	☒ Rural Settlement/Ag Land
☐ Urban Core	☐ Close-In Corridor	☒ Suburban Corridor	☐ Rural Towns
	☐ Close-In Neighborhood	☐ Suburban Dedicated Use Area	☐ Protected Lands
	☐ Compact Community	☐ Neighborhood	☐ Special Use Areas

3.1 Pedestrian Conditions

BICYCLE AND PEDESTRIAN CONDITIONS	Needs/Opportunities with Project	Regional/Local Partners Needs
Describe the existing bicycle and pedestrian facilities within the project limits *(e.g. bicycle/pedestrian accessibility; Class I, II, III, IV, signage; shoulder connections, sidewalks, on/off ramps, crosswalks, curb ramps; and bicycle/pedestrian counts etc.)*	Some sidewalks w/raised curbs @ UCs (Grant Line Rd, Corral Hollow Rd, Tracy Blvd & MacArthur Dr) & OCs (Hansen, Mtn Hs Prkwy, Holly Drive).	
Describe the physical and/or perceived impediments for bicyclists and pedestrians *(e.g. narrow shoulders or sidewalks, connectivity gaps, curb gutters, utility boxes, high vehicle speeds, or AADT)*	On cross streets, some potholes, lack of curbs, gutters & dikes, some connectivity gaps, narrow shoulders & utility boxes.	
Does the highway segment function as a "Main Street" or a "Safe Route to School"?	I-205 does not function as a "Main St" or a "SR2S".	
Describe the bicycle and pedestrian needs as identified in an existing Bicycle/Pedestrian Plan or comprehensive planning study for the corridor, if any. *(e.g. alternate parallel routes, gap closures for bicycle, pedestrian, or ADA facilities)*	http://www.dot.ca.gov/dist10/docs/BIKEGUIDE0809.pdf An update is anticipated < 2020. Also, http://www.sjcog.org/DocumentCenter/View/61	Update to SJ County/ Tracy bikemaps. Both SJ County and City of Tracy have approved Bike/ Ped Plans
If applicable, is the Pedestrian Plan or comprehensive planning study included in the ADA Transition Plan?	Unknown; no access to the Caltrans, District 10 portion of the ADA Transition Plan.	
Is the proposed project located on a corridor that accommodates or bisect recreational trails *(e.g. California Coastal Trail, backpacking, hiking, or equestrian trails)*	There are no known recreational trails in the project vicinity.	
Contact information for bicycle, pedestrian or disabled advisory advocates.	Austin Hall, California Walks (661) 912-1406; austin@californiawalks.org. Also contact requested of SJCOG.	

3.3 Transit Conditions

TRANSIT CONDITIONS	Needs/Opportunities with Project	Regional/Local Partner Needs
What are the existing transit accommodations, if any? (e.g., such as bus stops or active transit line)	-San Joaquin Regional Transit District -Tracy Tracer	
Are there existing transit or proposed accommodations on intersecting local roadways?	Yes.	
Where is the nearest Park and Ride Lot? Who owns/maintains?	SR99 @ MLK Jr. Blvd, Caltrans, D10 Mntc	
Describe transit facility needs identified in short-and long-range transit plans and RTP. Describe how these future plans relate to the corridor.	Additional ridership	
Contact information for local transit provider.	George Lorente (209) 467-6674 Tracer Contact (209) 831-4287	

Transit Facility			
Segment	Mode & Collateral Facility	Name	Route End Points
1	Commuter Bus	SJRTD	Stockton Transit Center--Laurence Livermore Labs
	Commuter Bus	MAX	Modesto Transit Center-Pleasanton BART
	Intercity Rail	AMTRAK	San Joaquin to San Francisco
	High Speed Rail	CHSR	Future route over Altamont
	Commuter Rail	ACE	Stockton to San Jose
2	Commuter Bus	SJRTD	Stockton Transit Center--Laurence Livermore Labs
	Commuter Bus	MAX	Modesto Transit Center-Pleasanton BART
	Intercity Rail	AMTRAK	San Joaquin to San Francisco
	High Speed Rail	CHSR	Future route over Altamont
	Commuter Rail	ACE	Stockton to San Jose
	Park and Ride Lot/Intermodal Transit Center	Naglee (SJRTD)	Off of Corral Hollow on Naglee Rd.
	ACE/Amtrak Station		Tracy Blvd/Linne Road
3	Commuter Bus	SJRTD	Stockton Transit Center--Laurence Livermore Labs
	Commuter Bus	MAX	Modesto Transit Center-Pleasanton BART
	Intercity Rail	AMTRAK	San Joaquin to San Francisco
	High Speed Rail	CHSR	Future route over Altamont
	Commuter Rail	ACE	Stockton to San Jose
	Park and Ride Lot		Prime Outlets--25 parking spaces
4	Commuter Bus	SJRTD	Stockton Transit Center--Laurence Livermore Labs
	Commuter Bus	MAX	Modesto Transit Center-Pleasanton BART
	Intercity Rail	AMTRAK	San Joaquin to San Francisco
	High Speed Rail	CHSR	Future route over Altamont
	Commuter Rail	ACE	Stockton to San Jose

Local transit service includes the Tracy Tracer bus service, with interregional service via SJRTD and MAX service to the Pleasanton BART station. The Transit Center, located near Needham and Grantline Roads, along with a park and ride facility, connects to the SJRTD interregional bus lines as well as local lines. There is an ACE station, located at the south end of Tracy at the intersection of Tracy Boulevard and Linne Road. Operating times of ACE and interregional transit conform to the peak commute times, but do not provide return trips, through the period of 4 to 7 a.m. and 4 to 7 p.m., with trips an hour apart. ACE trains and buses have space for 14 bicycles on the bike car, while for SJRTD they can be stored in the cargo area of interregional buses, while MAX buses have external bike racks.[1]

With the release of SJRTD's (2014) draft long range transportation plan, little can be said for commuter service into the Bay Area. The commuter bus fleet has the smallest number of buses and provides connections to both Sacramento and Bay Area transit services. Ridership appears to have declined from 297,000 in 2010 to 207,000 in 2012, and has slightly increased to 21.ooo in 2013.[2] MAX reports ridership for BART Epress for the period of Feb 2014 to Feb 2014 of 31,695.[3] This is less that the 50,100 reported for 2013,[4] and possibl erelfects lost ridership due to the BART strikes or mode shift to rail. ACE reports a ridership of 1,021,771 for 2013.[5]

[1] ACE, SJRTD and MAX websites [2] Short Range Transit Plan 2013, p.33 [3] Frederick Cavannah, City of Modesto Transit Planner, 9 April 2014 [4] Stanislaus County Transit Needs Assessment, 2013, p.12 [5] Daniel Emerson, ACE Transportation Specialist, 9 April 2014

3.4 Local and Regional Planning

LOCAL AND REGIONAL PLANNING	
MPO/RTPA and Contact Name:	Ryan Niblock, (209) 235-0588
Local County/City and Contact Name:	Zabih Zaca (209) 831-6452
Title and web-link to most current Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS)	www.sjcog.org/index.aspx?nid=278
Title and web-link to most current General Plan.	www.sjgov.org/commdev/cgi-bin/cdyn.exe?grp=planning&htm=generalplan
Provide nexus between the RTP objectives and the proposed project to establish the basis for the project purpose and need.	GHG reduction and social equity; increase daytime HOV ridership

Section 4: Climate Change and Environmental Considerations

CLIMATE CHANGE AND ENVIRONMENTAL CONSIDERATIONS	
Is there an adopted Climate Action Plan for the City of County in which the proposed project is located?	☒ Yes 2017 RTP/ SCS (SJCOG) ☐ No
Is the corridor susceptible to climate change factors such as increased flooding or sea level rise? If yes, please indicate which factors to the right. ☐ Yes ☐ No	☐ Sea Level Rise/Storm Surge ☐ Temperature Changes ☒ Precipitation ☐ Wildfire
Is there a local and/or regional climate vulnerability assessment or adaptation plan? Please provide link and/or further information.	☐ Yes ☐ No
Describe assets vulnerable to changes in climate conditions, such as landscape planting, irrigation systems.	While the project is in proximity with both the CA Aqueduct and the Delta-Mendota Canal, these are not anticipated to be threatened by SLR. While climate change may diminish the amount of runoff available for the conveyance systems, the fixed nature of the channels minimize any threat of flooding. The valley floor is subject to local subsidence due to groundwater depletion.
Does the proposed project include GHG measures from the Regional RTP/SCS's Environmental Impact Report (EIR)? *Consult with District Regional or LD-IGR Planner.*	Yes, HOV lane development should lead to the reduction of GHG gases in the atmosphere by reducing VMT and SOV.
Is the proposed project located on or near and of the following: sensitive habitat areas such as wetlands, native or sensitive species habitats, wildlife corridors, identified fish passage barrier, agricultural land?	Yes, Sacramento-San Joaquin Delta

Transportation Planning Scoping Information Sheet

AIR QUALITY MANAGEMENT	
Name of Air Quality Management District (AQMD) San Joaquin Valley Air Quality Management District	
Is the proposed project located in a Federal non-attainment or attainment maintenance area?	☒ Yes ☐ No see next page

Environmental Considerations											
Segment	Cultural Resources	Flood-plains	Hazardous Materials	Naturally Occurring Asbestos	Air Quality				Waters and Wetlands	Special Status Species
					Ozone	Particulate Matter (size)		CO		
						2.5	10			
1	Moderate	Low	Low	Low	Non-attainment	Non-attainment	Attainment	Non-attainment	Low	Moderate to High
2	Moderate	Low	Low	Low	Non-attainment	Non-attainment	Attainment	Non-attainment	Low to Moderate	Moderate to High
3	Moderate	Low to Moderate	Moderate	Low	Non-attainment	Non-attainment	Attainment	Non-attainment	Low	Moderate to High
4	Moderate	Moderate to High	Low	Low	Non-attainment	Non-attainment	Attainment	Non-attainment	Low to Moderate	Moderate to High

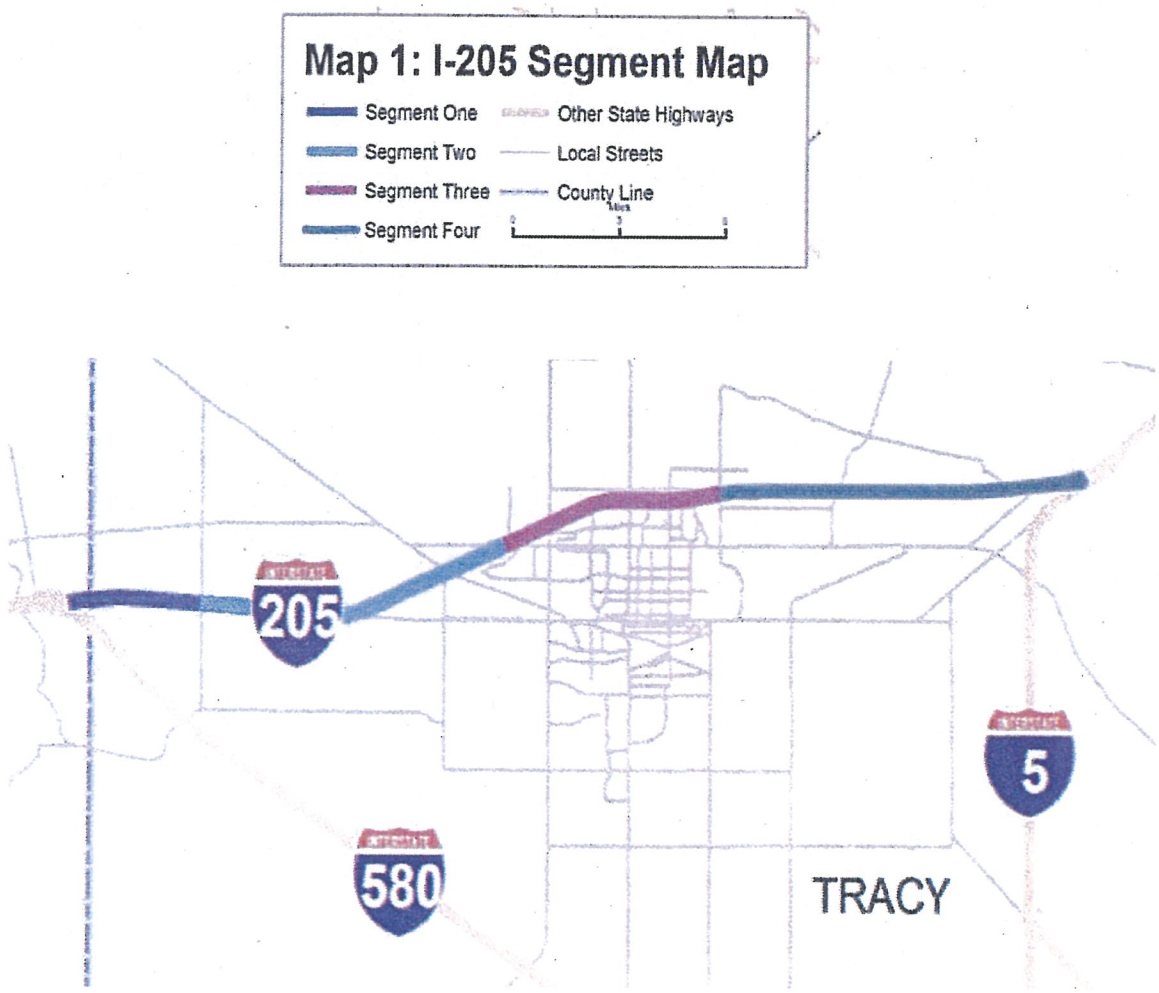
Table 4.1: Excerpt, 2014 TCR, page 19

Section 5: Tribal Government Coordination

TRIBAL GOVERNMENT COORDINATION	
Is the proposed project within or near an Indian Reservation Rancheria, or Tribal Trust Land? per I-205 TCR (2014), pg. 11, untitled table	☐ Yes (Please provide name/names) ☒ No
Does the proposed project involve trust lands (including tribal and individual allotted lands) outside of a reservation or Rancheria?	☐ Yes (Please provide name/names) ☒ No No tribes (federally recognized or otherwise) in project vicinity
You may skip the following three questions below only if both questions above have been checked no.	
• *Has the Tribe or individual allotment holders been notified?*	☐ Yes (Describe concerns/topics discussed) ☒ No (Why not?) 10-day allowance (AB 52) has not yet started; Project not kicked off yet.
• *Has the Bureau of Indian Affairs (BIA) been notified (if trust lands and/or a Reservation/Rancheria is involved)?*	☐ Yes (Describe concerns/topics discussed) ☒ No (Why not?) Need to consult w/D10-Central Region NA Coordinator
• *Have all applicable tribal laws and regulations been reviewed for required coordination?*	☐ Yes ☒ No Do not have access to tribal laws/ regs
Is there an AB 52 letter on file from a Native American Tribe that would affect this project?	☐ Yes (Please provide Tribal name(s) and letter details). ☒ No Not at this time.
Has the Tribal Government been contacted?	☐ Yes (Describe concerns/topics discussed) ☒ No (Why not) No known Tribal Government to contact at this time.
Does the Tribe have a Tribal Employment Rights Office/Ordinance (TERO)?	☐ Yes ☒ No
• *Has the TERO been reviewed for required coordination?*	☐ Yes ☒ No currently no access.
• *Is there a related Memorandum of Understanding (MOU) between the District and the Tribe?*	☐ Yes ☒ No Not known
Does Caltrans have other MOUs with the Tribe?	☐ Yes (Provide title and description or content) ☒ No Not that I am aware of.

District 10 Transportation Planning Scoping Information Sheet

SEGMENT MAP



Update 9/12/17

Attachment E
Traffic Engineering Performance Assessment Update

I-205 Managed Lanes Project

Traffic Engineering Performance Assessment (TEPA) Update Report

Final Report

Prepared By:

Elite Transportation Group, Inc.

Kimley-Horn and Associates, Inc.

1st Submittal: January 15, 2021

2nd Submittal: March 30, 2021

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APPENDICES

- **Appendix A**: I-205 HOV Lane Widening Traffic Engineering Performance Assessment (TEPA) Report, Prepared by Iteris, Inc., September 26, 2017.
- **Appendix B**: Final Memorandum on I-205 Managed Lanes PA&ED: Final Traffic Analysis and Data Collection Approach

1 INTRODUCTION

This document summarizes the update to the original Traffic Engineering Performance Assessment (TEPA) report which was completed on September 26, 2017, for the I-205 HOV Lane Widening project (Attached in **Appendix A**). The original TEPA needs to be updated mainly for two (2) reasons:

- The traffic study limit has been extended to include part of I-5 in San Joaquin County (between 11th Street interchange (IC) and SR 120 IC) and part of I-580 (between Greenville Road IC in Alameda County and Patterson Pass Road IC in San Joaquin County); and
- Express lanes (EL), in addition to HOV lanes (as included in the original TEPA in 2017), have been introduced as an additional alternative to be advanced to the PA&ED phase.

This TEPA update is intended to use readily-available data traffic analysis, based on which the existing and future deficiencies can be identified and recommendations for future implementations to improve traffic conditions can be made.

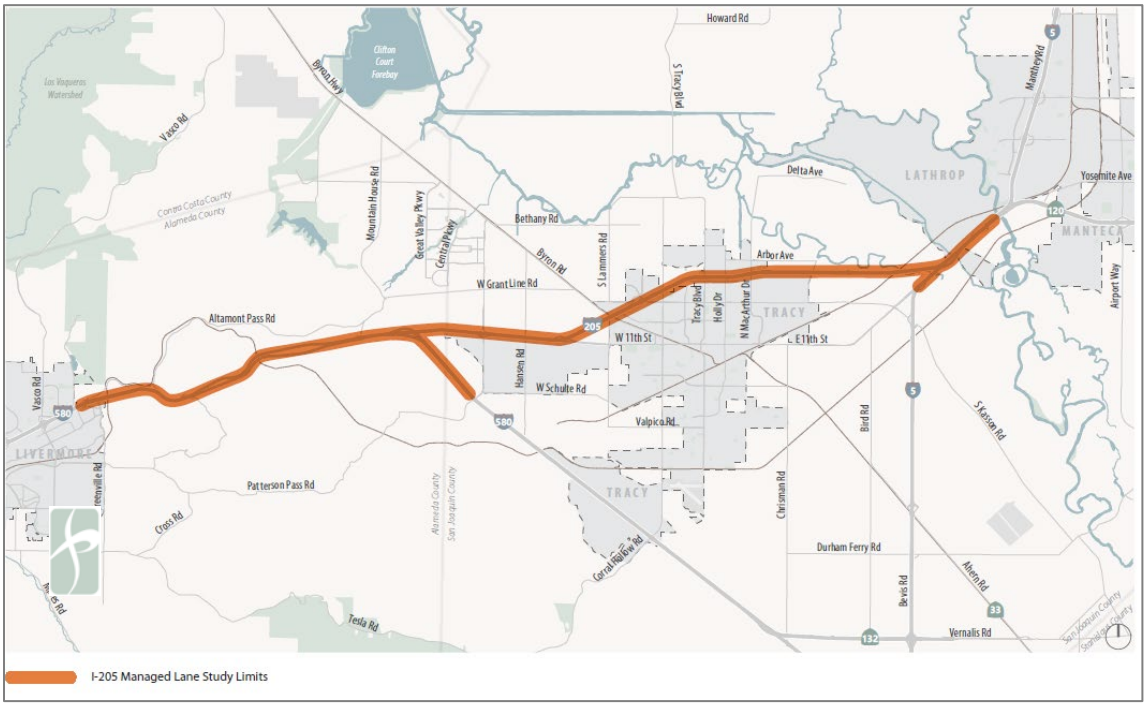
1.1 Project Description

Managed lanes (ML) are defined as a set of lanes where operational strategies are proactively implemented and managed in response to changing conditions. Examples of manages lanes include high-occupancy vehicle (HOV) lanes, value priced lanes, and high-occupancy toll (HOT) lanes. HOT lanes, also called Express Lanes (EL) in California, allow single-occupancy vehicles (SOVs) to pay tolls while HOVs pay discounted tolls or travel toll-free for faster, more reliable trips.

The I-205 Managed Lanes project involves adding managed lanes (either HOV lanes or Express Lanes) in both westbound and eastbound directions on I-205 and a small portion on I-580 between I-5 (south of Mossdale Road interchange) in San Joaquin County and I-580/Grant Line Road interchange in Alameda County. This includes modification of the I-205/I-580 and I-205/I-5 freeway-to-freeway interchanges to accommodate the I-205 managed lanes.

The traffic study area, as illustrated in **Figure 1,** extends further to the west at the I-580 Greenville Road interchange in Alameda County. The traffic study area also extends to include part of I-5 in San Joaquin County (between 11th Street interchange and SR 120 interchange).

Figure 1. I-205 Managed Lane Project Traffic Study Limits



1.2 Purpose

The original I-205 HOV Lane Widening TEPA Report, which was completed on September 26, 2017 (attached in **Appendix A**), needs to be updated for the I-205 Managed Lane PA&ED Project due to the extension of study limits and the addition of Express Lanes as an alternative.

1.3 Project Alternatives

1.3.1 No Build

Under the no-build scenario, no construction or improvements would be made to the freeways in the project study area, except routine maintenance and currently approved projects/improvements. Because this alternative has been analyzed in the original TEPA report for I-205, new analysis under this alternative was only conducted for the I-5 and I-580 study segments.

1.3.2 HOV Lanes

Same as in the original TEPA report completed in 2017, this alternative would construct a new high occupancy vehicle (HOV) lane in each direction on I-205.

1.3.3 Express Lanes

Similar to the HOV lanes, this alternative would allow single occupancy drivers who are willing to pay to use the Express Lanes, while HOVs can still use the Express Lanes for free. This alternative assumes HOV 2+ users are free without paying any fee.

2 DATA SOURCES AND ASSESSMENT APPROACH

This section describes the source of traffic data and assessment approach that were used in this TEPA update report.

2.1 Existing Traffic Data

Similar to the original TEPA, the intent of this TEPA update is to use readily-available data. Following the same assumptions used in the original TEPA report, the analysis in this TEPA update is for freeway mainline (mixed-flow lanes without on/off-ramps) and managed lanes (for future Build alternatives). For the Project Approval and Environmental Document (PA&ED) phase, new traffic counts will be conducted and on- and off-ramps will be included in the analysis. The primary sources of existing traffic data for this TEPA update are listed as follows:

- Caltrans 2016 Traffic Volumes and Daily Truck Traffic
- For I-205, the same data from the original TEPA report was used.
- For I-5, available data from the Caltrans Performance Measurement System (PeMS) was used.
- For I-580, available data from PeMS was used, supplemented by Caltrans District 4 census data (where PeMS data was not available or not reliable).

The original TEPA was using 2016 as the existing year. For the extended traffic study limits on both I-5 and I-580, to be consistent with the original TEPA report, the existing year was also determined to be 2016. Therefore, data in 2016 was used for existing conditions.

Table 2.1 lists the existing AADT and truck percentages along the I-5 and I-580 study segments from the Caltrans 2016 Traffic Volumes and Daily Truck Traffic data. The data points from the close vicinity of project limits were included in estimating average truck percentages due to limited data points within the project limits.

As shown in **Table 2.1**, the I-5 study corridor carries approximately 29% truck traffic, and the I-580 study corridor carries approximately 11% truck traffic. The I-205 truck percentages from the original TEPA report (about 12%) were used in the additional analysis for the additional Expressed Lanes alternative.

Table 2.1 Existing Daily Traffic and Truck Percentages

Freeway	Location	ADT	Truck %
I-5	Between SR 33 and Kasson Rd	24,700	30.57%
I-5	Between Kasson Rd and 11th St	24,000	32.95%
I-5	Between 11th St and I-205	152,000	26.40%
I-5	North of interchange at SR 120	127,000	25.90%
I-580	Between Patterson Pass Rd and Corral Hollow Rd	40,600	14.04%
I-580	Between N Flynn Rd and Greenville Rd	156,000	10.40%
I-580	Between Greenville Rd and Vasco Rd	156,000	8.33%

For the extended project study limits on both I-5 and I-580, to be consistent with the original TEPA report, the existing year was determined to be 2016 and peak hours to be 4:00-5:00 AM and 5:00-6:00 PM. The following efforts were made to estimate existing peak hour volumes in 2016:

- The hourly counts on mid-weekdays from September to November 2016, excluding the Thanksgiving week, along I-5 and I-580 within the study limits were extracted from the PeMS

database. The average counts during 4:00-5:00 AM and 5:00-6:00 PM over the data collection period were then calculated and used as existing volumes.

- Census counts within the study limits were obtained from Caltrans District 4 to fill up the data gaps on I-580. However, many of the census counts were collected prior to 2016 and could not be directly used in the analysis. Therefore, the following steps were taken to covert the census data to 2016 existing volumes:
  - Peak hour volumes were calculated by averaging the mid-weekday census counts from the latest available year.
  - Growth factors were calculated using the PeMS data for I-580 and I-5 during AM peak hour and PM peak hour, respectively.
  - The growth factors were applied to the peak hour volumes to obtain existing (2016) volumes.
- For mainline segments where both 2016 PeMS counts and census counts were not available, traffic volumes were calculated using the upstream/downstream mainline and ramp volumes.
- For locations where no 2016 PeMS counts or census counts were available and volumes could not be estimated due to lack of upstream/downstream volumes, the 2019 PeMS counts were used for the "back-estimation" using the growth factors discussed above.

Table 2.2 lists the finalized existing (2016) peak hour volumes as well as truck percentages along the I-5 and I-580 study corridors. I-205 data, which is exactly the same as those included in the original TEPA, is also included in this table for easier reference.

Table 2.2 Existing (2016) Peak Hour Volumes

Freeway Segment	Truck %	Existing Volume	
		AM Peak Hour (4:00-5:00 AM)	PM Peak Hour (5:00-6:00 PM)
I-205 Eastbound			
1-580 to Mountain House Pkwy off ramp	12%	2,310	3,660
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	12%	2,200	3,440
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	12%	2,510	3,790
Mountain House Pkwy on ramp to 11th St off ramp	12%	2,700	4,500
11 St off ramp to Grant Line Rd off ramp	12%	2,010	4,220
Grant Line Rd off ramp to Grant Line Rd on ramp	12%	1,680	3,490
Grant Line Rd on ramp to Tracy Blvd off ramp	12%	2,300	4,270
Tracy Blvd off ramp to Tracy Blvd on ramp	11.17%	2,150	3,840
Tracy Blvd on ramp to MacArthur Dr off ramp	11.17%	2,480	4,320
MacArthur Dr off ramp to MacArthur Dr on ramp	11.43%	2,260	3,840
MacArthur Dr on ramp to 1-5	11.43%	2,440	4,080
I-205 Westbound			
1-5 to MacArthur Dr off ramp	11.43%	3,830	2,600
MacArthur Dr off ramp to MacArthur Dr on ramp	11.43%	3,610	2,390
MacArthur Dr on ramp to Tracy Blvd off ramp	11.17%	4,030	2,650
Tracy Blvd off ramp to Tracy Blvd on ramp	11.17%	3,710	2,300
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	12%	4,310	2,520
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	12%	3,570	1,840
Naglee Rd on ramp to Grant Line Rd on ramp	12%	3,870	2,090

Freeway Segment	Truck %	Existing Volume	
		AM Peak Hour (4:00-5:00 AM)	PM Peak Hour (5:00-6:00 PM)
Grant Line Rd on ramp to 11th St on ramp	12%	4,080	2,220
11th St on ramp to Mountain House Pkwy off ramp	12%	4,400	3,500
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	12%	2,590	2,840
Mountain House Pkwy on ramp to 1-580	12%	3,930	2,990
I-5 Northbound			
Between 11th St and I-205	29.0%	686	2,434
Between I-205 and Mossdale Rd	29.0%	263	5,875
Between Mossdale Rd On- and Off-ramps	29.0%	241	5,628
Between Mossdale Rd and SR 120	29.0%	262	5,746
I-5 Southbound			
Between SR 120 and Manthey Rd	29.0%	1,820	4,168
Between Manthey Rd On- and Off-ramp	29.0%	1,762	4,198
Between Manthey Rd and I-205	29.0%	1,779	4,096
Between 11th St and I-205	29.0%	1,928	4,490
I-580 Eastbound			
Between Vasco Rd and Greenville Rd	10.9%	962	4,407
Between Greenville Rd On- and Off-Ramps	10.9%	870	6,846
Between Greenville Rd and N Flynn Rd	10.9%	322	5,116
Between N Flynn Rd On- and Off-Ramps	10.9%	288	5,025
Between N Flynn Rd and W Grant Line Rd	10.9%	110	5,511
Between W Grant Line On- and Off-Ramps	10.9%	95	5,303
Between W Grant Line Rd On-Ramp and I-205	10.9%	113	5,639
I-580 Westbound			
Between I-580 WB Bypass and Grant Line Rd	10.9%	5,921	2,987
Between W Grant Line Rd On- and Off-Ramps	10.9%	5,774	2,941
Between W Grant Line Rd and N Flynn Rd	10.9%	5,927	2,988
Between N Flynn Rd On- and Off-Ramps	10.9%	5,849	2,949
Between Greenville Rd and N Flynn Rd	10.9%	5,956	2,993
Between Greenville Rd On- and Off-Ramps	10.9%	5,931	3,236
Between Vasco Rd and Greenville Rd	10.9%	5,165	2,841

2.2 Forecasted Traffic Volumes

It was decided to use Year 2045 as the future year which is consistent with the original TEPA report, although the final design year will be 2050 for the Traffic Operations Analysis Report (TOAR) during the PA&ED phase. The intent of this TEPA update was to use readily-available data without running travel demand models. Model volumes from currently available existing and future model results were used to develop future volumes.

2.2.1 I-205

For the I-205 study corridor, the future freeway volumes remain the same as those included in the original TEPA report. For managed lanes (either HOV or EL), 1,650 vehicles per hour per lane (vphpl) was used as

the capacity, which is consistent with Caltrans and FHWA guidelines. It was assumed that future dynamic pricing would be set to maximize EL throughput.

2.2.2 I-5 and I-580

Future year freeway volumes on I-5 and I-580 were developed using post-processing methodology similar to the one used in the original TEPA report. Specifically, changes in the traffic demand between the base and future year from the travel demand models (delta method) was added to the existing traffic demands to determine the future year freeway volumes. If the forecast year of the travel demand model was prior to 2045, the future year for the TEPA update, linear extrapolation was used to derive the future year freeway volumes.

For the I-5 study corridor and a small portion of I-580 within the San Joaquin County, it was decided to use the old version of the Three County Travel Demand Model (TDM) consistent with the time when the original TEPA report was developed. In this case, the 2014 RTP Model was requested from the San Joaquin Council of Governments (SJCOG) and was used to estimate the future year volumes. Similar to I-205, the future 2040 RTP Model has an HOV lane in each direction included on the I-5 study corridor between I-205 and SR 120. Since no model runs were conducted, No Build volumes were not available. In this case, the No-Build and Build alternatives were assumed to have the same total freeway volumes (GP + HOV), which is the same assumption used in the original TEPA report for I-205.

For the I-580 corridor within the Alameda County, the Alameda County Transportation Commission (Alameda CTC) Countywide Travel Demand Model was used to estimate the future year volumes using the same methodology. The future Alameda CTC Model does not have any managed lanes (HOV or Express Lanes) on I-580. Since no model runs were conducted, Build volumes were not available. Considering that the addition of managed lanes (HOV or Express Lanes) under this project will be mostly on I-205 only, the impact on I-580 in the Alameda County could be minimal. With that, Build alternatives were not analyzed, and they were assumed to be the same as No Build. More detailed traffic forecast using the updated TDM model with an extension to the I-580/Greenville Road Interchange in Alameda County will be conducted during the PA&ED phase. With the updated traffic forecast, detailed traffic analysis will be conducted for Build alternatives for the I-580 corridor during the PA&ED phase.

Under the Build HOV alternatives, the percentages of HOVs were determined based on the volume split between General Purpose (GP) lanes and HOV lanes from the future year models. Under the Build Express Lanes (EL) alternatives, if the HOV volume was fewer than 1,650 vphpl, the EL volume was assumed to be at its capacity of 1,650 vphpl, with vehicles paying tolls to fill in the additional capacity. This was based on the assumption that future dynamic pricing would be set to maximize EL throughput. On the other hand, if the HOV volume was already at or above 1,650 vphpl, no vehicles would be allowed to pay to use the EL and therefore, the EL volume was set to be the same as the HOV volume.

Table 2.3 lists the future (2045) AM and PM peak hour mainline volumes for No Build, Build HOV, and Build EL alternatives.

Table 2.3 Future (2045) Peak Hour Volumes

Freeway Segment	Future No Build		Future Build HOV						Future Build EL					
	AM Peak Hour (4:00-5:00 AM)	PM Peak Hour (5:00-6:00 PM)	AM Peak Hour (4:00-5:00 AM)			PM Peak Hour (5:00-6:00 PM)			AM Peak Hour (4:00-5:00 AM)			PM Peak Hour (5:00-6:00 PM)		
			GP	HOV	Total	GP	HOV	Total	GP	EL	Total	GP	EL	Total
I-205 Eastbound														
West of Mountain House Pkwy off ramp	**3,405**	**6,000**	3,229	176	**3,405**	5,279	721	**6,000**	1,755	1,650	**3,405**	4,350	1,650	**6,000**
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	**3,270**	**5,340**	3,107	163	**3,270**	4,612	727	**5,340**	1,620	1,650	**3,270**	3,690	1,650	**5,340**
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	**4,322**	**5,690**	4,006	316	**4,322**	4,941	749	**5,690**	2,672	1,650	**4,322**	4,040	1,650	**5,690**
Mountain House Pkwy on ramp to 11th St off ramp	**4,558**	**6,400**	4,054	504	**4,558**	5,402	997	**6,400**	2,908	1,650	**4,558**	4,750	1,650	**6,400**
11 St off ramp to Lammers Rd off ramp	**3,830**	**5,674**	3,370	461	**3,830**	4,688	986	**5,674**	2,180	1,650	**3,830**	4,024	1,650	**5,674**
Lammers Rd off ramp to Lammers Rd on ramp	**2,816**	**5,285**	2,383	433	**2,816**	4,310	975	**5,285**	1,166	1,650	**2,816**	3,635	1,650	**5,285**
Lammers Rd on ramp to Grant Line Rd off ramp	**3,867**	**6,004**	3,421	446	**3,867**	5,032	972	**6,004**	2,217	1,650	**3,867**	4,354	1,650	**6,004**
Grant Line Rd off ramp to Grant Line Rd on ramp	**3,356**	**5,503**	2,960	396	**3,356**	4,653	850	**5,503**	1,706	1,650	**3,356**	3,853	1,650	**5,503**
Grant Line Rd on ramp to Tracy Blvd off ramp	**4,239**	**6,783**	3,908	330	**4,239**	5,558	1,225	**6,783**	2,589	1,650	**4,239**	5,133	1,650	**6,783**
Tracy Blvd off ramp to Tracy Blvd on ramp	**4,102**	**6,238**	3,787	315	**4,102**	5,075	1,163	**6,238**	2,452	1,650	**4,102**	4,588	1,650	**6,238**
Tracy Blvd on ramp to MacArthur Dr off ramp	**4,914**	**7,313**	4,058	856	**4,914**	5,760	1,553	**7,313**	3,264	1,650	**4,914**	5,663	1,650	**7,313**
MacArthur Dr off ramp to MacArthur Dr on ramp	**4,654**	**5,881**	3,859	796	**4,654**	4,480	1,401	**5,881**	3,004	1,650	**4,654**	4,231	1,650	**5,881**
MacArthur Dr on ramp to Chrisman Rd off ramp	**4,868**	**6,121**	3,881	987	**4,868**	4,593	1,528	**6,121**	3,218	1,650	**4,868**	4,471	1,650	**6,121**
Chrisman Rd off ramp to Chrisman Rd on ramp	**4,817**	**5,548**	3,874	944	**4,817**	4,108	1,441	**5,548**	3,167	1,650	**4,817**	3,898	1,650	**5,548**
Chrisman Rd on ramp to I-5	**4,840**	**5,876**	3,899	941	**4,840**	4,369	1,507	**5,876**	3,190	1,650	**4,840**	4,226	1,650	**5,876**
I-205 Westbound														
I-5 to Chrisman Rd off ramp	**6,000**	**4,737**	4,544	1,456	**6,000**	3,899	838	**4,737**	4,350	1,650	**6,000**	3,087	1,650	**4,737**
Chrisman off ramp to Chrisman Rd on ramp	**5,810**	**4,692**	4,405	1,406	**5,810**	3,866	826	**4,692**	4,160	1,650	**5,810**	3,042	1,650	**4,692**

Freeway Segment	Future No Build		Future Build HOV						Future Build EL					
	AM Peak Hour (4:00-5:00 AM)	PM Peak Hour (5:00-6:00 PM)	AM Peak Hour (4:00-5:00 AM)			PM Peak Hour (5:00-6:00 PM)			AM Peak Hour (4:00-5:00 AM)			PM Peak Hour (5:00-6:00 PM)		
			GP	HOV	Total	GP	HOV	Total	GP	EL	Total	GP	EL	Total
Chrisman Rd on ramp to MacArthur Dr off ramp	**6,387**	**4,910**	4,932	1,454	**6,387**	4,039	871	**4,910**	4,737	1,650	**6,387**	3,260	1,650	**4,910**
MacArthur Dr off ramp to MacArthur Dr on ramp	**6,144**	**4,472**	4,904	1,239	**6,144**	3,935	537	**4,472**	4,494	1,650	**6,144**	2,822	1,650	**4,472**
MacArthur Dr on ramp to Tracy Blvd off ramp	**7,420**	**4,727**	5,899	1,520	**7,420**	4,142	586	**4,727**	5,770	1,650	**7,420**	3,077	1,650	**4,727**
Tracy Blvd off ramp to Tracy Blvd on ramp	**6,396**	**4,140**	5,372	1,024	**6,396**	3,818	322	**4,140**	4,746	1,650	**6,396**	2,490	1,650	**4,140**
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	**6,996**	**4,368**	5,690	1,305	**6,996**	4,026	342	**4,368**	5,346	1,650	**6,996**	2,718	1,650	**4,368**
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	**6,069**	**3,778**	5,094	975	**6,069**	3,482	296	**3,778**	4,419	1,650	**6,069**	2,128	1,650	**3,778**
Naglee Rd on ramp to Grant Line Rd on ramp	**6,199**	**4,352**	5,124	1,075	**6,199**	4,015	337	**4,352**	4,549	1,650	**6,199**	2,702	1,650	**4,352**
Grant Line Rd on ramp to Lammers Rd off ramp	**6,319**	**4,652**	5,231	1,088	**6,319**	4,292	360	**4,652**	4,669	1,650	**6,319**	3,002	1,650	**4,652**
Lammers Rd off ramp to Lammers Rd on ramp	**6,098**	**4,136**	4,995	1,103	**6,098**	3,802	335	**4,136**	4,448	1,650	**6,098**	2,486	1,650	**4,136**
Lammers Rd on ramp to 11th St on ramp	**6,293**	**4,518**	5,154	1,139	**6,293**	4,104	414	**4,518**	4,643	1,650	**6,293**	2,868	1,650	**4,518**
11th St on ramp to Mountain House Pkwy off ramp	**6,870**	**5,382**	5,769	1,101	**6,870**	4,833	549	**5,382**	5,220	1,650	**6,870**	3,732	1,650	**5,382**
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	**5,060**	**3,854**	4,486	574	**5,060**	3,642	213	**3,854**	3,410	1,650	**5,060**	2,204	1,650	**3,854**
West of Mountain House Pkwy on ramp	**7,139**	**4,024**	6,531	608	**7,139**	3,810	214	**4,024**	5,489	1,650	**7,139**	2,374	1,650	**4,024**
I-5 Northbound														
Between 11th St and I-205	**1,232**	**3,585**	1,232	-	**1,232**	3,585	-	**3,585**	1,232	-	**1,232**	3,585	-	**3,585**
Between I-205 and Mossdale Rd	**3,692**	**10,645**	2,877	815	**3,692**	8,946	1,699	**10,645**	2,042	1,650	**3,692**	8,946	1,699	**10,645**
Between Mossdale Rd On- and Off-ramps	**3,670**	**10,397**	2,860	810	**3,670**	8,738	1,659	**10,397**	2,020	1,650	**3,670**	8,738	1,659	**10,397**
Between Mossdale Rd and SR 120	**3,692**	**10,515**	2,877	815	**3,692**	8,837	1,678	**10,515**	2,042	1,650	**3,692**	8,837	1,678	**10,515**
I-5 Southbound														
Between SR 120 and Manthey Rd	**6,713**	**6,606**	5,234	1,479	**6,713**	5,269	1,337	**6,606**	5,063	1,650	**6,713**	4,956	1,650	**6,606**
Between Manthey Rd On- and Off-ramp	**6,655**	**6,636**	5,189	1,466	**6,655**	5,293	1,343	**6,636**	5,005	1,650	**6,655**	4,986	1,650	**6,636**
Between Manthey Rd and I-205	**6,673**	**6,534**	5,202	1,471	**6,673**	5,211	1,323	**6,534**	5,023	1,650	**6,673**	4,884	1,650	**6,534**

Freeway Segment	Future No Build		Future Build HOV						Future Build EL					
	AM Peak Hour (4:00-5:00 AM)	PM Peak Hour (5:00-6:00 PM)	AM Peak Hour (4:00-5:00 AM)			PM Peak Hour (5:00-6:00 PM)			AM Peak Hour (4:00-5:00 AM)			PM Peak Hour (5:00-6:00 PM)		
			GP	HOV	Total	GP	HOV	Total	GP	EL	Total	GP	EL	Total
Between 11th St and I-205	**1,928**	**4,624**	1,928	-	**1,928**	4,624	-	**4,624**	1,928	-	**1,928**	4,624	-	**4,624**
I-580 Eastbound														
Between Vasco Rd and Greenville Rd	**1,910**	**8,741**	1,910	-	**1,910**	8,741	-	**8,741**	1,910	-	**1,910**	8,741	-	**8,741**
Between Greenville Rd On- and Off-Ramps	**1,632**	**10,970**	1,632	-	**1,632**	10,970	-	**10,970**	1,632	-	**1,632**	10,970	-	**10,970**
Between Greenville Rd and N Flynn Rd	**1,311**	**9,801**	1,311	-	**1,311**	9,801	-	**9,801**	1,311	-	**1,311**	9,801	-	**9,801**
Between N Flynn Rd On- and Off-Ramps	**1,276**	**9,079**	1,276	-	**1,276**	9,079	-	**9,079**	1,276	-	**1,276**	9,079	-	**9,079**
Between N Flynn Rd and W Grant Line Rd	**1,098**	**9,566**	1,098	-	**1,098**	9,566	-	**9,566**	1,098	-	**1,098**	9,566	-	**9,566**
Between W Grant Line On- and Off-Ramps	**1,107**	**9,230**	1,107	-	**1,107**	9,230	-	**9,230**	1,107	-	**1,107**	9,230	-	**9,230**
Between W Grant Line Rd On-Ramp and I-205	**985**	**10,340**	985	-	**985**	10,340	-	**10,340**	985	-	**985**	10,340	-	**10,340**
I-580 Westbound														
Between I-580 WB Bypass and Grant Line Rd	**10,256**	**4,854**	10,256	-	**10,256**	4,854	-	**4,854**	10,256	-	**10,256**	4,854	-	**4,854**
Between W Grant Line Rd On- and Off-Ramps	**9,725**	**4,822**	9,725	-	**9,725**	4,822	-	**4,822**	9,725	-	**9,725**	4,822	-	**4,822**
Between W Grant Line Rd and N Flynn Rd	**10,144**	**4,929**	10,144	-	**10,144**	4,929	-	**4,929**	10,144	-	**10,144**	4,929	-	**4,929**
Between N Flynn Rd On- and Off-Ramps	**10,334**	**4,890**	10,334	-	**10,334**	4,890	-	**4,890**	10,334	-	**10,334**	4,890	-	**4,890**
Between Greenville Rd and N Flynn Rd	**10,441**	**4,934**	10,441	-	**10,441**	4,934	-	**4,934**	10,441	-	**10,441**	4,934	-	**4,934**
Between Greenville Rd On- and Off-Ramps	**9,963**	**5,079**	9,963	-	**9,963**	5,079	-	**5,079**	9,963	-	**9,963**	5,079	-	**5,079**
Between Vasco Rd and Greenville Rd	**9,893**	**4,911**	9,893	-	**9,893**	4,911	-	**4,911**	9,893	-	**9,893**	4,911	-	**4,911**

2.3 Traffic Operations Analysis Methodology

The Highway Capacity Manual 2010 (HCM 2010) methodologies used in the original TEPA report were applied for this TEPA update, where freeway mainline traffic operations were analyzed and characterized by the density-based level of service (LOS). The LOS criteria are listed in **Table 2.4**. Also being consistent with the original TEPA report, volume-to-capacity (v/c) ratio was used as the performance measure for managed lanes (i.e., HOV lanes or Express Lanes).

Table 2.4 LOS Criteria for Freeway Mainline Segments

LOS	Basic Freeway Density (pc/mi/ln)
A	0 - 11
B	> 11 - 18
C	> 18 - 26
D	> 26 - 35
E	> 35 - 45
F	> 45 or Demand exceeds capacity

Source: HCM 2010, Exhibit 11-5

2.3.1 Freeway Level of Service Analysis

For freeway mainline segments, LOS analysis was performed based on the HCM 2010 methodologies using the HCS software. For I-205, the LOS parameters remain the same as included in the original TEPA report. For I-5 and I-580, the LOS parameters are as follows:

- Free Flow Speed (FFS) – 65 mph
- Peak Hour Factor (PHF) – PHFs were determined using the 2016 PeMS data as shown in **Table 2.5**

Table 2.5 Peak Hour Factors for I-5 and I-580

Freeway	PHF	
	AM Peak Hour	PM Peak Hour
I-5	0.91	0.95
I-205	0.94	0.93

- Truck Percentage – Based on the Caltrans 2016 Traffic Volumes and Daily Truck Traffic, the truck percentage is 29% for the I-5 study corridor and 10.9% for the I-580 study corridor.
- Acceptable LOS – LOS D is the lowest acceptable LOS.

2.3.2 Managed Lane Analysis

For managed lanes (i.e., HOV lanes, Express Lanes), 1,650 vehicles per hour per lane (vphpl) was used as the capacity, which is consistent with Caltrans and FHWA guidelines. It was assumed that future dynamic pricing would be set to maximize EL throughput while maintaining a minimum speed of 45 mph. Consistent with the original TEPA report, a volume greater than 1,650 vphpl in a managed lane is considered unacceptable.

3 ASSESSMENT RESULTS

This section summarizes the peak-hour assessment results under the Existing (2016) and Future (2045) conditions.

3.1 Existing Year (2016) Conditions

The results of freeway segment analysis for I-205, I-5, and I-580 under the existing conditions are shown in **Table 3.1**, **Table 3.2**, and **Table 3.3**, respectively. The I-205 results are exactly the same as in the original TEPA report, while the I-5 and I-580 results are based on the new analysis. As shown, all freeway mainline segments operated at LOS D or better in 2016 during both AM and PM peak hours.

Table 3.1 Existing (2016) Freeway Level of Service – I-205

I-205	Lanes*	AM Peak Hour (4:00-5 :00AM)			PM Peak Hour (5:00-6:00 PM)		
		Volume	Density	LOS	Volume	Density	LOS
I-205 Eastbound							
I-580 to Mountain House Pkwy off ramp	3	2,310	13.6	B	3,660	21.6	C
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	3	2,200	13.0	B	3,440	20.3	C
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	3	2,510	14.8	B	3,790	22.4	C
Mountain House Pkwy on ramp to 11th St off ramp	4	2,700	12.0	B	4,500	19.9	C
11 St off ramp to Grant Line Rd off ramp	3	2,010	11.9	B	4,220	25.2	C
Grant Line Rd off ramp to Grant Line Rd on ramp	3	1,680	9.9	A	3,490	20.6	C
Grant Line Rd on ramp to Tracy Blvd off ramp	3	2,300	13.6	B	4,270	25.6	C
Tracy Blvd off ramp to Tracy Blvd on ramp	3	2,150	12.6	B	3,840	22.6	C
Tracy Blvd on ramp to MacArthur Dr off ramp	3	2,480	14.6	B	4,320	25.8	C
MacArthur Dr off ramp to MacArthur Dr on ramp	3	2,260	13.4	B	3,840	22.7	C
MacArthur Dr on ramp to I-5	3	2,440	14.4	B	4,080	24.3	C
I-205 Westbound							
I-5 to MacArthur Dr off ramp	3	3,830	22.7	C	2,600	15.4	B
MacArthur Dr off ramp to MacArthur Dr on ramp	3	3,610	21.3	C	2,390	14.1	B
MacArthur Dr on ramp to Tracy Blvd off ramp	3	4,030	23.8	C	2,650	15.6	B
Tracy Blvd off ramp to Tracy Blvd on ramp	3	3,710	21.9	C	2,300	13.6	B
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	3	4,310	25.8	C	2,520	14.9	B
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	3	3,570	21.1	C	1,840	10.9	A
Naglee Rd on ramp to Grant Line Rd on ramp	3	3,870	22.9	C	2,090	12.4	B
Grant Line Rd on ramp to 11th St on ramp	3	4,080	24.3	C	2,220	13.1	B
11th St on ramp to Mountain House Pkwy off ramp	4	4,400	19.5	C	3,500	15.5	B
Mountain House Pkwy off ramp to Mo.untain House Pkwy on ramp	3	2,590	15.3	B	2,840	16.8	B
Mountain House Pkwy on ramp to 1- 580	3	3,930	23.3	C	2,990	17.7	B

* Auxiliary lanes, where available, are included based on HCM definition.

Table 3.2 Existing (2016) Freeway Level of Service – I-5

I-5	Lanes*	AM Peak Hour (4:00-5 :00AM)			PM Peak Hour (5:00-6:00 PM)		
		Volume	Density	LOS	Volume	Density	LOS
I-5 Northbound							
Between 11th St and I-205	3	686	4.1	A	2,434	14.0	B
Between I-205 and Mossdale Rd	5	263	0.9	A	5,875	20.4	C
Between Mossdale Rd On and Off-ramps	5	241	0.9	A	5,628	19.5	C
Between Mossdale Rd and SR 120	5	262	0.9	A	5,746	19.9	C
I-5 Southbound							
Between SR 120 and Manthey Rd	5	1,820	6.5	A	4,168	14.4	B
Between Manthey Rd On and Off-ramp	5	1,762	6.3	A	4,198	14.5	B
Between Manthey Rd and I-205	5	1,779	6.4	A	4,096	14.1	B
Between 11th St and I-205	3	1,928	11.6	B	4,490	27.4	D

* Auxiliary lanes, where available, are included based on HCM definition.

Table 3.3 Existing (2016) Freeway Level of Service – I-580

I-580	Lanes*	AM Peak Hour (4:00-5 :00AM)			PM Peak Hour (5:00-6:00 PM)		
		Volume	Density	LOS	Volume	Density	LOS
I-580 Eastbound							
Between Vasco Rd and Greenville Rd	6	962	2.6	A	4,407	11.9	B
Between Greenville Rd On- and Off-Ramps	5	870	2.8	A	6,846	22.7	C
Between Greenville Rd and N Flynn Rd	5	322	1.0	A	5,116	16.6	B
Between N Flynn Rd On- and Off-Ramps	5	288	0.9	A	5,025	16.3	B
Between N Flynn Rd and W Grant Line Rd	4	110	0.4	A	5,511	22.8	C
Between W Grant Line On- and Off-Ramps	4	95	0.4	A	5,303	21.8	C
Between W Grant Line Rd On-Ramp and I-205	4	113	0.5	A	5,639	23.5	C
I-580 Westbound							
Between I-580 WB Bypass and Grant Line Rd	6	5,921	15.8	B	2,987	8.1	A
Between W Grant Line Rd On and Off-Ramps	5	5,774	18.5	C	2,941	9.5	A
Between W Grant Line Rd and N Flynn Rd	4	5,927	24.6	C	2,988	12.1	B
Between N Flynn Rd On and Off-Ramps	4	5,849	24.2	C	2,949	11.9	B
Between Greenville Rd and N Flynn Rd	4	5,956	24.8	C	2,993	12.1	B
Between Greenville Rd On and Off-Ramps	4	5,931	24.7	C	3,236	13.1	B
Between Vasco Rd and Greenville Rd	6	5,165	13.8	B	2,841	7.7	A

* Auxiliary lanes, where available, are included based on HCM definition.

3.2 Future Year (2045) No Build

The results of freeway segment analysis for I-205, I-5, and I-580 under the future No Build scenarios are shown in **Table 3.4**, **Table 3.5**, and **Table 3.6**, respectively. The I-205 results are exactly the same as in the original TEPA report, while the I-5 and I-580 results are based on the new analysis.

- **I-205**: As shown in **Table 3.4**, 13 segments in the westbound direction are projected to operate at unsatisfactory LOS (LOS E or F) during the AM peak hour. During the PM peak hour, 12 segments in the eastbound direction are projected to operate at unsatisfactory LOS.

- **I-5**: As shown in **Table 3.5,** no segments are projected to operate at unsatisfactory LOS during the AM peak hour. During the PM peak hour, three (3) segments in the northbound direction are projected to operate at unsatisfactory LOS.
- **I-580**: As shown in **Table 3.6,** five (5) segments in the westbound direction are projected to operate at unsatisfactory LOS during the AM peak hour. During the PM peak hour, five (5) segments in the eastbound direction are projected to operate at unsatisfactory LOS.

Table 3.4 Future (2045) No-Build Freeway Level of Service – I-205

I-205	Lanes*	AM Peak Hour (4:00-5 :00AM)			PM Peak Hour (5:00-6:00 PM)		
		Volume	Density	LOS	Volume	Density	LOS
I-205 Eastbound							
West of Mountain House Pkwy off ramp	3	3,405	20.1	C	6,000	43.1	E
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	3	3,270	19.3	C	5,340	34.8	D
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	3	4,322	25.9	C	5,690	38.8	E
Mountain House Pkwy on ramp to 11th St off ramp	4	4,558	20.2	C	6,400	29.6	D
11 St off ramp to Lammers Rd off ramp	3	3,830	22.7	C	5,674	38.6	E
Lammers Rd off ramp to Lammers Rd on ramp	3	2,816	16.6	B	5,285	34.2	D
Lammers Rd on ramp to Grant Line Rd off ramp	3	3,867	22.9	C	6,004	43.2	E
Grant Line Rd off ramp to Grant Line Rd on ramp	3	3,356	19.8	C	5,503	36.6	E
Grant Line Rd on ramp to Tracy Blvd off ramp	3	4,239	25.3	C	6,783	58.7	F
Tracy Blvd off ramp to Tracy Blvd on ramp	3	4,102	24.3	C	6,238	46.5	F
Tracy Blvd on ramp to MacArthur Dr off ramp	3	4,914	30.4	D	7,313	74.7	F
MacArthur Dr off ramp to MacArthur Dr on ramp	3	4,654	28.4	D	5,881	41.4	E
MacArthur Dr on ramp to Chrisman Rd off ramp	3	4,868	30.2	D	6,121	45.1	F
Chrisman Rd off ramp to Chrisman Rd on ramp	3	4,817	29.8	D	5,548	37.1	E
Chrisman Rd on ramp to I-5	3	4,840	30.0	D	5,876	41.3	E
I-205 Westbound							
I-5 to Chrisman Rd off ramp	3	6,000	43.1	E	4,737	29.1	D
Chrisman off ramp to Chrisman Rd on ramp	3	5,810	40.4	E	4,692	28.7	D
Chrisman Rd on ramp to MacArthur Dr off ramp	3	6,387	49.8	F	4,910	30.6	D
MacArthur Dr off ramp to MacArthur Dr on ramp	3	6,144	45.4	F	4,472	27.0	D
MacArthur Dr on ramp to Tracy Blvd off ramp	3	7,420	79.3	F	4,727	28.8	D
Tracy Blvd off ramp to Tracy Blvd on ramp	3	6,396	49.9	F	4,140	24.7	C
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	3	6,996	64.7	F	4,368	26.3	D
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	3	6,069	44.2	E	3,778	22.3	C
Naglee Rd on ramp to Grant Line Rd on ramp	3	6,199	46.4	F	4,352	26.1	D
Grant Line Rd on ramp to Lammers Rd off ramp	3	6,319	48.S	F	4,652	28.4	D
Lammers Rd off ramp to Lammers Rd on ramp	3	6,098	44.7	E	4,136	24.6	C
Lammers Rd on ramp to 11th St on ramp	3	6,293	48.0	F	4,518	27.4	D
11th St on ramp to Mountain House Pkwy off ramp	4	6,870	32.8	D	5,382	24.0	C

I-205	Lanes*	AM Peak Hour (4:00-5 :00AM)			PM Peak Hour (5:00-6:00 PM)		
		Volume	Density	LOS	Volume	Density	LOS
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	3	5,060	31.9	D	3,854	22.8	C
West of Mountain House Pkwy on ramp	3	7,139	69.5	F	4,024	23.9	C

* Auxiliary lanes, where available, are included based on HCM definition.
Shaded cell represents unacceptable LOS.

Table 3.5 Future (2045) No-Build Freeway Level of Service – I-5

I-5	Lanes*	AM Peak Hour (4:00-5 :00AM)			PM Peak Hour (5:00-6:00 PM)		
		Volume	Density	LOS	Volume	Density	LOS
I-5 Northbound							
Between 11th St and I-205	3	1,232	7.4	A	3,585	20.8	C
Between I-205 and Mossdale Rd	5	3,692	13.3	B	10,645	53.1	F
Between Mossdale Rd On and Off-ramps	5	3,670	13.2	B	10,397	49.9	F
Between Mossdale Rd and SR 120	5	3,692	13.3	B	10,515	51.4	F
I-5 Southbound							
Between SR 120 and Manthey Rd	5	6,713	25.1	C	6,606	C	C
Between Manthey Rd On and Off-ramp	5	6,655	24.9	C	6,636	C	C
Between Manthey Rd and I-205	5	6,673	24.9	C	6,534	C	C
Between 11th St and I-205	3	1,928	11.6	B	4,624	D	D

* Auxiliary lanes, where available, are included based on HCM definition.
Shaded cell represents unacceptable LOS.

Table 3.6 Future (2045) No-Build Freeway Level of Service – I-580

I-580	Lanes*	AM Peak Hour (4:00-5 :00AM)			PM Peak Hour (5:00-6:00 PM)		
		Volume	Density	LOS	Volume	Density	LOS
I-580 Eastbound							
Between Vasco Rd and Greenville Rd	6	1,910	5.1	A	8,741	24.4	C
Between Greenville Rd On- and Off-Ramps	5	1,632	5.2	A	10,970	49.1	F
Between Greenville Rd and N Flynn Rd	5	1,311	4.2	A	9,801	38.5	E
Between N Flynn Rd On- and Off-Ramps	5	1,276	4.1	A	9,079	33.5	D
Between N Flynn Rd and W Grant Line Rd	4	1,098	4.4	A	9,566	62.4	F
Between W Grant Line On- and Off-Ramps	4	1,107	4.4	A	9,230	56.1	F
Between W Grant Line Rd On-Ramp and I-205	4	985	3.9	A	10,340	83.3	F
I-580 Westbound							
Between I-580 WB Bypass and Grant Line Rd	6	10,256	30.0	D	4,854	13.1	B
Between W Grant Line Rd On and Off-Ramps	5	9,725	37.1	E	4,822	15.6	B
Between W Grant Line Rd and N Flynn Rd	4	10,144	73.8	F	4,929	20.1	C
Between N Flynn Rd On and Off-Ramps	4	10,334	79.5	F	4,890	19.9	C
Between Greenville Rd and N Flynn Rd	4	10,441	83.0	F	4,934	20.1	C
Between Greenville Rd On and Off-Ramps	4	9,963	69.0	F	5,079	20.8	C
Between Vasco Rd and Greenville Rd	6	9,893	28.4	D	4,911	13.3	B

* Auxiliary lanes, where available, are included based on HCM definition.
Shaded cell represents unacceptable LOS.

3.3 Future Year (2045) Build – HOV Alternative

3.3.1 Freeway GP Lane LOS

The results of freeway GP lane segment analysis for I-205 and I-5 under the future Build HOV scenarios are shown in **Table 3.7** and **Table 3.8**, respectively. The I-205 results are exactly the same as in the original TEPA report, while the I-5 results are based on the new analysis. For I-580, as discussed earlier, the future Alameda CTC Model does not have any managed lanes (HOV or Express Lanes) on I-580. Since no model runs were conducted for the TEPA update, Build volumes were not available. Considering that the addition of managed lanes (HOV or Express Lanes) under this project will be mostly on I-205 only, the impact on I-580 in the Alameda County could be minimal. With that, Build alternatives were not analyzed, and they were assumed to be the same as No Build. More detailed traffic forecast using the updated TDM model with an extension to the I-580/Greenville Road Interchange in Alameda County will be conducted during the PA&ED phase. With the updated traffic forecast, detailed traffic analysis will be conducted for Build alternatives for the I-580 corridor during the PA&ED phase.

- **I-205**: As shown in **Table 3.7**, four (4) segments in the westbound direction are projected to operate at unsatisfactory LOS (LOS E or F) during the AM peak hour. During the PM peak hour, two (2) segments in the eastbound direction are projected to operate at unsatisfactory LOS.
- **I-5**: As shown in **Table 3.8,** no segments are projected to operate at unsatisfactory LOS during the AM peak hour. During the PM peak hour, two (2) segments in the northbound direction are projected to operate at unsatisfactory LOS.

Table 3.7 Future (2045) Build HOV Alternative: GP Lane Level of Service – I-205

I-205	Lanes*	AM Peak Hour (4:00-5 :00AM)			PM Peak Hour (5:00-6:00 PM)		
		GP Volume	GP Density	GP LOS	GP Volume	GP Density	GP LOS
I-205 Eastbound							
West of Mountain House Pkwy off ramp	3	3,229	19.1	C	5,279	34.1	D
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	3	3,107	18.4	C	4,612	28.1	D
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	3	4,006	23.8	C	4,941	30.9	D
Mountain House Pkwy on ramp to 11th St off ramp	4	4,054	18.0	C	5,402	24.1	C
11 St off ramp to Lammers Rd off ramp	3	3,370	19.9	C	4,688	28.7	D
Lammers Rd off ramp to Lammers Rd on ramp	3	2,383	14.1	B	4,310	25.8	C
Lammers Rd on ramp to Grant Line Rd off ramp	3	3,421	20.2	C	5,032	31.7	D
Grant Line Rd off ramp to Grant Line Rd on ramp	3	2,960	17.5	B	4,653	28.4	D
Grant Line Rd on ramp to Tracy Blvd off ramp	3	3,908	23.1	C	5,558	37.2	E
Tracy Blvd off ramp to Tracy Blvd on ramp	3	3,787	22.3	C	5,075	31.9	D
Tracy Blvd on ramp to MacArthur Dr off ramp	3	4,058	24.0	C	5,760	39.4	E
MacArthur Dr off ramp to MacArthur Dr on ramp	3	3,859	22.8	C	4,480	27.1	D
MacArthur Dr on ramp to Chrisman Rd off ramp	3	3,881	23.0	C	4,593	27.9	D
Chrisman Rd off ramp to Chrisman Rd on ramp	3	3,874	22.9	C	4,108	24.4	C
Chrisman Rd on ramp to I-5	3	3,899	23.1	C	4,369	26.3	D
I-205 Westbound							

I-205	Lanes*	AM Peak Hour (4:00-5 :00AM)			PM Peak Hour (5:00-6:00 PM)		
		GP Volume	GP Density	GP LOS	GP Volume	GP Density	GP LOS
I-5 to Chrisman Rd off ramp	3	4,544	27.6	D	3,899	23.1	C
Chrisman off ramp to Chrisman Rd on ramp	3	4,405	26.5	D	3,866	22.9	C
Chrisman Rd on ramp to MacArthur Dr off ramp	3	4,932	30.8	D	4,039	24.0	C
MacArthur Dr off ramp to MacArthur Dr on ramp	3	4,904	30.5	D	3,935	23.3	C
MacArthur Dr on ramp to Tracy Blvd off ramp	3	5,899	41.3	E	4,142	24.5	C
Tracy Blvd off ramp to Tracy Blvd on ramp	3	5,372	35.1	E	3,818	22.6	C
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	3	5,690	38.8	E	4,026	23.9	C
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	3	5,094	32.3	D	3,482	20.6	C
Naglee Rd on ramp to Grant Line Rd on ramp	3	5,124	32.6	D	4,015	23.8	C
Grant Line Rd on ramp to Lammers Rd off ramp	3	5,231	33.6	D	4,292	25.7	C
Lammers Rd off ramp to Lammers Rd on ramp	3	4,995	31.3	D	3,802	22.5	C
Lammers Rd on ramp to 11th St on ramp	3	5,154	32.8	D	4,104	24.4	C
11th St on ramp to Mountain House Pkwy off ramp	4	5,769	26.0	D	4,833	21.4	C
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	3	4,486	27.1	D	3,642	21.5	C
West of Mountain House Pkwy on ramp	3	6,531	52.7	F	3,810	22.5	C

* Auxiliary lanes, where available, are included based on HCM definition.
Shaded cell represents unacceptable LOS.

Table 3.8 Future (2045) Build HOV Alternative: GP Lane Level of Service – I-5

I-5	Lanes*	AM Peak Hour (4:00-5 :00AM)			PM Peak Hour (5:00-6:00 PM)		
		GP Volume	Density	LOS	GP Volume	Density	LOS
I-5 Northbound							
Between 11th St and I-205#	3	1,232	7.4	A	3,585	20.8	C
Between I-205 and Mossdale Rd	5	2,877	10.3	A	8,946	36.3	E
Between Mossdale Rd On and Off-ramps	5	2,860	10.3	A	8,738	34.8	D
Between Mossdale Rd and SR 120	5	2,877	10.3	A	8,837	35.5	E
I-5 Southbound							
Between SR 120 and Manthey Rd	5	5,234	18.9	C	5,269	18.2	C
Between Manthey Rd On and Off-ramp	5	5,189	18.7	C	5,293	18.2	C
Between Manthey Rd and I-205	5	5,202	18.7	C	5,211	18.0	C
Between 11th St and I-205#	3	1,928	11.6	B	4,624	28.6	D

* Auxiliary lanes, where available, are included based on HCM definition.
Shaded cell represents unacceptable LOS.
Segments marked with "#" do not have HOV lane and thus the LOS results are the same as under the No-Build scenario.

3.3.2 HOV Lane V/C Ratio Analysis

The results of HOV lane analysis for I-205 and I-5 under the future Build HOV scenarios are represented in terms of v/c ratios as listed in **Table 3.9** and **Table 3.10**, respectively. For I-580, as discussed earlier, the

future Alameda CTC Model does not have any managed lanes (HOV or Express Lanes) on I-580. Since no model runs were conducted for the TEPA update, Build volumes were not available. Considering that the addition of managed lanes (HOV or Express Lanes) under this project will be mostly on I-205 only, the impact on I-580 in the Alameda County could be minimal. With that, Build alternatives were not analyzed for I-580.

- **I-205**: All HOV segments are projected to operate at v/c ratio less than 1.
- **I-5**: Three (3) HOV segments in the northbound direction are projected to operate at v/c ratio slightly greater than 1 during the PM peak hour.

Table 3.9 Future (2045) Build HOV Alternative: HOV Lane V/C Analysis – I-205

I-205	AM Peak Hour (4:00-5 :00AM)		PM Peak Hour (5:00-6:00 PM)	
	HOV Volume	V/C	HOV Volume	V/C
I-205 Eastbound				
West of Mountain House Pkwy off ramp	176	0.11	721	0.44
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	163	0.10	727	0.44
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	316	0.19	749	0.45
Mountain House Pkwy on ramp to 11th St off ramp	504	0.31	997	0.60
11 St off ramp to Lammers Rd off ramp	461	0.28	986	0.60
Lammers Rd off ramp to Lammers Rd on ramp	433	0.26	975	0.59
Lammers Rd on ramp to Grant Line Rd off ramp	446	0.27	972	0.59
Grant Line Rd off ramp to Grant Line Rd on ramp	396	0.24	850	0.52
Grant Line Rd on ramp to Tracy Blvd off ramp	330	0.20	1,225	0.74
Tracy Blvd off ramp to Tracy Blvd on ramp	315	0.19	1,163	0.70
Tracy Blvd on ramp to MacArthur Dr off ramp	856	0.52	1,553	0.94
MacArthur Dr off ramp to MacArthur Dr on ramp	796	0.48	1,401	0.85
MacArthur Dr on ramp to Chrisman Rd off ramp	987	0.60	1,528	0.93
Chrisman Rd off ramp to Chrisman Rd on ramp	944	0.57	1,441	0.87
Chrisman Rd on ramp to I-5	941	0.57	1,507	0.91
I-205 Westbound				
I-5 to Chrisman Rd off ramp	1,456	0.88	838	0.51
Chrisman off ramp to Chrisman Rd on ramp	1,406	0.85	826	0.50
Chrisman Rd on ramp to MacArthur Dr off ramp	1,454	0.88	871	0.53
MacArthur Dr off ramp to MacArthur Dr on ramp	1,239	0.75	537	0.33
MacArthur Dr on ramp to Tracy Blvd off ramp	1,520	0.92	586	0.35
Tracy Blvd off ramp to Tracy Blvd on ramp	1,024	0.62	322	0.20
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	1,305	0.79	342	0.21
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	975	0.59	296	0.18
Naglee Rd on ramp to Grant Line Rd on ramp	1,075	0.65	337	0.20
Grant Line Rd on ramp to Lammers Rd off ramp	1,088	0.66	360	0.22
Lammers Rd off ramp to Lammers Rd on ramp	1,103	0.67	335	0.20
Lammers Rd on ramp to 11th St on ramp	1,139	0.69	414	0.25
11th St on ramp to Mountain House Pkwy off ramp	1,101	0.67	549	0.33

I-205	AM Peak Hour (4:00-5 :00AM)		PM Peak Hour (5:00-6:00 PM)	
	HOV Volume	V/C	HOV Volume	V/C
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	574	0.35	213	0.13
West of Mountain House Pkwy on ramp	608	0.37	214	0.13

Table 3.10 Future (2045) Build HOV Alternative: HOV Lane V/C Analysis – I-5

I-5	AM Peak Hour (4:00-:005 AM)		PM Peak Hour (5:00-6:00 PM)	
	HOV Volume	V/C	HOV Volume	V/C
I-5 Northbound				
Between 11th St and I-205#	-	-	-	-
Between I-205 and Mossdale Rd	815	0.49	1,699	1.03
Between Mossdale Rd On and Off-ramps	810	0.49	1,659	1.01
Between Mossdale Rd and SR 120	815	0.49	1,678	1.02
I-5 Southbound				
Between SR 120 and Manthey Rd	1,479	0.90	1,337	0.81
Between Manthey Rd On and Off-ramp	1,466	0.89	1,343	0.81
Between Manthey Rd and I-205	1,471	0.89	1,323	0.80
Between 11th St and I-205#	-	-	-	-

Notes: Shaded cell represents v/c ratio that exceeds 1.0
Segments marked with "#" do not have HOV lane and thus were not analyzed.

3.4 Future Year (2045) Build – Express Lane Alternative

3.4.1 Freeway GP Lane LOS

The results of freeway GP lane segment analysis for I-205 and I-5 under the future Build EL scenarios are shown in **Table 3.11** and **Table 3.12**, respectively. The I-205 results are exactly the same as in the original TEPA report, while the I-5 results are based on the new analysis. For I-580, as discussed earlier, the future Alameda CTC Model does not have any managed lanes (HOV or Express Lanes) on I-580. Since no model runs were conducted for the TEPA update, Build volumes were not available. Considering that the addition of managed lanes (HOV or Express Lanes) under this project will be mostly on I-205 only, the impact on I-580 in the Alameda County could be minimal. With that, Build alternatives were not analyzed, and they were assumed to be the same as No Build. More detailed traffic forecast using the updated TDM model with an extension to the I-580/Vasco Road Interchange in Alameda County will be conducted during the PA&ED phase. With the updated traffic forecast, detailed traffic analysis will be conducted for Build alternatives for the I-580 corridor during the PA&ED phase.

- **I-205**: As shown in **Table 3.11**, two (2) segments in the westbound direction are projected to operate at unsatisfactory LOS (LOS E or F) during the AM peak hour. During the PM peak hour, one (1) segment in the eastbound direction are projected to operate at unsatisfactory LOS.
- **I-5**: As shown in **Table 3.12,** no segments are projected to operate at unsatisfactory LOS during the AM peak hour. During the PM peak hour, two (2) segments in the northbound direction are projected to operate at unsatisfactory LOS.

Table 3.11 Future (2045) Build EL Alternative: GP Lane Level of Service – I-205

I-205	Lanes*	AM Peak Hour (4:00-5 :00AM)			PM Peak Hour (5:00-6:00 PM)		
		GP Volume	GP Density	GP LOS	GP Volume	GP Density	GP LOS
I-205 Eastbound							
West of Mountain House Pkwy off ramp	3	1,755	10.4	A	4,350	26.1	D
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	3	1,620	9.6	A	3,690	21.8	C
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	3	2,672	15.8	B	4,040	24.0	C
Mountain House Pkwy on ramp to 11th St off ramp	4	2,908	12.9	B	4,750	21.0	C
11 St off ramp to Lammers Rd off ramp	3	2,180	12.9	B	4,024	23.9	C
Lammers Rd off ramp to Lammers Rd on ramp	3	1,166	6.9	A	3,635	21.5	C
Lammers Rd on ramp to Grant Line Rd off ramp	3	2,217	13.1	B	4,354	26.1	D
Grant Line Rd off ramp to Grant Line Rd on ramp	3	1,706	10.1	A	3,853	22.8	C
Grant Line Rd on ramp to Tracy Blvd off ramp	3	2,589	15.3	B	5,133	32.6	D
Tracy Blvd off ramp to Tracy Blvd on ramp	3	2,452	14.4	B	4,588	27.7	D
Tracy Blvd on ramp to MacArthur Dr off ramp	3	3,264	19.2	C	5,663	38.2	E
MacArthur Dr off ramp to MacArthur Dr on ramp	3	3,004	17.7	B	4,231	25.1	C
MacArthur Dr on ramp to Chrisman Rd off ramp	3	3,218	18.9	C	4,471	26.9	D
Chrisman Rd off ramp to Chrisman Rd on ramp	3	3,167	18.6	C	3,898	23.0	C
Chrisman Rd on ramp to I-5	3	3,190	18.8	C	4,226	25.1	C
I-205 Westbound							
I-5 to Chrisman Rd off ramp	3	4,350	26.0	D	3,087	18.2	C
Chrisman off ramp to Chrisman Rd on ramp	3	4,160	24.7	C	3,042	17.9	B
Chrisman Rd on ramp to MacArthur Dr off ramp	3	4,737	28.9	D	3,260	19.2	C
MacArthur Dr off ramp to MacArthur Dr on ramp	3	4,494	27.0	D	2,822	16.6	B
MacArthur Dr on ramp to Tracy Blvd off ramp	3	5,770	39.5	E	3,077	18.2	C
Tracy Blvd off ramp to Tracy Blvd on ramp	3	4,746	29.0	D	2,490	14.6	B
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	3	5,346	34.8	D	2,718	16.1	B
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	3	4,419	26.6	D	2,128	12.6	B
Naglee Rd on ramp to Grant Line Rd on ramp	3	4,549	27.6	D	2,702	16.0	B
Grant Line Rd on ramp to Lammers Rd off ramp	3	4,669	28.5	D	3,002	17.7	B
Lammers Rd off ramp to Lammers Rd on ramp	3	4,448	26.8	D	2,486	14.7	B
Lammers Rd on ramp to 11th St on ramp	3	4,643	28.3	D	2,868	16.9	B
11th St on ramp to Mountain House Pkwy off ramp	4	5,220	23.2	C	3,732	16.5	B
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	3	3,410	20.2	C	2,204	13.0	B
West of Mountain House Pkwy on ramp	3	5,489	36.4	E	2,374	14.0	B

* Auxiliary lanes, where available, are included based on HCM definition.
Shaded cell represents unacceptable LOS.

Table 3.12 Future (2045) Build EL Alternative: GP Lane Level of Service – I-5

I-5	Lanes*	AM Peak Hour (4:00-5 :00AM)			PM Peak Hour (5:00-6:00 PM)		
		GP Volume	Density	LOS	GP Volume	Density	LOS
I-5 Northbound							
Between 11th St and I-205#	3	1,232	7.4	A	3,585	20.8	C
Between I-205 and Mossdale Rd	5	2,042	7.3	A	8,946	36.3	E
Between Mossdale Rd On and Off-ramps	5	2,020	7.3	A	8,738	34.8	D
Between Mossdale Rd and SR 120	5	2,042	7.3	A	8,837	35.5	E
I-5 Southbound							
Between SR 120 and Manthey Rd	5	5,063	18.2	C	4,956	17.1	B
Between Manthey Rd On and Off-ramp	5	5,005	18.0	C	4,986	17.2	B
Between Manthey Rd and I-205	5	5,023	18.1	C	4,884	16.8	B
Between 11th St and I-205#	3	1,928	11.6	B	4,624	28.6	D

* Auxiliary lanes, where available, are included based on HCM definition.
Shaded cell represents unacceptable LOS.
Segments marked with "#"do not have managed lane and thus the LOS results are the same as under the No-Build scenario.

3.4.2 Express Lane V/C Ratio Analysis

The results of Express lane analysis for I-205 and I-5 under the future Build EL scenarios are represented in terms of v/c ratios as listed in **Table 3.13** and **Table 3.14**, respectively. For I-580, as discussed earlier, the future Alameda CTC Model does not have any managed lanes (HOV or Express Lanes) on I-580. Since no model runs were conducted for the TEPA update, Build volumes were not available. Considering that the addition of managed lanes (HOV or Express Lanes) under this project will be mostly on I-205 only, the impact on I-580 in the Alameda County could be minimal. With that, Build alternatives were not analyzed for I-580.

- **I-205**: All EL segments are projected to operate at v/c ratio of 1 since it was assumed that future dynamic pricing would be set to maximize EL throughput.
- **I-5**: Three (3) EL segments in the northbound direction are projected to operate at v/c ratio slightly greater than 1 during the PM peak hour.

Table 3.13 Future (2045) Build EL Alternative: EL V/C Analysis – I-205

I-205	AM Peak Hour (4:00-5 :00AM)		PM Peak Hour (5:00-6:00 PM)	
	EL Volume	V/C	EL Volume	V/C
I-205 Eastbound				
West of Mountain House Pkwy off ramp	1,650	1.00	1,650	1.00
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	1,650	1.00	1,650	1.00
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	1,650	1.00	1,650	1.00
Mountain House Pkwy on ramp to 11th St off ramp	1,650	1.00	1,650	1.00
11 St off ramp to Lammers Rd off ramp	1,650	1.00	1,650	1.00
Lammers Rd off ramp to Lammers Rd on ramp	1,650	1.00	1,650	1.00
Lammers Rd on ramp to Grant Line Rd off ramp	1,650	1.00	1,650	1.00

I-205	AM Peak Hour (4:00-5 :00AM)		PM Peak Hour (5:00-6:00 PM)	
	EL Volume	V/C	EL Volume	V/C
Grant Line Rd off ramp to Grant Line Rd on ramp	1,650	1.00	1,650	1.00
Grant Line Rd on ramp to Tracy Blvd off ramp	1,650	1.00	1,650	1.00
Tracy Blvd off ramp to Tracy Blvd on ramp	1,650	1.00	1,650	1.00
Tracy Blvd on ramp to MacArthur Dr off ramp	1,650	1.00	1,650	1.00
MacArthur Dr off ramp to MacArthur Dr on ramp	1,650	1.00	1,650	1.00
MacArthur Dr on ramp to Chrisman Rd off ramp	1,650	1.00	1,650	1.00
Chrisman Rd off ramp to Chrisman Rd on ramp	1,650	1.00	1,650	1.00
Chrisman Rd on ramp to I-5	1,650	1.00	1,650	1.00
I-205 Westbound				
I-5 to Chrisman Rd off ramp	1,650	1.00	1,650	1.00
Chrisman off ramp to Chrisman Rd on ramp	1,650	1.00	1,650	1.00
Chrisman Rd on ramp to MacArthur Dr off ramp	1,650	1.00	1,650	1.00
MacArthur Dr off ramp to MacArthur Dr on ramp	1,650	1.00	1,650	1.00
MacArthur Dr on ramp to Tracy Blvd off ramp	1,650	1.00	1,650	1.00
Tracy Blvd off ramp to Tracy Blvd on ramp	1,650	1.00	1,650	1.00
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	1,650	1.00	1,650	1.00
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	1,650	1.00	1,650	1.00
Naglee Rd on ramp to Grant Line Rd on ramp	1,650	1.00	1,650	1.00
Grant Line Rd on ramp to Lammers Rd off ramp	1,650	1.00	1,650	1.00
Lammers Rd off ramp to Lammers Rd on ramp	1,650	1.00	1,650	1.00
Lammers Rd on ramp to 11th St on ramp	1,650	1.00	1,650	1.00
11th St on ramp to Mountain House Pkwy off ramp	1,650	1.00	1,650	1.00
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	1,650	1.00	1,650	1.00
West of Mountain House Pkwy on ramp	1,650	1.00	1,650	1.00

Table 3.14 Future (2045) Build EL Alternative: EL V/C Analysis – I-5

I-5	AM Peak Hour (4:00-5 :00AM)		PM Peak Hour (5:00-6:00 PM)	
	EL Volume	V/C	EL Volume	V/C
I-5 Northbound				
Between 11th St and I-205#	-	-	-	-
Between I-205 and Mossdale Rd	1,650	1.00	1,699	1.03
Between Mossdale Rd On and Off-ramps	1,650	1.00	1,659	1.01
Between Mossdale Rd and SR 120	1,650	1.00	1,678	1.02
I-5 Southbound				
Between SR 120 and Manthey Rd	1,650	1.00	1,650	1.00
Between Manthey Rd On and Off-ramp	1,650	1.00	1,650	1.00
Between Manthey Rd and I-205	1,650	1.00	1,650	1.00
Between 11th St and I-205#	-	-	-	-

Notes: Shaded cell represents v/c ratio that exceeds 1.0

Segments marked with "#"do not have managed lane and thus were not analyzed.

4 KEY FINDINGS

Travel demand is forecast to continue to increase, leading to worsening of the traffic conditions within the project study area if no improvement will be made (i.e., no-build). Adding managed lanes (either HOV lanes or Express Lanes) is expected to mitigate majority of the negative effects of the traffic growth on I-205 and I-5 and improve person throughput. Compared to HOV lanes, Express Lanes would operate dynamically, resulting in even fewer overall operational deficiencies, and would provide additional capacity to accommodate the projected traffic growth in the future.

Comparisons of the freeway general purpose (GP) lane LOS under different alternatives for I-205, I-5, and I-580 are summarized in **Table 4.1**, **Table 4.2**, and **Table 4.3**, respectively. The number of segments operating unsatisfactorily (LOS E/F) for freeway GP and managed lanes is summarized in **Table 4.4** and **Table 4.5**, respectively.

- **I-205:**
  - **AM Peak Hour**
    - **GP Lanes**: Under the future No-Build alternative, 13 segments are projected to operate unsatisfactorily (LOS E/F), whereas four (4) segments under the future Build HOV alternative and two (2) segments under the future Build Express Lanes alternative are projected to operate unsatisfactorily.
    - **Managed Lanes**: Under the future Build HOV alternative, all HOV segments are projected to operate at v/c ratio less than 1. Under the future Build Express Lanes alternative, all Express Lane segments are projected to operate at v/c ratio of 1 since it was assumed that future dynamic pricing would be set to maximize Express Lanes throughput.
  - **PM Peak Hour**
    - **GP Lanes**: Under the future No-Build alternative, 12 segments are projected to operate unsatisfactorily (LOS E/F), whereas two (2) segments under the future Build HOV alternative and one (1) segment under the future Build Express Lanes alternative are projected to operate unsatisfactorily.
    - **Managed Lanes**: Under the future Build HOV alternative, all HOV segments are projected to operate at v/c ratio less than 1. Under the future Build Express Lanes alternative, all Express Lane segments are projected to operate at v/c ratio of 1 since it was assumed that future dynamic pricing would be set to maximize Express Lanes throughput.
- **I-5:**
  - **AM Peak Hour**
    - **GP Lanes**: No segments are projected to operate at unsatisfactory LOS under either the future No-Build or Build (HOV lanes, Express Lanes) alternatives.
    - **Managed Lanes**: No segments are projected to operate at v/c ratio greater than 1 under both the future Build HOV and Build Express Lanes alternatives.
  - **PM Peak Hour**
    - **GP Lanes**: Under the future No-Build alternative, three (3) segments are projected to operate unsatisfactorily (LOS E/F), whereas two (2) segments under the future Build

HOV alternative and two (2) segments under the future Build Express Lanes alternative are projected to operate unsatisfactorily.

- **Managed Lanes**: Three (3) segments in are projected to operate at v/c ratio slightly greater than 1 under both the future Build HOV and Build Express Lanes alternatives.

- **I-580:** The future Alameda CTC Model does not have any managed lanes (HOV or Express Lanes) on I-580. Since no model runs were conducted, Build volumes were not available. Considering that the addition of managed lanes (HOV or Express Lanes) under this project will be mostly on I-205 only, the impact on I-580 in the Alameda County could be minimal. With that assumption, Build alternatives were not analyzed, and they were assumed to be the same as No Build. More detailed traffic forecast using the updated TDM model with an extension to the I-580/Greenville Road Interchange in Alameda County will be conducted during the PA&ED phase. With the updated traffic forecast, detailed traffic analysis will be conducted for Build alternatives for the I-580 corridor during the PA&ED phase.
  - **AM Peak Hour:** Under the future No-Build alternative, five (5) segments in the westbound direction are projected to operate at unsatisfactory LOS.
  - **PM Peak Hour:** Under the future No-Build alternative, five (5) segments in the eastbound direction are projected to operate at unsatisfactory LOS.

Overall, both Build alternatives (HOV lanes, Express Lanes) are expected to significantly reduce traffic congestion and improve traffic operations in the project study area. Compared to HOV lanes, Express Lanes would result in even less traffic congestion and would provide additional capacity to accommodate the projected traffic growth in the future.

Table 4.1 Freeway GP Lane LOS Comparison – I-205

I-205	AM Peak Hour (4:00-5 :00AM)				PM Peak Hour (5:00-6:00 PM)			
	Existing	Future No Build	Future Build HOV	Future Build EL	Existing	Future No Build	Future Build HOV	Future Build EL
I-205 Eastbound								
West of Mountain House Pkwy off ramp	B	C	C	A	C	E	D	D
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	B	C	C	A	C	D	D	C
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	B	C	C	B	C	E	D	C
Mountain House Pkwy on ramp to 11th St off ramp	B	C	C	B	C	D	C	C
11 St off ramp to Lammers Rd off ramp	B	C	C	B	C	E	D	C
Lammers Rd off ramp to Lammers Rd on ramp	B	B	B	A	C	D	C	C
Lammers Rd on ramp to Grant Line Rd off ramp	B	C	C	B	C	E	D	D
Grant Line Rd off ramp to Grant Line Rd on ramp	A	C	B	A	C	E	D	C

I-205	AM Peak Hour (4:00-5 :00AM)				PM Peak Hour (5:00-6:00 PM)			
	Existing	Future No Build	Future Build HOV	Future Build EL	Existing	Future No Build	Future Build HOV	Future Build EL
Grant Line Rd on ramp to Tracy Blvd off ramp	B	C	C	B	C	F	E	D
Tracy Blvd off ramp to Tracy Blvd on ramp	B	C	C	B	C	F	D	D
Tracy Blvd on ramp to MacArthur Dr off ramp	B	D	C	C	C	F	E	E
MacArthur Dr off ramp to MacArthur Dr on ramp	B	D	C	B	C	E	D	C
MacArthur Dr on ramp to Chrisman Rd off ramp	B	D	C	C	C	F	D	D
Chrisman Rd off ramp to Chrisman Rd on ramp	B	D	C	C	C	E	C	C
Chrisman Rd on ramp to I-5	B	D	C	C	C	E	D	C
I-205 Westbound								
I-5 to Chrisman Rd off ramp	C	E	D	D	B	D	C	C
Chrisman off ramp to Chrisman Rd on ramp	C	E	D	C	B	D	C	B
Chrisman Rd on ramp to MacArthur Dr off ramp	C	F	D	D	B	D	C	C
MacArthur Dr off ramp to MacArthur Dr on ramp	C	F	D	D	B	D	C	B
MacArthur Dr on ramp to Tracy Blvd off ramp	C	F	E	E	B	D	C	C
Tracy Blvd off ramp to Tracy Blvd on ramp	C	F	E	D	B	C	C	B
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	C	F	E	D	B	D	C	B
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	C	E	D	D	A	C	C	B
Naglee Rd on ramp to Grant Line Rd on ramp	C	F	D	D	B	D	C	B
Grant Line Rd on ramp to Lammers Rd off ramp	C	F	D	D	B	D	C	B
Lammers Rd off ramp to Lammers Rd on ramp	C	E	D	D	B	C	C	B
Lammers Rd on ramp to 11th St on ramp	C	F	D	D	B	D	C	B
11th St on ramp to Mountain House Pkwy off ramp	C	D	D	C	B	C	C	B
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	B	D	D	C	B	C	C	B
West of Mountain House Pkwy on ramp	C	F	F	E	B	C	C	B

Table 4.2 Freeway GP Lane LOS Comparison – I-5

I-5	AM Peak Hour (4:00-5 :00AM)				PM Peak Hour (5-6 PM)			
	Existing	Future No Build	Future Build HOV	Future Build EL	Existing	Future No Build	Future Build HOV	Future Build EL
I-5 Northbound								
Between 11th St and I-205*	A	A	A	A	B	C	C	C
Between I-205 and Mossdale Rd	A	B	A	A	C	F	E	E
Between Mossdale Rd On and Off-ramps	A	B	A	A	C	F	D	D
Between Mossdale Rd and SR 120	A	B	A	A	C	F	E	E
I-5 Southbound								
Between SR 120 and Manthey Rd	A	C	C	C	B	C	C	B
Between Manthey Rd On and Off-ramp	A	C	C	C	B	C	C	B
Between Manthey Rd and I-205	A	C	C	C	B	C	C	B
Between 11th St and I-205*	B	B	B	B	D	D	D	D

Notes: Marked segments with * do not have managed lanes and thus the LOS results under Build scenarios are the same as under the No-Build scenario.

Table 4.3 Freeway GP Lane LOS Comparison – I-580

I-580	AM Peak Hour (4:00-5 :00AM)		PM Peak Hour (5-6 PM)	
	Existing	Future No Build	Existing	Future No Build
I-580 Eastbound				
Between Vasco Rd and Greenville Rd	A	A	B	C
Between Greenville Rd On- and Off-Ramps	A	A	C	F
Between Greenville Rd and N Flynn Rd	A	A	B	E
Between N Flynn Rd On- and Off-Ramps	A	A	B	D
Between N Flynn Rd and W Grant Line Rd	A	A	C	F
Between W Grant Line On- and Off-Ramps	A	A	C	F
Between W Grant Line Rd On-Ramp and I-205	A	A	C	F
I-580 Westbound				
Between I-580 WB Bypass and Grant Line Rd	B	D	A	B
Between W Grant Line Rd On and Off-Ramps	C	E	A	B
Between W Grant Line Rd and N Flynn Rd	C	F	B	C
Between N Flynn Rd On and Off-Ramps	C	F	B	C
Between Greenville Rd and N Flynn Rd	C	F	B	C
Between Greenville Rd On and Off-Ramps	C	F	B	C
Between Vasco Rd and Greenville Rd	B	D	A	B

Table 4.4 Freeway GP Lanes – Number of Segments Operating Unsatisfactorily (LOS E/F)

Freeway GP Lanes – Number of Segments Operating Unsatisfactorily (LOS E/F)	AM Peak Hour (4:00-5 :00AM)				PM Peak Hour (5:00-6:00 PM)			
	Existing	Future No Build	Future Build HOV	Future Build EL	Existing	Future No Build	Future Build HOV	Future Build EL
I-205	0	13	4	2	0	12	2	1
I-5	0	0	0	0	0	3	2	2
I-580	0	5	-	-	0	5	-	-

Table 4.5 Managed Lanes – Number of Segments Operating Unsatisfactorily (LOS E/F)

Managed Lanes – Number of Segments Operating Unsatisfactorily (LOS E/F)	AM Peak Hour (4:00-5 :00AM)		PM Peak Hour (5:00-6:00 PM)	
	Future Build HOV	Future Build EL	Future Build HOV	Future Build EL
I-205	0	0	0	0
I-5	0	0	3	3

5 RECOMMENDATIONS

The intent of this TEPA update was to use readily-available data to update traffic analysis in the original TEPA (see **Appendix A**). This update was completed for two reasons: (1) the extension of study limits; and (2) the addition of Express Lanes as an alternative. It was found that both Build alternatives (HOV lanes, Express Lanes) are expected to significantly reduce traffic congestion and encourage HOV use within the project study area. Compared to HOV lanes, Express Lanes would operate dynamically, resulting in even less traffic congestion, and would provide additional capacity to accommodate the projected traffic growth in the future.

The following recommendations are identified for future traffic study in PA&ED phase of the work:

- **Traffic Safety and Collision Analysis**: Safety analysis including collision analysis will be conducted under the PA&ED phase using TASAS and other available resources.
- **Traffic Data Collection**: For the TEPA update, 2016 data was used to match the previously completed TEPA document. During the PA&ED phase, it is recommended to use the most currently available data. Due to the COVID-19 pandemic, it is recommended to use Fall 2019 as the baseline conditions and collect Fall 2019 data accordingly. On- and off-ramps will also be included in the analysis.
- **Interchange Analysis**: Three (3) interchanges will be improved as part of the project: (1) I-205/Grant Line Road; (2) I-205/Tracy Boulevard; and (3) I-205/MacArthur Drive. Operational analysis of these interchanges will be performed under the PA&ED phase and reported in the Traffic Operations Analysis Report (TOAR).
- **Toll Demand**: This TEPA made an assumption that future dynamic pricing would be set to maximize Express Lanes throughput. More detailed analysis needs to be conducted to estimate toll demand for Express Lanes (i.e., pay-to-use vehicles).
- **Future Year**: This TEPA update used 2045 as the future year which is consistent with the original TEPA report. The future traffic analysis must analyze conditions at least 20 years after the project opening. Therefore, the final design year is recommended to be 2050 for the TOAR during the PA&ED phase.
- **Traffic Forecasting**: During the PA&ED phase, future traffic forecasts will be developed for the Opening Year (2030 or earlier) and Design Year (2050) using the latest version of the Three-County Travel Demand Model (TDM), which includes San Joaquin, Stanislaus, and Merced counties. The TDM model will be extended to the I-580/Greenville Road Interchange to include travel in the Alameda County and overlap with the existing I-580 Express Lanes. The TDM base year model will be validated before developing the future year model. A traffic forecasting report will be submitted for Caltrans' review and comment.
- **Traffic Operational Analysis Hours and Tools**: During the PA&ED phase, the consultant team should work with Caltrans D4, D10, SJCOG and other local agencies in analysis hours and appropriate tools for mainline freeways and intersections.
- **VMT Analysis**: As per SB 743, Vehicle miles traveled (VMT) analysis will be performed for no build and build conditions for all the alternatives and reported in the Traffic Operations Analysis Report (TOAR) during the PA&ED phase.

This TEPA update was conducted concurrently with the development of traffic analysis and data collection approach for the PA&ED phase. The final memorandum on I-205 Managed Lanes PA&ED: Final Traffic Analysis and Data Collection Approach is attached for reference (see **Appendix B**).

APPENDICES

APPENDIX A

I-205 HOV Lane Widening Traffic Engineering Performance Assessment (TEPA) Report

(September 26, 2017)

iteris®

I-205 HOV Lane Widening

Traffic Engineering Performance Assessment (TEPA) Report

September 26, 2017

Submitted to:

San Joaquin Council of Governments

17J18-0030.18 | Prepared by **Iteris, Inc.**

R&M RAJAPPAN & MEYER CONSULTING ENGINEERS, INC

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DOCUMENT VERSION CONTROL

DOCUMENT NAME	SUBMITTAL DATE	VERSION NO.
TEPA Report Draft	July 18, 2017	1.0
TEPA Report Draft	August 9, 2017	2.0
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1.0 INTRODUCTION

This document summarizes the Traffic Engineering Performance Assessment (TEPA) for a proposed Interstate 205 (I-205) HOV lane widening project in the City of Tracy. The intent of this TEPA is to identify existing deficiencies and recommend future implementations to improve overall traffic conditions. Information on localized traffic issues is based on readily available information and data. The following provides a summary of the preliminary assessment and key findings of the TEPA.

1.1 General Project Description

The project proposes to add one carpool lane in each direction of I-205 between I-580 at the San Joaquin/Alameda County line and to the junction of I-5 and I-205 near Mossdale Wye at the I-5 connector. Lane additions on the western portion of the project (west of Eleventh Street Interchange) will be made on the *outside* and lane additions on the eastern portion of the project will be made on the *inside* of the existing lanes. To meet lifecycle requirements, outside and inside widening will be accomplished using continuously reinforced concrete pavement (CRCP). Additional right-of-way is anticipated as a result of widening and/ or supplementing existing retention basins for storm water. The project locations is shown in **Figure 1**.



Figure 1: Project Location

1.2 Purpose and Need

1.2.1 Purpose

The purpose of the project, which is to add HOV lanes along I-205 between two major freeways I-580 and I-5 in San Joaquin County, is to:

- Reduce traffic congestion, and delay along I-205
- Encourage High Occupancy Vehicle use in the I-205 corridor
- Improve regional mobility
- Improve freight movement
- Encourage use of ridesharing, transit and low emission vehicles
- Improve corridor travel times, and
- Increase corridor throughput of people and goods

1.2.2 Need

The project is needed because traffic congestion and delay have increased significantly during both AM and PM peak periods over the last few years. The peak periods have extended up to five hours during each peak. The worsening of congestion and commuter delay is expected to continue and increase due to substantial anticipated traffic growth – both locally from new development and regionally from adjacent communities such as Tracy, Manteca, Lathrop and San Joaquin County as a whole. Further traffic growth is also expected from through traffic between adjacent counties such as Alameda to the west and Stanislaus to the east.

In addition, I-205 is also a major intercity and interstate trucking route for goods movement, particularly to and from the Port of Oakland and the Bay Area. With the rapid development of warehousing facilities along the I-205 corridor, truck volumes to Port of Oakland and the Bay Area are also expected to experience additional increases.

This growth in commuter traffic in combination with high truck volumes is expected to worsen congestion and delay, and worsen air quality.

1.3 Project Alternatives

1.3.1 No Build

Under this alternative, no reconstruction or improvements would be made to the existing freeway between the Alameda County line and I-5 other than routine maintenance and currently approved improvements. This alternative does not address the need and purpose of the project.

1.3.2 HOV Lane Additions

This alternative would construct a high occupancy vehicle (HOV) lane in each direction between the San Joaquin / Alameda County line on the west and I-5 on the east. Throughout the western limits of the project, new lanes would be added on the outside of the existing mixed flow lanes, and the existing inside lane converted to an HOV lane. The existing Auxiliary lanes, from Mountain House Parkway to 11th street will remain and not be impacted. Approximately 3900 feet east of the Hansen Road Overcrossing, widening would occur on the inside,

where lanes would be constructed with standard shoulder and paved median. Throughout the eastern limits of the project, widening will occur on the inside. A concrete median barrier would be constructed with drainage improvements.

2.0 ASSESSMENT APPROACH, DATA SOURCES AND MAJOR ASSUMPTIONS

This section of the report presents the study area, existing traffic volumes, lists sources of data, discusses forecasting methodology, presents future forecasted traffic volumes and describes in detail the analysis methodology.

2.1 Existing Traffic Data

As stated in the Caltrans' PSR-PDS guidelines, the intent of this TEPA report is to use readily-available information. For Project Approval and Environmental Document (PA&ED) phase new traffic counts will be conducted. For this TEPA report, the primary sources of traffic data are listed below:

- Caltrans Performance Measurement System (PeMS) data
- Caltrans 2015 Traffic Volumes and Daily Truck Traffic
- Traffic Report for the:
  - I-205/Chrisman Road Interchange Project
  - I-205/Lammers Road Interchange Project
  - I-205 and I-5 HOT Lane Feasibility Review
  - I-205 / I-5 Corridor System Management Plan
  - Northern San Joaquin Valley Regional Ramp Metering and HOV Master Plan

Table 1 shows existing AADT data and truck percentages along I-205 corridor based on Caltrans 2015 Traffic Volumes and Daily Truck Traffic data. The study corridor carries between 83,000 to 123,000 vehicles per day. The corridor carries approximately 12% truck traffic.

Table 1: Existing Daily Traffic and Truck Percentages

I-205 Segments between	ADT	Truck %
I-580 to Mountain House Pkwy	117,000	12.00%
Mountain House Pkwy to 11th St	103,000	12.00%
11th St to Grant Line Rd	83,000	12.00%
Grant Line Rd to Tracy Blvd	123,000	12.00%
Tracy Blvd to MacArthur Dr	107,000	11.17%
MacArthur Dr to I-5	97,000	11.43%

Source: Caltrans 2015 Traffic Volumes and Daily Truck Traffic

Table 2 shows the existing AM and PM peak hour volume along I-205 and its sources. Following assumptions were made to calculate existing peak hour volumes:

- Existing peak hour counts were collected from three interchange traffic studies along I-205: Mountain House Parkway (existing year 2016), Lammers Road (existing year 2006) and Chrisman Road (existing year 2014).

- Based on Caltrans Daily volume, the daily volumes for latest two years (2015 & 2013) along I-205 are essentially the same. Volumes from the Chrisman Road interchange study can be considered to be same as existing.
- Growth factors were applied to Lammers Road study volumes to obtain current existing volumes. The growth rate was calculated using Chrisman Road and Lammers Road study volumes. Both these studies had similar I-205 segment volumes between Tracy Boulevard and Grant Line Road/Naglee Road.

Table 2: I-205 Existing Peak Hour Counts

I-205	Available Volumes			Truck %	Existing Volume	
	AM	PM	Source		AM	PM
Eastbound						
I-580 to Mountain House Pkwy off ramp	2,308	3,662	From I-205 Mt House Study (2016)	12%	2,310	3,660
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	2,197	3,443		12%	2,200	3,440
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	2,515	3,794		12%	2,510	3,790
Mountain House Pkwy on ramp to 11th St off ramp	2,700	4,500		12%	2,700	4,500
11 St off ramp to Grant Line Rd off ramp	1,517	3,053	From I-205 Lammers Study (2006)	12%	2,010	4,220
Grant Line Rd off ramp to Grant Line Rd on ramp	1,274	2,525		12%	1,680	3,490
Grant Line Rd on ramp to Tracy Blvd off ramp	2,300	4,270	From I-205 Chrisman Study (2014)	12%	2,300	4,270
Tracy Blvd off ramp to Tracy Blvd on ramp	2,150	3,835		11.17%	2,150	3,840
Tracy Blvd on ramp to MacArthur Dr off ramp	2,475	4,320		11.17%	2,480	4,320
MacArthur Dr off ramp to MacArthur Dr on ramp	2,255	3,835		11.43%	2,260	3,840
MacArthur Dr on ramp to I-5	2,435	4,075		11.43%	2,440	4,080
Westbound						
I-5 to MacArthur Dr off ramp	3,830	2,595	From I-205 Chrisman Study (2014)	11.43%	3,830	2,600
MacArthur Dr off ramp to MacArthur Dr on ramp	3,605	2,390		11.43%	3,610	2,390
MacArthur Dr on ramp to Tracy Blvd off ramp	4,025	2,645		11.17%	4,030	2,650
Tracy Blvd off ramp to Tracy Blvd on ramp	3,705	2,295		11.17%	3,710	2,300
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	4,305	2,515		12%	4,310	2,520
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	2,733	1,614	From I-205 Lammers Study (2006)	12%	3,570	1,840
Naglee Rd on ramp to Grant Line Rd on ramp	2,964	1,831		12%	3,870	2,090
Grant Line Rd on ramp to 11th St on ramp	3,120	1,945		12%	4,080	2,220
11th St on ramp to Mountain House Pkwy off ramp	4,400	3,500	From I-205 Mt House Study (2016)	12%	4,400	3,500
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	2,590	2,838		12%	2,590	2,840
Mountain House Pkwy on ramp to I-580	3,929	2,990		12%	3,930	2,990

2.2 Forecasted Traffic Volumes, Modeling Tools and Methodologies

Future forecast volumes were developed using the SJCOG's Three County Model. It should be noted that Three County Model used was not validated for the study area. As stated in the Caltrans' PSR-PDS guidelines, the intent of this TEPA report is to use readily-available information. For PA&ED phase model will be validated for the study area. Future volumes were developed based on the following assumptions:

- Model runs were not conducted. Model volumes from currently available existing and future model were used to develop future volumes.
- Future freeway volumes were developed using post-processing methodology as defined in *National Cooperative Highway Research Program (NCHRP) Report 255*. This methodology factors the flow-conserved existing counts by the difference between future and existing model volumes. Raw (unprocessed) traffic volumes derived from the forecast model will be post-processed to develop final future year traffic forecast volumes.

  Future Post Processed Volume = Existing Count + (Future Model – Existing Model)

- Future Three County Year 2040 RTP Model has an HOV lane included along the I-205 study corridor. Since no model run was conducted for this TEPA, No Build volumes were not available. No Build and Build alternative were assumed to have same total freeway volumes.
- Future model year is 2040 and volumes were extrapolated to year 2045.
- Freeway volumes were constrained by capacity of 2,000 vehicles per lane as they enter the study area.

Table 3 shows the future (2045) AM and PM peak hour constrained mainline volumes for both the No Build and Build alternatives. It should be noted that mainline volume were assumed to be constrained and ramp volumes were assumed to be unconstrained.

Table 3: Future (2045) Peak hour Volumes

I-205	Future No Build		Future Build					
	AM Peak Hour	PM Peak Hour	AM Peak Hour			PM Peak Hour		
			GP	HOV	Total	GP	HOV	Total
I-205 Eastbound								
West of Mountain House Pkwy off ramp	3,405	6,000	3,229	176	3,405	5,279	721	6,000
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	3,270	5,340	3,107	163	3,270	4,612	727	5,340
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	4,322	5,690	4,006	316	4,322	4,941	749	5,690
Mountain House Pkwy on ramp to 11th St off ramp	4,558	6,400	4,054	504	4,558	5,402	997	6,400
11 St off ramp to Lammers Rd off ramp	3,830	5,674	3,370	461	3,830	4,688	986	5,674
Lammers Rd off ramp to Lammers Rd on ramp	2,816	5,285	2,383	433	2,816	4,310	975	5,285

I-205	Future No Build		Future Build					
	AM Peak Hour	PM Peak Hour	AM Peak Hour			PM Peak Hour		
			GP	HOV	Total	GP	HOV	Total
Lammers Rd on ramp to Grant Line Rd off ramp	3,867	6,004	3,421	446	3,867	5,032	972	6,004
Grant Line Rd off ramp to Grant Line Rd on ramp	3,356	5,503	2,960	396	3,356	4,653	850	5,503
Grant Line Rd on ramp to Tracy Blvd off ramp	4,239	6,783	3,908	330	4,239	5,558	1,225	6,783
Tracy Blvd off ramp to Tracy Blvd on ramp	4,102	6,238	3,787	315	4,102	5,075	1,163	6,238
Tracy Blvd on ramp to MacArthur Dr off ramp	4,914	7,313	4,058	856	4,914	5,760	1,553	7,313
MacArthur Dr off ramp to MacArthur Dr on ramp	4,654	5,881	3,859	796	4,654	4,480	1,401	5,881
MacArthur Dr on ramp to Chrisman Rd off ramp	4,868	6,121	3,881	987	4,868	4,593	1,528	6,121
Chrisman Rd off ramp to Chrisman Rd on ramp	4,817	5,548	3,874	944	4,817	4,108	1,441	5,548
Chrisman Rd on ramp to I-5	4,840	5,876	3,899	941	4,840	4,369	1,507	5,876
I-205 Westbound								
I-5 to Chrisman Rd off ramp	6,000	4,737	4,544	1,456	6,000	3,899	838	4,737
Chrisman off ramp to Chrisman Rd on ramp	5,810	4,692	4,405	1,406	5,810	3,866	826	4,692
Chrisman Rd on ramp to MacArther Dr off ramp	6,387	4,910	4,932	1,454	6,387	4,039	871	4,910
MacArthur Dr off ramp to MacArthur Dr on ramp	6,144	4,472	4,904	1,239	6,144	3,935	537	4,472
MacArthur Dr on ramp to Tracy Blvd off ramp	7,420	4,727	5,899	1,520	7,420	4,142	586	4,727
Tracy Blvd off ramp to Tracy Blvd on ramp	6,396	4,140	5,372	1,024	6,396	3,818	322	4,140
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	6,996	4,368	5,690	1,305	6,996	4,026	342	4,368
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	6,069	3,778	5,094	975	6,069	3,482	296	3,778
Naglee Rd on ramp to Grant Line Rd on ramp	6,199	4,352	5,124	1,075	6,199	4,015	337	4,352
Grant Line Rd on ramp to Lammers Rd off ramp	6,319	4,652	5,231	1,088	6,319	4,292	360	4,652
Lammers Rd off ramp to Lammers Rd on ramp	6,098	4,136	4,995	1,103	6,098	3,802	335	4,136
Lammers Rd on ramp to 11th St on ramp	6,293	4,518	5,154	1,139	6,293	4,104	414	4,518
11th St on ramp to Mountain House Pkwy off ramp	6,870	5,382	5,769	1,101	6,870	4,833	549	5,382
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	5,060	3,854	4,486	574	5,060	3,642	213	3,854
West of Mountain House Pkwy on ramp	7,139	4,024	6,531	608	7,139	3,810	214	4,024

2.3 Traffic Analysis and Operations Methodology

The traffic analysis which was conducted relates directly to the operational performance of the highway segments that are directly affected by the proposed project. This operational analysis addresses freeway mainline (both HOV and mixed flow lanes). Operational performance is based on performance measures such as density, with level of service (LOS) being the primary basis for comparing the Build Alternative to the No Build Alternative.

The freeway mainline traffic operation analyses are conducted based on the HCM 2010 methodology using the HCS software. The following operational factors are summarized in the report:

- Freeway Level of Service
- HOV Volume-to-Capacity Ratio

2.3.1 Operational / Capacity

Freeway Segment Level of Service Standard and Parameters

For all freeway mainline segments, LOS analysis were performed using the standard HCM 2010 operations methodology and *Caltrans Highway Design Manual* (HDM) standards. Based on HCM 2010 and HDM standards, the LOS parameters are as follows:

- Free Flow Speed (FFS) – 65 mph
- Peak Hour Factor (PHF) – 0.92
- Truck Percentage –Caltrans Traffic Counts (2015) – 12%
- Acceptable Level of Service – LOS D

HOV Lane Volume-to-Capacity (V/C) Ratio Analysis

The HCM density calculations are not applicable to HOV lanes, so volume-to-capacity (v/c) ratios are instead used to estimate the operation and performance of HOV lanes. While an HOV lane has the ability to carry the same volume of traffic as a mixed flow lane, Caltrans' goal is to have a maximum of 1,650 vehicles per hour in the HOV lanes in order to maintain free flowing conditions. For the purpose of this study, a volume greater than 1,650 vehicles per hour per lane in a HOV lane is considered unacceptable.

2.3.2 Level of Service Definition

Level of Service (LOS) is a term used to generally describe the operating conditions of a transportation facility today or in the future. Level of service is a representation of such conditions as vehicle delay, average speeds, driver perception and density of traffic on a freeway, roadway or intersection. Level of service can be described differently and is measured on differing scales for the freeway system and ramp or arterial intersections. Level of service is rated from LOS A to LOS F, with LOS A representing free flow conditions with little or no delay. LOS F describes very poor traffic operating conditions which are characterized by severe delay to the motorists, very low speeds or stop and go conditions on the transportation facility.

For HCM analyses, freeway level of service is based upon the criteria shown in **Table 4**. The HCM does not correlate levels of service to speed, rather it is based on vehicle density within the segment.

Table 4: LOS Criteria for Freeway Mainline Segments

LOS	Basic Freeway Density (pc/mi/ln)
A	0 - 11
B	> 11 - 18
C	> 18 - 26
D	> 26 - 35
E	> 35 - 45
F	> 45 or Demand exceeds capacity

Source: HCM 2010, Exhibit 11-5 (LOS Criteria for Basic Freeway Segments)

3.0 PRELIMINARY ASSESSMENT FINDINGS

This section of the report discusses Existing (2016) and Future (2045) operating conditions and present the results of the peak hour intersection analyses.

3.1 Existing Year (2016) Conditions

The results of the existing conditions freeway segment analysis are shown in **Table 5**. As shown, based on the HCM analysis, all basic freeway segments currently operate at LOS D or better in both directions during AM and PM peak hours.

Table 5: Existing (2016) Freeway Level of Service Analysis

I-205	Lanes	AM Peak Hour (4:00 – 5:00 AM)			PM Peak Hour (5:00 – 6:00 PM)		
		Volume	Density	LOS	Volume	Density	LOS
Eastbound							
I-580 to Mountain House Pkwy off ramp	3	2,310	13.6	B	3,660	21.6	C
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	3	2,200	13.0	B	3,440	20.3	C
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	3	2,510	14.8	B	3,790	22.4	C
Mountain House Pkwy on ramp to 11th St off ramp	4	2,700	12.0	B	4,500	19.9	C
11 St off ramp to Grant Line Rd off ramp	3	2,010	11.9	B	4,220	25.2	C
Grant Line Rd off ramp to Grant Line Rd on ramp	3	1,680	9.9	A	3,490	20.6	C
Grant Line Rd on ramp to Tracy Blvd off ramp	3	2,300	13.6	B	4,270	25.6	C
Tracy Blvd off ramp to Tracy Blvd on ramp	3	2,150	12.6	B	3,840	22.6	C
Tracy Blvd on ramp to MacArthur Dr off ramp	3	2,480	14.6	B	4,320	25.8	C
MacArthur Dr off ramp to MacArthur Dr on ramp	3	2,260	13.4	B	3,840	22.7	C
MacArthur Dr on ramp to I-5	3	2,440	14.4	B	4,080	24.3	C
Westbound							
I-5 to MacArthur Dr off ramp	3	3,830	22.7	C	2,600	15.4	B
MacArthur Dr off ramp to MacArthur Dr on ramp	3	3,610	21.3	C	2,390	14.1	B
MacArthur Dr on ramp to Tracy Blvd off ramp	3	4,030	23.8	C	2,650	15.6	B
Tracy Blvd off ramp to Tracy Blvd on ramp	3	3,710	21.9	C	2,300	13.6	B
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	3	4,310	25.8	C	2,520	14.9	B
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	3	3,570	21.1	C	1,840	10.9	A
Naglee Rd on ramp to Grant Line Rd on ramp	3	3,870	22.9	C	2,090	12.4	B
Grant Line Rd on ramp to 11th St on ramp	3	4,080	24.3	C	2,220	13.1	B
11th St on ramp to Mountain House Pkwy off ramp	4	4,400	19.5	C	3,500	15.5	B
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	3	2,590	15.3	B	2,840	16.8	B
Mountain House Pkwy on ramp to I-580	3	3,930	23.3	C	2,990	17.7	B

Notes: Volumes reflect existing counts as shown in **Table 2** Density and LOS are based on HCM 2010 methodologies

3.2 Future Year (2045) No Build

3.2.1 Freeway LOS

The results of the Future No Build conditions freeway segment analysis are shown in **Table 6**. As shown in the table during AM peak hour, 13 segments in westbound direction are projected to operate at unsatisfactory LOS (LOS E/F). During PM peak hour, 12 freeway segments in the eastbound direction are projected to operate at unsatisfactory LOS (LOS E/F).

Table 6: Future (2045) No Build Freeway Level of Service Analysis

I-205	Lanes	AM Peak Hour (4:00 – 5:00 AM)			PM Peak Hour (5:00 – 6:00 PM)		
		Volume	Density	LOS	Volume	Density	LOS
I-205 Eastbound							
West of Mountain House Pkwy off ramp	3	3,405	20.1	C	6,000	43.1	E
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	3	3,270	19.3	C	5,340	34.8	D
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	3	4,322	25.9	C	5,690	38.8	E
Mountain House Pkwy on ramp to 11th St off ramp	4	4,558	20.2	C	6,400	29.6	D
11 St off ramp to Lammers Rd off ramp	3	3,830	22.7	C	5,674	38.6	E
Lammers Rd off ramp to Lammers Rd on ramp	3	2,816	16.6	B	5,285	34.2	D
Lammers Rd on ramp to Grant Line Rd off ramp	3	3,867	22.9	C	6,004	43.2	E
Grant Line Rd off ramp to Grant Line Rd on ramp	3	3,356	19.8	C	5,503	36.6	E
Grant Line Rd on ramp to Tracy Blvd off ramp	3	4,239	25.3	C	6,783	58.7	F
Tracy Blvd off ramp to Tracy Blvd on ramp	3	4,102	24.3	C	6,238	46.5	F
Tracy Blvd on ramp to MacArthur Dr off ramp	3	4,914	30.4	D	7,313	74.7	F
MacArthur Dr off ramp to MacArthur Dr on ramp	3	4,654	28.4	D	5,881	41.4	E
MacArthur Dr on ramp to Chrisman Rd off ramp	3	4,868	30.2	D	6,121	45.1	F
Chrisman Rd off ramp to Chrisman Rd on ramp	3	4,817	29.8	D	5,548	37.1	E
Chrisman Rd on ramp to I-5	3	4,840	30.0	D	5,876	41.3	E
I-205 Westbound							
I-5 to Chrisman Rd off ramp	3	6,000	43.1	E	4,737	29.1	D
Chrisman off ramp to Chrisman Rd on ramp	3	5,810	40.4	E	4,692	28.7	D
Chrisman Rd on ramp to MacArther Dr off ramp	3	6,387	49.8	F	4,910	30.6	D
MacArthur Dr off ramp to MacArthur Dr on ramp	3	6,144	45.4	F	4,472	27.0	D
MacArthur Dr on ramp to Tracy Blvd off ramp	3	7,420	79.3	F	4,727	28.8	D
Tracy Blvd off ramp to Tracy Blvd on ramp	3	6,396	49.9	F	4,140	24.7	C
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	3	6,996	64.7	F	4,368	26.3	D

I-205	Lanes	AM Peak Hour (4:00 – 5:00 AM)			PM Peak Hour (5:00 – 6:00 PM)		
		Volume	Density	LOS	Volume	Density	LOS
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	3	6,069	44.2	E	3,778	22.3	C
Naglee Rd on ramp to Grant Line Rd on ramp	3	6,199	46.4	F	4,352	26.1	D
Grant Line Rd on ramp to Lammers Rd off ramp	3	6,319	48.5	F	4,652	28.4	D
Lammers Rd off ramp to Lammers Rd on ramp	3	6,098	44.7	E	4,136	24.6	C
Lammers Rd on ramp to 11th St on ramp	3	6,293	48.0	F	4,518	27.4	D
11th St on ramp to Mountain House Pkwy off ramp	4	6,870	32.8	D	5,382	24.0	C
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	3	5,060	31.9	D	3,854	22.8	C
West of Mountain House Pkwy on ramp	3	7,139	69.5	F	4,024	23.9	C

Notes: Volumes reflect future No Build volumes as shown in **Table 3**
Density and LOS are based on HCM 2010 methodologies
Shaded cells represents LOS that exceeds acceptable level of service

3.3 Future Year (2045) Build Alternative

3.3.1 Freeway LOS

The results of the Future Build conditions freeway segment analysis are shown in **Table 7**. As shown in the table during AM peak hour, 4 segments in westbound direction is projected to operate at unsatisfactory LOS (LOS E/F). During PM peak hour, 2 freeway segments in the eastbound direction are projected to operate at unsatisfactory LOS (LOS E/F).

Table 7: Future (2045) Build Freeway Level of Service Analysis

I-205	Lanes	AM Peak Hour (4:00 – 5:00 AM)			PM Peak Hour (5:00 – 6:00 PM)		
		Volume	Density	LOS	Volume	Density	LOS
I-205 Eastbound							
West of Mountain House Pkwy off ramp	3	3,229	19.1	C	5,279	34.1	D
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	3	3,107	18.4	C	4,612	28.1	D
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	3	4,006	23.8	C	4,941	30.9	D
Mountain House Pkwy on ramp to 11th St off ramp	4	4,054	18.0	C	5,402	24.1	C
11 St off ramp to Lammers Rd off ramp	3	3,370	19.9	C	4,688	28.7	D
Lammers Rd off ramp to Lammers Rd on ramp	3	2,383	14.1	B	4,310	25.8	C
Lammers Rd on ramp to Grant Line Rd off ramp	3	3,421	20.2	C	5,032	31.7	D
Grant Line Rd off ramp to Grant Line Rd on ramp	3	2,960	17.5	B	4,653	28.4	D
Grant Line Rd on ramp to Tracy Blvd off ramp	3	3,908	23.1	C	5,558	37.2	E
Tracy Blvd off ramp to Tracy Blvd on ramp	3	3,787	22.3	C	5,075	31.9	D

I-205	Lanes	AM Peak Hour (4:00 – 5:00 AM)			PM Peak Hour (5:00 – 6:00 PM)		
		Volume	Density	LOS	Volume	Density	LOS
Tracy Blvd on ramp to MacArthur Dr off ramp	3	4,058	24.0	C	5,760	39.4	E
MacArthur Dr off ramp to MacArthur Dr on ramp	3	3,859	22.8	C	4,480	27.1	D
MacArthur Dr on ramp to Chrisman Rd off ramp	3	3,881	23.0	C	4,593	27.9	D
Chrisman Rd off ramp to Chrisman Rd on ramp	3	3,874	22.9	C	4,108	24.4	C
Chrisman Rd on ramp to I-5	3	3,899	23.1	C	4,369	26.3	D
I-205 Westbound							
I-5 to Chrisman Rd off ramp	3	4,544	27.6	D	3,899	23.1	C
Chrisman off ramp to Chrisman Rd on ramp	3	4,405	26.5	D	3,866	22.9	C
Chrisman Rd on ramp to MacArther Dr off ramp	3	4,932	30.8	D	4,039	24.0	C
MacArthur Dr off ramp to MacArthur Dr on ramp	3	4,904	30.5	D	3,935	23.3	C
MacArthur Dr on ramp to Tracy Blvd off ramp	3	5,899	41.3	E	4,142	24.5	C
Tracy Blvd off ramp to Tracy Blvd on ramp	3	5,372	35.1	E	3,818	22.6	C
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	3	5,690	38.8	E	4,026	23.9	C
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	3	5,094	32.3	D	3,482	20.6	C
Naglee Rd on ramp to Grant Line Rd on ramp	3	5,124	32.6	D	4,015	23.8	C
Grant Line Rd on ramp to Lammers Rd off ramp	3	5,231	33.6	D	4,292	25.7	C
Lammers Rd off ramp to Lammers Rd on ramp	3	4,995	31.3	D	3,802	22.5	C
Lammers Rd on ramp to 11th St on ramp	3	5,154	32.8	D	4,104	24.4	C
11th St on ramp to Mountain House Pkwy off ramp	4	5,769	26.0	D	4,833	21.4	C
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	3	4,486	27.1	D	3,642	21.5	C
West of Mountain House Pkwy on ramp	3	6,531	52.7	F	3,810	22.5	C

Notes: Volumes reflect future Build mixed flow volumes as shown in **Table 3**
Density and LOS are based on HCM 2010 methodologies
Shaded cells represents LOS that exceeds acceptable level of service

3.3.2 HOV V/C Ratio Analysis

The results of the future Build conditions freeway High Occupancy Vehicle (HOV) segment analysis are represented in terms of volume-to-capacity ratios in **Table 8**. As shown, all HOV segments are projected to operate at volume-to-capacity ratio of less than 1.

Table 8: Future (2045) Build HOV Analysis

I-205	AM Peak Hour (4:00 – 5:00 AM)		PM Peak Hour (5:00 – 6:00 PM)	
	Volume	V/C	Volume	V/C
I-205 Eastbound				
West of Mountain House Pkwy off ramp	176	0.11	721	0.44
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	163	0.10	727	0.44
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	316	0.19	749	0.45
Mountain House Pkwy on ramp to 11th St off ramp	504	0.31	997	0.60
11 St off ramp to Lammers Rd off ramp	461	0.28	986	0.60
Lammers Rd off ramp to Lammers Rd on ramp	433	0.26	975	0.59
Lammers Rd on ramp to Grant Line Rd off ramp	446	0.27	972	0.59
Grant Line Rd off ramp to Grant Line Rd on ramp	396	0.24	850	0.52
Grant Line Rd on ramp to Tracy Blvd off ramp	330	0.20	1,225	0.74
Tracy Blvd off ramp to Tracy Blvd on ramp	315	0.19	1,163	0.70
Tracy Blvd on ramp to MacArthur Dr off ramp	856	0.52	1,553	0.94
MacArthur Dr off ramp to MacArthur Dr on ramp	796	0.48	1,401	0.85
MacArthur Dr on ramp to Chrisman Rd off ramp	987	0.60	1,528	0.93
Chrisman Rd off ramp to Chrisman Rd on ramp	944	0.57	1,441	0.87
Chrisman Rd on ramp to I-5	941	0.57	1,507	0.91
I-205 Westbound				
I-5 to Chrisman Rd off ramp	1,456	0.88	838	0.51
Chrisman off ramp to Chrisman Rd on ramp	1,406	0.85	826	0.50
Chrisman Rd on ramp to MacArther Dr off ramp	1,454	0.88	871	0.53
MacArthur Dr off ramp to MacArthur Dr on ramp	1,239	0.75	537	0.33
MacArthur Dr on ramp to Tracy Blvd off ramp	1,520	0.92	586	0.35
Tracy Blvd off ramp to Tracy Blvd on ramp	1,024	0.62	322	0.20
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	1,305	0.79	342	0.21
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	975	0.59	296	0.18
Naglee Rd on ramp to Grant Line Rd on ramp	1,075	0.65	337	0.20
Grant Line Rd on ramp to Lammers Rd off ramp	1,088	0.66	360	0.22
Lammers Rd off ramp to Lammers Rd on ramp	1,103	0.67	335	0.20
Lammers Rd on ramp to 11th St on ramp	1,139	0.69	414	0.25
11th St on ramp to Mountain House Pkwy off ramp	1,101	0.67	549	0.33
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	574	0.35	213	0.13
West of Mountain House Pkwy on ramp	608	0.37	214	0.13

Notes: Volumes reflect future HOV lane volumes as shown in **Table 3**
V/C = Volume-to-Capacity Ratio

4.0 ASSESSMENT OF SAFETY

Safety analysis including accident analysis will be conducted under the PA&ED phase of the project.

5.0 KEY FINDINGS

The build alternative is expected to improve the overall traffic operations in the study area compared to the No Build alternative. With addition of the HOV lane on I-205, the traffic operations are expected to improve. Travel demand within the I-205 freeway corridor in the study area, is forecast to continue to increase, leading to worsening of the conditions within the study area. Addition of HOV lane on I-205 is expected to mitigate majority of the negative effects of this traffic growth. Addition of the HOV lane would result in fewer overall operational deficiencies and would provide additional capacity to accommodate the projected traffic growth by the horizon year.

Table 9 provides a comparison of the freeway mainline LOS under different scenarios.

Table 9: Freeway Mixed-Flow Lanes - Level of Service Comparison

I-205	AM Peak Hour (4:00 – 5:00 AM)			PM Peak Hour (5:00 – 6:00 PM)		
	Existing	Future No Build	Future Build	Existing	Future No Build	Future Build
I-205 Eastbound						
West of Mountain House Pkwy off ramp	B	C	C	C	E	D
Mountain House Pkwy off ramp to Mountain House Pkwy Loop on ramp	B	C	C	C	D	D
Mountain House Pkwy Loop on ramp to Mountain House Pkwy on ramp	B	C	C	C	E	D
Mountain House Pkwy on ramp to 11th St off ramp	B	C	C	C	D	C
11 St off ramp to Lammers Rd off ramp	B	C	C	C	E	D
Lammers Rd off ramp to Lammers Rd on ramp	B	B	B	C	D	C
Lammers Rd on ramp to Grant Line Rd off ramp	B	C	C	C	E	D
Grant Line Rd off ramp to Grant Line Rd on ramp	A	C	B	C	E	D
Grant Line Rd on ramp to Tracy Blvd off ramp	B	C	C	C	F	E
Tracy Blvd off ramp to Tracy Blvd on ramp	B	C	C	C	F	D
Tracy Blvd on ramp to MacArthur Dr off ramp	B	D	C	C	F	E
MacArthur Dr off ramp to MacArthur Dr on ramp	B	D	C	C	E	D
MacArthur Dr on ramp to Chrisman Rd off ramp	B	D	C	C	F	D
Chrisman Rd off ramp to Chrisman Rd on ramp	B	D	C	C	E	C
Chrisman Rd on ramp to I-5	B	D	C	C	E	D
I-205 Westbound						
I-5 to Chrisman Rd off ramp	C	E	D	B	D	C
Chrisman off ramp to Chrisman Rd on ramp	C	E	D	B	D	C
Chrisman Rd on ramp to MacArther Dr off ramp	C	F	D	B	D	C
MacArthur Dr off ramp to MacArthur Dr on ramp	C	F	D	B	D	C
MacArthur Dr on ramp to Tracy Blvd off ramp	C	F	E	B	D	C

I-205	AM Peak Hour (4:00 – 5:00 AM)			PM Peak Hour (5:00 – 6:00 PM)		
	Existing	Future No Build	Future Build	Existing	Future No Build	Future Build
Tracy Blvd off ramp to Tracy Blvd on ramp	C	F	E	B	C	C
Tracy Blvd on ramp to Naglee Rd/Grant Line Rd off ramp	C	F	E	B	D	C
Naglee Rd/Grant Line Rd off ramp to Naglee Rd on ramp	C	E	D	A	C	C
Naglee Rd on ramp to Grant Line Rd on ramp	C	F	D	B	D	C
Grant Line Rd on ramp to Lammers Rd off ramp	C	F	D	B	D	C
Lammers Rd off ramp to Lammers Rd on ramp	C	E	D	B	C	C
Lammers Rd on ramp to 11th St on ramp	C	F	D	B	D	C
11th St on ramp to Mountain House Pkwy off ramp	C	D	D	B	C	C
Mountain House Pkwy off ramp to Mountain House Pkwy on ramp	B	D	D	B	C	C
West of Mountain House Pkwy on ramp	C	F	F	B	C	C

Notes: Freeway Mainline LOS are based on HCM 2010 methodologies (as shown in **Tables 5, 6 & 7**)

The comparison table shows that the Build alternative would operate better than the No Build alternative. During AM peak hour, under the future No Build alternative, 13 segments are projected to operate unsatisfactorily (LOS E/F), whereas under future Build alternative 4 segments are projected to operate unsatisfactorily (LOS E/F). During PM peak hour, under future No Build alternative 12 segments are projected to operate unsatisfactorily (LOS E/F), whereas under future Build alternative 2 segments are projected to operate unsatisfactorily (LOS E/F).

Under Build alternative, all the HOV segments are projected to operate at satisfactory levels with volume-to-capacity ratio of less than 1.

Overall, the Build alternative meets the project's state purpose and need, to reduce traffic congestion and delay along I-205 and to encourage HOV use in the I-205 corridor.

6.0 SCOPE OF FUTURE TRAFFIC ENGINEERING STUDIES, ACTIVITIES AND TASKS

Based on findings described within this Traffic Engineering Performance Assessment (TEPA) report, the following information has been compiled utilizing the checklists outlined in Article 5: Traffic Engineering Performance Assessment (Caltrans Preparation Guidelines for Project Study Report-Project Development Support (PSR-PDS) Project Initiation Documents, September 30, 2011) document to help estimate the scope and magnitude of the (future) traffic engineering studies to be completed for the project.

6.1 Forecasting

The following tasks will be conducted in future engineering studies:

- Additional data collection including new traffic volume counts
- Traffic forecasts utilizing the most current version of the SJCOG's Three County Model.

6.1.1 Data Collection

Existing conditions for the Project Approval and Environmental Document (PA&ED) will use a combination of available existing data and new traffic counts (mainline general purpose, ramp and intersection). The study area for this TEPA only included I-205 freeway segments. For PA&ED, it is recommended to include the ramp intersections and adjacent intersection after discussion with the stakeholders. Each intersection will require turning movement volumes for the AM and PM peak hours. Additionally, 24-hour machine counts will be required to be taken at selected freeway ramps. The remaining traffic count information will be assembled from sources such as Caltrans (PeMS) and City of Tracy sources.

6.1.2 Traffic Forecasts

All future traffic analyses must analyze conditions at least 20 years after the project opening. Depending on the anticipated start of project date, a forecast year of 2045 or 2050 will need to be used. For the PA&ED, it is recommended to use the Three County Model to establish traffic forecasts for each alternative. The traffic forecasts will include average daily traffic (ADT) volumes, peak hour freeway mainline and ramp volumes, and intersection turn movement volumes.

6.2 Operational / Capacity Analysis and Evaluation

A traffic analysis will need to be prepared to support the ED and be included in the Project Report. It will identify specific performance measures, infrastructure components, traffic movements and conflicts.

Traffic Impact/Circulation Study – This task will analyze the potential impacts or beneficial effects of the Build Alternative versus the No Build Alternative for the study area. Existing, Opening No Build, Opening Build, Future No Build and Future Build scenarios will be analyzed. The level of service (LOS) findings will be reported using Highway Capacity Manual (HCM) procedures as per Caltrans guidelines. Freeway operations results will use HCM and Caltrans Traffic Manual Procedures as appropriate.

The following are components of the operation and capacity analysis:

- Mainline LOS (capacity analysis)
- Ramp, merge and diverge LOS
- Weaving analysis
- Ramp terminal intersection LOS (exit Ramp storage/queue analysis)
- Interchange/Local system analysis
- Intersection Control Evaluation (ICE)
- Ramp metering system analysis (interchange specific and corridor-wide)
- Ramp metering queue storage
- Managed lane (HOV Lanes) analysis
- Intersection control alternatives analysis (Signal warrant analysis)
- Conventional intersection analysis (capacity analysis, delay studies, queuing and channelization storage analysis)

The Highway Capacity Manual (HCM) methodologies are used for all capacity analysis for the PSR. While appropriate for the PSR, HCM may not be adequate on its own for the environmental studies and for design phases. HCM is not as accurate in oversaturated conditions with heavy congestion, nor does it account for queuing impacts from one freeway segment to another or from one intersection to another. For this reason, other detailed analysis techniques such as Synchro/Simtraffic (version 10) for intersections and FREQ for mainline analysis will be considered during the PA&ED phase. District 10 Traffic Operations Branch will provide a scope of work for the Traffic Operations Report (TOR) to be completed during PA&ED.

6.3 Safety Analysis and Evaluation

An accident analysis will be conducted using the latest TASAS report data available. Coordination with the Caltrans District 10 Traffic Safety Branch will be carried out to obtain the necessary information. Based on the review and assessment of the reports and evaluation of existing and proposed (future) infrastructure and operating conditions, the District Safety Engineer will estimate the scope and magnitude of the formal future safety analysis (i.e., safety audit, safety analysis, safety review). The safety study will be performed by, or under the direction of the District Traffic Safety Engineer and will focus on the evaluation of off-peak and peak period conditions.

APPENDIX B

Final Memorandum on I-205 Managed Lanes PA&ED: Final Traffic Analysis and Data Collection Approach

FEHR PEERS

Memorandum

Date: October 13, 2020

To: Parag Mehta, Kimley Horn

From: Eddie Barrios and Fred Choa, Fehr & Peers

Subject: I-205 Managed Lanes PA&ED: Final Traffic Analysis and Data Collection Approach

RS20-3941

This memorandum presents the assumptions, methodologies, and approach for completing the Traffic Operations Analysis Report (TOAR) in support of the Interstate 205 (I-205) Managed Lanes Project Approval and Environmental Document (PA&ED). The information presented in this memorandum takes into consideration the travel effects of COVID-19 and the information contained in the *Caltrans Transportation Analysis under CEQA* (TAC, September 2020) and *Caltrans Transportation Analysis Framework* (TAF, September 2020). Caltrans has formally adopted vehicle miles of travel (VMT) as the transportation metric for determining project impacts for CEQA: the metric was previously level of service (LOS).

Project Background

The I-205 Managed Lanes PA&ED consists of two main project elements. The project elements are:

1. The I-205 managed lane (westbound and eastbound) between I-580/Grant Line Road interchange in Alameda County and I-5 in San Joaquin County. This project element includes modification of the I-205/I-580 and I-205/I-5 freeway-to-freeway interchanges to accommodate the I-205 managed lanes.[1]

[1] For this study, the term "managed lane" refers to either a high-occupancy vehicle lane (HOV Lane) or express toll lane (Express Lane). The Traffic Engineering Performance Assessment (TEPA) is currently being updated to identify the project alternative/s that will be advanced for further study in PA&ED.

2. Interchange improvements at:
    a. I-205/Grant Line Road
    b. I-205/Tracy Boulevard
    c. I-205/MacArthur Drive

A single TOAR will be prepared to provide analyses for the managed lanes and interchange improvements project elements.

TOAR Inputs and Approach

The TOAR inputs and approach take into consideration the different objectives of the managed lanes and interchange improvement projects, the travel effects of shelter-in-place restrictions, and information contained in various Caltrans documents regarding induced vehicle travel from transportation projects.

Analysis Years and Study Periods

It is unknown when traffic volumes and patterns will return to levels comparable to those seen before shelter-in-place restrictions due to the COVID-19 pandemic, or what level of travel demand will become normal and routine. As more sectors of the economy reopen and the pandemic continues to influence daily activities, there is no clear indication that additional shelter-in-place restrictions will not be implemented later on in the year if coronavirus cases start to spike. Given so much uncertainty surrounding COVID-19 and the need to advance the project through the Caltrans approval process, we propose using Fall 2019 to reflect baseline conditions instead of Fall 2020 conditions. Using Fall 2019 as the baseline conditions would avoid introducing travel disruptions and uncertainty caused by COVID-19 into future year forecasts and analysis, presuming an eventual return to similar travel demand conditions that existed prior to COVID-19.

Project Element #1 – Managed Lanes

The opening year for the managed lanes will depend on completion of several project milestones (PA&ED, design, and construction). The opening year will also depend on securing project funding. Based on a reasonable construction schedule, the following analysis years are proposed:

- Baseline (Existing) Conditions (Fall 2019),
- Opening Year (2030 or earlier), and
- Design Year (2050)

Traffic congestion existed for multiple hours in the morning and afternoon during a typical weekday in Fall 2019. Furthermore, I-205 is only congested in the peak direction during each

peak period (westbound AM and eastbound PM). The following analysis hours are proposed by direction for a mid-week weekday (Tuesday, Wednesday, or Thursday):

- Westbound AM Study Period: 3 AM to 11 AM
- Eastbound AM Study Period: Two-hour AM Peak Period (highest demand volume for two hours between 6 AM and 10 AM)
- Westbound PM Study Period: Two-hour PM Peak Period (highest demand volume for two hours between 3 PM and 7 PM)
- Eastbound PM Study Period: 1 PM to 8 PM

Below is traffic volume and speed data from the Caltrans Performance Measurement System (PeMS) that was used to help establish the study periods. The locations were selected based on the highest observed traffic demand.

Westbound AM: Mainline VDS 1013510 - W/O Mtn House Pkwy OC

Hour	Flow (Veh/Hour)	Speed (mph)	Data Quality	
			# Lane Points	% Observed
09/17/2019 03:00	4,024.0	61.3	36	100.0
09/17/2019 04:00	3,497.0	22.4	36	100.0
09/17/2019 05:00	2,244.0	11.5	36	100.0
09/17/2019 06:00	2,067.0	11.5	36	100.0
09/17/2019 07:00	2,348.0	12.4	36	100.0
09/17/2019 08:00	2,923.0	26.4	36	100.0
09/17/2019 09:00	3,545.0	71.7	36	100.0
09/17/2019 10:00	3,452.0	72.0	36	100.0
09/18/2019 03:00	3,955.0	56.4	36	100.0
09/18/2019 04:00	3,703.0	25.6	36	100.0
09/18/2019 05:00	2,224.0	11.6	36	100.0
09/18/2019 06:00	2,128.0	10.9	36	100.0
09/18/2019 07:00	2,118.0	10.6	36	100.0
09/18/2019 08:00	2,512.0	12.9	36	100.0
09/18/2019 09:00	3,498.0	37.1	36	100.0
09/18/2019 10:00	3,679.0	71.4	36	100.0

Westbound PM: Mainline VDS 1027210 - W/O Paradise Rd OC

Hour	Flow (Veh/Hour)	Speed (mph)	Data Quality	
			# Lane Points	% Observed
09/17/2019 14:00	3,396.0	68.9	36	100.0
09/17/2019 15:00	3,611.0	68.8	36	100.0
09/17/2019 16:00	3,614.0	68.7	36	100.0
09/17/2019 17:00	3,561.0	69.0	36	100.0
09/17/2019 18:00	2,708.0	70.7	36	100.0
09/18/2019 14:00	3,372.0	69.1	36	100.0
09/18/2019 15:00	3,779.0	68.6	36	100.0
09/18/2019 16:00	3,620.0	68.9	36	100.0
09/18/2019 17:00	3,491.0	69.7	36	100.0
09/18/2019 18:00	2,624.0	70.2	36	100.0

Eastbound AM: Mainline VDS 1010010 - MacArthur Dr

Hour	Flow (Veh/Hour)	Speed (mph)	Data Quality	
			# Lane Points	% Observed
09/17/2019 06:00	2,503.0	59.7	36	100.0
09/17/2019 07:00	3,414.0	60.0	36	100.0
09/17/2019 08:00	3,144.0	60.3	36	100.0
09/17/2019 09:00	3,103.0	56.0	36	100.0
09/18/2019 06:00	2,520.0	62.4	36	100.0
09/18/2019 07:00	3,438.0	62.0	36	100.0
09/18/2019 08:00	3,123.0	59.4	36	100.0
09/18/2019 09:00	3,007.0	57.0	36	100.0

Eastbound PM: Mainline VDS 1025710 - W/O Mac Arthur Drive UC

Hour	Flow (Veh/Hour)	Speed (mph)	Data Quality	
			# Lane Points	% Observed
09/17/2019 13:00	4,693.0	58.7	36	100.0
09/17/2019 14:00	4,808.0	48.7	36	100.0
09/17/2019 15:00	4,735.0	32.6	36	100.0
09/17/2019 16:00	4,783.0	25.4	36	100.0
09/17/2019 17:00	4,829.0	40.6	36	100.0
09/17/2019 18:00	4,789.0	38.1	36	100.0
09/17/2019 19:00	4,757.0	48.2	36	100.0
09/18/2019 13:00	3,743.0	62.9	36	100.0
09/18/2019 14:00	4,034.0	62.2	36	100.0
09/18/2019 15:00	4,578.0	57.6	36	100.0
09/18/2019 16:00	4,962.0	36.9	36	100.0
09/18/2019 17:00	3,782.0	20.7	36	100.0
09/18/2019 18:00	4,841.0	31.8	36	100.0
09/18/2019 19:00	4,659.0	52.6	36	100.0

Project Element #2 – Interchange Improvements

Similar to Project Element #1, the following analysis years are proposed:

- Baseline (Existing) Conditions (Fall 2019),
- Opening Year (2030 or earlier), and
- Design Year (2050)

The following analysis hours are proposed for a mid-week weekday (Tuesday, Wednesday, or Thursday):

- AM Study Period: AM peak hour (highest one-hour volume between 6 AM and 10 AM)
- PM Study Period: PM peak hour (highest one-hour volume between 3 PM and 7 PM)

Note that the peak hour may vary between interchanges depending on traffic volume data. For example, the I-205/Grant Line Road interchange may have an AM peak hour of 7 AM to 8 AM, while the Tracy Boulevard interchange may have a different AM peak hour of 7:45 AM to 8:45 AM.

Study Area, Analysis Tool, and Measures of Effectiveness

The study area for the managed lanes and interchange improvements is intended to reflect the necessary level of detail to satisfy the environmental process and Caltrans design requirements.

Project Element #1 – Managed Lanes

Study Area

The freeway analysis locations were determined using guidance in the *Highway Capacity Manual, 6th Edition*. The freeway analysis types to be used for all analysis years are defined below:

- Ramp Merge – the 1,500-foot segment downstream of an on-ramp
- Ramp Diverge – the 1,500-foot segment upstream of an off-ramp
- Weaving Section – the segment between an on-ramp and an off-ramp where the ramps are connected by a continuous auxiliary lane and the length is no longer than the maximum weaving length based on the weaving volume
- Basic Freeway – all other freeway segments that do not meet the above categories including Major Merge and Major Diverge segments which occur at freeway-to-freeway interchanges and lane additions, or lane drops at local interchanges

Since the weaving section definition depends on traffic volumes, some segments may be a weaving section for one peak period and a basic freeway segment for the other peak period.

The managed lanes study area is graphically displayed in **Figure 1** in the Appendix. The existing conditions freeway analysis segments for westbound I-205, which includes mainline segments on southbound I-5 and westbound I-580, are presented in **Table 1**. Note that regardless of whether a segment is defined as a ramp merge, diverge, basic freeway, or weaving segment the traffic analysis will be account for the actual traffic operations based on the traffic demand and available capacity.

There are two future interchanges proposed on I-205: 1) Lammers Road interchange and 2) Chrisman Road interchange. The ramps from these two future interchanges will be included in the analysis under future year conditions.

Table 1. SB I-5, WB I-205, and WB I-580 Mainline Study Locations

Route	Description	Freeway Analysis Type
SB I-5 (Study Limit Start)	EB SR 120 Connector Off-Ramp to WB SR 120 Connector On-Ramp	Basic Freeway
SB I-5	WB SR 120 Connector On-Ramp	Basic Freeway (Major Merge)
SB I-5	Manthey Road Off-Ramp	Ramp Diverge
SB I-5	Manthey Road Off-Ramp to Manthey Road On-Ramp	Basic Freeway

Table 1. SB I-5, WB I-205, and WB I-580 Mainline Study Locations

Route	Description	Freeway Analysis Type
SB I-5	Manthey Road On-Ramp to I-205 Connector Off-Ramp	Ramp Merge
SB I-5	Manthey Road to I-205	Basic Freeway
SB I-5	I-205 Connector Off-Ramp	Basic Freeway (Major Diverge)
SB I-5	I-205 Connector Off-Ramp to 11th Street Off-Ramp	Basic Freeway
SB I-5	11th Street Off-Ramp	Ramp Diverge
WB I-205	I-5 to MacArthur Drive	Basic Freeway
WB I-205	MacArthur Drive Off-Ramp	Ramp Diverge
WB I-205	MacArthur Drive Off-Ramp to MacArthur Drive On-Ramp	Basic Freeway
WB I-205	MacArthur Drive On-Ramp to Tracy Boulevard Off-Ramp	Ramp Merge
WB I-205	MacArthur Drive to Tracy Boulevard	Basic Freeway
WB I-205	Tracy Boulevard Off-Ramp	Ramp Diverge
WB I-205	Tracy Boulevard Off-Ramp to Tracy Boulevard On-Ramp	Basic Freeway
WB I-205	Tracy Boulevard On-Ramp to Naglee Road Off-Ramp	Ramp Merge
WB I-205	Tracy Boulevard to Naglee Road	Basic Freeway
WB I-205	Naglee Road Off-Ramp	Ramp Diverge
WB I-205	Naglee Road Off-Ramp to Naglee Road On-Ramp	Basic Freeway
WB I-205	Naglee Road On-Ramp	Ramp Merge
WB I-205	Grant Line Road On-Ramp to 11th Street On-Ramp	Ramp Merge,
WB I-205	Grant Line Road to 11th Street	Basic Freeway
WB I-205	11th Street On-Ramp	Basic Freeway (Lane Addition)
WB I-205	11th Street On-Ramp to Mountain House Parkway Off-Ramp	Weaving Section/Basic Freeway[1]
WB I-205	Mountain House Parkway Off-Ramp to Mountain House Parkway On-Ramp	Basic Freeway
WB I-205	Mountain House Pkwy On-Ramp	Basic Freeway (Lane Addition)
WB I-205	Mountain House Pkwy to Lane Drop	Basic Freeway
WB I-205	Lane Drop to I-580	Basic Freeway
WB I-580	Mountain House Parkway On-Ramp	Ramp Merge
WB I-580	Mountain House Parkway to I-205	Basic Freeway
WB I-580	I-205 Bypass Connector Off-Ramp	Ramp Diverge
WB I-580	I-205 Bypass to I-205	Basic Freeway
WB I-580	I-580 Connector On-Ramp to I-580 Bypass On-Ramp	Basic Freeway (Major Merge)
WB I-580	I-580 Bypass On-Ramp to Grant Line Road Off-Ramp	Weaving Section
WB I-580	Grant Line Road Off-Ramp to Grant Line Road On-Ramp	Basic Freeway
WB I-580	Grant Line Road On-Ramp	Ramp Merge
WB I-580	Grant Line Road On-Ramp to Lane Drop	Basic Freeway
WB I-580	Lane Drop to North Flynn Road	Basic Freeway
WB I-580	North Flynn Road Off-Ramp	Ramp Diverge

Table 1. SB I-5, WB I-205, and WB I-580 Mainline Study Locations

Route	Description	Freeway Analysis Type
WB I-580	North Flynn Road Off-Ramp to North Flynn Road On-Ramp	Basic Freeway
WB I-580	North Flynn Road On-Ramp	Ramp Merge
WB I-580	North Flynn Road On-Ramp to Greenville Road Off-Ramp	Basic Freeway
WB I-580	Greenville Road Off-Ramp	Ramp Diverge
WB I-580	Greenville Road Off-Ramp to Greenville Road On-Ramp	Basic Freeway
WB I-580	Greenville Road On-Ramp	Ramp Merge
WB I-580 (Study Limit End)	Greenville Road On-Ramp to Truck Scales (does not include truck scales ramps)	Basic Freeway

Note: 1. May be a weaving section or basic freeway analysis segment depending on the volume.

The existing conditions freeway analysis segments for eastbound I-205, which includes mainline segments on eastbound I-580 and northbound I-5, are presented in **Table 2**.

Table 2. EB I-580, EB I-205, and NB I-5 Mainline Study Locations

Route	Description	Freeway Analysis Type
EB I-580 (Study Limit Start)	Truck Scales (does not include truck scales ramps) to Greenville Road Off-Ramp	Basic Freeway
EB I-580	Greenville Road Off-Ramp	Ramp Diverge
EB I-580	Greenville Road Off-Ramp to Greenville Road On-Ramp	Basic Freeway
EB I-580	Greenville Road On-Ramp	Ramp Merge
EB I-580	Greenville Road On-Ramp to North Flynn Road Off-Ramp	Basic Freeway
EB I-580	North Flynn Road Off-Ramp	Ramp Diverge
EB I-580	North Flynn Road Off-Ramp to North Flynn Road On-Ramp	Basic Freeway
EB I-580	North Flynn Road On-Ramp	Ramp Merge
EB I-580	North Flynn Road to Lane Drop	Basic Freeway
EB I-580	Lane Drop to Grant Line Road	Basic Freeway
EB I-580	Grant Line Road Off-Ramp	Ramp Diverge
EB I-580	Grant Line Road Off-Ramp to Grant Line Road On-Ramp	Basic Freeway
EB I-580	Grant Line Road On-Ramp	Ramp Merge
EB I-580	EB I-580 Connector Off-Ramp	Basic Freeway (Major Diverge)
EB I-580	I-205 to Patterson Pass Road	Basic Freeway
EB I-580	Patterson Pass Road Off-Ramp	Ramp Diverge

Table 2. EB I-580, EB I-205, and NB I-5 Mainline Study Locations

Route	Description	Freeway Analysis Type
EB I-205	I-580 to Mountain House Parkway	Basic Freeway
EB I-205	Mountain House Parkway Off-Ramp	Ramp Diverge
EB I-205	Mountain House Parkway Off-Ramp to Mountain House Parkway Southbound On-Ramp	Basic Freeway
EB I-205	Mountain House Parkway Southbound On-Ramp to Mountain House Parkway Northbound On-Ramp	Ramp Merge
EB I-205	Mountain House Parkway On-Ramp to 11th Street Off-Ramp	Weaving Section/Basic Freeway[1]
EB I-205	11th Street to Grant Line Road	Basic Freeway,
EB I-205	Grant Line Road Off-Ramp	Ramp Diverge
EB I-205	Grant Line Road Off-Ramp to Grant Line Road On-Ramp	Basic Freeway
EB I-205	Grant Line Road On-Ramp	Ramp Merge
EB I-205	Grant Line Road to Tracy Boulevard	Basic Freeway
EB I-205	Tracy Boulevard Off-Ramp	Ramp Diverge
EB I-205	Tracy Boulevard Off-Ramp to Tracy Boulevard On-Ramp	Basic Freeway
EB I-205	Tracy Boulevard On-Ramp	Ramp Merge
EB I-205	Tracy Boulevard to MacArthur Drive	Basic Freeway
EB I-205	MacArthur Drive Off-Ramp	Ramp Diverge
EB I-205	MacArthur Drive Off-Ramp to MacArthur Drive On-Ramp	Basic Freeway
EB I-205	MacArthur Drive On-Ramp to I-5	Ramp Merge
EB I-205	MacArthur Drive to I-5	Basic Freeway
NB I-5	11th Street On-Ramp to I-205 Connector On-Ramp	Basic Freeway
NB I-5	I-205 Connector On-Ramp	Basic Freeway (Major Merge)
NB I-5	Mossdale Road Off-Ramp	Ramp Diverge
NB I-5	Mossdale Road Off-Ramp to Mossdale Road On-Ramp	Basic Freeway
NB I-5	Mossdale Road On-Ramp	Ramp Merge
NB I-5	SR 120 Connector Off-Ramp	Basic Freeway (Major Diverge)
NB I-5	SR 120 Connector Off-Ramp to Lane Drop	Basic Freeway
NB I-5 (Study Limit End)	Lane Drop to SR 120 Connector On-Ramp	Basic Freeway

Note: 1. May be a weaving section or basic freeway analysis segment depending on the volume.

Analysis Tools and Measures of Effectiveness

The following analysis tools are proposed for Project Element #1 (managed lanes).

Westbound AM and Eastbound PM (Peak Direction)

The Vissim microsimulation analysis software is proposed as the analysis tool for the I-205 peak direction.[2] With Vissim, the following key traffic operational characteristics of the corridor would be considered:

1. Effects of multiple bottlenecks and hours of congestion on travel time/speed for the entire corridor
2. Impacts of the project on different modes of travel (single-occupancy vehicle [SOV], high-occupancy vehicle [HOV], and tolled lane eligible vehicles [TOLL])
3. Interaction of I-205 traffic with I-580 traffic on the west end of the corridor and with I-5 traffic on the east end of the corridor

A Vissim traffic operations analysis model will be developed that includes the freeway mainline, on-ramps (including ramp meters, if present), and off-ramps as presented in **Figure 1**. Ramp terminal intersections at the interchanges will not be included. The entry links to the study area will be extended as needed to contain peak period queues so that operational performance is measured.

During the peak hours, vehicles can take up to 45 minutes to travel from one end of the study corridor to the other end. As requested by Caltrans, the analysis results from the Vissim model will be presented in 1-hour time intervals. The following travel modes will be included in the Vissim model:

- SOV
- HOV2 (HOVs with two passengers)
- HOV3+ (HOVs with three or more passengers)
- TOLL
- Trucks
- Buses
- Electric Vehicles (EVs)
- Motorcycles

[2] If requested by Caltrans, Fehr & Peers can schedule an online Vissim model development strategy session. The purpose of the online session will be to introduce the Vissim analysis software (or refresher course for those familiar with the software) and discuss key modeling inputs. Depending on Caltrans' comfort level with the software, the online session can also be tailored as a Vissim basics training session that could provide Caltrans with the necessary training to review Vissim modeling files.

The Vissim model will calibrated and validated to reflect local traffic operating conditions based on typical validation criteria used by Caltrans District 4; the criteria are derived from *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software* (FHWA, 2004) as shown in **Table 3**.

Table 3. Traffic Simulation Validation Criteria

Category	Criteria	Threshold	Validation Acceptance Targets
Bottlenecks	Bottleneck location	Replicated by model at each location	100% of cases
Mainline Volumes at Controlling Bottleneck Locations	GEH statistic	Less than 2.0 in each 1-hour interval (this is a Caltrans District 4 preference; we are not aware of a Caltrans District 10 preference)	> 85% of cases
Mainline Volumes at Hidden Bottlenecks and Non-Bottleneck Locations	GEH statistic	Less than 5.0 in each 1-hour interval	>85% of cases
Link (Ramp) Volumes	Volume	Within 15%, for 700 veh/h < Flow < 2,700 veh/h	> 85% of cases
	Volume	Within 100 veh/h, for Flow < 700 veh/h	> 85% of cases
	Volume	Within 400 veh/h, for Flow > 2,700 veh/h	> 85% of cases
	GEH statistic	Less than 5.0 in each 1-hour interval	> 85% of cases
Sum of All Link Volumes	Volume	Within 5% of sum of all link counts in study period	
	GEH statistic	Less than 4.0 in study period	
Travel Time in 1-hour interval	Travel path	Within 15%	> 85% of cases
Visual Inspection in 1-hour interval	Link travel speeds	Visually acceptable speed-flow relationship	To analyst's satisfaction based on observed vs. modeled speed contour plots
	Bottleneck queuing	Visually acceptable queuing	

Note: The GEH statistic, named after Geoffrey E. Havers, is an empirical formula that that compares observed traffic volumes against modeled volumes to determine whether there is a good match between the observed and modeled.

The following measures of effectiveness (MOEs) from the Vissim traffic operations models will be provided for each analysis time period (1-hour) and for the entire study period (e.g., 1 PM to 8 PM) except for the maximum individual vehicle delay which will only be provided for the peak 1-hour:

- Density and Level of Service for analysis segments

- Networkwide: All Origin-Destination Pairs and All Modes of Travel
    - Percent Demand Served
    - Vehicle Miles of Travel (VMT)
    - Vehicle and Person Hours of Travel (VHT/PHT)
    - Vehicle and Person Hours of Delay (VHD/PHD)
    - Average Travel Speed
    - Fuel Consumption
    - Total Vehicle Emissions
- Travel Through the Corridor (from start to end of corridor)
    - SOV/HOV/TOLL Average Travel Time
    - SOV/HOV/TOLL Average Travel Speed
    - Maximum Individual Vehicle Delay (minutes) for the Peak Hour

Eastbound AM and Westbound PM (Off-Peak Direction)

Based on traffic data presented in the *I-205 HOV Lane Widening (I-580 to I-5) PSR/PDS* (December 2017), the off-peak direction is anticipated to operate below capacity in the design year. However, this may not be the case when the forecasts are updated as part of the PA&ED process. For this reason, the off-peak direction will include a two-hour analysis period to ensure that the entire duration of congestion is covered in the analysis. The Highway Capacity Software (HCS7) which implements the *Highway Capacity Manual, 6th Edition* procedures for freeway facilities will be the analysis tool for the off-peak direction. The performance measures that will be provided are density and level of service for all analysis segments.

Project Element #2 – Interchange Improvements

Study Area

The study area for each of the interchange improvement projects will include the ramp terminal intersections and adjacent intersections that could influence traffic operations and interchange design. **Figure 2** presented in the Appendix shows the proposed study intersections for the I-205/Grant Line Road Interchange Improvement Project, while **Figure 3** presents the study intersections for the I-205/Tracy Boulevard Interchange Improvement Project. **Figure 4** presents the study intersections for the I-205/MacArthur Boulevard Interchange Improvement Project.

The study intersections for the I-205/Grant Line Road Interchange Improvement Project are presented in **Table 4.**

Table 4. I-205/Grant Line Road Interchange Project Study Intersections

Intersection	Existing Traffic Control
1. Grant Line Road / Walmart Driveway	Signal
2. Grant Line Road / Shopping Center Driveway (Fast Food)	Side-Street Stop
3. Grant Line Road / Naglee Road	Signal
4. Grant Line Road / I-205 EB Ramps	Signal
5. Grant Line Road / Toste Road	Side-Street Stop
6. Grant Line Road / Joe Pombo Parkway	Signal
7. Naglee Road / Shopping Center Driveway (Home Depot)	Signal
8. Naglee Road / I-205 WB Ramps / Pavilion Parkway	Signal
9. Naglee Road / West Valley Mall Driveway	Signal

The study intersections for the I-205/Tracy Boulevard Interchange Improvement Project are presented in **Table 5**.

Table 5. I-205/Tracy Boulevard Interchange Improvement Project Study Intersections

Intersection	Existing Traffic Control
1. Tracy Boulevard / Larch Road	All-Way Stop
2. Tracy Boulevard / I-205 WB Ramps	Signal
3. Tracy Boulevard / I-205 EB Ramps	Signal
4. Tracy Boulevard / Clover Road	Signal

The study intersections for the I-205/MacArthur Drive Interchange Improvement Project are presented in **Table 6**.

Table 6. I-205/MacArthur Drive Interchange Improvement Project Study Intersections

Intersection	Existing Traffic Control
1. MacArthur Drive / Arbor Avenue	All-Way Stop
2. MacArthur Drive / I-205 WB Ramps	Signal
3. MacArthur Drive / I-205 EB Ramps	Signal
4. MacArthur Drive / Pescadero Avenue	Signal

Analysis Tool

The Synchro/SimTraffic 10 traffic analysis software will be used to evaluate the interchange improvement projects. This software implements the analysis methodologies presented in the *Highway Capacity Manual, 6th Edition*. The analysis results will be for the peak hour (1 hour) and

be based on the average of at least 5 SimTraffic model runs. The simulation model will have four 15-minute analysis intervals. The MOEs will include the following for each intersection:

- Average delay for intersection and by movement,
- Level of service (LOS) for intersection and by movement (side-street stop control delay and LOS will be based on worst movement, not average of whole intersection), and
- 95th percentile queue lengths by movement.

In addition, the following networkwide MOEs will be provided:

- Vehicle Demand
- Vehicles Served
- Percent Demand Served
- Total Stops
- Stops/Vehicle
- Vehicle Hours of Delay (VHD)
- Vehicle Miles of Travel (VMT)
- Vehicle Hours of Travel (VHT)
- Average Speed
- Fuel Used
- Total Emissions

Data Collection

In response to COVID-19 and the limitations associated with collecting new traffic data in 2020, the data collection approach will rely on "Big Data" vendors and available traffic data. The primary "Big Data" vendor will be StreetLight Data. StreetLight Data has published several white papers regarding their data and validation studies (https://www.streetlightdata.com/whitepapers/). The collected data below will be used for both project elements (managed lanes and interchange improvement projects).

Freeway Mainline and Interchange Ramp Traffic Volumes

Data from Caltrans' PeMS and Caltrans census counts will be used to determine freeway mainline and ramp traffic volumes. The data collected will be from Fall 2019 conditions, if available. If only older data is available, it will be adjusted upward to reflect growth to 2019 conditions.

To determine the vehicle occupancy of vehicles traveling in the I-205 corridor, traffic data on the I-580 Express Lanes will be requested from Alameda CTC. In addition, vehicle classification and passenger occupancy count data can likely be obtained from before and after studies prepared for the I-580 corridor. For example, the *I-580 Express Lanes After Study: Report to the California State Legislature* (October 25, 2018) collected vehicle classification and passenger occupancy count data at two locations on I-580 in Alameda County in April and May 2018. Data collected on I-580 nearest to the San Joaquin County line will be assumed to reflect conditions on I-205.

Intersection Volumes

Available traffic volume data from recent transportation studies in the City of Tracy and along the study corridor will be reviewed for year 2018 or 2019 intersection traffic volume data. At locations where no recent traffic volume data is available, the Fall 2019 intersection traffic volume data will be collected through StreetLight Data's intersection turning movement data product, which allows for a retrospective estimate of traffic volumes using location-based service data from mobile devices (smart phones, GPS devices, etc.).

To fully evaluate the potential use of StreetLight Data for the I-205 Managed Lanes Project (and other studies), Fehr & Peers recently performed its own independent validation of this StreetLight Data product. This independent evaluation included a comparison of the unadjusted StreetLight Data intersection turning movement data estimates against intersection turning movement data collected in 2019 for locations in California (Bay Area, Sacramento, and Los Angeles/Orange County), Pacific Northwest, and Utah. The comparison of hourly volumes was completed for over 2,600 movements. This comparison revealed the StreetLight Data product was an effective replicator of count data before any adjustments were made to the data to improve local performance. The white paper prepared by Fehr & Peers is presented in the Appendix.

The tests of the unadjusted, "off-the-shelf" StreetLight Data product showed the StreetLight Data product reflected traffic volumes accurately, or somewhat consistently overestimated traffic volumes, in about 90 percent of cases. The StreetLight Data product underestimated count volumes in about 10 percent of the cases. Most of the locations with high estimates of traffic volumes were locations with very high pedestrian or transit usage that resulted in high mobile device density (e.g., San Francisco, downtown San Jose, and Transbay corridors with high transit ridership). The unadjusted data performed particularly well (i.e., reduced potential to underestimate or overestimate) in suburban locations with low transit usage and low pedestrian volumes such as rural and suburban areas of San Joaquin, Contra Costa, and Alameda counties. In these locations, the device density more closely matches vehicle density.

To improve the volume estimation process, StreetLight Data's local calibration adjustment procedure will be applied, whereby a user can input previously collected count volumes to locally calibrate the volumes estimate process; this process has proven to substantially improve performance. This local calibration adjustment procedure will use volume data from Caltrans' Performance Measurement System (PeMS) and available recent traffic volumes provided by local agencies.

Collision Data

Collision data for the freeway mainline study area for the most recent three-year period will be summarized from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS). Collision data at each of the ramps for the three study interchanges on I-205 will also be summarized.

Signal Timing Data

Signal timing and phasing data for each of the signalized study intersections within the study area will be obtained from Caltrans or the local agencies for 2019 conditions.

Travel Time and Speed Information

Travel time and speed for the study corridors will be determined from the INRIX database. The data will be obtained in 15-minute intervals but aggregated to 1-hour intervals to match the Vissim modeling time intervals. The travel time and speed information will also be used to identify bottleneck locations on the study corridors as they occurred in Fall 2019. The data will include each mainline segment within the study limits and at a minimum one mainline segment just outside the study limits. INRIX provides a traffic flow archive with the capability to access speeds reported at the segment level for specific days and times of day. INRIX data is gathered from a variety of sources, including in-vehicle GPS systems, mobile smart phones, and roadway sensors. PeMS also provides travel speed data along the major freeway corridors in the study area (I-205 and I-580). The PeMS travel speed data will be used to supplement the INRIX speed data.

Origin-Destination Data

Origin-destination (O-D) data for Fall 2019 conditions will be collected for the study area to better understand existing travel patterns. StreetLight Data will be the source of the O-D data. Major origins are westbound I-205 at the I-5 interchange, and eastbound I-580 just west of the I-205 interchange. The O-D data will also be used to estimate existing traffic diversion from I-205 to local parallel routes (e.g., westbound Grant Line Road in AM study period and eastbound 11th Street in PM study period).

Ramp Metering Data

Ramp metering data (current and proposed) on I-205, I-580, and I-5 will be requested from Caltrans. Ramp metering, and its effects on traffic congestion, will be included in the peak-direction traffic operations analysis.

Existing Demand Volumes

Traffic counts collected in the field for the peak direction represent constrained volumes. Principles presented in Chapter 2 (Causes of Congestion) in the manual *A Short Course on Freeway Operations Analysis*, prepared by Caltrans District 4, will be used to estimate demand volumes from the AM and PM traffic counts. The bottleneck locations, queue observations, and travel time/speed data will also be employed to establish the demand volumes. The demand volumes will be converted to origin-destination (O-D) travel demand, which will be incorporated into the Vissim models.

Generally, there will be two approaches used to estimate demand volumes:

1. Input/Output Method – This method uses a traffic count upstream of a bottleneck that is not in queue (upstream demand volume) and a traffic count at all ramps and bottleneck to estimate the number of stored vehicles (vehicles in queue).
2. Delay Plus Output Method – This method uses a traffic count through the bottleneck and the delay associated with traveling from just upstream of the queue through the bottleneck to determine the number of stored vehicles.

At locations not influenced by congestion (e.g., I-205 in the off-peak direction) the traffic counts will be assumed to represent demand volumes.

The existing demand volumes will also be used for the travel forecasting validation effort where the existing traffic demand estimates will be compared to the traffic volume estimates from the base year travel demand model.

Travel Forecasting

The Caltrans TAC and TAF were developed in response to Senate Bill (SB) 743 that changes the focus of transportation impact analysis in CEQA from LOS to VMT. Using VMT as the transportation metric for impact analyses means the travel forecasting process needs to be sufficiently robust to avoid misrepresenting induced vehicle travel. Some known issues that could lead to misrepresenting VMT include:

- Truncating VMT near a regional travel demand model boundary;
- Unconstrained modeled traffic flows exceeding capacity;
- Lack of model sensitivity to induce travel effects affecting trip generation, trip distribution, mode choice, and assignment; and
- Changes in land use that could result from the project.

The Three-County Travel Demand Model (TDM), which includes San Joaquin, Stanislaus, and Merced counties, will be used to develop traffic forecasts and VMT estimates for the study alternatives. The TDM provides the following forecast time periods which will be used for this study.[3]

- Three-hour AM Period (6 to 9 AM)
- Three-hour PM Period (4 to 7 PM)
- Daily

[3] A discussion on how forecasts will be prepared for analysis hours outside the forecasted hours of the Three-County TDM is discussed later in this memorandum.

2019 Base Year Model Development and Validation

To ensure compliance with CEQA and SB 743, the travel forecasts and analysis of transportation impacts will not be truncated at jurisdictional boundaries, namely, the San Joaquin/Alameda county line, but rather will capture the full geographic extent of the Project's effects. The west end of the study corridor will be extended to west of the I-580/Vasco Road Interchange to include travel in Alameda County. This means that the ad-hoc Three-County TDM used to develop the traffic forecasts will be large enough and sufficiently sensitive to capture the Project's effects. To accomplish this, the Three-County TDM will be expanded to include a portion of the eastern Alameda County roadway network (e.g. I-580 over the Altamont Pass, Altamont Pass Road, and Patterson Pass Road). The travel demand to/from the extended network inside of Alameda County will be evaluated using the Alameda County Transportation Authority (ACTC) model and supplemented by the Metropolitan Transportation Commission (MTC) model, as needed. The gateway trips of the Three-County TDM at the San Joaquin/Alameda county line will be reconciled with this west-end travel demand from the ACTC model. Emphasis will be placed on base year model calibration/validation within the study area. Particular care will be taken in testing the model's sensitivity to induced travel, as this topic will need to be thoroughly documented in order to comply with new SB 743 requirements.

The validation effort will entail comparing the existing traffic demand (count plus queues) estimates with the traffic demand volume estimates from the base year travel demand model. Adjustments will be made to the model to improve the match. Typical adjustments include adding roadway network detail to include all study roadways, splitting up TAZs to improve network volume loading, modifying land use inputs to better account for existing land uses, and modifying roadway speeds to better match observed conditions.

Static validation is the industry practice of comparing the model volumes against the observed volumes and checking their difference based on a set of validation targets. Static validation provides a good understanding of how well the model is doing with respect to replicating existing conditions, but not necessarily how well the model will respond to future changes in roadway network or land use. Static validation is only appropriate where observed traffic volumes are not constrained by traffic congestion (such as bottlenecks) given the validation tests are statistical tests of comparison. For congested locations, the TDM should produce "demand" volumes that exceed the constrained traffic counts during peak hours or peak periods.

The volume validation checks will be done for the TDM's forecast time periods: 6-9 AM (total three-hour volume), 4-7 PM (total three-hour volume), and daily volume. The model's performance in replicating existing conditions will be compared to the model validation thresholds from the 1992 *Caltrans Travel Forecasting Guidelines* and *2017 California Regional Transportation Plan Guidelines for Metropolitan Planning Organizations*. The validation effort will focus on I-205 (and ramps), I-580 (and ramps), and parallel facilities such as 11th Street, Grant Line Road, Altamont Pass Road, and Patterson Pass Road. The base year model validation will be

documented in a technical memorandum and submitted to the Project Team including Caltrans for review and acceptance.

Future Year Model Development

Future Roadway Network and Land Use Assumptions

The SJCOG *2018 Regional Transportation Plan/Sustainable Communities Strategy* will be reviewed to identify roadway network modifications in the vicinity of the study area that would influence travel patterns in the future. The base year roadway network modifications will be carried forward and implemented in the future year network.

The TDM forecast year does not match the proposed analysis future years. The forecast year for TDMs is 2042, while the analysis future years are 2030 and 2050. The 2030 and 2050 land use forecasts will be derived through linear interpolation or extrapolation of the base year land use estimates and year 2042 land use forecasts.

Future Year Traffic Demand Estimates

For the No Build Alternative, the future year TDM (without the Project) will be executed to determine AM peak period (6-9 AM), PM peak period (4-7 PM), and daily forecasts. The future year No Build Alternative model will correspond to a specific year (e.g., year 2030) and will include the foreseeable roadway network and land use anticipated by that year. The traffic forecasts from the TDM will not be used directly in predicting future year traffic demand forecasts. Instead, changes in the traffic demand between the validated base and future year models (delta method) will be added to 2019 estimated traffic demands to determine the adjusted future year traffic forecasts. These forecasts will represent unconstrained demand volumes. Note that the TDM does not specifically cover each of the analysis study periods (i.e., 3 AM to 11 AM and 1 PM to 8 PM); therefore, the forecasting process will include additional steps to estimate traffic demand outside the TDM analysis periods. The following forecasting process will be employed to determine hourly forecasts:

1. Determine the three-hour AM (or PM) adjusted future year forecasts through the following formula:

   Adjusted Three-Hour Future Year Traffic Forecast = Future Year Model Three-Hour Forecast – Validated Base Year Model Three Hour Volume + 2019 Three-Hour Traffic Demand

2. Disaggregate the adjusted three-hour future year traffic forecast into multiple one-hour forecasts (e.g., the 6-9 AM peak period forecast will be disaggregated into 6-7 AM, 7-8 AM, and 8-9 AM forecasts). The existing Fall 2019 hourly volume profile for a weekday will be used to disaggregate the peak period forecasts.

3. Analysis hours outside the TDM forecast time periods will be estimated using the nearest hour developed in step #2, and the existing hourly volume profiles for a weekday. For example, to estimate the hourly forecast at 5 AM the existing hourly volume ratio between 5 AM and 6 AM hours will be applied to the 6 AM forecast.

Forecasts will be prepared for each of the following travel modes:

- All modes
- SOV (includes motorcycles as percentage of the vehicle fleet)
- HOV2
- HOV3+ (includes buses as percentage of the vehicle fleet)
- Trucks

Note that electric vehicles (EVs) will be represented as percentage of each of the travel modes listed above (i.e., there will be EVs under SOV, HOV2, HOV3+, and Trucks).

The same process used for the No Build Alternative will be used to estimate future year traffic forecasts for the build alternatives except that the roadway network will be modified to include the Project (both project elements – managed lanes and interchange improvements). Given that the majority of the Project is located within Caltrans District 10, the forecasting deliverable will follow the Caltrans District 10 *Travel Forecast Methodology Review Checklist (PA&ED)*. The most recent version provided by Caltrans District 10 will be used for this study. This deliverable has similar elements to the Caltrans District 4 traffic forecasting requirements. The checklist will be submitted to the project team for review and acceptance.

Vehicle Miles of Travel (VMT) Forecasts

Based on the location of the I-205 Managed Lanes Project, the TAC requires that induced VMT forecasts be provided using the National Center for Sustainable Transportation (NCST) Induced Travel Calculator and TDM. The NCST Calculator is an elasticity-based tool that forecasts annual long-term induced VMT for capacity expansion projects based on VMT from the No Build Alternative. More information on the calculator is available at: https://blinktag.com/induced-travel-calculator.

The NCST Calculator does not produce VMT by speed bin, a common input required for air quality and greenhouse gas analysis. Future year VMT forecasts for the project alternatives will also be provided using the TDM. The TDM accounts for some induced travel, such as changes in route choice and trip destination, but does not account for changes in trip generation rates or land use development.

The VMT estimates and tools that will be used as part of this study are presented in **Table 7**. The project analysis will need to reconcile the use of the model and elasticity-based VMT forecasts, which will be a key issue for the project development team (PDT) discussion.

Table 7. VMT Tools

Tool	Primary Inputs	Future Year No Project VMT	Future Year with Project VMT	Project Induced VMT
NCST Calculator	Total Lane Miles Added to Roadway Network	No	No	Yes (long-term only although a separate elasticity can be used to estimate short-term effects)
Modified Three-County Travel Demand Model	Land Use and Roadway Network based on Regional Transportation Plans	Yes	Yes	Yes (Future with Project *minus* Future No Project)

Future Year Traffic Operations Analysis

Project Element #1 – Managed Lanes

Westbound AM and Eastbound PM (Peak Direction)

The calibrated/validated existing condition Vissim models will be updated to year 2030 and 2050 conditions for the study alternatives. By year 2030, it is expected that all on-ramps on I-205 will be metered and be included in the analysis.

The existing O-D travel demand will also be updated to reflect future year travel demand. The same MOEs provided under existing conditions will be provided for the future year analyses.

O-D trip tables will be prepared for each of following travel modes:

- SOV (includes motorcycles as percentage of the vehicle fleet)
- HOV2
- HOV3+ (includes buses as percentage of the vehicle fleet)
- Trucks
- TOLL

Note that electric vehicles (EVs) will be represented as percentage of each of the travel modes listed above (i.e., there will be EVs under SOV, HOV2, HOV3+, Trucks, and TOLL).

TOLL demand estimates for project alternatives that include an Express Lane will be based on an approach employed for other Express Lane projects in the Bay Area (e.g., I-680 and I-880 Express Lanes). The basic assumptions are the following:

1. The TOLL rates are dynamic and set to ensure maximum use of the Express Lane.
2. The Express Lane volume stays at or below 1,650 vehicles per hour (vph) to ensure the lane remains below capacity and travel speeds are above 45 mph.
3. HOVs can use the Express Lane without a toll. Therefore, the potential TOLL users are the maximum Express Lane volume of 1,650 vph minus the HOV volume. This represents the maximum potential TOLL volume.
4. Only SOVs convert to TOLL users, and they only do so in periods of congestion. In free-flow conditions, the volume of TOLL users is zero.
5. SOVs are converted to TOLL users based on the following logical O-D pairs:
    a. For any O-D pair that could reasonably use the Express Lane the maximum SOV to TOLL conversion is capped at 15 percent. The low percentage is intended to avoid overstating the SOV to TOLL conversion.
    b. A reasonable Express Lane O-D pair needs to have greater than six miles of travel on the freeway. This restricts potential TOLL users to longer distance trips. From a driver's perspective, short distance trips in the Express Lane are unlikely to result in a travel time savings that justify the toll.
    c. Cases may occur when applying a) and b) above that will result in an Express Lane volume lower than 1,650 vph. In these cases, consideration will be given to increasing the SOV to TOLL conversion from 15 up to 20 percent if there is substantial traffic congestion where demand for the Express Lane could be expected to be high. Conversely, in non-peak hours, when the demand for the Express Lane will be low, volumes could be substantively lower than 1,650 vph.

Eastbound AM and Westbound PM (Off-Peak Direction)

The existing condition HCS models will be updated to year 2030 and 2050 conditions for the project alternatives. For the off-peak direction, TOLL volume will be assumed to be zero. Only HOVs will use the managed lanes.

Project Element #2 – Interchange Improvements

The existing condition Synchro/SimTraffic models will be updated to year 2030 and 2050 conditions for the study alternatives. The models will also be updated to reflect future year traffic demand forecasts. The same MOEs provided under existing conditions will be provided for the future year analyses.

As part of the year 2050 traffic operations analysis an Intersection Control Evaluation (ICE) evaluation will be performed at each of the interchanges proposed to be improved by the project. For project alternatives that include roundabouts, the roundabout operations analysis will be

performed using SIDRA 8 to determine traffic operations for the Year 2050 AM and PM peak hour.

Based on the *Caltrans Ramp Metering Design Manual* (Caltrans RMDM, April 2016) the recommended vehicle storage to contain the entrance ramp queues within the ramp and avoid adverse impacts to the connected local roadways should be based on the following equation:

*Adequate Vehicle Storage = Future Year Peak Hour Volume * 0.07 * 30 feet*

A ramp metering queue evaluation will be performed for each of the on-ramps under Project conditions.

Documentation

The following deliverables will be provided to the project team for review and comment.

Existing Conditions/Model Calibration Memorandum – A summary of the data collection efforts, existing traffic volumes, collision rates, and existing traffic conditions within the study area will be presented in this memorandum.

Travel Demand Model Base Year (Existing) Validation Memorandum – This memorandum will provide a comparison of the base year travel demand model volume against field observed volume.

Travel Demand Forecasting Memorandum – The results of the traffic forecasting process will be presented in this memorandum including the demand volumes that will be used for the future year traffic operations analysis.

Intersection Control Evaluation (ICE) Memorandum – The results of the intersection control evaluation will be presented in this memorandum.

Traffic Operations Analysis Report (TOAR) – The results of the future year traffic operations analysis along with the information contained in the deliverables discussed above will be presented in a standalone Draft Traffic Operations Analysis Report (Draft TOAR) for review and comment. The Draft TOAR will include traffic count data, tables and figures, and the traffic analysis input/output printouts. The Draft TOAR will also discuss the operational analysis results for the study alternatives and compare MOEs between alternatives. As part of the submittal, the electronic traffic analysis files (HCS, Synchro/SimTraffic, SIDRA) will also be submitted. A Final TOAR will be prepared based on written comments and edits received on the Draft TOAR.

If you have any questions, please contact Eddie Barrios at (925) 930-7100.

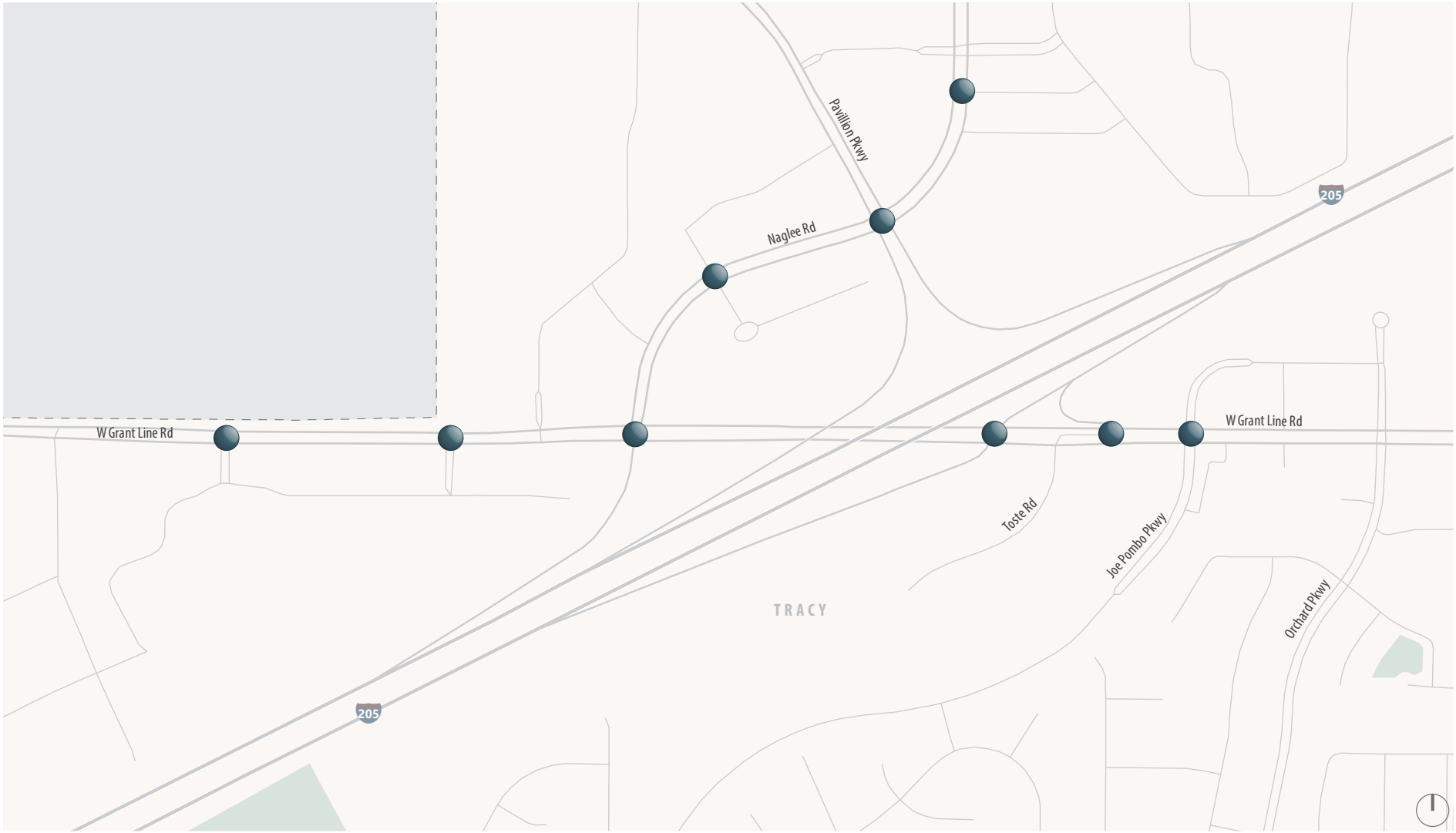
APPENDIX:
FIGURES



I-205 Managed Lane Study Limits

Figure 1

I-205 Managed Lanes Study Limits



Study Intersection

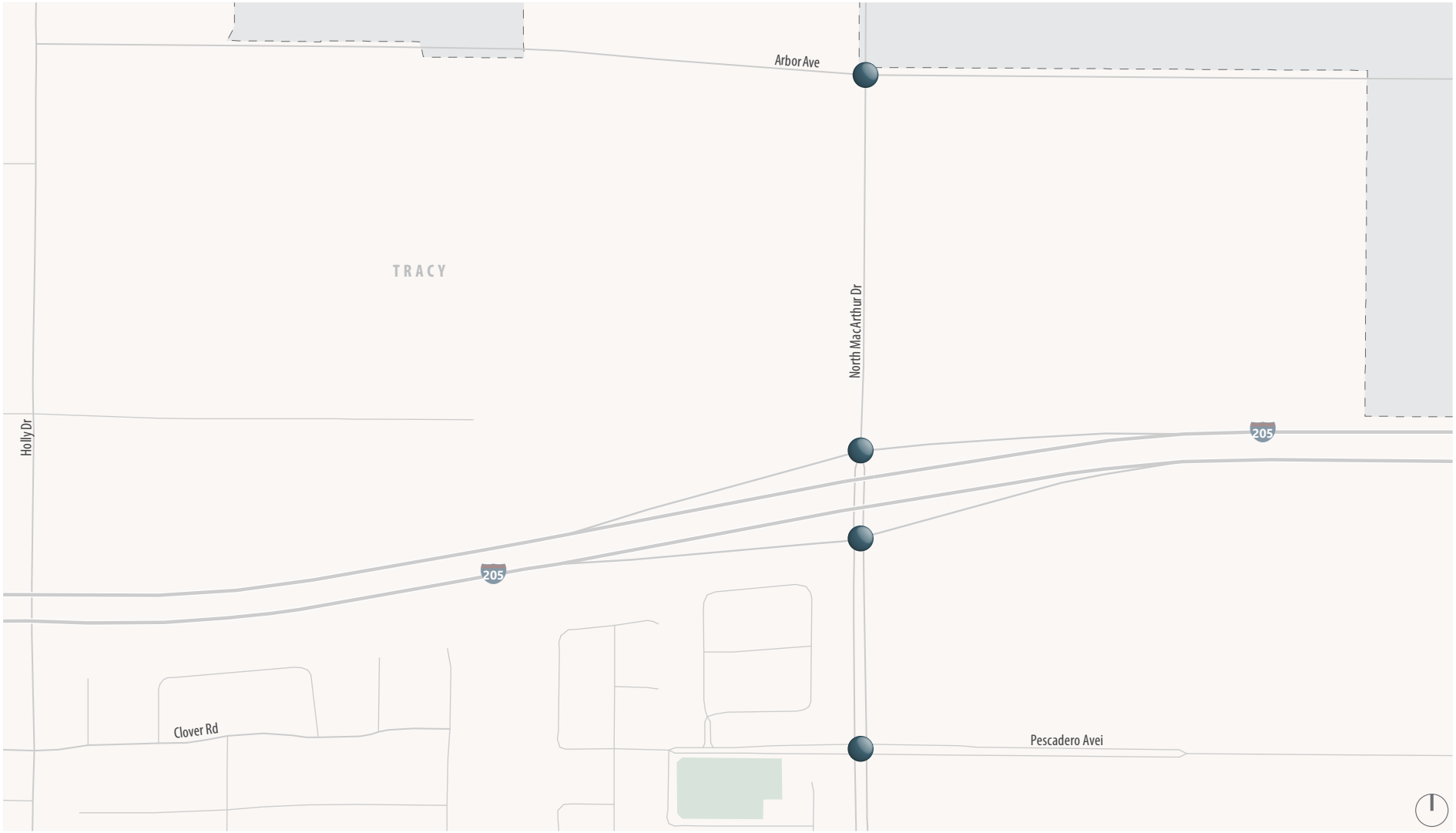
Figure 2

Grant Line Road Interchange Improvement Project Study Intersections



Figure 3

Tracy Boulevard Interchange Improvement Project Study Intersections



Study Intersection

Figure 4

MacArthur Drive Interchange Improvement Project Study Intersections

APPENDIX:
FEHR & PEERS STREETLIGHT WHITE PAPER

WHITE PAPER

A Transformative Data Collection Solution

An Independent Review of StreetLight Data's Intersection Turning Movement Volume Estimates



FEHR PEERS



A TRANSFORMATIVE DATA COLLECTION SOLUTION

An Independent Review of StreetLight Data's Intersection Turning Movement Volume Estimates

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A Transformative Data Collection Solution

An Independent Review of StreetLight Data's Intersection Turning Movement Volume Estimates

Executive Summary

The traditional state of the practice of using one-day or two-day traffic counts has always limited practitioners' understanding of traffic operations and the fluctuations that occur throughout the year. COVID-19 conditions have exposed this limitation to a much greater degree, while also creating an opportunity to transform the approach to current year traffic volume estimation.

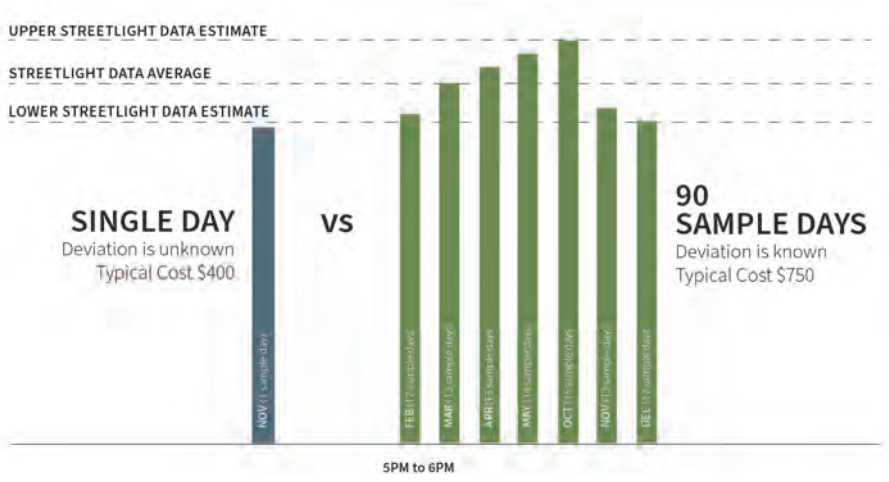
In response to client concerns, Fehr & Peers completed an independent review of StreetLight Data's intersection turning movement volume estimation product by comparing StreetLight's estimates against 2019 observed traffic counts at over 70 intersections in the western United States.

Nearly 90 percent of the intersections in our sample had counts that fell within our reasonableness range based on the StreetLight estimates. The reasonableness range included locations where the count was within two standard deviations of the StreetLight estimate (almost 70 percent) or over-estimated the count in a consistent and repeatable manner across the sample, such that it could be corrected with calibration adjustments.

Intersections in which StreetLight estimates were consistently higher than the one-day or two-day counts typically occurred in areas with high mobile device concentration. High-density urban areas with substantial transit service, walking, and bicycling are characteristics of these areas. We hypothesized that StreetLight scaling algorithms that convert device trips to vehicle trips do not fully account for device concentration in higher-density areas. Further adjustments (both inside and outside the StreetLight portal) may be warranted in these areas based on local context. Users are cautioned to carefully consider the context of the intersections to be studied, and to apply their knowledge of the areas in which they work to assess the reasonableness of the data.

The data source is a valid replacement for counts or a valid source for factoring older counts, providing up to 90 days of observations for the price of two to three days of typical turning movement counts.

The StreetLight portal includes a module where users can upload local count data to improve the performance of the algorithms at the local level. Other improvements to the algorithm will be released by end of 2020.



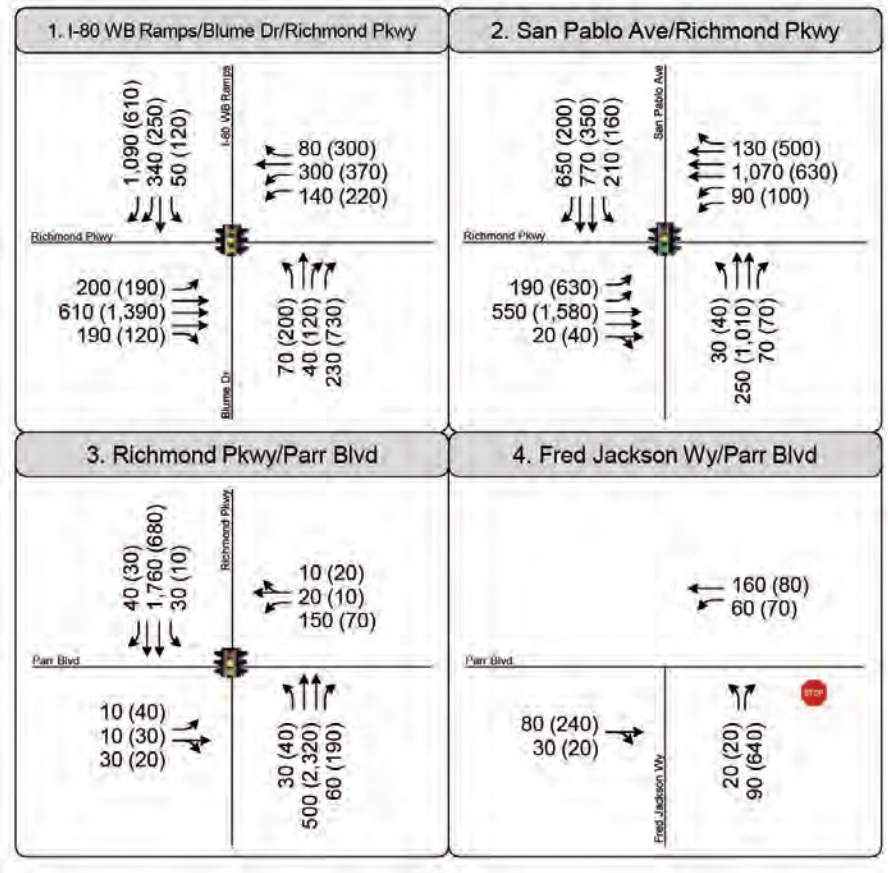
Would the conclusions of a project change if we had 90 sample days instead of a single sample day?

Background

Observed data is the backbone of transportation engineering and planning analyses, providing key information to practitioners and decision-makers about the current conditions. One of these data sources, intersection turning movement (ITM) counts, provides an understanding about the volume of vehicles (and often bicycle and pedestrians) traveling through the intersection during peak analysis hours. ITM counts can inform decisions regarding the number of lanes at an intersection, what signal timing parameters should be chosen, and what treatments may be needed to accommodate pedestrian and bicycle travel. Frequently, the ITM counts form the foundation for future year volume forecasts, which further provide information as to the future design and operational characteristics of the multimodal transportation system.

Generally, ITM counts are performed when schools are in session, in periods of good weather, and in periods of typical travel activity (e.g., avoiding holidays or other periods of suppressed economic activity). In many urban areas, this combination of characteristics is becoming rare and does not provide any insights into how much traffic volume vary across months and seasons. ITM counts that do not capture more than one or two days will limit the ability of analysts, decision-makers, and the public to understand the complete existing conditions picture.

Traditional count methods can require weeks of schedule to collect, process, analyze and QA/QC the data, and generally requires waiting for periods of good weather with local schools in session. These limitations can delay projects for long periods of time (e.g. over school summer and winter break, during rainy seasons, etc.). The COVID-19 pandemic has brought these limitations to the forefront, and alternate data collection methods would allow transportation engineers and planners a better path forward during and after the COVID-19 pandemic.



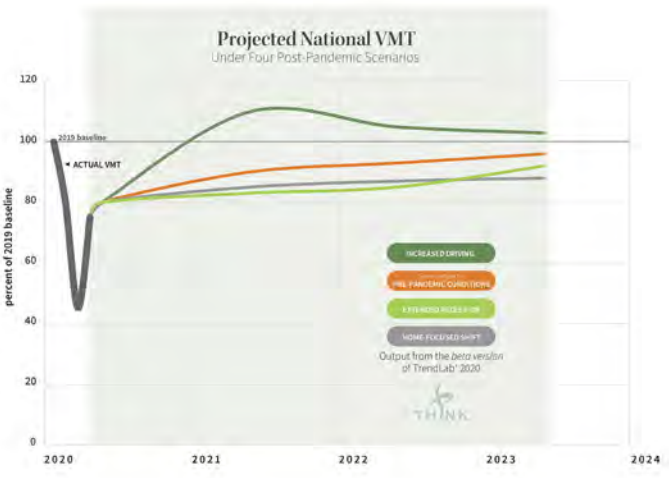
A single day of counts may cost less, but it does not account for the fluctuations found in a larger sample size.

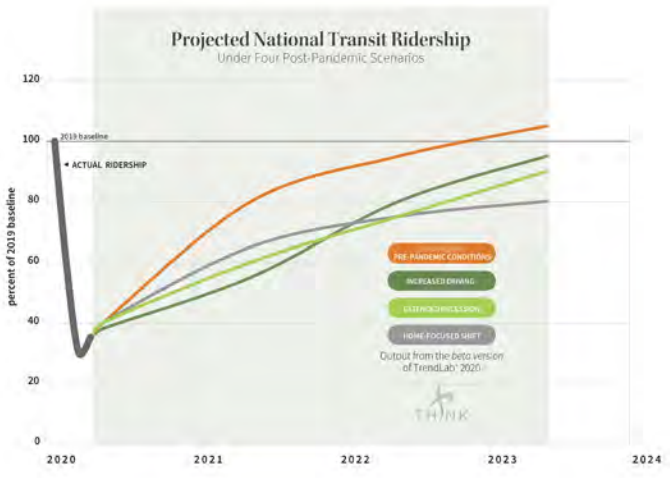
The typical state of the practice is to collect ITM counts over just one to two days to serve as a basis for volumes under current conditions. While an observed count is both accurate and precise in terms of representing the day when the count was performed, it provides no information about the variation in volumes across other days, weeks, months, and seasons. Collection of additional days of data has always been advised, but comes at additional costs that many projects have not be able or willing to absorb.

The COVID-19 pandemic has resulted in unprecedented changes to human behavior, including a focus on social distancing, the avoidance or prohibition of events or business activities that involve large gatherings of people, working from home, online schooling, and online retail. These changes have resulted in a historic economic downturn, in addition to a substantial suppression of travel activity. It is uncertain how long (or if) travel activity will take to return to pre-pandemic conditions, but it is certain that traditional data collection methods would only be able to measure the traffic volumes associated with this level of suppressed travel activity. In light of this, Fehr & Peers' clients have indicated that a new data collection solution would be needed to (1) allow projects to continue forward on schedule, (2) reflect traffic volumes in a pre-pandemic condition until more is known about a return to a "new normal" level travel activity, and (3) provide a tool to track the rebound in travel associated with the "new normal."

COVID-19 adds additional uncertainty to traffic volume data, and travel patterns may not stabilize until a vaccine is found.

The StreetLight Data ITM volume estimates have the potential to satisfy these requirements, including the ability to reflect pre-pandemic traffic volumes. To verify the reasonableness of using new data, Fehr & Peers routinely performs independent validation tests, and applied our process to the StreetLight ITM volume estimates in an accelerated manner due to client interest caused by COVID-19 conditions. Our independent validation was self-funded and relied on traffic count data we obtained through various projects in California, Utah, and Washington, as well as the standard ITM volume estimates available through the StreetLight data portal.





Literature Review

In December of 2018, StreetLight Data released a white paper detailing its internal ITM volume estimate validation analysis. Completed prior to the release of the StreetLight ITM volume estimate product, the validation used StreetLight Index, which is a normalized index describing the relative volume of trips for each Origin-Destination pair. StreetLight ran an Origin-Destination analysis on 15 intersections in Illinois, and seven intersections in Maryland that had publicly available hourly turning movement counts. The analysis used the ratios of turning movements by approach to compare between StreetLight Index values and the count data. This is described by the equation:

$$Ratio = \frac{T_l}{\sum T_{l,r,s}}$$

Where T is the indexed value of the vehicles making each turn, and the subscripts "l, r, s" designate all possible left-turn, right-turn, and straight-ahead (through) movements. With multiple hours of data and 12 turning movements per intersection, a total of 2,480 data points were included in the comparison, resulting in an R2 of 0.9, and showing a strong, linear correlation between the StreetLight Index ratios and the count data ratios.

In the fall of 2019, StreetLight Data published a white paper detailing the methodology and validation of the new StreetLight Volume product, which provides an estimate of average daily traffic and can be used within multiple analyses to provide estimated vehicle trips. The analysis relies on the StreetLight AADT model and 526 permanent traffic counters, mostly located in the eastern United States and western Canada. This was followed by a second turning movement validation study comparing the StreetLight ITM volume estimates with five intersections in Minnesota that had 12-hour turning movement count data, for a total of 60 data points of comparison. The StreetLight Origin-Destination analyses produced hourly turning movement volume estimates for the average weekday during the month the counts were collected. This direct volume comparison yielded an R2 of 0.95 for the 60 data points used.

After the analysis described in this white paper was completed, StreetLight staff informed Fehr & Peers that an updated algorithm was developed for release in May 2020. This new algorithm includes data from over 10,000 permanent count stations located in all 48 mainland U.S. states. The updated algorithm is projected to be implemented in the ITM volume estimates product process by the end of 2020.

Analysis Methodology

As noted previously, single-day ITM counts fail to account for the day-to-day, month-to-month, or season-to-season variation in traffic volumes. The StreetLight ITM volume estimates provide access to several months of data, thus allowing an assessment of variation in travel patterns over the course of a year. Therefore, our approach to comparing these two independent estimates of ITMs considered multiple factors. First, the ITM counts were not simply used as the 'benchmark,' since the sample size of one or two days is too small to be meaningful for reasonableness checking the much larger StreetLight sample, consisting of 90 sample days. Second, we were interested in where the pre-COVID-19 ITM counts fell within the range of StreetLight estimates. Finally, we wanted to understand the risk of under- and over-estimates and whether any consistent biases existed in the StreetLight estimates that required calibration or post-processing adjustments. We were less concerned about over-estimates that were due to local context and device concentration arrive at a data set that reflects the local seven typical months of counts. If this bias was consistently present in the data set, calibration adjustments can easily be made to correct for it. This combination of factors established our assessment of reasonableness for the StreetLight ITM volume estimates.

Fehr & Peers completed the following specific reasonableness tests.

Confidence Interval test:
Does the count value (by movement by hour) fall within a confidence interval (two standard deviations) constructed using data from seven months of StreetLight data?

Sub-Test 1:
For movements not meeting the Confidence Interval test criteria, does the count value fall below the lower-bound of the confidence interval, or does the count fall above the upper-bound of the confidence interval?

Sub-Test 2:
Grouping by turning movement (left turn, right turn, or through), does the Confidence Interval test reveal any bias in the data?

The tests noted below were conducted at 73 intersections in the San Francisco Bay Area, Sacramento, Seattle/Tacoma, Salt Lake City, and Southern California areas. Data at most intersections were comprised of single-day ITM counts taken in 2019. Generally, these counts included the 7:00 AM to 8:00 AM, 8:00 AM to 9:00 AM, 4:00 PM to 5:00 PM and 5:00 PM to 6:00 PM periods. For the Confidence Interval test, each hour of data was tested individually by movement, which was then aggregated to totals by approach, and total entering volume at the intersection. Nearly 2,670 hourly movement volumes, 975 hourly approach volumes, and 266 hourly total entering volumes were included in the analysis.

The seven months of data aggregated from the StreetLight portal typically included data from February, March, April, May, September, October, and November; however, based on local school schedules and local practices, data from other months were included in the analysis to arrive at a data set that reflects the local seven typical months of counts.

Results of Analysis and Findings

Summary outputs of the analysis are included in the following tables present the results of the analysis.

Table 1 presents the results of the Confidence Interval analysis by hourly movements.

Table 2 presents the results of the Confidence Interval analysis by total approach volume and total entering volume.

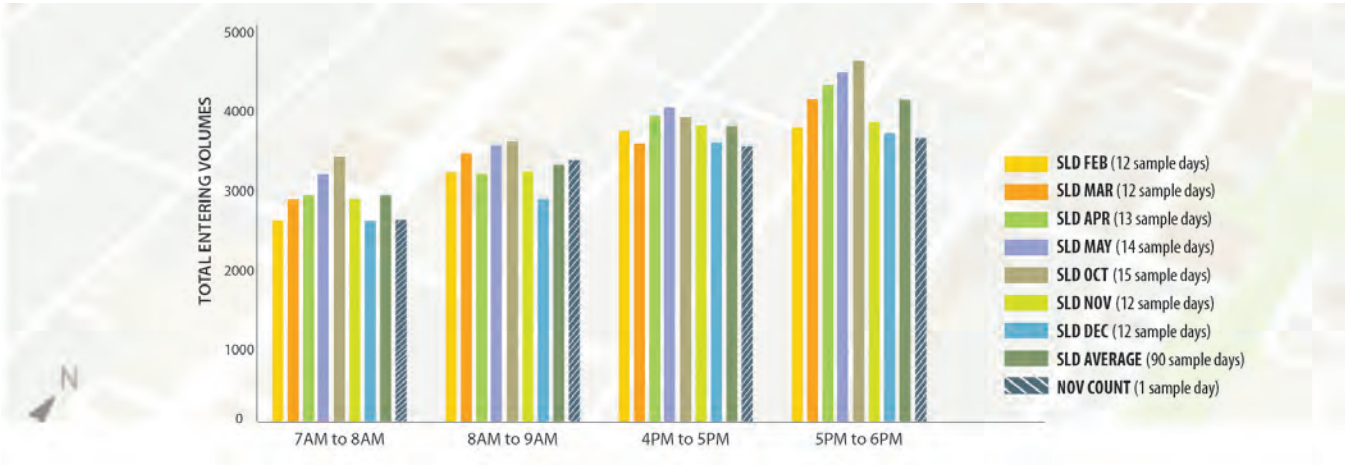
It is important to stress that the results presented in these tables represent unadjusted data for all locations, including locations where the StreetLight data has known limitations due to contextual factors. These factors include high pedestrian and transit activity, which tends to result in high mobile device concentration. When device concentration is high, the StreetLight volume estimates may overestimate vehicle trips. StreetLight has calibration options available to correct for device concentration that are discussed later, but those were not used in this study.

The results of the analysis yield the following findings:

Depending on the type of movement (left turn, through, or right turn), counts were within the unadjusted StreetLight estimates confidence or were higher for 88 percent of locations when considering all movements and 87-91 percent for individual movements. Unadjusted StreetLight data generally produced higher volumes than counts on through movements more often than for left turns and right turns, indicating that there may be some bias in the data. Unadjusted StreetLight data also generally produced higher volumes than counts in locations with high pedestrian activity or high transit activity as expected given the data limitations noted above.

Based on feedback from StreetLight Data staff (discussed later in this white paper), the through movement bias is correctable within the StreetLight portal. The high pedestrian activity and high transit activity bias is correctable by (1) developing local calibration factors, or (2) seeding the StreetLight portal with local permanent count data to better calibrate the StreetLight machine learning algorithm. Thus, the opinion of Fehr & Peers is that the locations where StreetLight volumes are higher are due to a consistent set of circumstances, and an analysis solution does in fact exist to reduce these occurrences. Thus, Fehr & Peers found that nearly 90 percent of our tests showed that StreetLight data fell within our reasonableness range.

At the approach and total entering volume levels, counts were within the StreetLight data confidence interval or were lower than the lower bound of the StreetLight Data confidence interval 84 percent of the time and 86 percent of



The StreetLight Data product provides critical information about the variation in volumes throughout the year, something that a single-day count does not provide.

the time, respectively. Higher through movement volume estimates tend to result in approach volumes and total entering volumes higher than the counts, which is consistent with through volumes generally being greater than left turn or right turn volumes. As noted previously, the through movement bias is correctable within the StreetLight portal.

Based on the Fehr & Peers knowledge of local context at the counted intersections, the StreetLight data product tends to result in higher volume estimates in high pedestrian areas (such as CBDs) and areas of high transit ridership or very high vehicle occupancies , which coincide with high device concentrations. The algorithms also tend to overestimate low-volume movements of 25 vehicles per hour or less.

TABLE 1: Confidence Interval Test Results by Movement (Unadjusted Data)

TEST OUTCOME	ALL MOVEMENTS	BY MOVEMENT TYPE		
		Left Turn	Through	Right Turn
Tests Conducted by Movement by Hour (2,669 Hourly Movements)				
Count within Confidence Interval	66%	70%	57%	71%
Count outside Confidence Interval lower bound (StreetLight higher than count)	22%	21%	30%	17%
Count outside Confidence Interval higher bound (StreetLight lower than count)	11%	9%	13%	12%
Count within Confidence Interval or StreetLight higher than count	**88%**	**91%**	**87%**	**88%**

Notes: *Totals may not equal 100% due to rounding.*

Source: *Fehr & Peers, 2020.*

TABLE 2: Confidence Interval Test Results by Approach and Total Entering Volume (Unadjusted Data)

TEST OUTCOME	BY APPROACH	BY TOTAL ENTERING VOLUME
Tests Conducted by Hour (975 Hourly Approaches and 266 Hourly Total Entering Volumes)		
Count within Confidence Interval	51%	47%
Count outside Confidence Interval lower bound (StreetLight higher than count)	33%	39%
Count outside Confidence Interval higher bound (StreetLight lower than count) or Inconclusive*	15%	14%
Count within Confidence Interval or StreetLight higher than count	**84%**	**86%**

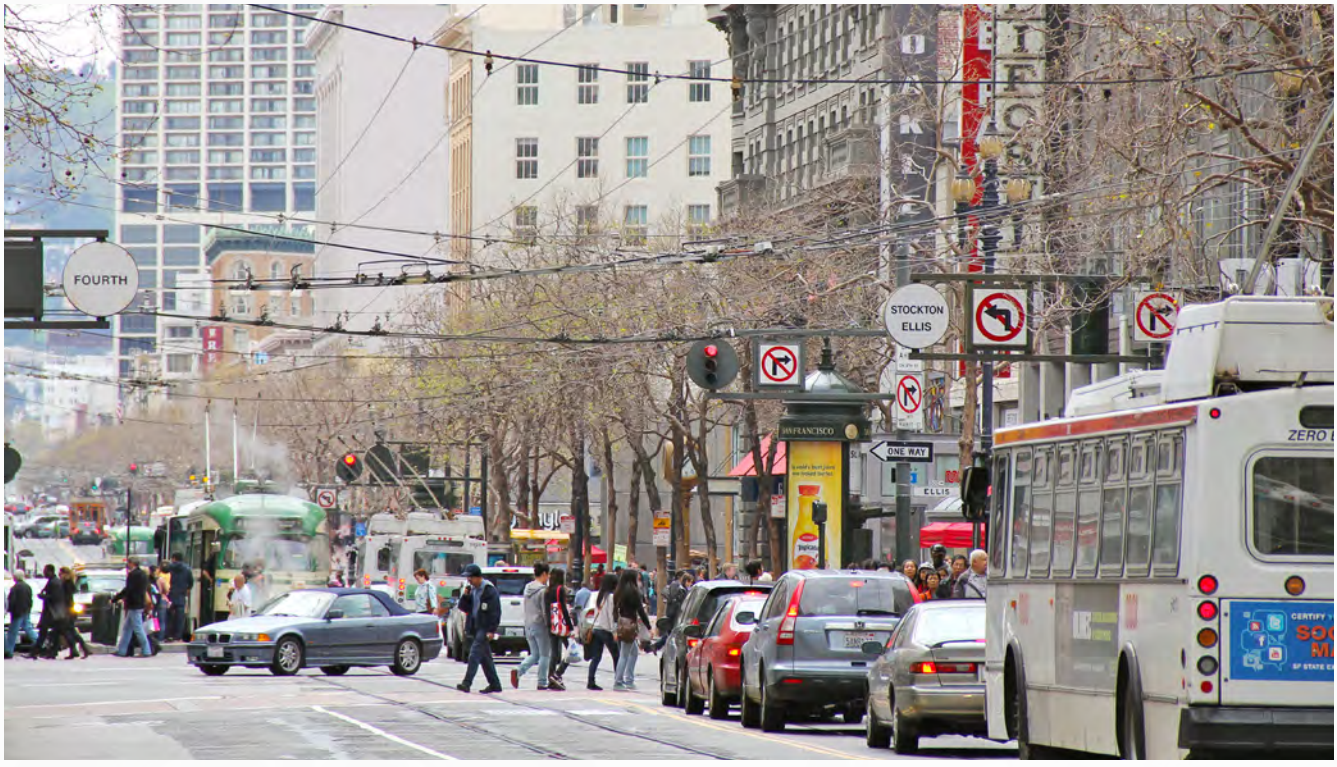
Notes: **An inconclusive result occurs at 2% of total entering volume tests (five total tests) where there was a very high variation in the StreetLight data estimates after summing to the total entering volume level. Totals may not equal 100% due to rounding.*

Source: *Fehr & Peers, 2020.*

Potential Corrective Actions

After discussion about the overestimate of through movements produced by the StreetLight Volume estimates, StreetLight staff recommended filtering out trips with a circuity greater than 2.0 to correct this overestimate. StreetLight's trip algorithm can assign the same trip to multiple Origin-Destination pairs within an intersection if the trip does not break before (e.g., have a defined stop) passing through the intersection again. This is most common at freeway interchanges, or at intersections near destinations such as gas stations, drive-throughs, or with high pass-by rates. Filtering the percentage of trips with a circuity greater than 2.0 is key reducing the instances of locations where StreetLight volume estimates are higher than counts.

As with most data products, some level of local calibration of data analysis methods should be performed to assess if factors should be applied to the StreetLight ITM volume estimates to account for local conditions. This calibration factor review would be critical to perform in high pedestrian and high transit ridership areas to account for higher number of devices per vehicle or a higher number of non-automobile devices captured in the analysis. Additionally, the StreetLight portal allows for the input of local data to seed the StreetLight algorithms with local information. Recent applications (June 2020) of the locally-calibrated StreetLight ITM data product by Fehr & Peers in California (after development of the research in this white paper) have shown that the product exceeds the performance of the unadjusted product.



High pedestrian and high transit ridership areas will require additional calibration prior to use of the data in studies.

Conclusions

In summary, the StreetLight ITM volume estimates are a reasonable replacement for traditional traffic counts in most applications, or as a source for factors to adjust previously collected counts. For a cost similar to two days of traditional counts, StreetLight offers hourly volumes estimates for all 365 days of the year. Some adjustments may be required to reduce the potential for StreetLight data to overestimate volumes, particularly in areas with high pedestrian or high transit activity. Other parameters in the StreetLight portal (i.e., circuity factor) should also be carefully reviewed for all locations to assess their effects on the estimates provided. Practitioners are cautioned to carefully consider the contexts of study areas, and to review the data for reasonableness with appropriate agency staff.

Acknowledgments

We would like to acknowledge StreetLight Data for their support in responding to questions and confirming approaches to corrective actions.



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ETG

Attachment F
Preliminary Environmental Analysis Report

PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT

1. Project Information

DIST-CO-RTE: 4-ALA-580, 10-SJ-205, 10-SJ-5 **PM/PM:** R1.7/0.8, L0.0/R13.2, R12.9/R13.5	
EA: 1H170K **EFIS Project ID:**	
Project Title: Interstate 205 Managed Lanes	
Project Manager: Jes Padda	**Phone:** 209-351-4432
Project Engineer: Parag Mehta, Kimley-Horn	**Phone:** 925-965-7703
Environmental Office Chief/Manager: Scott Guidi	**Phone:** 209-990-5719
Brian Gassner	**Phone:** 510-506-0372
PEAR Preparer: Shahira Ashkar, ICF	**Phone:** 916-231-9517

2. Project Description

Purpose and Need

The proposed project has the following primary purposes:

- The proposed project will provide reliable travel times along I-205 for commuters between the Central Valley and the Bay Area.
- The proposed project will facilitate more efficient goods movement on I-205.
- The proposed project will facilitate increased multi-modal transportation opportunities, including carpooling and ridesharing.

The proposed project is needed to address the following concerns:

- Commute times on I-205 continue to increase due to traffic from Central Valley counties to the Bay Area, as workers move to growing Central Valley residential developments while commuting to jobs in the Bay Area.
- Traffic volumes from truck traffic continue to increase as a result of the use of I-205 as a regional and interstate truck and freight route, worsening commute travel time.
- The growth and development occurring in the Central Valley has increased the need for additional alternative modes of transportation to address planned growth and serve commuters to the Bay Area.

Description of Work

The project proposes to install managed lanes on Interstate 205 through the City of Tracy, accommodate transit hubs, and improve interchanges between postmiles R1.7 on Interstate 580 and R13.5 on Interstate 5. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. Managed lanes are highway lanes that are actively managed to respond to an area's rapid growth. Interstate 205 in the City of Tracy has been identified as an area of heavy congestion resulting from high

truck volumes and commuters that travel to and from the Bay Area. Examples of managed lanes being considered for the proposed project would be high occupancy-vehicle lanes, transit lanes, and express (or toll) lanes.

Alternatives

Four build alternatives and the no-build alternative (Alternative 1) will be considered.

No Build Alternative

Alternative 1. No-Build: Under the no-build alternative, no additional widening or lanes would be constructed. Other planned projects and maintenance would take place.

Build Alternatives

The four build alternatives all occur within the same corridor. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. The build alternatives are described briefly below.

Alternative 2. High-Occupancy Vehicle Lane Addition: This alternative would add a high-occupancy vehicle lane on Interstate 205 in each direction. High-occupancy vehicle lanes are reserved for vehicles carrying a certain number of passengers, generally 2 or 3 people. The high-occupancy vehicle lane would be added on the outside between the Interstate 580 and the West Grant Line Road interchange and the West Eleventh Street interchange. The high-occupancy vehicle lane would be added on the inside (in the median) east of the West Eleventh Street interchange. The highway would include three general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 3. High-Occupancy Vehicle Lane Conversion: No lanes would be added, and the number one lane (or left lane) in each direction would be converted to a high-occupancy vehicle lane. The highway would include two general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 4. Express Lanes: Interstate 205 would be widened to the outside to accommodate express lanes, leaving the median open for future planned transit improvements. Express lanes provide toll free travel lanes for high-occupancy vehicle, transit, and clean air vehicles and can be used by single-occupancy vehicles for a toll. The number one lane (or left lane) would be an express lane, providing free access to vehicles that meet a minimum occupancy or vehicle type requirement, and priced access to vehicles that do not meet those requirements. The highway would consist of three general purpose lanes, an express lane and in some auxiliary lanes in each direction. A new alignment would be constructed to cross the California Aqueduct and Delta Mendota Canal.

Alternative 5. Transit Only Lanes: This alternative would be the same as Alternative 4, but transit only lanes which would be reserved for busses would replace express lanes.

Structural Improvements

Depending on the alternative selected overcrossings, undercrossings, and interchanges may require widening, realignment or improvements.

No improvements to structures would be required under Alternative 1, No Build. Minimal alterations to structures or interchanges may be required under Alternative 3 to accommodate changes in traffic volumes.

Under Alternative 2, the following improvements or alterations would be necessary:

- Widen I-205 to the outside between I-580 and the West Eleventh Street interchange.
- Widen the bridge over the Delta Mendota Canal to the outside.
- Widen I-205 to the inside (median) from the West Eleventh Street interchange east to the end to of the project at the I-5 interchange.
- Widen the following structures to the inside (median):
  - Janney Overhead
  - Grant Line Road Overhead
  - Corral Hollow Road Undercrossing
  - Tracy Boulevard Undercrossing
  - Sugar Spur Overhead
  - MacArthur Drive Undercrossing
  - El Rancho Road Undercrossing
  - Tom Paine Slough Bridge
- Construct retention basins adjacent to I-205 to accommodate increased runoff
- Perpetuate the existing auxiliary lanes from Mountain House Parkway to Eleventh Street

Under Alternatives 4 and 5, the project would require the following structural improvements. Within the Alameda County limits, the project proposes to improve an existing informal parking area into a transit hub at the West Grant Line Road interchange; new alignments for westbound Interstate 580, westbound Interstate 205, and the West Grant Line Road off-ramp; and replacement of the following structures:

- Westbound Interstate 580 – Midway Road undercrossing
- Westbound Interstate 580 – Interstate 205 separation structure
- Westbound Interstate 205 off-ramp to Grant Line Road – westbound Interstate 580 separation structure
- Westbound Interstate 205 – Midway Road undercrossing
- Westbound Interstate 205 – California Aqueduct bridge
- Westbound Interstate 205 – North Midway Road undercrossing

Within San Joaquin County, the project would widen Interstate 205 to the outside in the westbound and eastbound directions from the Delta Mendota Canal to the East Banta Union Pacific Railroad (UPRR) overhead. Eastbound Interstate 205 widening would continue toward Interstate 5, and the project would include new eastbound Interstate 205 to northbound Interstate 5 connectors. The southbound Interstate 5 to Interstate

205 connector and northbound Interstate 5 connector would be realigned as part of the I-205/I-5 interchange improvements. Six interchanges would be affected by the Interstate 205 widening. The West Grant Line Road interchange, the North Tracy Boulevard interchange, and the North MacArthur Drive interchange would be improved with this project. The Mountain House Parkway interchange, West 11th Street interchange, and Paradise Road interchange currently are under project development and will be constructed independent of this project. In addition to retaining walls and sound walls along the corridor, the project would widen or replace the following structures within San Joaquin County:

- Westbound Interstate 205 – Delta Mendota Canal bridge
- Interstate 205 – Box culvert
- Interstate 205 – Mountain House Parkway overcrossing
- Interstate 205 – Hansen Road overcrossing
- Eastbound Interstate 205 – Irrigation canal bridge
- Westbound Interstate 205 – West Byron Road/Janney UPRR overhead
- Eastbound Interstate 205 – West Byron Road/Janney UPRR overhead
- Westbound Interstate 205 – West Grant Line Road undercrossing
- Eastbound Interstate 205 – West Grant Line Road undercrossing
- Westbound Interstate 205 – North Corral Hollow Road undercrossing
- Eastbound Interstate 205 – North Corral Hollow Road undercrossing
- Westbound Interstate 205 – North Tracy Boulevard undercrossing
- Eastbound Interstate 205 – North Tracy Boulevard undercrossing
- Interstate 205 – Holly Drive overcrossing
- Westbound Interstate 205 – Sugar Spur UPRR overhead
- Eastbound Interstate 205 – Sugar Spur UPRR overhead
- Westbound Interstate 205 – North MacArthur Drive undercrossing
- Eastbound Interstate 205 – North MacArthur Drive undercrossing
- Interstate 205 – Paradise Road overcrossing
- Westbound Interstate 205 – El Rancho Road undercrossing
- Eastbound Interstate 205 – El Rancho Road undercrossing
- Eastbound Interstate 205 – East Banta UPRR overhead
- Eastbound Interstate 205 – West Canal Boulevard/Tom Paine Slough bridge
- Eastbound Interstate 205 to northbound Interstate 5 express lanes connector – southbound Interstate 5 –separation structure
- Northbound Interstate 5 – Paradise Cut bridge

Additional project work under all build alternatives could include detention or retention basins, access roads, and four transit hubs. Transit hubs could include park-and-ride lots, electrical vehicle (EV) charging stations, bus stops and train stops. Locations for transit hubs would be determined in coordination with stakeholders that include but are not limited to the following: Federal Highways Administration, Caltrans, Valley Link, San Joaquin Council of Governments, City of Tracy, Community of Mountain House, Alameda County, San Joaquin County, local transit, and the interested public to improve access to the transit facility and to avoid precluding connectivity to the local communities. The proposed project would construct facilities within the right-of-way,

such as rail stops, to accommodate connection to the corridor, but may or may not construct the actual transit hubs.

3. Anticipated Environmental Approval

CEQA (choose one):

☐ Exemption
  ☐ Statutory ☐ Categorical ☐ Common Sense
☐ Initial Study or Focused Initial Study with proposed Negative Declaration (ND) or Mitigated ND
☒ Environmental Impact Report

NEPA (choose one):

☐ Categorical Exclusion
☒ Environmental Assessment with Finding of No Significant Impact
  ☐ Routine ☒ Complex
☐ Environmental Impact Statement

CEQA Lead Agency (if determined): California Department of Transportation (Caltrans)
Estimated length of time (months) to obtain environmental approval: 36 months

4. Special Environmental Considerations

The following considerations may result in delays in project delivery.

- Federal Highway Administration (FHWA) 6002 Environmental Review Process
- Federal Endangered Species Act (ESA) Section 7 consultation with U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS)

5. Anticipated Environmental Commitments

Based on the information contained in this PEAR, the following environmental commitments are anticipated. See Attachment B for anticipated costs.

- Conduct preconstruction biological surveys, implement avoidance buffers and timing restrictions, and conduct on-site monitoring during construction if special-status species are found to be present.
- Implement work windows to avoid impacts on special-status fish species.
- Implement measures to prevent the introduction or spread of invasive species in the project area.
- Require Native American and/or archeological monitoring during ground-disturbing activities if archeological resources are found during surveys or if buried resources are identified as potentially being present.

- Soil sampling for aerially deposited lead may be required due to heavy use by travelers and the history of use along the highway. This testing should be completed prior to the PA&ED phase.
- Stormwater Treatment, Hydromodification, and Trash Control will be required for this project in accordance with the Caltrans NPDES permit and RWQCB requirements.

6. Permits and Approvals

- ESA Section 7 consultation for riparian brush rabbit, San Joaquin kit fox, valley elderberry longhorn beetle, delta smelt, California Central Valley steelhead, and North American green sturgeon.
- Clean Water Act Section 404 permit
- Clean Water Action Section 401 water quality certification
- California Department of Fish and Game Code 1602 Streambed Alteration Agreement

See Attachment B of this PEAR for estimated compliance costs.

7. Level of Effort: Risks and Assumptions

Assumptions	Risks / Opportunities	Probability	Impact to Schedule	Impact to Cost	Impact to Scope
It is assumed that the environmental study limits (ESL), proposed project, and scope of work will not change substantially.	Expansion of the ESL or changes in the project may result in project scope increases, which in turn maybe require additional environmental studies, leading to an increase to the project cost and delay in the project schedule.	3	Very High	Very High	Very High
No archaeological work beyond an Extended Phase I survey will be necessary.	If cultural resources are discovered during the Extended Phase I survey, Phase II survey or data recovery could be required, resulting in increased scope and budget and schedule delays.	1	Moderate	High	High
Federal ESA consultation will result in a may affect, but not likely to adversely affect determination for some listed species including San Joaquin kit fox,	If the finding is may affect, likely to adversely affect, additional research, and consultation time for these species could be required. However, it is	3	Low	Moderate	Moderate

Assumptions	Risks / Opportunities	Probability	Impact to Schedule	Impact to Cost	Impact to Scope
riparian brush rabbit, and valley elderberry longhorn beetle.	also assumed that a biological opinion will be necessary for fish species, so schedule impacts would be minimal.				
NMFS and USFWS will require formal consultation and a single Biological Assessment will be prepared for both agencies	The timeframes for consultation for USFWS and NMFS may differ, which could result in a delay in receiving Biological Opinions from two agencies	3	Moderate	Low	Low
CDFW will provide a consistency determination for listed species.	If CDFW requires an incidental take permit under Section 2081, this process could require additional research and analysis, additional consultation time with CDFW, and additional mitigation costs.	2	Moderate	High	Moderate
CDFW will not require a Section 2081 Incidental Take Permit for Swainson's Hawk	IF CDFW determines that avoidance and minimization measures would not reduce the risk of nest abandonment, which they consider to be take, they may require a Section 2081 Incidental Take Permit for Swainson's Hawk.	4	Moderate	Moderate	Moderate
Community and environmental justice impacts and public controversy will be minimal.	Environmental justice impacts or public controversy could require additional outreach, resulting in increased scope and budget and delays in schedule. This risk can be reduced through early and ongoing outreach.	3	Moderate	Moderate	Moderate
It is assumed that permits to enter will be obtained in a timely manner.	Not having access to properties for surveys would result in delays in environmental surveys and therefore, a delay in PA&ED technical studies and the environmental document	4	High	Moderate	Low

Assumptions	Risks / Opportunities	Probability	Impact to Schedule	Impact to Cost	Impact to Scope
	and a delay in the project schedule. This risk can be reduced by beginning the PTE process early.				
401 Cert will be obtained in a timely matter	New 401 Cert Rule and timelines, along with need to coordinate 404 and 1602, as well as mitigation requirements may delay permitting. This can be avoided by holding a coordination meeting with RWQCB in advance of the DED.	4	High	Moderate	Lowe

Risk Probability Ranking	
Ranking	Probability of Risk Event
5	60-99%
4	40-59%
3	20-39%
2	10-19%
1	1-9%

Evaluating Impact of a Threat on Project Objectives						
Impact		Very Low	Low	Moderate	High	Very High
Objectives	Time	Insignificant Schedule Slippage	Delivery Plan Milestone Delay within quarter	Delivery Plan milestone delay of one quarter	Delivery Plan milestone delay of more than 1 quarter	Delivery Plan milestone delay outside fiscal year
	Cost	Insignificant Cost Increase	<5% Cost Increase	5-10% Cost Increase	10-20% Cost Increase	>20% Cost Increase
	Scope	Scope decrease is barely noticeable	Changes in project limits or features with <5% Cost Increase	Changes in project limits or features with 5-10% Cost Increase	Sponsor does not agree that Scope meets the purpose and need	Scope does not meet purpose and need

8. PEAR Technical Summaries

8.1 Land Use: Land uses surrounding the proposed project area include agricultural, residential, commercial, and industrial. Widening the roadway would require some acquisitions that would convert land to a transportation use. These acquisitions largely would be partial acquisitions of properties consisting of strips of land along the right-of-way that would not change the existing use of the parcel. However, some full property acquisitions may be required for improvements at Interstate 205 interchanges at Grant Line Road, Tracy Boulevard, and MacArthur Drive, depending on design options. These acquisitions may result in business displacements and conversion of commercial land use to transportation use. However, overall the project is consistent with adopted and proposed land use plans, would not result in incompatible land uses and is approved in the San Joaquin Council of Governmental Regional Transportation Plan. The project is consistent with related improvements on Interstate 580 in Alameda County, per the Alameda County Transportation Commission (CTC) Work Program for Interstate 580 and Interstate 680.

Although several parks are in the area, no Section 4(f) impacts are anticipated related to parks and recreation.

8.2 Growth: The project would install managed lanes in both directions of Interstate 205 between the Interstate 580 and Interstate 5 interchanges. Because the project would add capacity to an existing facility, a growth-related analysis would be conducted.

8.3 Farmlands/Timberlands: There is no timberland in the project study area. Indirect impacts (e.g., conflicts with farming operations) associated with project construction may occur on nearby lands. The additional right-of-way required for the project could result in direct impacts on farmlands, including Prime Farmland and Farmland of Local Importance. Once the project limits are finalized, it will be necessary to complete the CPA-106 farmland conversion form and coordinate with the Natural Resource Conservation Service. If there are direct impacts on farmlands, mitigation will be required.

8.4 Community Impacts:

<u>Community Character and Cohesion</u>

The project would not physically divide any existing communities or affect community cohesion because the majority of the project would be constructed within the existing right-of-way or on currently undeveloped lands. Lands that would be acquired are adjacent to the existing facility.

<u>Relocations</u>

The project would require partial acquisition of right-of-way from several parcels to widen Interstate 205 through the City of Tracy. These acquisitions are small, and it is unlikely that they would result in the relocation of housing, commercial, industrial, or nonprofit businesses. Interchange improvements on Interstate 205 at

Grant Line Road, Tracy Boulevard, and MacArthur Drive could result in full acquisition of commercial properties which would result in business displacements. This would be analyzed in the Community Impact Assessment (CIA).

Environmental Justice

Environmental justice populations (higher than city/county average of minority populations) are present in the project study area. The project is not anticipated to disproportionately negatively affect these populations because the project impacts would affect populations throughout the project corridor equally. Beneficial impacts would include reduced congestion and travel times, increased regional multi-modal transportation options, improved safety, improved air quality, and increased mobility. Potential environmental justice impacts would be analyzed in the CIA.

Utilities/Emergency Services/Public Facilities

It is currently unknown which utilities would be affected by the project. The project study area is served by the Tracy Fire Department and the California Department of Forestry and Fire Protection. The closest fire station is Tracy Fire Station 96 at 1800 West Grant Line Road, approximately 0.3 mile south of the project site. Tracy Fire Station 98/Mountain House Fire Station 1 is located approximately 1.5 miles north of the western end of the project corridor, and Lathrop Manteca Fire Station 35 is located approximately 1 mile north of the eastern end of the project corridor. The closest police station is the Tracy Police Department at 1000 Civic Center Drive, approximately 1.7 miles south of the project site.

Four parks are within 1,000 feet of the project boundary: North Souza Family Park and Clyde Bland Park in western Tracy, Kenner Park in north-central Tracy, and Larch Clover Park in eastern Tracy to the north of the project study area. The nearest school is Jacobson Elementary School, approximately 0.2 mile south of the project site and adjacent to Kenner Park. A CIA would be prepared to provide a study of community resources, growth, farmland, and environmental justice populations. The report would determine whether the project would result in impacts on the local community.

It is anticipated that 3 months would be required for preparation and Caltrans approval of the CIA.

8.5 Visual/Aesthetics: The project would be mostly consistent with the visual environment associated with the existing transportation facilities, as seen by all viewer groups at all locations; however, there would be some noticeable visual effects on these viewers. In addition, a segment of classified Landscaped Freeway may be affected. Therefore, as determined by the Caltrans' Visual Impact Assessment Level Questionnaire, a Moderate Visual Impact Assessment would be

prepared. It is anticipated that approximately 2.5 months would be required for preparation and Caltrans approval of the Visual Impact Assessment.

8.6 Cultural Resources:

Archaeological Resources

Two records searches, one at the Northwest Information Center at Sonoma State and one at the Central California Information Center at Stanislaus State, have been conducted as a part of this project. The record search results indicate that there are no archaeological resources in the project study area. However, portions of the project are sensitive for buried archaeological resources because Holocene period soils are present, and known sites are located in the vicinity of the eastern end of the project area near the San Joaquin River and Paradise Cut. A pedestrian survey would be conducted to identify archaeological resources, confirm this level of sensitivity, and determine the potential for buried resources to occur in the area. An Extended Phase I survey may be required in some areas, based on the results of the pedestrian survey and location of proposed excavation. The need for on-site monitoring during construction would be determined after the surveys and Native American coordination are completed. In addition to a Historic Property Survey Report (HPSR), an Archaeological Survey Report would be prepared for the project. An Extended Phase I Proposal and Report also may be required.

Architectural/Built Environment Resources

Two known historic properties intersect the project study area: the California Aqueduct and the Delta-Mendota Canal. Because both properties are eligible for listing in the National Register of Historic Places and California Register of Historical Resources, they are Section 4(f) resources. Additionally, the bridges crossing the aqueduct and canal are considered contributing features to the two historic properties. However, the character-defining features of these properties would not be directly or indirectly affected by the project to the extent they would no longer be able to convey their respective historical significance. A segment of the UPRR railroad, an historic-era road (the Naglee/Fremont), and three historic-era residential properties also are located in the project study area. An HPSR would be prepared for the project, along with an Historic Resources Evaluation Report and Finding of Effect (likely No Adverse Effect) to document the study findings and conclusions.

It will be necessary to evaluate the Delta-Mendota Canal and California Aqueduct in a Section 4(f) memorandum for potential impacts. It is assumed that a Section 106 Finding of No Adverse Effect will be made for the canals and that a *de minimis* Section 4(f) finding can be made. A *de minimis* finding would be documented if the project would not adversely affect the activities, features, or attributes of the resources. It also will be necessary to coordinate with the state and federal agencies to obtain written concurrence of the Section 4(f) evaluation, as required

by law. It is anticipated that approximately 6 months would be required for preparation and Caltrans approval of cultural resources studies.

8.7 Hydrology and Floodplain: The project crosses the Upper Main Canal and Lower Main Canal, Tom Paine Slough, and eight unnamed waterbodies, in addition to two drinking water facilities: the California Aqueduct and the Delta-Mendota Canal. The project site is located in Federal Emergency Management Agency (FEMA) Zone X, Non-Special Flood Hazard Areas (SFHA) outside the 100-year floodplain in areas of minimal flood hazard. The flood zone areas adjacent to the Interstate 205 corridor are within SFHA Zone AE, where the base floodplain areas are subject to flooding by the 100-year flood event. The hydraulic design of any proposed bridges would follow both the FHWA and California Department of Transportation (Caltrans) criteria. The project may introduce fill in the floodplains. A Location Hydraulic Study and a Floodplain Evaluation Report would be prepared to further analyze floodplain impacts. It is anticipated that approximately 3 to 5 months would be required for preparation and Caltrans approval of the Location Hydraulic Study and Floodplain Evaluation Report.

8.8 Water Quality and Storm Water Runoff: The project could have short-term effects on surface water quality associated with construction activities, grading, equipment used, temporary creek diversions, and dewatering. However, implementation of proper water quality control devices and best management practices such as soil stabilization and sediment control would ensure that the construction activities would not result in adverse significant effects on water quality.

Because the project would result in more than 1 acre of soil disturbance, the project must comply with the Statewide Construction General Permit (No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWG). Discharges outside of Caltrans right-of-way would comply with the City of Stockton and County of San Joaquin Phase II MS4 (Order R5-2015-0024, NPDES No. CAS083470) and other relevant local requirements to manage and treat stormwater discharges. If contaminated groundwater is encountered during construction activities, applicable waste discharge requirements or permits would be obtained during the plans, specifications, and estimates (PS&E) phase.

Long-term water quality impacts could result from added impervious areas and associated stormwater runoff and sediment transport from erosion. Permanent pollution prevention measures may include designing stormwater drainage systems to avoid downstream erosion and incorporating infiltration through vegetated surfaces to prevent erosion and remove pollutants from stormwater. Additional permanent project features to be considered include preservation of existing vegetation and installation of drainage facilities. For unavoidable impacts to waters of the United States and State, project features would be considered in the PA&ED phase. A Water Quality Assessment Report would be prepared for the project. It is anticipated that approximately 3 months would be required for the preparation and Caltrans approval of the Water Quality Assessment Report.

8.9 Geology, Soils, Seismic, and Topography: A project-specific Preliminary Geological Assessment would be prepared to identify the potential for the project to result in impacts on existing soil or seismic conditions. It is anticipated that approximately 3 months would be required for preparation and Caltrans approval of a Preliminary Geological Assessment.

8.10 Paleontology: Holocene age alluvial fan deposits, surficial sediments, Dos Palos alluvium, and artificial fill—all of which have no to low paleontological sensitivity, underlie the majority of the project alignment. These younger Holocene age deposits typically are underlain by Pleistocene alluvial fan deposits, although the depth at which this contact exists within the project alignment is not known. The Pleistocene deposits have a high paleontological sensitivity. The westernmost end of the project alignment is mapped as Pliocene to early Miocene Orinda and Oro Loma Formations, late Miocene age Neroly Formation, and late Cretaceous age Panoche Formation—all of which have a high paleontological sensitivity. Further, these older sedimentary units may underlie younger sedimentary units at depth elsewhere within the project alignment. Prior to project construction, a Paleontological Evaluation Report (PER) and Paleontological Mitigation Plan (pPMP) would be prepared in accordance with the standards and guidelines contained in Caltrans *Standard Environmental Reference,* Chapter 8, *Paleontology*. It is anticipated that approximately 3 months would be required for preparation and Caltrans approval of paleontological resources studies.

8.11 Hazardous Waste/Materials: Findings of the database search of a 1-mile radius indicate that 12 sites located upgradient pose a high risk. WRECO recommends an Initial Site Assessment (ISA) be performed for the project corridor. Based on the findings of the ISA and historical land use, a Preliminary Site Investigation (PSI) would be recommended in order to characterize the soils that will be disturbed during project construction. The PSI would include sampling soil and groundwater (if encountered) and analyzing samples for the potential constituents fo concern to evaluate concentrations in the construction areas. Sampling for aerially deposited lead (ADL) would follow Caltrans requirements in order to use the 2016 DTSC-Caltrans Agreement for ADL, which includes statistically evaluating the 95% upper confidence limit for soil (at 1-foot intervals). The PSI would also assess the structural elements of the bridge for asbestos-containing materials (ACM) and lead-based paint (LBP). A Caltrans Encroachment Permit, a San Joaquin County Encroachment Permit, and a San Joaquin County Environmental Health Department Drilling Permit would need to be obtained to complete the PSE. It is anticipated that approximately 5 months would be required for preparation and Caltrans approval of the ISA and PSI.

8.12 Air Quality: An Air Quality Report would be prepared to assess the environmental impacts associated with the project. In addition to this report, applicable regional and project-level conformity documentation (i.e., a conformity checklist) would need to be completed. Specifically, to fulfill particulate matter conformity requirements, appropriate interagency consultation documentation would be required. Based on the existing average daily traffic, the project could be

considered a project of air quality concern (POAQC), and a hotspot analysis could be required. When the traffic data are available, an analysis would be conducted to confirm these conclusions. If the project is prepared in accordance with 23 U.S. Code (USC) 327, a separate Air Quality Conformity Analysis also would need to be prepared. A quantitative analysis of greenhouse gas emissions would be required to estimate long-term climate change impacts or benefits from the project. A Dust Control/Indirect Source review (currently 14-9.02 in the 2018 Caltrans Specs numbering system) would be required at the time of PS&E review and should be completed no later than review of 95% drawings. It is anticipated that approximately 4 to 5 months from receipt of traffic data would be required for preparation and Caltrans approval of the Air Quality Report.

8.13 Noise and Vibration: The project is considered to be a Type I project under 23 Code of Federal Regulations 772 because it would add managed lanes and increase the capacity of Interstate 205 between two major freeways (Interstate 580 and Interstate 5). As such, the project must be evaluated to determine whether traffic noise impacts would occur. The project has the potential to result in increases in noise that approach or exceed relevant noise abatement criteria or result in a substantial increase in noise during design year (build conditions) relative to the existing condition. Noise-sensitive land uses surrounding the project study area include residences, lodging facilities, parks, and other outdoor use areas. A Noise Study Report would be prepared to determine noise impacts associated with the project. Where traffic noise impacts are identified, abatement measures would be considered and evaluated in terms of both feasibility and reasonability and would be presented in a Noise Abatement Decision Report. It is anticipated that approximately 4 to 5 months from receipt of traffic data would be required for preparation and Caltrans approval of the Noise Study Report.

8.14 Energy and Climate Change: An analysis of climate change would be presented in the environmental document, which is subject to HQ review in advance of the Caltrans review of the environmental document. The project would result in additional lanes and is considered capacity increasing. A quantitative Energy Analysis Report would be prepared. It is anticipated that approximately 4 to 5 months from receipt of traffic data would be required for preparation and Caltrans approval of the Energy Analysis Report.

8.15 Biological Environment: Potential waters of the United States and State were identified in the project study area and would need to be delineated to prepare a preliminary jurisdictional determination for submittal to the US Army Corps of Engineers. The grasslands and emergent marsh in the project study area have low potential habitat for special-status plants based on the degree of past and ongoing disturbance; however, a single round of appropriately timed (i.e., April and August) floristic surveys would be required. The project study area also supports native oak trees that may be regulated under the San Joaquin County tree ordinance.

The project study area contains potential habitat for Swainson’s hawk, white-tailed kite, burrowing owl, northern harrier, tri-colored blackbird, and other non-special-

status migratory birds and raptors protected under the California Fish and Game Code and Migratory Bird Treaty Act. The project study area also provides potential habitat for California red-legged frog, valley elderberry longhorn beetle, riparian brush rabbit, and western pond turtle and potential roosting habitat for bats protected under the California Fish and Game Code. There is also a low potential for San Joaquin kit fox and California tiger salamander to occur in the project study area. Paradise Cut within the project study area provides suitable habitat for special-status fish species. It is designated as critical habitat for delta smelt, steelhead, and green sturgeon and as EFH for Chinook salmon. Additionally, the Interstate 205 corridor acts as a wildlife barrier and project design should address the need to create additional wildlife crossings.

Ground disturbance and construction noise during the breeding season for migratory birds and raptors (generally February through August) could disturb active nests or cause abandonment of nearby nests of species including Swainson's hawk, white-tailed kite, northern harrier, tri-colored blackbird, and burrowing owl. The project could temporarily disturb or remove habitat for roosting bats, valley elderberry longhorn beetle, riparian brush rabbit, special-status fish, and western pond turtle. Underwater noise from pile driving also could injure, kill, or disturb special-status fish in the vicinity of the project study area if impact pile driving is proposed.

Focused surveys should be conducted for elderberry shrubs, California red-legged frog, California tiger salamander, western pond turtle, riparian brush rabbit, nesting birds, and shaded riverine aquatic cover. Habitat assessments should be conducted for San Joaquin kit fox and roosting bats. A protocol-level Swainson's hawk survey also is recommended.

Preconstruction biological surveys should be conducted for nesting birds and raptors, including Swainson's hawk, burrowing owl, northern harrier, tri-colored blackbird, and white-tailed kite. Preconstruction surveys also should be conducted for roosting bats, valley elderberry longhorn beetle habitat, western pond turtle, and San Joaquin kit fox. Exclusion zones should be established to protect any occupied bird or raptor nest, any maternity or non-maternity bat roosts, and any elderberry shrubs. Other avoidance and minimization measures for Swainson's hawk, burrowing owl, white-tailed kite, northern harrier, tri-colored blackbird, roosting bats, valley elderberry longhorn beetle, western pond turtle, riparian brush rabbit, and San Joaquin kit fox may include implementation of environmental training for construction personnel, covering or ramping trenches/pits, inspecting pipes and culverts prior to use, installation of exclusion fencing, trash abatement, minimizing disturbance areas, and avoiding use of rodenticides and herbicides.

A hydroacoustic analysis of underwater sound should be conducted to assess impacts on special-status fish from any impact pile driving in, or within 200 feet of, water. Avoidance and minimization measures for special-status fish may include implementation of construction best management practices to protect water

quality and appropriately timed in-water work, including pile driving, to avoid or minimize potential project impacts on special-status fish. Compensatory mitigation for permanent loss of shallow water habitat for delta smelt and critical habitat for steelhead, green sturgeon, and delta smelt may be required. Additionally, Tom Paine Slough, Sugar Spur, and several other unnamed drainages crossed by Interstate 205 are listed as unassessed stream crossings in the CalFish fish passage assessment database (PAD). Therefore, a first pass fish passage assessment of all stream crossings within the project footprint, including those listed in the PAD, should be conducted to assess whether fish passage is constrained at these crossings and to determine whether further assessment and remediation of fish passage barriers at these stream crossings is warranted.

The survey methods, results, potential project effects, and mitigation measures would be documented in the Natural Environment Study report and a Biological Assessment (potentially addressing San Joaquin kit fox, riparian brush rabbit, California red-legged frog, delta smelt, steelhead, green sturgeon, valley elderberry longhorn beetle and designated critical habitat). An EFH Assessment (addressing EFH for Chinook salmon) and a fish passage assessment report would be prepared if necessary. In addition, a 2081 Incidental Take Permit application or consistency determination (potentially addressing San Joaquin kit fox, delta smelt, and longfin smelt) would be prepared if necessary. The California Department of Fish and Wildlife may require a 2081 Incidental Take Permit for Swainson's hawk to address nest abandonment. It is anticipated that approximately 6 months would be required for preparation and Caltrans approval of the NES and BA.

8.16 Cumulative Impacts: During the PA&ED phase of project development, the potential for cumulative impacts on all resource areas would be evaluated, and mitigation would be recommended, as applicable. Compliance with regulations and standard measures would be identified to avoid and minimize potential impacts. Cumulative projects would include Caltrans projects on the same or related facilities, other transit projects (such as the Valley Link Authority Passenger Rail project), and planning and development projects. Cumulative impacts would be analyzed in a stand-alone technical study and in the environmental document. Although there is the potential for cumulative impacts related to community impacts, it is likely that most impacts would be construction related and, therefore, temporary and not cumulative. The project would result in minimal changes to the landscape and minimal conversion of non-transportation land use to transportation. However, the nature of cumulative impacts is such that these impacts must be evaluated in the context of overall development. It is anticipated that approximately 6 months would be required for preparation and Caltrans approval of the Cumulative Impacts Study.

8.17 Context-Sensitive Solutions: Caltrans will serve as the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) lead agency under its assumption of responsibility pursuant to 23 USC 327. The information provided to date indicates that the project would qualify for an Environmental

Impact Report (EIR) under CEQA and an Environmental Assessment (EA) under NEPA. This decision is based on review of the impacts and mitigation, as well as the size and potential controversy of the project. Estimated time for the PA&ED phase is 36 months. Agency coordination for traffic, air quality, cultural resources, and the biological environment could affect the project schedule.

9. Summary Statement for the Project Initiation Document (PID)

Key environmental issues under the build alternative are anticipated to result from the widening of the roadway in the vicinity of the canals and stream crossings, as well as issues associated with adding highway capacity. Widening in the vicinity of the canals will entail property acquisition, which would result in farmland impacts, but no relocations are anticipated. Impact on biological resources (particularly jurisdictional waters, special-status plants, fish, and wildlife) are anticipated and ground disturbance in the area of the widening near the canals may also affect archaeological and paleontological resources. Additionally, Paradise Cut provides habitat for special-status fish species that may be affected by bridge work in that area. Because the project increases capacity on the highway, traffic (vehicle miles traveled), air quality and greenhouse gas emission will likely increase. Noise impacts may also result, and noise abatement consideration may be required as the project would widen the highway and bring traffic closer to receptors.

Studies required for the project would include a Community Impact Assessment, a Natural Environment Study, a Biological Assessment, a Traffic Operations Analysis Report, a Moderate Visual Impact Assessment, a Location Hydraulic Study, a Water Quality Analysis Report, a Preliminary Geological Assessment, an Air Quality Report, an Air Quality Conformity Analysis and Interagency Consultation, a Noise Study Report and Noise Abatement Decision Report, an Initial Site Assessment, a Historic Property Survey Report package (including a Historic Resources Evaluation Report, an Archaeological Survey Report, and possibly an Extended Phase I Survey and Finding of Effect), a Paleontological Evaluation Report and Paleontological Mitigation Plan, a Cumulative Impacts Study, an Energy Study, and a Section 4(f) evaluation for the Delta-Mendota Canal and California Aqueduct, which would likely be de minimus.

Permits required for the build alternative include a Clean Water Act (CWA) Section 401 permit, a CWA Section 404 permit, a California Department of Fish and Game Code 1602 Streambed Alteration Agreement, and an ESA Section 7 consultation for riparian brush rabbit, San Joaquin kit fox, valley elderberry longhorn beetle, delta smelt, California Central Valley steelhead, and North American green sturgeon.

The environmental commitments anticipated would include preconstruction biological surveys, avoidance buffers, work windows, and timing restrictions, measures to prevent the introduction or spread of invasive species in the project area, and possibly soil sampling for aerially deposited lead. If archeological resources are found during surveys or if buried resources are identified as potentially being present, a Native Amercan and/or arcaheolgoical monitor would have to be present during ground-disturbing activities. Similarly, if special-status species are found to be present, on-site monitoring

during construction would be required. Environmental commitments for permanent impacts would include compensatory mitigation for shallow water habitat (delta smelt) and critical habitat (steelhead, green sturgeon, delta smelt).

Special considerations that could affect project schedule could include FHWA 6002 Environmental Review Process, and ESA Section 7 consultation with the USFWS and NMFS.

10. Disclaimer

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

11. List of Preparers

Cultural Resources specialist: Steve Pappas, David Lemon	Date: 6/3/21
Biologist: Jeff Kozlowski, Kevin Ghalambor	Date: 6/3/21
Community Impacts specialist: James Alcorn	Date: 6/3/21
Noise and Vibration specialist: Dillon Tannler	Date: 6/3/21
Air Quality specialist: Irene Ramirez	Date: 6/3/21
Paleontology specialist/liaison: Courtney Richards	Date: 6/3/21
Water Quality specialist: Analette Ochoa	Date: 6/3/21
Hydrology and Floodplain specialist: Analette Ochoa	Date: 6/3/21
Hazardous Waste/Materials specialist: Melissa McAssey	Date: 6/3/21
Visual/Aesthetics specialist: Jennifer Ban	Date: 6/3/21
Energy and Climate Change specialist: Irene Ramirez	Date: 6/3/21
Other:	Date:
PEAR Preparer (Name and Title): Shahira Ashkar, Project Manager	Date: 6/3/21

12. Review and Approval

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

C. Scott Guidi — 10/13/2021

Environmental Branch Chief — Date

Dina El-Nakhal | 10/14/2021

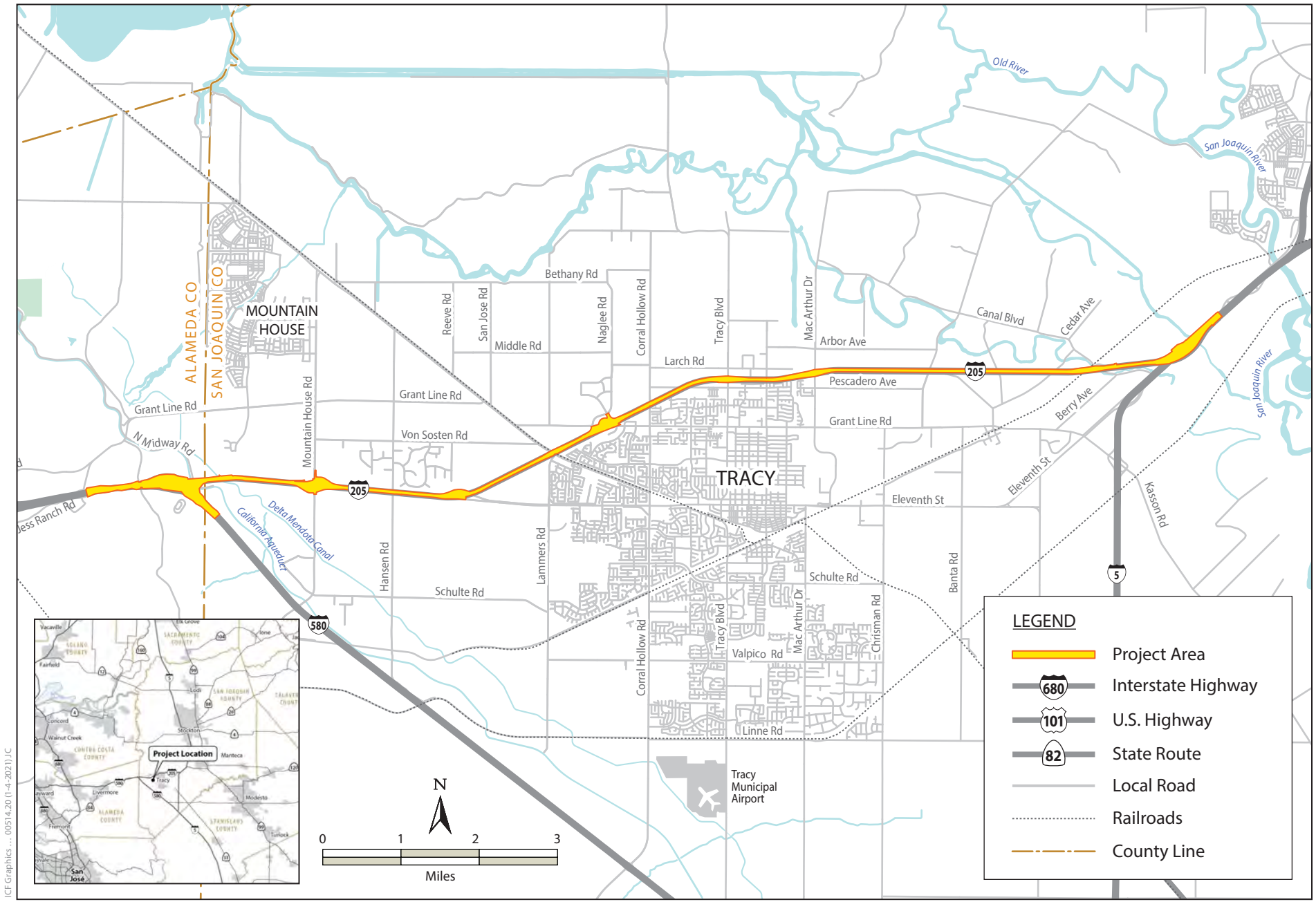
Project Manager | Date

ATTACHMENTS:

Attachment A: PEAR Environmental Studies Checklist
Attachment B: Mitigation and Compliance Cost Estimate (MCCE) (not required for PSR-PDS)
Attachment C: Schedule (Gantt Chart)

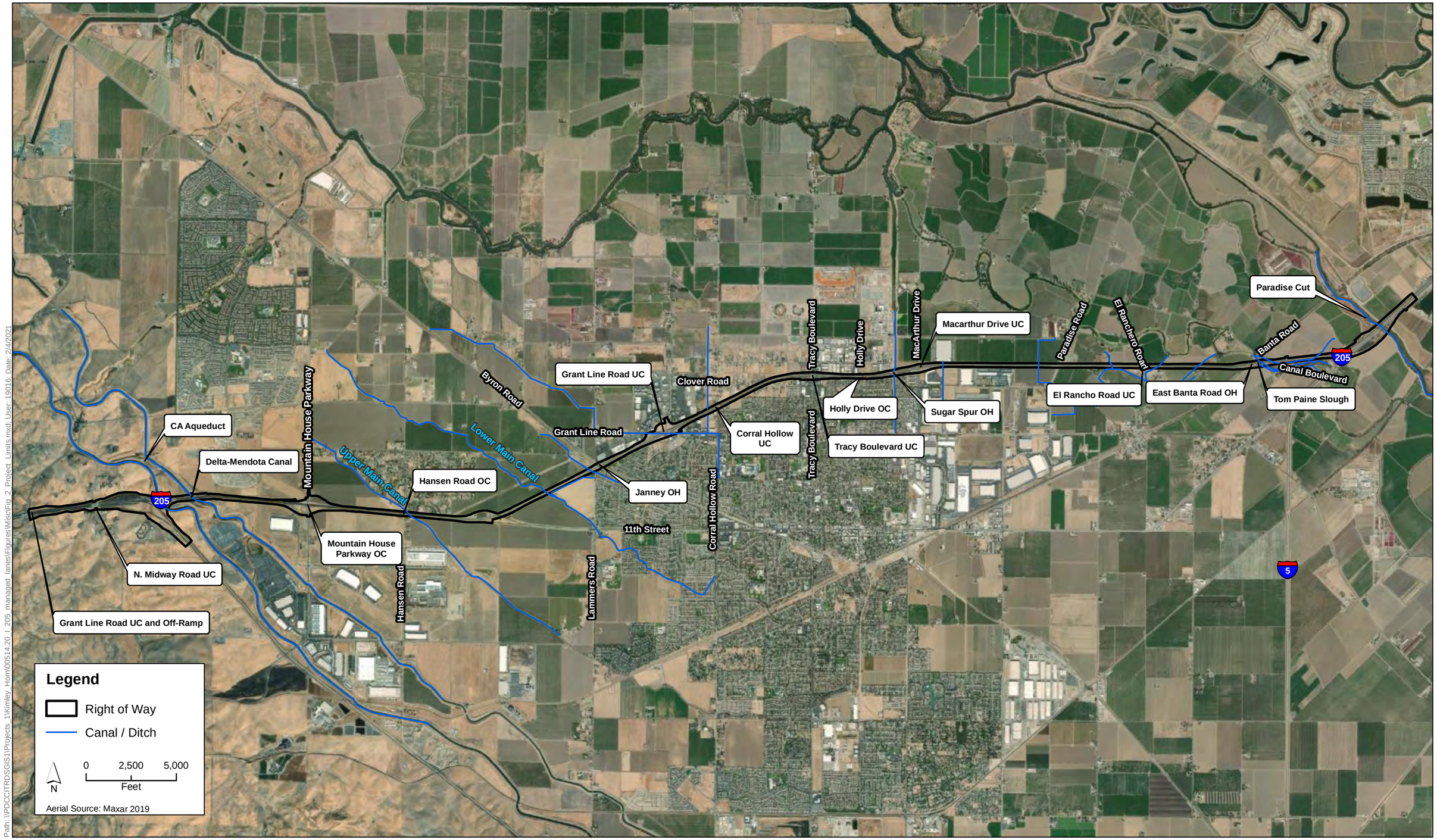
ADDITIONAL ATTACHMENTS (Technical Memos):

Attachment D: Visual/Aesthetics Documentation
Attachment E: Cultural Resources Documentation
Attachment F: Hydrology and Floodplain/Water Quality and Stormwater Runoff Documentation/Hazardous Materials
Attachment G: Air Quality/Climate Change and Noise/Vibration Documentation
Attachment H: Paleontology Documentation
Attachment I: Biological Environment Documentation



ICF Graphics ... 00514.20 (1-4-2021) JC

Figure 1
I-205 Managed Lanes Project Vicinity and Location



Path: \\PDCCITRDSGIS1\Projects_1\Kimley_Horn\00514.20_I_205_managed_lanes\Figures\Misc\Fig_2_Project_Limits.mxd; User: 19016; Date: 2/4/2021

Figure 2
Project Limits
I-205 Managed Lanes

Attachment A: PEAR Environmental Studies Checklist

Environmental Study	Not Anticipated	Memo to File	Report Required	Risk	Comments
Land Use	☒	☐	☐	L	
Wild and Scenic River Consistency	☒	☐	☐	L	
Coastal Management Plan	☒	☐	☐	L	
Growth	☐	☐	☒	M	CIA
Farmlands/Timberlands	☐	☐	☒	M	CIA
Community Impacts	☐	☐	☒	M	CIA
Community Character and Cohesion	☐	☐	☒	L	CIA
Relocations	☐	☐	☒	L	CIA
Environmental Justice	☐	☐	☒	L	CIA
Utilities/Emergency Services	☐	☐	☒	L	CIA
Traffic/Transportation	☐	☐	☒	M	TOAR
SB743/Induced Travel	☐	☐	☒	H	TOAR
Visual/Aesthetics	☐	☐	☒	M	Moderate VIA
Cultural Resources:	☐	☐	☒	M	HPSR package
Archaeological Survey Report	☐	☐	☒	M	
Historic Resources Evaluation Report	☐	☐	☒	M	
Historic Property Survey Report	☐	☐	☒	M	
Historic Resource Compliance Report	☒	☐	☐	L	
Section 106 / PRC 5024 & 5024.5	☐	☐	☒	M	ASR
Native American Coordination	☐	☐	☒	M	ASR
Finding of Effect	☐	☐	☒	M	
Data Recovery Plan	☒	☐	☐	L	
Memorandum of Agreement	☒	☐	☐	L	

Environmental Study	Not Anticipated	Memo to File	Report Required	Risk	Comments
Other: XPI	☐	☐	☒	L	TBD
Hydrology and Floodplain	☐	☐	☒	M	LHS
Water Quality and Stormwater Runoff	☐	☐	☒	M	SWPPP, WQAR
Geology, Soils, Seismic and Topography	☐	☐	☒	L	PGA
Paleontology	☐	☐	☒	M	
PER	☐	☐	☒	M	
PMP	☐	☐	☒	M	
Hazardous Waste/Materials:	☐	☐	☒	M	
ISA (Additional)	☐	☐	☒	M	
PSI	☐	☐	☒	M	
Other: Enter other study	☒	☐	☐	L	
Air Quality	☐	☐	☒	M	AQR, AQCA, IAC
Noise and Vibration	☐	☐	☒	M	NSR, NADR
Energy	☐	☐	☒	M	
Climate Change and Sea Level Rise	☐	☒	☐	L	Climate Change ED section to HQ review
Biological Environment	☐	☐	☒	M	
Fish Passage	☐	☐	☒	L	NES
Wildlife Connectivity	☐	☐	☒	L	NES
Natural Environment Study	☐	☐	☒	M	
Biological Assessment Section 7:	☐	☐	☒	M	
Formal	☐	☐	☒	M	
Informal	☒	☐	☐	L	
No effect	☒	☐	☐	L	
Section 10	☒	☐	☐	L	

Environmental Study	Not Anticipated	Memo to File	Report Required	Risk	Comments
USFWS Consultation	☐	☐	☒	M	
NMFS Consultation	☐	☐	☒	M	
Species of Concern (CNPS, USFS, BLM, S, F)	☐	☐	☒	L	NES
Wetlands & Other Waters/Delineation	☐	☐	☒	L	
404(b)(1) Alternatives Analysis	☒	☐	☐	L	
Invasive Species	☐	☐	☒	L	NES
HMMP	☒	☐	☐	L	
CDFW Consistency Determination	☐	☐	☒	L	
2081	☒	☐	☐	M	
Other: Enter other study	☒	☐	☐	L	
Cumulative Impacts	☐	☐	☒	L	
Context Sensitive Solutions	☒	☐	☐	L	
Section 4(f) Evaluation	☐	☐	☒	L	Delta-Mendota Canal, California Aqueduct – assume de minimis
Permits:	☐	☐	☐	Select risk	
401 Certification Coordination	☐	☒	☐	L	
404 Permit Coordination, IP, NWP, or LOP	☐	☒	☒	L	
1602 Agreement Coordination	☐	☒	☐	L	
Local Coastal Development Permit Coordination	☒	☐	☒	L	
State Coastal Development Permit Coordination	☒	☐	☐	L	
NPDES Coordination	☐	☒	☐	L	
TRPA	☒	☐	☐	L	
BCDC	☒	☐	☐	L	Enter comments

Attachment B: Mitigation and Compliance Cost Estimate (MCCE)

PART 1 - PROJECT INFORMATION

DIST-CO-RTE: 10-SJ-205 **PM/PM:** 0.0-12.54

EA/Project Number: 1H170K

Project Description: I-250 Managed Lanes

Form completed by (Name/District Office): Shahira Ashkar, ICF

Project Manager: Shahira Ashkar **Phone Number:** 916-231-9517

Date: January 2021

PART 2 - PERMITS AND AGREEMENTS

Permit/Agreement	Cost
☒ Fish and Game 1602 Agreement	$45,000 (est)
☐ Coastal Development Permit	
☐ State Lands Agreement	
☒ Section 401 Water Quality Certification	$50,000(est)
☒ Section 404 Permit – Nationwide (U.S. Army Corps)	$45,000 (est)
☐ Section 404 Permit – Individual (U.S. Army Corps)	
☐ Section 10 Navigable Waters Permit (U.S. Army Corps)	
☐ Section 9 Permit (U.S. Coast Guard)	
☒ Other: NPDES	$30,000 (est)
CVFCB	$5,000 (est)
Total (enter zeros if no cost)	$175,000

PART 3 - ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

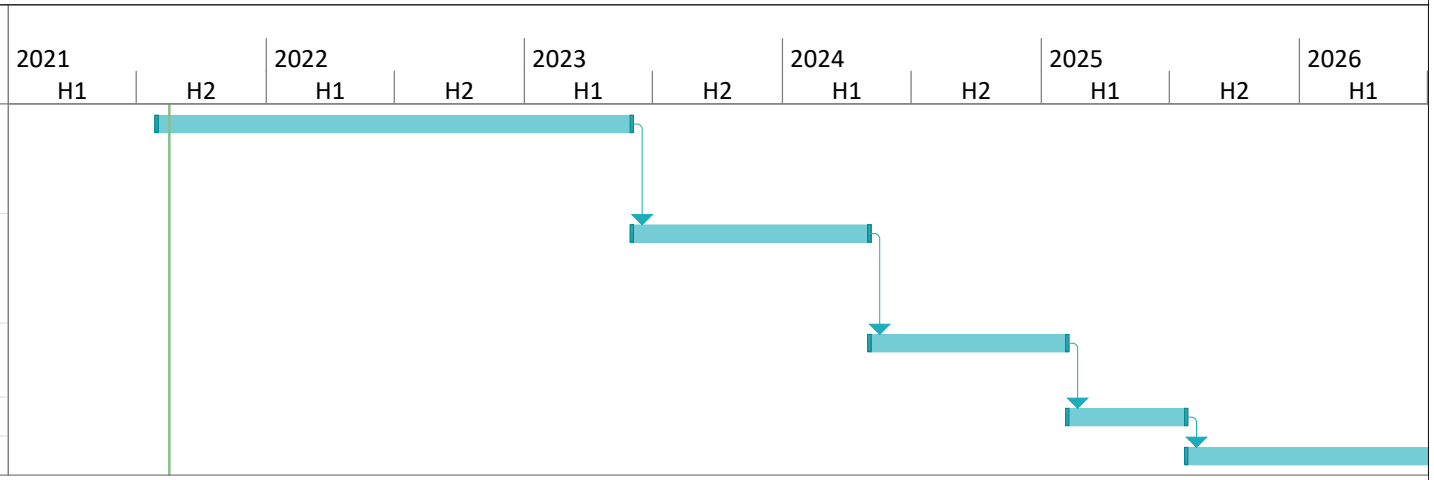
Environmental Commitments for Build Alternative **-**Estimated Costs are shown in $1,000's

Commitment	Design	ROW	Construction	Sub-Total	Notes
Noise abatement or mitigation					TBD
Special landscaping					TBD
Archaeological resources					TBD
Biological resources				60-80	Precon surveys, monitoring, WEAT, Compensatory mitigation
Historical resources				0	
Scenic resources				0	
Wetland/riparian resources				30-50	Compensatory mitigation
Res./bus. relocations				0	
Other: HazMat				20-30	Soil disposal
Paleontological Resources				25-30	
Total (enter zeros if no cost)				135-190	

ATTACHMENT C

I-205 Managed Lanes Project

ID	Task Name	Duration
1	Technical Studies/Draft Environmental	24 mons
2	Final Environmental Document/Project Approval	12 mons
3	PS&E and R/W Engineering	10 mons
4	Advertise/Award	6 mons
5	Construction	16 mons



Project: I-205 Managed Lanes
Date: 06/2021

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

Attachment D

Visual Resources Documentation for the I-205 Managed Lanes Project PEAR (EA 10-1H170)

Introduction

The purpose of this technical memorandum is to provide an overview of visual resources associated with the I-205 Managed Lanes Project (project) and to support preparation of the Preliminary Environmental Analysis Report (PEAR) for the California Department of Transportation (Caltrans). The project includes widening to the outside to install express lanes in both directions on Interstate 205 (I-205) between the Interstate 580 (I-580) and Interstate 5 (I-5) interchanges, in the vicinity of the City of Tracy, California (Figures 1 and 2 in the PEAR). A No-Build Alternative also is proposed.

Project Description

The project proposes to install managed lanes on Interstate 205 through the City of Tracy, accommodate transit hubs, and improve interchanges between postmiles R1.7 on Interstate 580 and R13.5 on Interstate 5. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. Managed lanes are highway lanes that are actively managed to respond to an area's rapid growth. Interstate 205 in the City of Tracy has been identified as an area of heavy congestion resulting from high truck volumes and commuters that travel to and from the Bay Area. Examples of managed lanes being considered for the proposed project would be high occupancy-vehicle lanes, transit lanes, and express (or toll) lanes.

Alternatives

Four build alternatives and the no-build alternative (Alternative 1) will be considered.

No Build Alternative

Alternative 1. No-Build: Under the no-build alternative, no additional widening or lanes would be constructed. Other planned projects and maintenance would take place.

Build Alternatives

The four build alternatives all occur within the same corridor. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. The build alternatives are described briefly below.

Alternative 2. High-Occupancy Vehicle Lane Addition: This alternative would add a high-occupancy vehicle lane on Interstate 205 in each direction. High-occupancy vehicle lanes are reserved for vehicles carrying a certain number of passengers, generally 2 or 3 people. The high-occupancy vehicle lane would be added on the outside between the Interstate 580 and the West Grant Line Road interchange and the West Eleventh Street interchange. The high-occupancy vehicle lane would be added on the inside (in the median) east of the West Eleventh Street interchange. The highway would include three general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 3. High-Occupancy Vehicle Lane Conversion: No lanes would be added, and the number one lane (or left lane) in each direction would be converted to a high-occupancy vehicle lane. The highway would include two general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 4. Express Lanes: Interstate 205 would be widened to the outside to accommodate express lanes, leaving the median open for future planned transit improvements. Express lanes provide toll free travel lanes for high-occupancy vehicle, transit, and clean air vehicles and can be used by single-occupancy vehicles for a toll. The number one lane (or left lane) would be an express lane, providing free access to vehicles that meet a minimum occupancy or vehicle type requirement, and priced access to vehicles that do not meet those requirements. The highway would consist of three general purpose lanes, an express lane and in some auxiliary lanes in each direction. A new alignment would be constructed to cross the California Aqueduct and Delta Mendota Canal.

Alternative 5. Transit Only Lanes: This alternative would be the same as Alternative 4, but transit only lanes which would be reserved for busses would replace express lanes.

Structural Improvements

Depending on the alternative selected overcrossings, undercrossings, and interchanges may require widening, realignment or improvements.

No improvements to structures would be required under Alternative 1, No Build. Minimal alterations to structures or interchanges may be required under Alternative 3 to accommodate changes in traffic volumes.

Under Alternative 2, the following improvements or alterations would be necessary:

- Widen I-205 to the outside between I-580 and the West Eleventh Street interchange.
- Widen the bridge over the Delta Mendota Canal to the outside.
- Widen I-205 to the inside (median) from the West Eleventh Street interchange east to the end to of the project at the I-5 interchange.
- Widen the following structures to the inside (median):
    - Janney Overhead
    - Grant Line Road Overhead

  - Corral Hollow Road Undercrossing
  - Tracy Boulevard Undercrossing
  - Sugar Spur Overhead
  - MacArthur Drive Undercrossing
  - El Rancho Road Undercrossing
  - Tom Paine Slough Bridge
- Construct retention basins adjacent to I-205 to accommodate increased runoff
- Perpetuate the existing auxiliary lanes from Mountain House Parkway to Eleventh Street

Under Alternatives 4 and 5, the project would require the following structural improvements. Within the Alameda County limits, the project proposes a park-and-ride lot at the West Grant Line Road interchange; new alignments for westbound I-580, westbound I-205, and the West Grant Line Road off-ramp; and replacement of the following structures:

- Westbound I-580 – Midway Road undercrossing
- Westbound I-580 – I-205 separation structure
- Westbound I-205 off-ramp to Grant Line Road – westbound I-580 separation structure
- Westbound I-205 – Midway Road undercrossing
- Westbound I-205 – California Aqueduct bridge
- Westbound I-205 – North Midway Road undercrossing

Within San Joaquin County, the project would widen I-205 to the outside in the westbound and eastbound directions from the Delta Mendota Canal to the East Banta Union Pacific Railroad (UPRR) overhead. Eastbound I-205 widening would continue toward I-5, and the project would include new eastbound I-205 to northbound I-5 connectors. The southbound I-5 to I-205 connector and northbound I-5 connector would be realigned as part of the I-205/I-5 interchange improvements. Six interchanges would be affected by the I-205 widening. The West Grant Line Road interchange, the North Tracy Boulevard interchange, and the North MacArthur Drive interchange would be improved with this project. The Mountain House Parkway interchange, West 11th Street interchange, and Paradise Road interchange currently are under project development and will be constructed independent of this project. In addition to retaining walls and sound walls along the corridor, the project would widen or replace the following structures within San Joaquin County:

- Westbound I-205 – Delta Mendota Canal bridge
- I-205 – Box culvert
- I-205 – Mountain House Parkway overcrossing
- I-205 – Hansen Road overcrossing
- Eastbound I-205 – Irrigation canal bridge
- Westbound I-205 – West Byron Road/Janney UPRR overhead
- Eastbound I-205 – West Byron Road/Janney UPRR overhead

- Westbound I-205 – West Grant Line Road undercrossing
- Eastbound I-205 – West Grant Line Road undercrossing
- Westbound I-205 – North Corral Hollow Road undercrossing
- Eastbound I-205 – North Corral Hollow Road undercrossing
- Westbound I-205 – North Tracy Boulevard undercrossing
- Eastbound I-205 – North Tracy Boulevard undercrossing
- I-205 – Holly Drive overcrossing
- Westbound I-205 – Sugar Spur UPRR overhead
- Eastbound I-205 – Sugar Spur UPRR overhead
- Westbound I-205 – North MacArthur Drive undercrossing
- Eastbound I-205 – North MacArthur Drive undercrossing
- I-205 – Paradise Road overcrossing
- Westbound I-205 – El Rancho Road undercrossing
- Eastbound I-205 – El Rancho Road undercrossing
- Eastbound I-205 – East Banta UPRR overhead
- Eastbound I-205 – West Canal Boulevard/Tom Paine Slough bridge
- Eastbound 205 to northbound I-5 express lanes connector – southbound I-5 –separation structure
- Northbound I-5 – Paradise Cut bridge

Additional project work under all build alternatives could include detention or retention basins, access roads, and four transit hubs. Transit hubs could include park-and-ride lots, electrical vehicle (EV) charging stations, bus stops and train stops. Locations for transit hubs would be determined in coordination with stakeholders that include but are not limited to the following: Federal Highways Administration, Caltrans, Valley Link, San Joaquin Council of Governments, City of Tracy, Community of Mountain House, Alameda County, San Joaquin County, local transit, and the interested public to improve access to the transit facility and to avoid precluding connectivity to the local communities. The proposed project would construct facilities within the right-of-way, such as rail stops, to accommodate connection to the corridor, but may or may not construct the actual transit hubs.

Project Study Area

For the purpose of this PEAR, the project study area includes the project limits and areas bordering the limits shown in Figure 2 in the PEAR.

Existing Visual Environment and Scenic Resources

The project study area includes primarily agricultural, suburban and rural residential, commercial, industrial, and transportation land uses. Suburban residential land uses border I-205 between Byron Road and MacArthur Drive, south of the freeway. Low-density residential and rural residences are found west of Byron Road and east of MacArthur Drive, on both sides of the freeway. Commercial and industrial land uses border both sides of the freeway and are primarily centralized near freeway interchanges. The remainder of the land use surrounding the project corridor is agricultural. The existing vegetation is mostly low-growing crops on agricultural fields or annual grasslands; however, mature trees and shrubs are present around nearby residences and commercial areas and near freeway interchanges. Current lighting in the project study area is associated with the aforementioned development, overhead lighting along I-205 at the interchanges, freeway signage lighting, ornamental street lighting on either side of the Mountain House Parkway bridge over I-205, and ornamental street lighting in the parkway's median planter north of I-205. The Delta-Mendota Canal and large, lattice steel transmission line towers are common visible elements in the project study area. In addition, views of the Diablo Range are a prominent focal point in the project study area.

I-205 is not an officially designated or eligible State Scenic Highway. However, I-580 is a designated scenic route at the western terminus of the project study area.[1] There are no other are state-, county-, or city-designated scenic routes or city gateways located in the project study area.[2,3] In addition, I-205 is a classified Landscaped Freeway from PM R5.95 to R8.33.[4]

Potential Visual Impacts

The project would entail widening the existing freeway to the outside, within the existing state right-of-way, to create an express lane in each direction and would have minimal effects on viewers at the surrounding properties. The median of I-205 would not be affected by the widening. Adding the lanes to the outside of the freeway would increase pavement along the outer edge of the travel lanes, affecting mainly grassy shoulders. However, in some areas along the project corridor, mature trees would need to be removed within the right-of-way to accommodate the proposed project.

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[1] Caltrans (California Department of Transportation). 2019. *List of Eligible and Officially Designated State Scenic Highways*. Available: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Last updated: July 2019. Accessed: December 21, 2020.

[2] City of Tracy. 2011. *City of Tracy General Plan.* Available: http://www.ci.tracy.ca.us/documents/2011_General_Plan.pdf. Accessed: December 21, 2020.

[3] County of San Joaquin. 2016. *San Joaquin County General Plan.* Available: https://www.sjgov.org/commdev/cgi-bin/cdyn.exe/file/Planning/General%20Plan%202035/GENERAL%20PLAN%202035.pdf. Accessed: December 21, 2020.

[4] Caltrans. 2020. *Classified "Landscaped Freeways"*. Available: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-b-classified-landscaped-freeways. Last updated: August 3, 2020. Accessed: December 21, 2020.

Bridge structures would be widened but would not change in their overall appearance. New bridges would look visually similar to existing bridges. Roadway travelers would see the changes, but these visual conditions are common and would be consistent with other freeways in the region. Roadway neighbors would notice visual changes associated with the project at some locations because they would see vegetation removal occurring between the existing sound barriers and their property boundaries. In addition, sound barriers would be relocated closer to private properties. Transit stops would be located in the median, and park-and-ride lots would be located north of the freeway, within commercial development. These features would not stand out or detract from the transportation and commercial landscapes, which are suited to such features. The modified ramp connections to I-580 would be in keeping with the existing ramp connections and would not greatly affect views associated with the scenic highway. Changes proposed along the I-205 corridor and the connection to I-580 would also not negatively affect views associated with I-580, an officially designated state scenic highway, because project features would not interfere with views toward the Diablo Range or surrounding agricultural lands and grasslands.

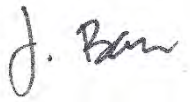
Overall, changes associated with the proposed project would be in keeping with the visual environment associated with the existing transportation facilities as seen by all viewer groups at all locations, but there would be some noticeable visual effects on viewers. Therefore, as determined by the Caltrans Visual Impact Assessment level questionnaire (attached), a Moderate Visual Impact Assessment would be prepared.

Environmental Commitments

To minimize visual effects associated with project construction, Caltrans' design standards would be followed and aesthetic treatments would be incorporated where needed. Measures also would be taken to replant along the Landscaped Freeway segment, at a 1:1 ratio, for any removals of existing Highway Plantings and avoid or minimize potential light and glare impacts.

Preparer:

Jennifer Ban, PLA, 21 years of experience



Date: March 8, 2021

Questionnaire to Determine Visual Impact Assessment (VIA) Level

Use the following questions and subsequent score as a guide to help determine the appropriate level of VIA documentation. This questionnaire assists the VIA preparer (i.e. Landscape Architect) in estimating the probable visual impacts of a proposed project on the environment and in understanding the degree and breadth of the possible visual issues. The goal is to develop a suitable document strategy that is thorough, concise and defensible.

Enter the project name and consider each of the ten questions below. Select the response that most closely applies to the proposed project and corresponding number on the right side of the table. Points are automatically computed at the bottom of the table and the total score should be matched to one of the five groups of scores at the end of the questionnaire that include recommended levels of VIA study and associated annotated outlines (i.e., minor, moderate, advanced/complex).

This scoring system should be used as a preliminary guide and should not be used as a substitute for objective analysis on the part of the preparer. Although the total score may recommend a certain level of VIA document, circumstances associated with any one of the ten question-areas may indicate the need to elevate the VIA to a greater level of detail. For projects done by others on the State Highway System, the District Landscape Architect should be consulted when scoping the VIA level and provide concurrence on the level of analysis used.

The Standard Environmental Reference, Environmental Handbook, Volume I: Chapter 27-Visual & Aesthetics Review lists preparer qualifications for conducting the visual impact assessment process. Landscape Architects receive formal training in the area of visual resource management and can appropriately determine which VIA level is appropriate.

Preparer Qualifications:

> "Scenic Resource Evaluations and VIA's are performed under the direction of licensed Landscape Architects. Landscape Architects receive formal training in the area of visual resource management with a curriculum that emphasizes environmental design, human factors, and context sensitive solutions. When recommending specific visual mitigation measures, Landscape Architects can appropriately weigh the benefits of these different measures and consider construction feasibility and maintainability."

Calculate VIA Level Score

Project Information

Project Name

I-205 Managed Lanes

Project Identification #

EA 10-1H170

Preparer Name

Shahira Ashkar

Caltrans District Landscape Architect (DLA)

For projects on State Highway System Only, Name of Caltrans District Landscape Architect (DLA) providing VIA Questionnaire Score Concurrence - if different than above.

For Projects on State Highway System Only, Enter DLA Name

Change to Visual Environment

1. **Will the project result in a noticeable change in the physical characteristics of the existing environment?**

   Consider all project components and construction impacts - both permanent and temporary, including landform changes, structures, noise barriers, vegetation removal, railing, signage, and contractor activities.

   Moderate Level of Change (2 points)

2. **Will the project complement or contrast with the visual character desired by the community?**

   Evaluate the scale and extent of the project features compared to the surrounding scale of the community. Is the project likely to give an urban appearance to an existing rural or suburban community? Do you anticipate that the change will be viewed by the public as positive or negative? Research planning documents, or talk with local planners and community representatives to understand the type of visual environment local residents envision for their community.

   Moderate Compatibility (2 points)

3. **What level of local concern is there for the types of project features (e.g., bridge structures, large excavations, sound barriers, or median planting removal) and construction impacts that are proposed?**

   Certain project improvements can be of special interest to local citizens, causing a heightened level of public concern, and requiring a more focused visual analysis.

   Moderate Concern (2 points)

4. **Will the project require redesign or realignment to minimize adverse change or will mitigation, such as landscape or architectural treatment, likely be necessary?**

   Consider the type of changes caused by the project, i.e., can undesirable views be screened or will desirable views be permanently obscured so a redesign should be considered?

   Mitigation Likely (1 point)

5. **Will this project, when seen collectively with other projects, result in an aggregate adverse change (cumulative impacts) in overall visual quality or character?**

   Identify any projects (both Caltrans and local) in the area that have been constructed in recent years and those currently planned for future construction. The window of time and the extent of area applicable to possible cumulative impacts should be based on a reasonable anticipation of the viewing public's perception.

   Cumulative Impacts Likely to Occur Within 0-5 Years (3 points)

Viewer Sensitivity

1. **What is the potential that the project proposal will be controversial within the community, or opposed by any organized group?**

   This can be researched initially by talking with Caltrans and local agency management and staff familiar with the affected community's sentiments as evidenced by past projects and/or current information.

Moderate Potential (2 points)

2. **How sensitive are potential viewer-groups likely to be regarding visible changes proposed by the project?**

Consider among other factors the number of viewers within the group, probable viewer expectations, activities, viewing duration, and orientation. The expected viewer sensitivity level may be scoped by applying professional judgment, and by soliciting information from other Caltrans staff, local agencies and community representatives familiar with the affected community's sentiments and demonstrated concerns.

Moderate Sensitivity (2 points)

3. **To what degree does the project's aesthetic approach appear to be consistent with applicable laws, ordinances, regulations, policies or standards?**

Although the State is not always required to comply with local planning ordinances, these documents are critical in understanding the importance that communities place on aesthetic issues. The Caltrans Environmental Planning branch may have copies of the planning documents that pertain to the project. If not, this information can be obtained by contacting the local planning department. Also, many local and state planning documents can be found online at the California Land Use Planning Network.

Moderate Compatibility (2 points)

4. **Are permits going to be required by outside regulatory agencies (i.e., Federal, State, or local)?**

Permit requirements can have an unintended consequence on the visual environment. Anticipated permits, as well as specific permit requirements - which are defined by the permitted, may be determined by talking with the project Environmental Planner and Project Engineer. Note: coordinate with the Caltrans representative responsible for obtaining the permit prior to communicating directly with any permitting agency.

Yes (3 points)

5. **Will the project sponsor or public benefit from a more detailed visual analysis in order to help reach consensus on a course of action to address potential visual impacts?**

Consider the proposed project features, possible visual impacts, and probable mitigation recommendations.

Maybe (2 points)

Calculate Total

It is recommended that you print a copy of these calculations for the project file.

Project Score: 21

Select An Outline Based Upon Project Score

The total score will indicate the recommended VIA level for the project. In addition to considering circumstances relating to any one of the ten questions-areas that would justify elevating the VIA level, also consider any other project factors that would have an effect on level selection.

Score 6-9

No noticeable visual changes to the environment are proposed and no further analysis is required. Print out a copy of this completed questionnaire for your project file or Preliminary Environmental Study (PES).

Score 10-14

Negligible visual changes to the environment are proposed. A brief Memorandum(see sample)addressing visual issues providing a rationale why a technical study is not required.

Score 15-19

Noticeable visual changes to the environment are proposed. An abbreviated VIA is appropriate in this case. The assessment would briefly describe project features, impacts and any avoidance and minimization measures. Visual simulations would be optional. Go to the Directions for using and accessing the Minor VIA Annotated Outline.

Score 20-24

Noticeable visual changes to the environment are proposed. A fully developed VIA is appropriate. This technical study will likely receive public review.Go to the Directions for using and accessing the Moderate VIA Annotated Outline.

Score 25-30

Noticeable visual changes to the environment are proposed. A fully developed VIA is appropriate that includes photo simulations. It is appropriate to alert the Project Development Team to the potential for highly adverse impacts and to consider project alternatives to avoid those impacts.Go to the Directions for using and accessing the Advanced/Complex VIA Annotated Outline.

Statewide Campaigns

- ADA Access
- Adopt-A-Highway
- Amber Alert
- Be Work Zone Alert
- CAL FIRE
- California Climate Investments
- California Connected
- California Transportation Plan 2050
- Energy Upgrade
- Tenant and Landlord Resources
- Keep Your Home
- Move Over Law
- Response.CA.gov: Power Outage and Fire Recovery Resources
- REAL ID
- Save Our Water
- Unclaimed Property

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Attachment E

Cultural Resources Documentation for the I-205 Managed Lanes Project PEAR (EA 1H170K)

Introduction

The purpose of this technical memorandum (memo) is to provide an overview of prehistoric, historic archaeological, and built-environment cultural resources issues and constraints for the I-205 Managed Lanes Project (project). A Project Study Report-Project Development Support (PSR-PDS) was prepared in 2017 that examined widening Interstate 205 (I-205) to include high-occupancy vehicle (HOV) lanes between the Alameda County line and Interstate 5 (I-5), with outside widening west of 11th Street and inside widening east of 11th Street. Since that time, the project has been revised. San Joaquin Council of Governments (SJCOG) currently is considering express lanes as a viable build alternative and expanding the project area to include improvements to the I-205/Interstate 580 (I580) and I-205/I-5 interchanges. The project scope for the Project Approval and Environmental Documentation (PA&ED) phase is anticipated to include widening I-205 to the outside to accommodate a managed lanes alternative and leave median space open for future transit improvements, and to support preparation of the Preliminary Environmental Analysis Report (PEAR) for the California Department of Transportation (Caltrans).

This memo includes a description of cultural resources in the project study area and a general evaluation of potential project impacts on cultural resources. The memo also identifies studies or focused surveys that would be required to support the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) environmental documents.

Project Description

The project proposes to install managed lanes on Interstate 205 through the City of Tracy, accommodate transit hubs, and improve interchanges between postmiles R1.7 on Interstate 580 and R13.5 on Interstate 5. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. Managed lanes are highway lanes that are actively managed to respond to an area's rapid growth. Interstate 205 in the City of Tracy has been identified as an area of heavy congestion resulting from high truck volumes and commuters that travel to and from the Bay Area. Examples of managed lanes being considered for the proposed project would be high occupancy-vehicle lanes, transit lanes, and express (or toll) lanes.

Alternatives

Four build alternatives and the no-build alternative (Alternative 1) will be considered.

No Build Alternative

Alternative 1. No-Build: Under the no-build alternative, no additional widening or lanes would be constructed. Other planned projects and maintenance would take place.

Build Alternatives

The four build alternatives all occur within the same corridor. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. The build alternatives are described briefly below.

Alternative 2. High-Occupancy Vehicle Lane Addition: This alternative would add a high-occupancy vehicle lane on Interstate 205 in each direction. High-occupancy vehicle lanes are reserved for vehicles carrying a certain number of passengers, generally 2 or 3 people. The high-occupancy vehicle lane would be added on the outside between the Interstate 580 and the West Grant Line Road interchange and the West Eleventh Street interchange. The high-occupancy vehicle lane would be added on the inside (in the median) east of the West Eleventh Street interchange. The highway would include three general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 3. High-Occupancy Vehicle Lane Conversion: No lanes would be added, and the number one lane (or left lane) in each direction would be converted to a high-occupancy vehicle lane. The highway would include two general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 4. Express Lanes: Interstate 205 would be widened to the outside to accommodate express lanes, leaving the median open for future planned transit improvements. Express lanes provide toll free travel lanes for high-occupancy vehicle, transit, and clean air vehicles and can be used by single-occupancy vehicles for a toll. The number one lane (or left lane) would be an express lane, providing free access to vehicles that meet a minimum occupancy or vehicle type requirement, and priced access to vehicles that do not meet those requirements. The highway would consist of three general purpose lanes, an express lane and in some auxiliary lanes in each direction. A new alignment would be constructed to cross the California Aqueduct and Delta Mendota Canal.

Alternative 5. Transit Only Lanes: This alternative would be the same as Alternative 4, but transit only lanes which would be reserved for busses would replace express lanes.

Structural Improvements

Depending on the alternative selected overcrossings, undercrossings, and interchanges may require widening, realignment or improvements.

No improvements to structures would be required under Alternative 1, No Build. Minimal alterations to structures or interchanges may be required under Alternative 3 to accommodate changes in traffic volumes.

Under Alternative 2, the following improvements or alterations would be necessary:

- Widen I-205 to the outside between I-580 and the West Eleventh Street interchange.
- Widen the bridge over the Delta Mendota Canal to the outside.
- Widen I-205 to the inside (median) from the West Eleventh Street interchange east to the end to of the project at the I-5 interchange.
- Widen the following structures to the inside (median):
    - Westbound I-205 –Janney overhead (Caltrans State Bridge #29 0074L)
    - Eastbound I-205 – Janney overhead (Caltrans State Bridge #29 0074R)
    - Westbound I-205 – West Grant Line Road undercrossing (Caltrans State Bridge #29 0186R)
    - Eastbound I-205 – West Grant Line Road undercrossing (Caltrans State Bridge #29 0186L)
    - Westbound I-205 –Corral Hollow Road undercrossing (Caltrans State Bridge #29 0132L)
    - Eastbound I-205 –Corral Hollow Road undercrossing (Caltrans State Bridge #29 0132R)
    - Westbound I-205 – Tracy Boulevard undercrossing (Caltrans State Bridge #29 0178L)
    - Eastbound I-205 –Tracy Boulevard undercrossing (Caltrans State Bridge #29 0178R)
    - Westbound I-205 – Sugar Spur UPRR overhead (Caltrans State Bridge #29 0183L)
    - Eastbound I-205 – Sugar Spur UPRR overhead (Caltrans State Bridge #29 0183R)
    - Westbound I-205 – North MacArthur Drive undercrossing (Caltrans State Bridge #29 0184L)
    - Eastbound I-205 – North MacArthur Drive undercrossing (Caltrans State Bridge #29 0184R)
    - Westbound I-205 – El Rancho Road undercrossing (Caltrans State Bridge #29 0214L)
    - Eastbound I-205 – El Rancho Road undercrossing (Caltrans State Bridge #29 0214R)
    - Eastbound I-205 – West Canal Boulevard/Tom Paine Slough bridge (Caltrans State Bridge #29 0180R)
- Construct retention basins adjacent to I-205 to accommodate increased runoff
- Perpetuate the existing auxiliary lanes from Mountain House Parkway to Eleventh Street

Under Alternatives 4 and 5, the project would require the following structural improvements. Within the Alameda County limits, the project proposes a park-and-ride lot at the West Grant Line Road interchange; new alignments for westbound I-580, westbound I-205, and the West Grant Line Road off-ramp; and to remove and replace the following structures:

- Midway Road UC Bridge (Caltrans State Bridge #33 0345R)
- Route 580/205 Separation (Caltrans State Bridge #33 0346R)
- Westbound I-205 off-ramp to Grant Line Road – westbound I-580 separation structure (Caltrans State Bridge #29 0186L)
- Westbound I-205 – Midway Road undercrossing (Caltrans State Bridge #33 0345)
- Westbound I-205 – California Aqueduct bridge (Caltrans State Bridge #33 0402)
- Westbound I-205 – North Midway Road undercrossing (Caltrans State Bridge #33 0345R)

Within San Joaquin County, the project would widen I-205 to the outside in the westbound and eastbound directions from the Delta Mendota Canal to the East Banta Union Pacific Railroad (UPRR) overhead. Eastbound I-205 widening would continue toward I-5, and the project would include new eastbound I-205 to northbound I-5 connectors. The southbound I-5 to I-205 connector and northbound I-5 connector would be realigned as part of the I-205/I-5 interchange improvements. Six interchanges would be affected by the I-205 widening. The West Grant Line Road interchange, the North Tracy Boulevard interchange, and the North MacArthur Drive interchange would be improved with this project. The Mountain House Parkway interchange, West 11th Street interchange, and Paradise Road interchange currently are under project development and will be constructed independent of this project. In addition to retaining walls and sound walls along the corridor, the project would widen or remove and replace the following structures within San Joaquin County:

- Westbound I-205 – Delta Mendota Canal bridge (Caltrans State Bridge #29 0037)
- I-205 – Box culvert (no bridge ID)
- I-205 – Mountain House Parkway overcrossing (Caltrans State Bridge #29 0321)
- I-205 – Hansen Road overcrossing (Caltrans State Bridge #29 0208)
- Eastbound I-205 – Old US 50 overcrossing (Caltrans State Bridge #29 0203)
- Westbound I-205 –Janney overhead (Caltrans State Bridge #29 0074L)
- Eastbound I-205 – Janney overhead (Caltrans State Bridge #29 0074R)
- Westbound I-205 – West Grant Line Road undercrossing (Caltrans State Bridge #29 0186R)
- Eastbound I-205 – West Grant Line Road undercrossing (Caltrans State Bridge #29 0186L)
- Westbound I-205 –Corral Hollow Road undercrossing (Caltrans State Bridge #29 0132L)
- Eastbound I-205 –Corral Hollow Road undercrossing (Caltrans State Bridge #29 0132R)
- Westbound I-205 – Tracy Boulevard undercrossing (Caltrans State Bridge #29 0178L)
- Eastbound I-205 –Tracy Boulevard undercrossing (Caltrans State Bridge #29 0178R)

- I-205 – Holly Drive overcrossing (Caltrans State Bridge #29 0182)
- Westbound I-205 – Sugar Spur UPRR overhead (Caltrans State Bridge #29 0183L)
- Eastbound I-205 – Sugar Spur UPRR overhead (Caltrans State Bridge #29 0183R)
- Westbound I-205 – North MacArthur Drive undercrossing (Caltrans State Bridge #29 0184L)
- Eastbound I-205 – North MacArthur Drive undercrossing (Caltrans State Bridge #29 0184R)
- I-205 – Paradise Road overcrossing (Caltrans State Bridge #29 0181)
- Westbound I-205 – El Rancho Road undercrossing (Caltrans State Bridge #29 0214L)
- Eastbound I-205 – El Rancho Road undercrossing (Caltrans State Bridge #29 0214R)
- Eastbound I-205 – East Banta UPRR overhead (Caltrans State Bridge #29 0179R)
- Eastbound I-205 – West Canal Boulevard/Tom Paine Slough bridge (Caltrans State Bridge #29 0180R)
- Eastbound 205 to northbound I-5 express lanes connector – southbound I-5 –separation structure (Caltrans State Bridge #29 0211G)
- Northbound I-5 – Paradise Cut bridge (Caltrans State Bridge #29 0032R)

Additional project work under all build alternatives could include detention or retention basins, access roads, and four transit hubs. Transit hubs could include park-and-ride lots, electrical vehicle (EV) charging stations, bus stops and train stops. Locations for transit hubs would be determined in coordination with stakeholders that include but are not limited to the following: Federal Highways Administration, Caltrans, Valley Link, San Joaquin Council of Governments, City of Tracy, Community of Mountain House, Alameda County, San Joaquin County, local transit, and the interested public to improve access to the transit facility and to avoid precluding connectivity to the local communities. The proposed project would construct facilities within the right-of-way, such as rail stops, to accommodate connection to the corridor, but may or may not construct the actual transit hubs.

Project Study Area

For the purpose of this PEAR, the project study area includes the project improvements shown in Figure 2 in the PEAR and the associated environmental study limits.

Background Search

To identify potential issues and constraints relative to both archaeological and architectural/built environment resources, it is necessary to consider National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR)-eligible archaeological sites, features, objects or districts and, buildings, structures, objects, or districts in the project study area.

On December 14, 2020, a records search request was submitted by ICF archaeologist, Stephen Pappas, at the California Historical Resources Information System's (CHRIS) Central California Information Center (CCIC) at California State University, Stanislaus (CCIC File no. 10301L). A second

records search request was submitted on December 16, 2020, to the Northwest Information Center (NWIC) at California State University, Sonoma. The records search included a search of the previously recorded sites and studies within a 0.5-mile radius of the project study area, as well as a review of the Office of Historic Preservation's (OHP) Historic Properties Directory and Archaeological Determinations of Eligibility databases.

ICF architectural historians and archaeologists conducted desktop screenings of the project study area and analyzed historical aerial photographs and maps. Additionally, the Caltrans Structure Maintenance & Investigations lists were consulted to determine the eligibility status of the bridges in the project study area. The potential for cultural resources to occur in the project study area is based on a review of the existing documentation of cultural resources, and areas of sensitivity based on soil types in the project study area.

Consultation with Native Americans and other interested parties, as well as cultural resource surveys of the area of potential effects (APE), would be conducted as part of the PA&ED phase. The APE for the project would include the entire project footprint for both archaeological resources and architectural/built environment resources that are at least 45 years of age. No buildings would be demolished as a result of implementing the project. The cultural resources investigation would be conducted in accordance with the procedures identified in the Caltrans *Environmental Handbook, Volume 2: Cultural Resources*.

The project is subject to Section 106 of the National Historic Preservation Act, and compliance would be conducted in accordance with the 2014 Amended *Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California*. Cultural resources technical reports, subject to review and approval by Caltrans Professionally Qualified Staff, would be prepared to document the findings. Consultation with the State Historic Preservation Officer may be required.

Setting and Sensitivity for Resources

There is a high sensitivity for buried archaeological resources in portions of the project study area due to soils from the Holocene period and the project's proximity to major waterways. The majority of the soil surrounding the project study area consists of Capay clay (Map unit 118), which is an alluvium soil derived from mixed rock sources, extending down to 80 inches below the surface as described in the U. S. Geological Society Web Soil Service website (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx). Alluvium soils are likely to contain buried deposits; therefore, those soils dating to the Holocene period may contain buried Native American sites. In addition, Native American occupation sites often are found near major waterways such as rivers, sloughs, and creeks. The eastern end of the project study area falls within an ecosystem whose waterways prehistorically and historically were favorable locations for Native American resource procurement and habitation being at the interface of the western edge of the

northern San Joaquin Central Valley and wetland environments; therefore, the project study area has a high sensitivity for buried archaeological resources.

Potential Cultural Resources

Records searches at the NWIC at Sonoma State and at the CCIC at Stanislaus State failed to identify any previously recorded archaeological resources within the project study area; however, two architectural/built environment historic properties were identified as intersecting the project area: the California Aqueduct and the Delta-Mendota Canal. Both properties are eligible for listing in the NRHP and CRHR, and therefore are Section 4(f) resources. Additionally, the bridges crossing the aqueduct and canal may be considered contributing features to the two historic properties.

In addition to the two historic properties, the following buildings and structures are 45 years old or older and located in the project study area: a segment of the Union Pacific Railroad, two roads (the Naglee/Fremont and Midway Roads), one electrical transmission line (Tracy-Tesla 230kV), and three residential properties.

The Caltrans Structure Maintenance & Investigations bridge database listed 35 bridges crossing over or located within the project study area.

Midway Road UC (Caltrans State Bridge #33 0345R) constructed in 1966

Midway Road UC (Caltrans State Bridge #33 0195) constructed in 1953

Route 580/205 Separation (Caltrans State Bridge #33 0346R) constructed in 1966

Route 580/205 Separation (Caltrans State Bridge #33 0693R) constructed in 1966

Aqueduct Service Road (Caltrans State Bridge #29 0299) constructed in 1966

Mountain House Parkway OC (Caltrans State Bridge #29 321) constructed in 2007

California Aqueduct Bridge (Caltrans Bridge #33 0402) constructed in 1966

Delta-Mendota Canal CPM (Caltrans State Bridge #29 0037) constructed in 1953

Hansen Road OC (Caltrans State Bridge #29 0208) constructed in 1970

Old U.S. 50 OC (Caltrans State Bridge #29 0203) constructed in 1970

Janney OH (Caltrans State Bridge #29 074L) constructed in 1970

Janney OH (Caltrans State Bridge #29 074R) constructed in 1970

Grant Line Road UC (Caltrans State Bridge #29 0186K) constructed in 1997

Grant Line Road UC (Caltrans State Bridge #29 0186L) constructed in 1970

Grant Line Road UC (Caltrans State Bridge #29 0186R) constructed in 1970

Corral Hollow Road UC (Caltrans State Bridge #29 0132R) constructed in 1970

Corral Hollow Road UC (Caltrans State Bridge #29 0132L) constructed in 1970

Tracy Boulevard UC (Caltrans State Bridge #29 0178R) constructed in 1970

Tracy Boulevard UC (Caltrans State Bridge #29 0178L) constructed in 1970

Holly Drive OC (Caltrans State Bridge #29 0182) constructed in 1970

Sugar Spur OH (Caltrans State Bridge #29 0183L) constructed in 1970

Sugar Spur OH (Caltrans State Bridge #29 0183R) constructed in 1970

Macarthur Drive UC (Caltrans State Bridge #29 0184L) constructed in 1970

Macarthur Drive UC (Caltrans State Bridge #29 0184R) constructed in 1970

Paradise Road OC (Caltrans State Bridge #29 0181) constructed in 1970

El Rancho Road UC (Caltrans State Bridge #29 0214L) constructed in 1970

El Rancho Road UC (Caltrans State Bridge #29 0214R) constructed in 1970

East Banta OH (Caltrans State Bridge #29 0179L) constructed in 1970

East Banta OH (Caltrans State Bridge #29 0179R) constructed in 1970

Tom Paine Slough (Caltrans State Bridge #29 0180L) constructed in 1970

Tom Paine Slough (Caltrans State Bridge #29 0180R) constructed in 1970

E205-N5 Connector Separation (Caltrans State Bridge #29 0211G) constructed in 1970

E205-N5 Connector Ramp (Caltrans State Bridge #29 0032G) constructed in 1970

Paradise Cut (Caltrans State Bridge #29 0032L) Constructed in 1947

Paradise Cut (Caltrans State Bridge #29 0032R) Constructed in 1969

Paradise Cut (Caltrans Local Bridge #29 C0122) Constructed in 1932

All 35 bridges appear in the Caltrans Structure Maintenance & Investigations bridge database as a Category 5 Bridge (i.e., not eligible for listing in the NRHP).

Potential Effects and Environmental Commitments

The only known NRHP/CRHR-eligible properties intersecting the project study area are the California Aqueduct and the Delta-Mendota Canal, which could be temporarily affected by construction of the I-205 bridge over the properties. The remaining bridges and overcrossings within the project area are not eligible for listing in the NRHP, as they are designated as Category 5 bridges per the Caltrans bridge inventory. It is anticipated that it will be necessary to address the potential effects of the project on the Delta-Mendota Canal and that there would be no adverse effect on the resource.

No previously recorded archaeological resources are located in the project study area. Though much of it is paved or developed, the eastern portion of the project study area has a high sensitivity for

buried resources. The potential impacts on archaeological resources and the need for any mitigation measures cannot be determined until a pedestrian survey has been conducted.

Anticipated Studies and Agency Concurrence

A combined archaeological and built environment Historic Property Survey Report would be prepared for the project, along with a Historic Resources Evaluation Report to document the study findings and conclusions for the architectural/built environment resources. An Archaeological Survey Report would be prepared to document the results from the NWIC and CCIC records searches, the study findings from the pedestrian survey, and the conclusions for the study. Because the area has high sensitivity for buried resources and detention basins requiring excavation of up to 10 feet would be included in the project, an Extended Phase 1 survey may be required; however, this cannot be confirmed until pedestrian surveys are conducted. A Finding of Effect likely would be required to address potential impacts on the California Aqueduct and Delta-Mendota Canal.

Contracts/Sources Consulted

The sources consulted include the CHRIS database, the Caltrans Structure Maintenance & Investigations bridge database, and https://historicaerials.com/ (for historical aerial photographs and maps).

Preparers

David Lemon, BA/MA., Architectural Historian, 14 years of experience



Date: June 3, 2021

_____

Stephen Pappas, BA/MS., Archeologist, 16 years of experience.



Date: June 3, 2021

_____

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Memorandum

Date: March 25, 2021

To: Kimley-Horn and Associates, Inc.

From: Analette Ochoa, Melissa McAssey - WRECO

Subject: 10-1H170 I-205 Managed Lanes Memorandum on Preliminary Hazardous Waste, Water Quality, and Floodplains

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1 GENERAL DESCRIPTION

1.1 Introduction

This Memorandum summarizes the preliminary assessment of potential hazardous, water quality, and floodplain impacts for the Interstate (I-) 205 Managed Lanes Project (EA 10-1H170) (Project).

1.2 Project Description

The project proposes to install managed lanes on Interstate 205 through the City of Tracy, accommodate transit hubs, and improve interchanges between postmiles R1.7 on Interstate 580 and R13.5 on Interstate 5. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. Managed lanes are highway lanes that are actively managed to respond to an area's rapid growth. Interstate 205 in the City of Tracy has been identified as an area of heavy congestion resulting from high truck volumes and commuters that travel to and from the Bay Area. Examples of managed lanes being considered for the proposed project would be high occupancy-vehicle lanes, transit lanes, and express (or toll) lanes.

1.2.1 Alternatives

Four build alternatives and the no-build alternative (Alternative 1) will be considered.

1.2.1.1 No Build Alternative

Alternative 1. No-Build: Under the no-build alternative, no additional widening or lanes would be constructed. Other planned projects and maintenance would take place.

1.2.1.2 Build Alternatives

The four build alternatives all occur within the same corridor. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. The build alternatives are described briefly below.

Alternative 2. High-Occupancy Vehicle Lane Addition: This alternative would add a high-occupancy vehicle lane on Interstate 205 in each direction. High-occupancy vehicle lanes are

reserved for vehicles carrying a certain number of passengers, generally 2 or 3 people. The high-occupancy vehicle lane would be added on the outside between the Interstate 580 and the West Grant Line Road interchange and the West Eleventh Street interchange. The high-occupancy vehicle lane would be added on the inside (in the median) east of the West Eleventh Street interchange. The highway would include three general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 3. High-Occupancy Vehicle Lane Conversion: No lanes would be added, and the number one lane (or left lane) in each direction would be converted to a high-occupancy vehicle lane. The highway would include two general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 4. Express Lanes: Interstate 205 would be widened to the outside to accommodate express lanes, leaving the median open for future planned transit improvements. Express lanes provide toll free travel lanes for high-occupancy vehicle, transit, and clean air vehicles and can be used by single-occupancy vehicles for a toll. The number one lane (or left lane) would be an express lane, providing free access to vehicles that meet a minimum occupancy or vehicle type requirement, and priced access to vehicles that do not meet those requirements. The highway would consist of three general purpose lanes, an express lane and in some auxiliary lanes in each direction. A new alignment would be constructed to cross the California Aqueduct and Delta Mendota Canal.

Alternative 5. Transit Only Lanes: This alternative would be the same as Alternative 4, but transit only lanes which would be reserved for busses would replace express lanes.

1.2.2 Structural Improvements

Depending on the alternative selected overcrossings, undercrossings, and interchanges may require widening, realignment or improvements.

No improvements to structures would be required under Alternative 1, No Build. Minimal alterations to structures or interchanges may be required under Alternative 3 to accommodate changes in traffic volumes.

Under Alternative 2, the following improvements or alterations would be necessary:
Widen I-205 to the outside between I-580 and the West Eleventh Street interchange.

- Widen the bridge over the Delta Mendota Canal to the outside.
- Widen I-205 to the inside (median) from the West Eleventh Street interchange east to the end to of the project at the I-5 interchange.
- Widen the following structures to the inside (median):
    - Janney Overhead

  - Grant Line Road Overhead
  - Corral Hollow Road Undercrossing
  - Tracy Boulevard Undercrossing
  - Sugar Spur Overhead
  - MacArthur Drive Undercrossing
  - El Rancho Road Undercrossing
  - Tom Paine Slough Bridge

- Construct retention basins adjacent to I-205 to accommodate increased runoff
- Perpetuate the existing auxiliary lanes from Mountain House Parkway to Eleventh Street

Under Alternatives 4 and 5, the project would require the following structural improvements. Within the Alameda County limits, the project proposes a park-and-ride lot at the West Grant Line Road interchange; new alignments for westbound I-580, westbound I-205, and the West Grant Line Road off-ramp; and replacement of the following structures:

- Westbound I-580 – Midway Road undercrossing
- Westbound I-580 – I-205 separation structure
- Westbound I-205 off-ramp to Grant Line Road – westbound I-580 separation structure
- Westbound I-205 – Midway Road undercrossing
- Westbound I-205 – California Aqueduct bridge
- Westbound I-205 – North Midway Road undercrossing

Within San Joaquin County, the project would widen I-205 to the outside in the westbound and eastbound directions from the Delta Mendota Canal to the East Banta Union Pacific Railroad (UPRR) overhead. Eastbound I-205 widening would continue toward I-5, and the project would include new eastbound I-205 to northbound I-5 connectors. The southbound I-5 to I-205 connector and northbound I-5 connector would be realigned as part of the I-205/I-5 interchange improvements. Six interchanges would be affected by the I-205 widening. The West Grant Line Road interchange, the North Tracy Boulevard interchange, and the North MacArthur Drive interchange would be improved with this project. The Mountain House Parkway interchange, West 11th Street interchange, and Paradise Road interchange currently are under project development and will be constructed independent of this project. In addition to retaining walls

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and sound walls along the corridor, the project would widen or replace the following structures within San Joaquin County:

- Westbound I-205 – Delta Mendota Canal bridge
- I-205 – box culvert
- I-205 – Mountain House Parkway overcrossing
- I-205 – Hansen Road overcrossing
- Eastbound I-205 – Irrigation canal bridge
- Westbound I-205 – West Byron Road/Janney UPRR overhead
- Eastbound I-205 – West Byron Road/Janney UPRR overhead
- Westbound I-205 – West Grant Line Road undercrossing
- Eastbound I-205 – West Grant Line Road undercrossing
- Westbound I-205 – North Corral Hollow Road undercrossing
- Eastbound I-205 – North Corral Hollow Road undercrossing
- Westbound I-205 – North Tracy Boulevard undercrossing
- Eastbound I-205 – North Tracy Boulevard undercrossing
- I-205 – Holly Drive overcrossing
- Westbound I-205 – Sugar Spur UPRR overhead
- Eastbound I-205 – Sugar Spur UPRR overhead
- Westbound I-205 – North MacArthur Drive undercrossing
- Eastbound I-205 – North MacArthur Drive undercrossing
- I-205 – Paradise Road overcrossing
- Westbound I-205 – El Rancho Road undercrossing
- Eastbound I-205 – El Rancho Road undercrossing
- Eastbound I-205 – East Banta UPRR overhead
- Eastbound I-205 – West Canal Boulevard/Tom Paine Slough bridge

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- Eastbound 205 to northbound I-5 express lanes connector – southbound I-5 –separation structure

- Northbound I-5 – Paradise Cut bridge

Additional project work under all build alternatives could include detention or retention basins, access roads, and four transit hubs. Transit hubs could include park-and-ride lots, electrical vehicle (EV) charging stations, bus stops and train stops. Locations for transit hubs would be determined in coordination with stakeholders that include but are not limited to the following: Federal Highways Administration, Caltrans, Valley Link, San Joaquin Council of Governments, City of Tracy, Community of Mountain House, Alameda County, San Joaquin County, local transit, and the interested public to improve access to the transit facility and to avoid precluding connectivity to the local communities. The proposed project would construct facilities within the right-of-way, such as rail stops, to accommodate connection to the corridor, but may or may not construct the actual transit hubs.

1.3 Study Background

The Project would result in work within cities of Tracy and Lathrop which are located in San Joaquin County. The Project's west end limits are located within unincorporated areas of Alameda County. The Project is located within the California Department of Transportation's (Caltrans) District 4 and District 10's right-of-way as shown in Figure 1 and Figure 2

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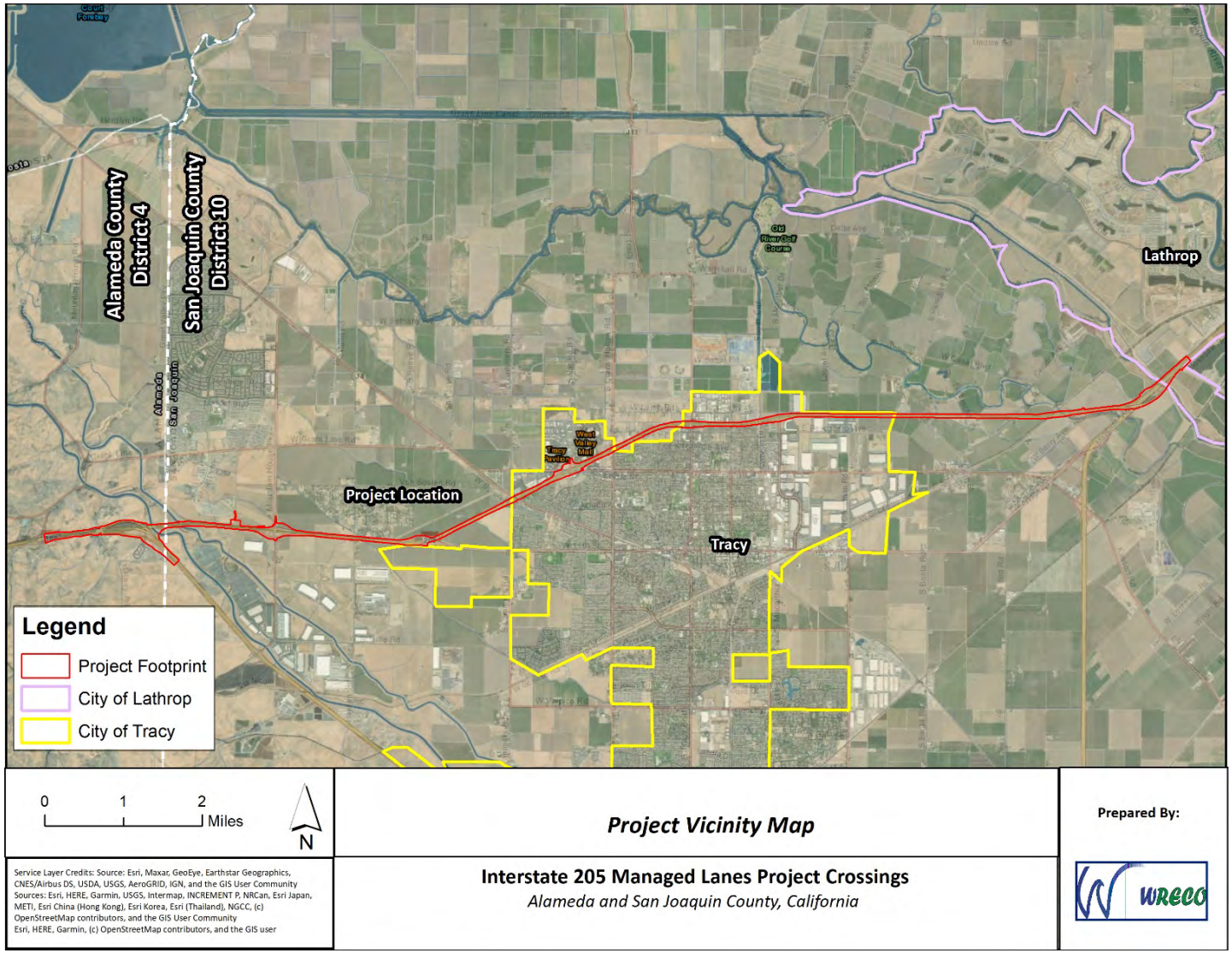


Figure 1. Project Vicinity Map

Source: ESRI, 2020

GREEN CALIFORNIA GREEN BUSINESS NETWORK

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Figure 2. Project Location Map

Source: ESRI, 2020

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2 ENVIRONMENTAL CONDITIONS

2.1 Topography

The Project area is relatively flat, sloping north east. Along the I-205 corridor the highest elevation in North American Vertical Datum of 1988 (NAVD 88) is approximate 320 feet at the I-580/W Grant Line Road and the lowest elevation range between 10 to 20 feet at the I-205/I-5 interchange (United States Geological Survey [USGS], 2018).

2.2 Climate

The Project area has a Mediterranean climate, characterized by mild, moist winters and hot, dry summers. According to the Western Regional Climate Center (2020), for the Tracy Pumping Plant in California, the average yearly rainfall is 12.03 inches with the most rainfall occurring between October to April. Between January 1955 to June 2016 at the City of Tracy, annual temperatures range from an average high temperature of 74.3 degrees Fahrenheit to an average low temperature of 49.9 degrees Fahrenheit. The highest temperatures occur between the months of May to October, and the lowest temperatures occur between December to April.

2.3 Regional Geology

The Project area is located on the western edge of the Central Valley Geomorphic Province and eastern edge of the Great Valley Geomorphic Province. The Central Valley trends northwest-southeast, between the Sierra Nevada Mountains to the east and the Coast Ranges to the west. The Central Valley represents a deep sedimentary trough that spans a length of more than 400 miles through the geographic center of the state. In turn, the Coast Range province is comprised of a series of parallel, linear ranges separated by structural depressions. The Diablo Range, which lies to the west of the Project area, is the easternmost linear range. The Great Valley is an alluvial plain between the Coast Ranges and Sierra Nevada. The Great Valley Province is drained by the Sacramento and San Joaquin rivers, which join and enter San Francisco Bay. The eastern border is the west-sloping Sierran bedrock surface, which continues westward beneath alluvium and older sediments. The western border is underlain by east-dipping Cretaceous and Cenozoic strata that form a deeply buried synclinal trough, lying beneath the Great Valley along its western side. The southern part of the Great Valley Province is the San Joaquin Valley.

2.4 Soil Characteristics

A detailed geotechnical investigation and site-specific soil information will be conducted during the Project Approval/Environmental Document (PA/ED) phase or Plans, Specification, and Estimate (PS&E) phase. A cursory assessment from the United States (U.S) Department of Agriculture (USDA) Web Soil Survey (2020) shows a variety of soils (see attachment) that are classified hydrologic soil groups (HSG) A, HSG C, and HSG D. HSG A are classified as high infiltration rates, while HSG C and D are classified as low to very low infiltration rates. Based on data from the vicinity of the Project area, lithology consists of primarily clay and silt, with sandy silt and sandy clay interbedded layers, from ground surface to 10 feet below ground surface (ft bgs) (GeoTracker, 2003).

2.5 Land Use

According to the City of Tracy General Plan (2011), the land around I-205 within the Project limits consists largely of agricultural, commercial, and residential land uses. The total acres of existing land use acreage for agricultural, commercial, and residential use are 7,458 acres, 516 acres, and 3,588 acres, respectively.

2.6 Watershed Hydrologic Units / Hydrologic Sub-Areas

Per the Caltrans Water Quality Planning Tool (2020), the Project is within CalWater watersheds. Located west of I-205/Hansen Road, the Project is located within the Carbona Hydrologic Unit, undefined Hydrologic Area, and Hydrologic Sub-Area 575.00. East of I-205/Hansen Road, the Project is located within the San Joaquin Delta Hydrologic Unit, an undefined Hydrologic Area. The Project is within an undefined Hydrologic area.

2.7 Crossings

2.7.1 Receiving Waterbodies

There are several water bodies, which are identified as blue lines on the USGS quadrangle maps, within the Project area. The Project crosses the Upper Main Canal and Lower Main Canal, Tom Paine Slough, and eight unnamed waterbodies as seen in USGS quadrangle maps for Midway, Tracy, Union Island, and Lathrop, California (2018) and Water Quality Planning Tool (2020). The Project crossings are shown in Figure 3.

2.7.2 Drinking Water Facilities

The Project crosses two drinking water facilities, California Aqueduct and the Delta Mendota Canal, near the I-205/I-580 interchange.

2.8 Groundwater Hydrology

The Project is located within the San Joaquin Valley - Tracy Groundwater Sub-basin (5-022.15) of the San Joaquin Valley Groundwater Basin. Based on California's Groundwater Bulletin 118 (Department of Water Resources (DWR), 2020), the Tracy Subbasin is located adjacent to the Eastern San Joaquin Subbasin on the east and the Delta-Mendota Subbasin on the south. The Tracy Subbasin is drained by the San Joaquin River and one of its major westside tributaries, Corral Hollow Creek. The San Joaquin River flows northward into the Sacramento and San Joaquin Delta and discharges into San Francisco Bay.

The SWRCB GeoTracker database identifies groundwater monitoring data near the Project area. A Chevron service station, located south of I-205 near Post-Mile (PM) 5.17, had depth-to-groundwater levels that ranged from 5.67 to 7.60 feet below the top of casing (TOC). Groundwater elevations ranged from 24.16 to 25.74 feet above mean sea level (MSL) (GeoTracker, 2003).

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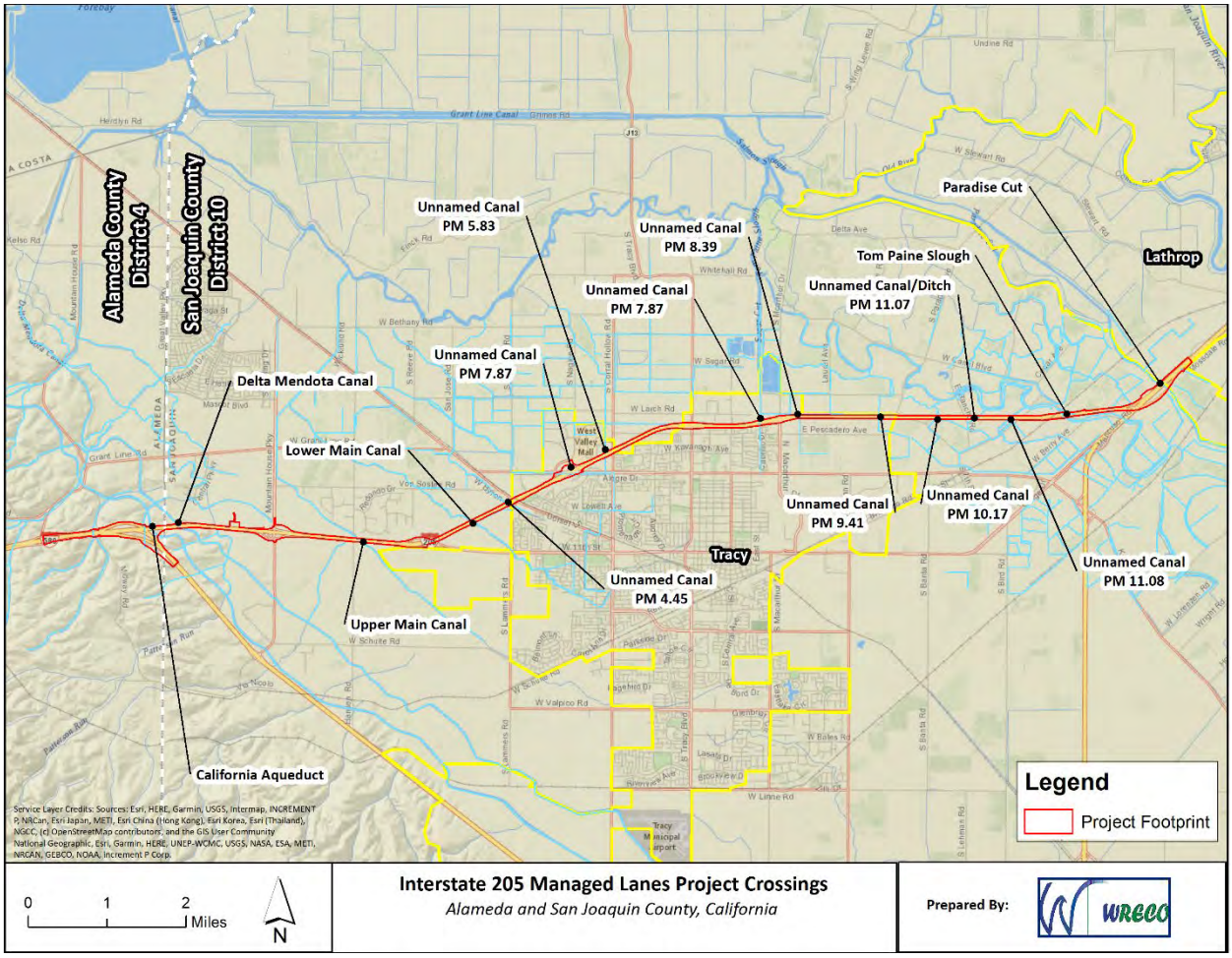


Figure 3. Project Crossings

Source: ESRI, 2020

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3 FLOODPLAIN INFORMATION

3.1 Regulatory Settings Federal

3.1.1 Executive Order 11988 (Floodplain Management, 1977)

Executive Order 11988 (Floodplain Management) directs all federal agencies to avoid, to the extent possible, long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. Requirements for compliance are outlined in Title 23, Code of Federal Regulations, Part 650, Subpart A (23 CFR 650A) titled "Location and Hydraulic Design of Encroachment on Floodplains."

If the preferred alternative involves significant encroachment onto the floodplain, the environmental document must include:

- The reasons why the proposed action must be located in the floodplain,
- The alternatives considered and why they were not practicable, and
- A statement indicating whether the action conforms to applicable state or local floodplain protection standards.

3.1.2 California's National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) is the nationwide administrator of the National Flood Insurance Program (NFIP), which is a program that was established by the National Flood Insurance Act of 1968 to protect lives and property, and to reduce the financial burden of providing disaster assistance. Under the NFIP, FEMA has the lead responsibility for flood hazard assessment and mitigation, and it offers federally backed flood insurance to homeowners, renters, and business owners in communities that choose to participate in the program. FEMA has adopted the 100-year floodplain as the base flood standard for the NFIP. FEMA is also concerned with construction that would be within a 500-year floodplain for proposed projects that are considered "critical actions," which are defined as any activities where even a slight chance of flooding is too great. FEMA issues the Flood Insurance Rate Maps (FIRM) for communities that participate in the NFIP. These FIRMs present delineations of flood hazard zones.

In California, nearly all the state's flood-prone communities participate in the NFIP, which is locally administered by the California DWR Division of Flood Management. Under California's NFIP, communities have a mutual agreement with the state and federal governments to regulate floodplain development according to certain criteria and standards, which are further detailed in the NFIP.

3.1.3 Alameda County Floodplain Data

As part of the NFIP, typically, each county (or community) has a Flood Insurance Study (FIS) that is used to locally develop FIRMs and Base Flood Elevations (BFE). The effective FIS for

Alameda County, California, and Incorporated Areas (06001CV001B-3B) last revised on December 21,2018, the county-wide NFHL last revised on December 21, 2018.

3.1.4 San Joaquin County Floodplain Data

As part of the NFIP, typically, each county (or community) has a FIS that is used to locally develop FIRMs and BFEs. The effective FIS for San Joaquin County, California, and Incorporated Areas (06077CV001B-3B) last revised on October 20, 2016, the county-wide National Flood Hazard Layer (NFHL) last revised on June 26, 2020.

3.2 Federal Emergency Management Agency Data

The Project site is located within the San Joaquin County and Incorporated Areas FIRM numbers 06077C0725F, 06077C0590F, 06077C0595F, and 06077C0615F and have been effective since October 16, 2009. Within the Project limits, the I-205 corridor is within a non-Special Flood Hazard Area (SFHA) unshaded Zone X flood zone. The unshaded Zone X are areas of minimal flood hazard located outside a 100-year floodplain as seen in Figure 4.

The flood zone areas adjacent to the I-205 corridor are SFHA Zone AE, which represents the base floodplain with areas subject to flooding by the 100-year flood event, where BFEs are provided (see Figure 4). The 100-year flood elevation is approximately 22 to 25 feet NAVD 88 near the Tom Paine Slough Crossing.

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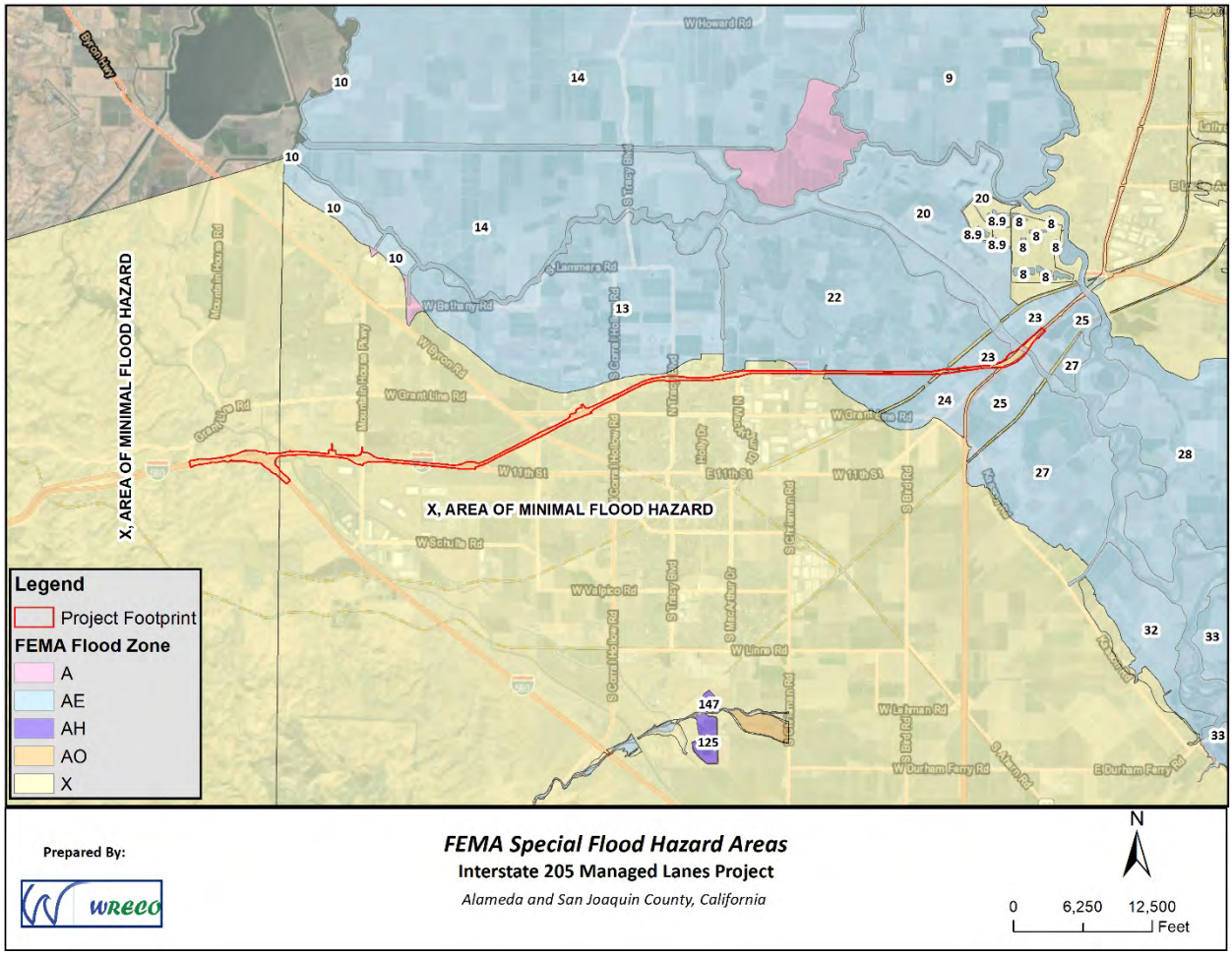


Figure 4. FEMA Special Flood Hazard Areas with BFEs

Source: ESRI & FEMA, 2020

3.3 Hydraulic Design Criteria for Bridges

The hydraulic design of any proposed bridges would follow the Federal Highway Administration (FHWA), Caltrans criteria, or Central Valley Flood Protection Board as required.

The FHWA criterion for the hydraulic design of bridges states that bridges should be designed to pass the 2% probability of annual exceedance flow (50-year design discharge) with adequate freeboard, where practicable, to account for debris and bedload.

Caltrans' requirement for the hydraulic design of bridges is that they should be designed to pass the 50-year design discharge or the flood of record, whichever is greater, with adequate freeboard to convey anticipated drift. Two (2) feet of freeboard is commonly used in preliminary bridge designs. The bridge should also be designed to pass the 1%-probability-annual-exceedance flow (100-year design discharge, or base flood). No freeboard is added to the base flood.

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Two bridges within the Project limits, Paradise Cut and Delta Mendota Canal, are within the Central Valley Flood Protection Board's (CVFPB) jurisdiction (DWR, 2021). Their criteria states that bridges should be designed for the 200 year design flood with freeboard.

Pet Title 23, Code of California Regulations, Article 8-128, bridges across streams under the CVFPB's jurisdiction shall follow the criteria below:

- The bottom members (soffit) of a proposed bridge must be at least three (3) feet above the design flood. The required clearance may be reduced to two (2) feet on minor streams at sites where significant amounts of stream debris are unlikely.

- When an existing bridge being widened does not meet the clearance requirement above the design flood, the bottom structural members of the added section may be no lower than the bottom structural members of the existing bridge, except as may be caused by the extension of existing sloped structural members.

3.4 General Risks Floodplains and Minimization Measures

Risks associated with floodplains include changes in land use, fill added in the floodplains, increases in impervious areas, and increases in the 1%-annual-chance flood water surface elevations. The Project is not expected to change the land use of the Project area or adjacent surroundings; however, there is potential for the introduction of fill in the floodplains and increases in impervious area.

Efforts to minimize these potential impacts should include constructing roadway structures outside and above the base floodplain to the maximum extent possible. Balance cut and fill in floodplains maintain original grade to the extent practicable. Impacts to potential natural or beneficial floodplain uses will be minimized by avoiding construction and/or placement of structures within or near relevant proximities of habitats and jurisdictional waters and/or culverts identified during the Project's biological study. If impacts to such habitats are proposed, jurisdictional entities' mitigation efforts, including but not limited to on-site biological mitigation and/or purchase of credits from mitigation banks, should be considered.

A Location Hydraulic Study and a Floodplain Evaluation Report written by WRECO will be developed during the Project's PA/ED phase to further analyze floodplain impacts.

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4 PRELIMINARY WATER QUALITY ASSESSMENT

4.1 Regulatory Settings Federal

4.1.1 Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Known today as the Clean Water Act (CWA), Congress has amended it several times.

In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit program. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.

- Section 401 requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to waters of the U.S., to obtain certification from the State that the discharge will comply with other provisions of the act (most frequently required in tandem with a Section 404 permit request. See below.).

- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. The Federal Environmental Protection Agency delegated to the California State Water Resources Control Board (SWRCB) the implementation and administration of the NPDES program in California. The SWRCB established nine Regional Water Quality Control Boards (RWQCB). The SWRCB enacts and enforces the Federal NPDES program and all water quality programs and regulations that cross Regional boundaries. The nine RWQCBs enact, administer and enforce all programs, including NPDES permitting, within their jurisdictional boundaries. Section 402(p) requires permits for discharges of stormwater from industrial, construction, and Municipal Separate Storm Sewer Systems (MS4).

- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S, including wetlands. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

4.2 State Laws and Requirements

Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste"

as defined and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDR) and may be required even when the discharge is already permitted or exempt under the CWA.

State Waters Resources Control Board and Regional Water Quality Control Boards
The SWRCB adjudicates water rights, sets water pollution control policy, issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System Program
Municipal Separate Storm Sewer System (MS4)
Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater dischargers, including MS4s. The U.S. EPA defines an MS4 as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying stormwater." The SWRCB has identified Caltrans as an owner/operator of an MS4 pursuant to federal regulations. Caltrans' MS4 permit covers all Caltrans' rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit, NPDES No. CAS000003, SWRCB Order No. 2012-0011-DWQ (adopted on September 19, 2012, and effective on July 1, 2013), as amended by Order No. 2014- 0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014) and Order No. 2015-0036-EXEC (conformed and effective April 7, 2015) contains four basic requirements:

1. Caltrans must comply with the requirements of the Construction Stormwater General Permit (CGP) (see below);

2. Caltrans must implement a year-round program in all parts of the State to effectively control stormwater and non-stormwater discharges;

3. Caltrans stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMP) to the Maximum Extent Practicable, and other measures deemed necessary by the SWRCB and/or other agency having authority reviewing the stormwater component of the project; and

4. Caltrans must implement trash control measures to meet trash regulation compliance.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address stormwater pollution control related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing stormwater management procedures and practices within Caltrans for implementing stormwater management procedures and practices as well as training, publish education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices that Caltrans uses to reduce pollutants in stormwater and non-stormwater discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed Project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address stormwater runoff.

Construction General Permit (CGP)

CGP (NPDES No. CAS000002, SWRCB Order No. 2009-0009-DWQ, adopted on November 16, 2010) became effective on February 14, 2011 and was amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ. The permit regulates stormwater discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development.

For all projects subject to the CGP, the applicant is required to hire a Qualified Storm Water Pollution Prevention Plan (SWPPP) Developer (QSD) to develop and implement an effective SWPPP. All Project Registration Documents, including the SWPPP, are required to be uploaded into the SWRCB's online Stormwater Multiple Application and Report Tracking System (SMARTS) at least 30 days prior to construction.

4.3 Regional and Local Requirements

4.3.1 Anticipated Permits

Due to anticipated work within water bodies, the Project would obtain a Section 401 Certification from the Central Valley RWQCB and a Section 404 permit from the USACE. Work within waterways would also require a Streambed Alteration Agreement (Fish and Game Code section 1602) from the California Fish and Wildlife Services.

Following are significant risks to avoid and minimize in order to ensure the 401 Certification can be obtained in a timely manner:

- New 401 Certification Rule (Navigable Waters Protection Rule) and timelines for permitting with the State Board
- Establish the Project's post-construction stormwater requirements (treatment for pollutant reduction; hydromodification; trash control) from the Central Valley RWQCB
- Avoidance, minimization measures for avoiding impacts to waters of the State (404 waters, 1600 riparian impacts, and roadside ditches)
- Mitigation proposal for unavoidable impacts to waters of the State.

4.3.2 RWQCB Basin Plan

The Project is under the jurisdiction of the Central Valley RWQCB. The RWQCB implements the Central Valley Basin (Region 5) Water Quality Control Board (Basin Plan) (2018) which states the goals and policies, beneficial uses, and water quality objectives that apply to water bodies through the Central Valley region, which includes the Project area. The Basin Plan has been adopted by the SWRCB, U.S EPA, and Office of Administrative Law.

4.3.3 Municipal Separate Storm Sewer System (MS4)

The Project is within Caltrans' right-of-way, and therefore, the Project will comply with the Caltrans' NPDES permit.

Per the California RWQCB for the Central Valley Region, Order R5-2015-0024, NPDES No. CAS083470, the Project may also adhere to the City of Stockton and County of San Joaquin Storm Water Discharges from the MS4 Phase II San Joaquin County for stormwater treatment and hydromodification requirements. The Project Team will coordinate with the Caltrans Stormwater Coordinator during the PA/ED and PS&E phases to verify the hydromodification requirements for this Project.

In addition, for any areas of the Project outside Caltrans' right-of-way, local agencies' guidelines will go into effect. These local agencies include Alameda County, County of San Joaquin, the community of Mountain House and the City of Tracy, and City of Lathrop may have jurisdiction over those portions of the Project.

The *Post-Construction Stormwater Standards Manual* (2015) provides guidance for planning, implementing, and maintaining effective control measures with the intention of improving water quality and mitigating potential water quality impacts, including hydromodification, from stormwater and non-stormwater discharges. The City of Tracy, the City of Lathrop, and the County of San Joaquin are classified as Phase II MS4 communities to regulate stormwater and non-stormwater discharges from MS4s to waters of the U.S.

The *Alameda Countywide Clean Water Program* (Clean Water Program) (2017) handbook is meant to help developers, builders, and project sponsors include post-construction stormwater controls in their projects to meet local municipal requirements and state requirements.

The *Mountain House Master Plan* (1994) is intended to implement the General Plan amendment which added the new community of Mountain House to the San Joaquin County 2020 General Plan. The plan contains comprehensive plans for land use, infrastructure, environmental resources, public service provisions, and implementation.

4.3.4 Surface Water

Surface Water Quality Objectives/Standards and Beneficial Uses

Water quality objectives are numeric and narrative objectives used to define the appropriate levels of environmental quality, to protect beneficial uses, and to manage activities that can impact aquatic environments. The Central Valley Region RWQCB Basin Plan (2018) lists the

following narrative and numeric water quality objectives for the region's surface waters: bacteria, biostimulatory substances, chemical constituents, cryptosporidium and giardia, color, dissolved oxygen, floating material, mercury, methylmercury, oil and grease, pesticides, pH, water temperature, toxicity, and turbidity.

Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning. The Central Valley Basin Plan (2018) lists beneficial uses by hydrological sub-area; there are listed beneficial uses for #544.00 but not 575.00. The Delta Mendota Canal is also listed as having beneficial uses. See Table 1 for the listed beneficial uses for the Project's receiving water bodies.

Table 1. Listed Beneficial Uses for Project Receiving Water Bodies

Water Body	Beneficial Uses											
	MUN	AGR	PROC	IND	REC-1	REC-2	WARM	COLD	MIGR	SPWN	WILD	NAV
Hydrologic Sub-Area #544.00	E	E	E	E	E	E	E	E	E	E	E	E

Source: San Francisco Bay RWQCB, 2019

Notes:

- MUN - municipal supply
- AGR – agricultural supply
- PROC – industrial process supply
- IND – industrial service supply
- REC-1 - water contact recreation
- REC-2 - non-contact water recreation
- P - potential beneficial uses
- WARM – warm freshwater habitat
- COLD - cold freshwater habitat
- MIGR - fish migration
- SPWN - fish spawning
- WILD - wildlife habitat
- NAV - navigation
- E - existing beneficial uses

Water Quality Impairments and Total Maximum Daily Loads TMDLs

Water body segments that fail to meet standards for specific pollutants are included in a Statewide List in accordance with CWA Section 303(d). If a RWQCB determines that waters are impaired for one or more constituents, the CWA requires the establishment of TMDLs to specify allowable pollutant loads from all sources for a given watershed.

The 2014/2016 California Integrated Report (CWA Section 303[d] List / 305[b] Report) (SWRCB, 2018) lists Tom Paine Slough as having water quality impairments and TMDLs, as listed in Table 2.

Table 2. 303(d)-Listed Pollutants

Water Body	Pollutant	Potential Source	Expected TMDL Completion Date
Tom Paine Slough	Chloride	Source Unknown	2027
	Dissolved Oxygen	Source Unknown	2027
	Salinity	Source Unknown	2027

Source: SWRCB, 2018

4.4 Groundwater Quality Objectives / Standards and Beneficials Uses

Groundwater quality objectives are provided in the Central Valley RWQCB Basin Plan (2018) for the following constituents: bacteria, organic and inorganic chemical constituents, radioactivity, and substances producing taste and odor. The maintenance of existing high quality of groundwater (i.e., ″background″) is the primary groundwater objective.

According to the Central Valley RWQCB Basin Plan (2018), the San Joaquin Valley Tracy Groundwater Sub-basin is not listed as having beneficial uses for groundwater.

4.5 Environmental Consequences and Project Impacts

4.5.1 Temporary Impacts

The Project is anticipated to have a large DSA. Short term impacts could result from construction activities such as grading work, temporary creek diversions, dewatering, and temporary coffer dams. Stormwater runoff from the Project site may transport pollutants to nearby creeks and storm drains, therefore, BMPs would be needed to prevent or reduce the impact of these activities.

Disturbed soils can result in sediment laden flows and increase the potential for erosion. Generally, as the DSA increases, the potential for temporary water quality impacts also increases. Routinely used temporary BMPs are included to protect water quality. These include preservation of existing vegetation, temporary drainage inlet protection, and temporary construction entrances and exits.

The general construction site BMP strategy for this Project consists of the following measures:

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-stormwater Management
- Waste Management and Materials Pollution Control
- Stormwater Sampling and Analysis

4.5.2 Permanent Impacts

There will be added impervious areas due to the widening of the highway (over an acre). Long-term impacts from the Project could result from fill placed in environmentally sensitive areas, potential increases to the velocity and volume of downstream flows due to added impervious areas, and sediment transported from erosion. Stormwater runoff from the study area can potentially carry pollutants into naturally flowing streams, as well as into adjacent jurisdictional

biotic/aquatic areas. Potential Project impacts to stormwater runoff would be addressed with the use of pollution prevention measures or permanent project features (permanent BMPs). The overall design of features to mitigate water quality impacts should be derived from a combination of the Caltrans NPDES permit along with SWRCB and other regulatory agency requirements.

According to the *Hydromodification Requirements Guidance* (2015), the Project may require a rapid stability assessment (RSA) to be performed because the receiving water bodies are waters of the U.S, crosses the Project, because the Project is anticipated to create one or more acres of NNI. As part of the Phase II Permit, the agencies classified as Phase II MS4 communities are required to develop/update post-construction standards to address stormwater quality for regulated new development and redevelopment projects. Phase II Permittees require that post-construction stormwater runoff flow rate should not exceed the estimated pre-project flow rate for the 2-year, 24-hour design storm event. A project that does not result in a net increase of impervious surface area over the pre-project condition is not considered a Hydromodification Management Project.

4.5.2.1 Permanent Design Pollution Prevention Measures

Permanent BMPs would be considered to address potential impacts, promote infiltration, reduce erosion, and collect and treat roadway runoff. Potential types of permanent pollution prevention design measures to be considered for this Project include the following:

- Minimize Impervious Surfaces: To reduce the volume of runoff.
- Prevent Downstream Erosion: Stormwater drainage systems would be designed to avoid downstream erosion.
- Stabilize DSA: DSA would be appropriately stabilized to prevent erosion.
- Maximize Vegetated Surfaces: To prevent erosion, promote infiltration (which reduces runoff), and remove pollutants from stormwater.

4.5.2.2 Permanent Treatment Best Management Practices

The treatment strategy would conform to Caltrans standards in areas were the Project occurs in Caltrans' right-of-way. This Project would widen the I-205 highway to accommodate HOV lanes using a combination of widening to the inside and outside to minimize right-of-way acquisition, thereby increasing the amount of impervious area. Treatment is anticipated to be needed since the project is adding more than an acre of impervious areas. In addition, if the increase in impervious area is greater than 50% of the total post-Project impervious area within the Project limits, 100% of the project impervious areas will need to be treated.

The Project's overall design goal would be to avoid impacts to stormwater and groundwater to the maximum extent practicable by implementing permanent project features that promote infiltration and maximize treatment of stormwater runoff and reduce erosion by metering or detaining post-Project runoff rates for hydromodification management. Additional permanent project features to be considered include the preservation of existing vegetation, installation of

drainage facilities (ditches, berms, dikes, swales, over-side drains, flared end sections, and outlet protection/velocity dissipation devices) to convey stormwater runoff, vegetated surfaces, and hard surfaces.

4.5.2.3 Trash Capture

Trash Control will be required for this Project in accordance with Caltrans NPDES permit and the Central Valley RWQCB requirements. The Significant Trash Generation Area (STGA) maps that include areas ROW that require trash control are shown in Figure 5 for the District 10 Stockton Area. For District 4 Region 2 the trash generating areas are shown in Figure 6

Project does not contain a high trash density along its corridor. This would be further evaluated during the PA/ED and/or PS&E phase.

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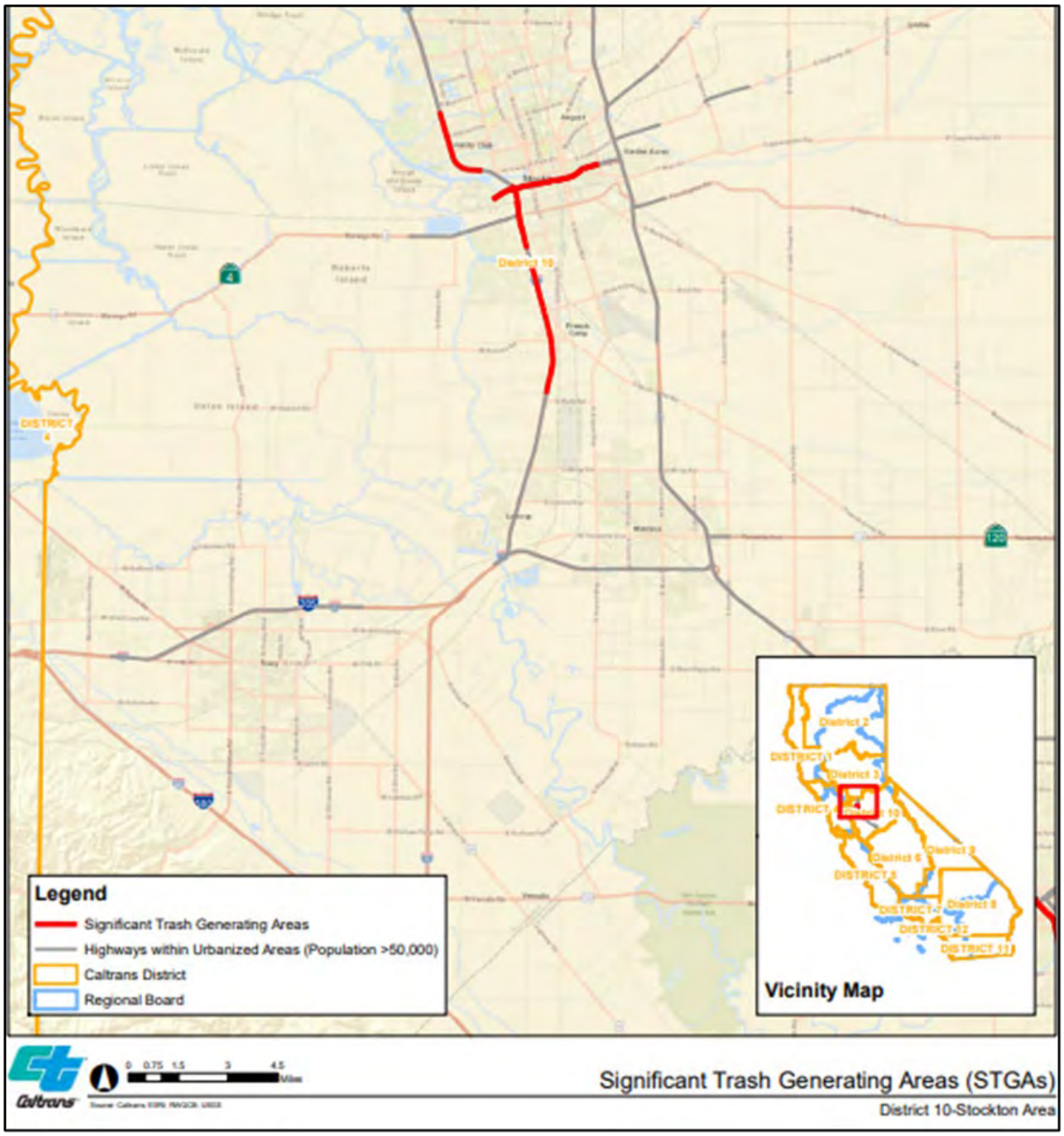


Figure 5. Significant Trash Generating Areas (STGAs)

Source: Caltrans, 2019

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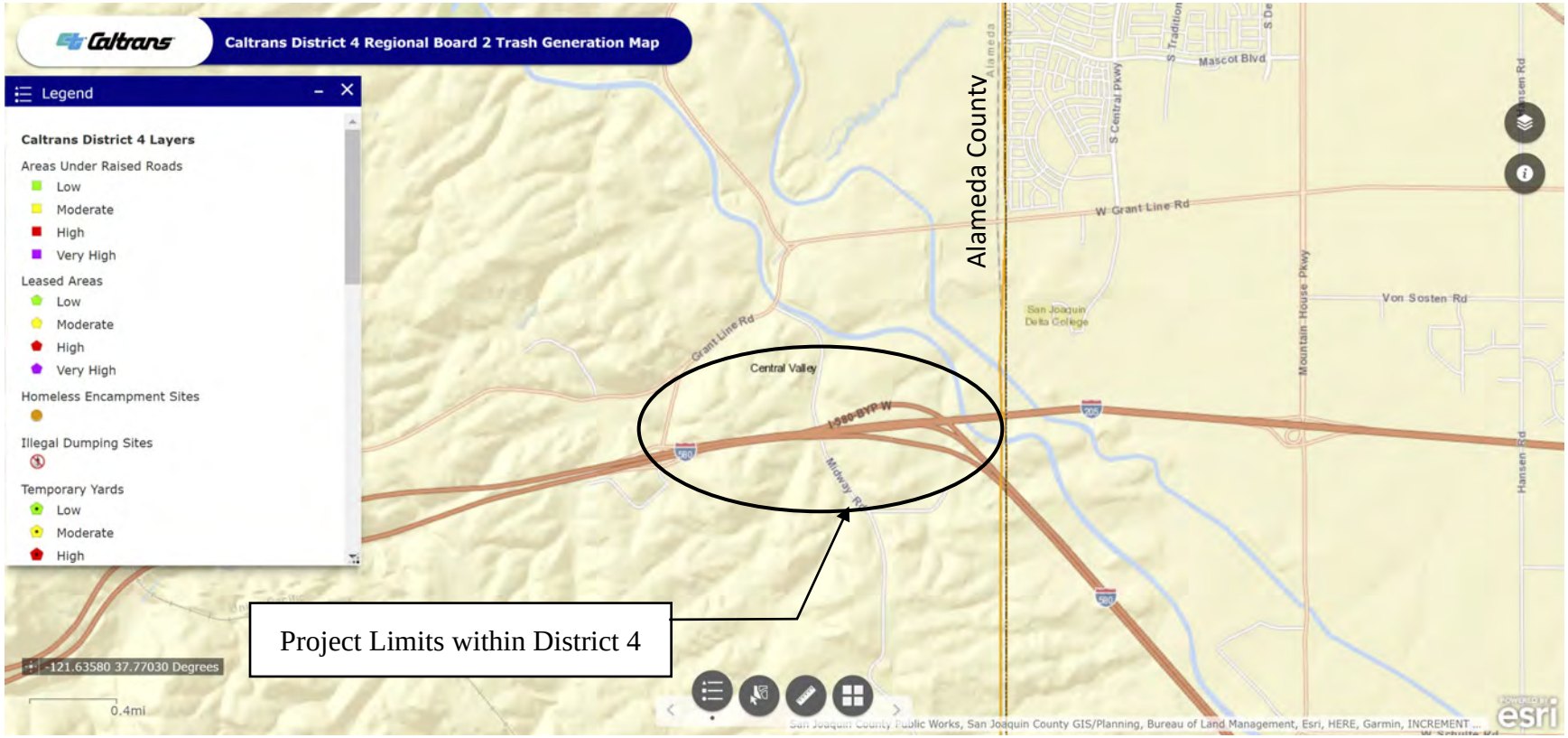


Figure 6. Caltrans District 4 Region 2 Trash Generation Map

Source: Caltrans & ESRI

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4.6 Avoidance, Minimization, and/or Mitigation Measures

4.6.1 Water Resources

The goal of the Project is to avoid or minimize the impacts to creeks, streams, riparian habitats, wetlands, and Waters of the United States and State. The PA/ED phase would consider detailed methods to minimize impacts. For unavoidable impacts to Waters of the United States and State, Project features would be considered in the PA/ED phase.

4.6.2 Temporary Dewatering Activities

Groundwater extracted from temporary dewatering activities would be managed based on the groundwater quality within the Project area. Clean groundwater could be used for dust control, collected on-site using desilting basins and/or tanks prior to discharging to receiving waters or transporting to a publicly owned treatment works. If the Project area contains contaminated groundwater or groundwater that may release contaminated plumes when disturbed, applicable waste discharge requirements or permits would be obtained during the PS&E phase. An active treatment system may also be necessary to treat contaminated groundwater exposed during excavation activities. Dewatering requirements, costs, and the design of the active treatment system would be determined during the PS&E phase.

4.7 Water Quality Documentation

A *Water Quality Assessment Report* will be prepared by WRECO for the PA/ED phase of this Project to further analyze the water quality impacts.

This *Memorandum* presents a preliminary study based on available data. Detailed environmental impacts and design methodologies related to stormwater impacts require detailed studies to be conducted during the next planning phase.

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5 PRELIMINARY HAZARDOUS WASTE ASSESSMENT

5.1 Records Review

WRECO reviewed the State Water Resource Control Board (SWRCB) GeoTracker database and the Department of Toxic Substances Control (DTSC) EnviroStor database for information relevant to the presence of hazardous substances in the Project area. Any relevant hazardous substances in the Project area are considered potential recognized environmental conditions (REC).

A review of the online GeoTracker database listed 52 records for individual locations within a 1-mile radius of the Project area. The DTSC EnviroStor database listed seven (7) sites within 1-mile radius of the Project Area. The database review focused on sites with potential hazardous materials located upgradient (south-southwest) to the Project area.

The findings of the database search indicate there are 12 sites located upgradient to the Project area with a high-risk evaluation due to regulatory status as open/active and because soil and groundwater were impacted. Potential hazardous materials include petroleum hydrocarbons, chlorinated hydrocarbons, volatile organic compounds (VOC), metals, pesticides, herbicides, crude oil, heating oil, and fuel oil. A summary of the database findings is provided in Table 3, and all sites within a 1-mile radius are shown in Figure 7 through Figure 10

Historical land use indicates primarily agricultural fields in the 1960s surrounded the current I-205 corridor. There is also a potential for aerially deposited lead (ADL) in exposed soil along the roadway from historical vehicle emissions during the leaded gasoline era. Agricultural practices along the Project corridor can have potential impacts on the soil and water from the use of fertilizer (heavy metals – arsenic, cadmium, chromium, lead and mercury), pesticides (organochlorine and organophosphorus), and petroleum products (machinery). The potential exists for ADL concentrations within the Project corridor to exceed the State environmental screening levels for worker safety, and concentrations that could potentially exceed the thresholds for hazardous waste classification for both the state of California and/or federal regulations.

WRECO recommends an Initial Site Assessment (ISA) to be performed for the Project corridor. Based on the findings of the ISA and historical land use, a Preliminary Site Investigation (PSI) will be recommended in order to characterize the soils that will be disturbed during upcoming construction. The PSI would include sampling soil and groundwater (if encountered) and analyzing the samples for the potential constituents of concern to evaluate concentrations in the construction areas. Sampling for ADL will follow Caltrans requirements in order to use the 2016 DTSC-Caltrans Agreement for ADL, which includes statistically evaluating the 95% upper confidence limit for soil (at 1-foot intervals). The PSI would also assess the structural elements of the bridge for asbestos-containing materials (ACM) and lead-based paint (LBP). WRECO will need to procure a Caltrans Encroachment Permit, San Joaquin County Encroachment Permit, and a San Joaquin County Environmental Health Department Drilling Permit for the PSI.

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Table 3. GeoTracker and EnviroStor Sites within 1-Mile Radius of Project Area Upgradient

Site Number	*Property*	*Property Address*	*Database*	*Site Status*	*Constituent of Concern/Summary*	*Risk Level*
1	Kimball High School	24606 South Lammers Road, Tracy, CA 95376	EnviroStor	No Further Action	Agricultural - Row Crops, Residential Area	*Low*
2	Haley Flying Service	21000 S Paradise Road, Tracy, CA 95304	EnviroStor	Inactive - Needs Evaluation	Airfield Operations	*Low*
3	Art Freiler Elementary School	Orchard Parkway/West Lowell Avenue, Tracy, CA 95376	EnviroStor	No Further Action	Agricultural - Row Crops	*Low*
4	North Elementary School Site	2875 Holly Drive, Tracy, CA 95376	EnviroStor	No Action Required	Educational Services	*Low*
5	Addition to Kimball HS (Parcel 4)	24606 S. Lammers Road, Tracy, CA 95376	EnviroStor	No Action Required	Agricultural - Livestock	*Low*
6	Old Valley Pipeline (Laurelbrook)	Milepost 216.9, Tracy, CA 95376	EnviroStor	Refer: RWQCB	Fuel Hydrant Pumping Stations	*Low*
7	Quality Cleaners, Tracy	3081 North Tracy Boulevard, Tracy, CA 95376	EnviroStor	Active	Dry Cleaning	***High***
8	Chevron Banta Terminal - Chevron Banta Terminal	22888 Kasson Road, Tracy, CA 95304	GeoTracker	Open - Verification Monitoring	Petroleum - Automotive gasolines, Petroleum - Diesel fuels	***High***
9	Yoder's F.S.	17263 W. Finck Road, Tracy, CA 95376	GeoTracker	Open - Inactive	Pesticides, Herbicides	***High***
10	Chevron Pipeline Co - Corral Hollow Road	0 Corral Hollow Road, Tracy, CA	GeoTracker	Completed - Case Closed	Petroleum, Fuels, Oils	*Low*
11	Leprino Foods Co	2401 N. Macarthur Drive, Tracy, CA	GeoTracker	Open - Remediation	Heating Oil, Fuel Oil, TPH	***High***
12	Shell Oil Company-Hansen Road	0 Hansen Road, Tracy, CA	GeoTracker	Open - Remediation	Petroleum - Other	***High***

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Site Number	*Property*	*Property Address*	*Database*	*Site Status*	*Constituent of Concern/Summary*	*Risk Level*
13	Former Mobil Bulk Plant	500 Grant Line Road E, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
14	Fitzpatrick Homes (Former R&B Trucking Co.)	1785 N. Corral Hollow Road, Tracy, CA	GeoTracker	Open - Inactive	Diesel	***High***
15	Chevron, Surland, Tracy	0 LOWELL Avenue, TRACY, CA 95376	GeoTracker	Open - Site Assessment	Crude Oil, Heating Oil, Fuel Oil	***High***
16	Cintra Group Properties	1325 North Corral Hollow Road, Tracy, CA	GeoTracker	Open - Inactive	None Specified	*Low*
17	Chevron Banta Terminal - Chevron Banta UST Terminal	22888 Kasson Road, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Diesel, MTBE, TBA, Other Fuel Oxygenates	*Low*
18	Lawrence Livermore National Laboratories Site 300 - Llnl Site 300 Building 865 Study Area	0 Corral Hollow Road, Tracy, CA	GeoTracker	Open - Site Assessment	PCE, Freon, PCB, TPH	*Low*
19	Chevron Banta Terminal - Valley Pacific Petroleum Services Inc.	23100 Kasson Road, Banta, CA 95304	GeoTracker	Completed - Case Closed	None Specified	*Low*
20	Aquachlor	15885 Altamont Pass, Tracy, CA 95391	GeoTracker	Completed - Case Closed	None Specified	*Low*
21	Chevron, Byron Road, Tracy	0 Byron Road, Tracy, CA 95376	GeoTracker	Open - Site Assessment	Crude Oil, Heating Oil, Fuel Oil	***High***
22	Tracy Corners	3301 North Tracy Boulevard, Tracy, CA	GeoTracker	Open - Inactive	None Specified	***High***
23	Petrig Seed Company	5431 Grantline Road, Banta, CA	GeoTracker	Open - Inactive	Metals, Heavy Metals, Petroleum, Fuels, Oils	***High***
24	Chevron Pipeline Co - Dividend Property	13120 Grantline & Byron Road, Tracy, CA	GeoTracker	Completed - Case Closed	Petroleum, Fuels, Oils, Polynuclear Aromatic Hydrocarbons	*Low (Downgradient)*

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Site Number	*Property*	*Property Address*	*Database*	*Site Status*	*Constituent of Concern/Summary*	*Risk Level*
25	Dick's Exxon	2360 East Street, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
26	7-11 #32262	2360 Grant Line Road, Tracy, CA 95376	GeoTracker	Completed - Case Closed	MTBE, TBA, Other Fuel Oxygenates	*Low*
27	Shell #204-7884-0901	3725 Tracy Boulevard N, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
28	Scotty's Bait & Tackle #2	2a420 GRANT LINE Road W, TRACY, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
29	Pombo Ranch	24100 Lammers Road S, Tracy, CA 95578	GeoTracker	Completed - Case Closed	Gasoline	*Low*
30	Doane Products Company	450 Grant Line Road E, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Other Solvent or Non-Petroleum Hydrocarbon	*Low*
31	Wheel Country	474 Grant Line Road W, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Benzene	*Low*
32	Interland Corp	8715 Grant Line Road W, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
33	Caldron General Store	12750 Byron Road W, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Other Solvent or Non-Petroleum Hydrocarbon	*Low*
34	Chevron #9-8632	575 Grant Line Road W, Tracy, CA 95376	GeoTracker	Open - Site Assessment	Chlorinated Hydrocarbons, Gasoline, MTBE, TBA, Other Fuel Oxygenates	***High***
35	Reynolds & Brown Property	724 Grant Line Road E, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
36	Shell Service Station	2375 Grant Line, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
37	Tracy Auto Stereo	10 Grant Line Road W, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
38	Tracy Marine	2353 Toste Road, Tracy, CA 95376	GeoTracker	Completed - Case Closed	MTBE, TBA, Other Fuel Oxygenates, Gasoline	*Low*

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Site Number	*Property*	*Property Address*	*Database*	*Site Status*	*Constituent of Concern/Summary*	*Risk Level*
39	Ca Highway Patrol	385 Grant Line Road W, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
40	Quality Meats	340 Grant Line Road W, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
41	Ralph Hayes & Son Inc	835 Clover Road W (Aka: 10765), Tracy, CA 95376	GeoTracker	Completed - Case Closed	Diesel	*Low*
42	7-11 Store #20304	455 Grant Line Road W, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
43	Tosco C/O Concophillips (Case 2)	2375 Tracy Boulevard, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Petroleum - Automotive gasolines, VOCs	*Low*
44	Curtiss Pontiac-Cadillac	2450 Toste Road, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
45	Tracy Fire Station #2	301 Grant Line Road E, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Diesel	*Low*
46	Petrig Seed Company	5431 Grant Line Road W, Banta, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
47	Unocal #6348	3788 Tracy Boulevard N, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Waste Oil, Motor, Hydraulic, Lubricating	*Low (Downgradient)*
48	PG&E Service Center	502 Grant Line Road E, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
49	Tri Star Property	2019 Lara Court, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
50	Steve's Rentals	275 Grant Line Road E, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
51	Jordan, W T	298 Grant Line Road W, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*

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Site Number	*Property*	*Property Address*	*Database*	*Site Status*	*Constituent of Concern/Summary*	*Risk Level*
52	Chevron #9-7127	10 Grant Line, Mountain House, CA 94550	GeoTracker	Open - Assessment & Interim Remedial Action	Gasoline, Heating Oil, Fuel Oil	***High***
53	Paladin Mileage Center	2421 Holly Drive, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline	*Low*
54	Food & Liquor	15 Grant Line Road E, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Benzene	*Low*
55	Tracy Blvd Chevron	3775 Tracy Boulevard N, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline, MTBE, TBA, Other Fuel Oxygenates	*Low (Downgradient)*
56	Moore Petroleum	5491 F Street, Banta, CA 95304	GeoTracker	Completed - Case Closed	Gasoline	*Low*
57	Unocal (Formerly Scotty's)	574 Grant Line Road W, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline, MTBE, TBA, Other Fuel Oxygenates	*Low*
58	Former Bp 11194 (Case 1)	2375 Tracy Boulevard N, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline, MTBE, TBA, Other Fuel Oxygenates	*Low*
59	Arco #2093	3425 Tracy Boulevard N, Tracy, CA 95376	GeoTracker	Completed - Case Closed	Gasoline+H2H2:H50	*Low*

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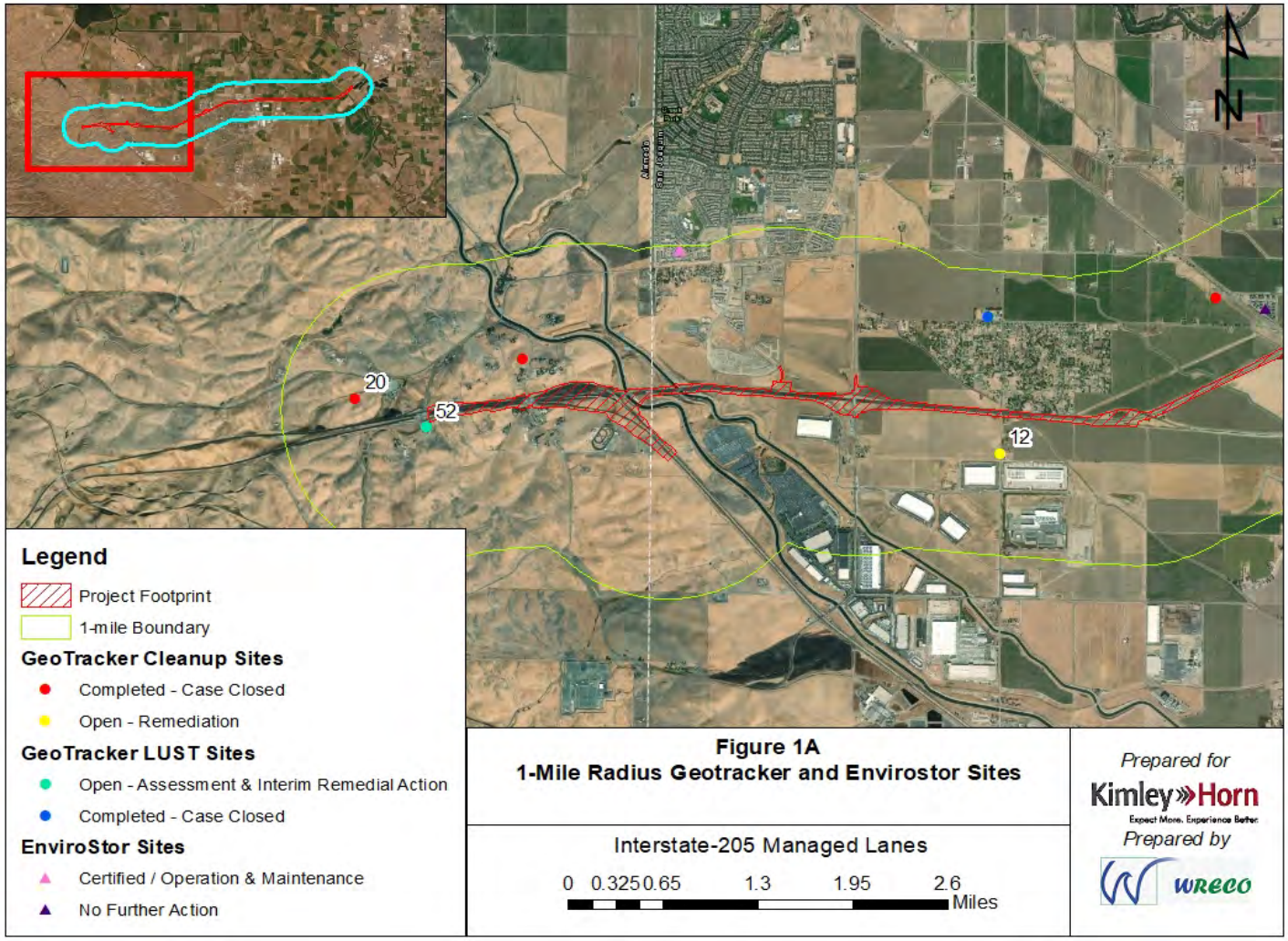


Figure 7. Project Area with GeoTracker and EnviroStor Sites within 1-Mile Radius

Source: GeoTracker & EnviroStor, 2020

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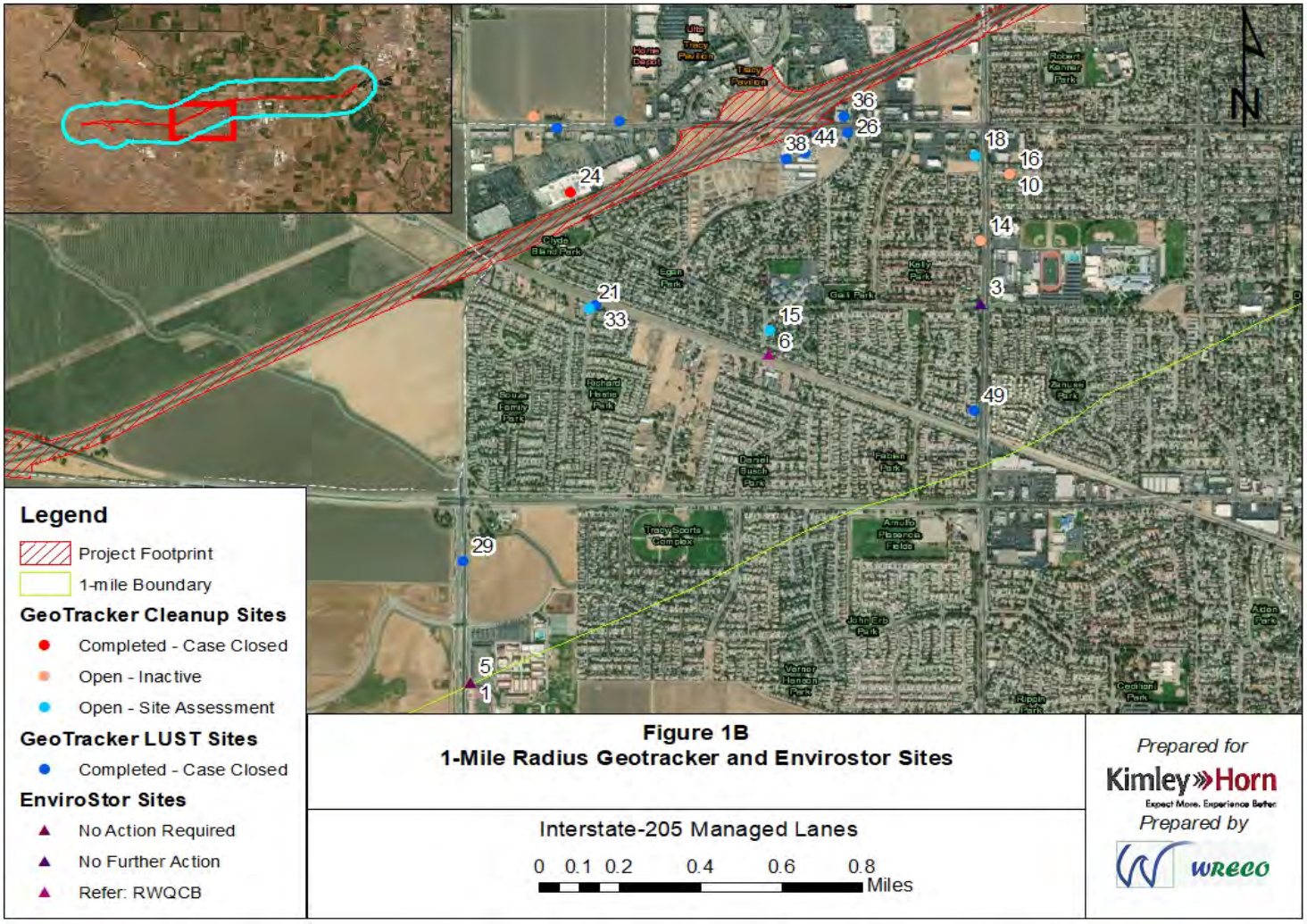


Figure 8. Project Area with GeoTracker and EnviroStor Sites within 1-Mile Radius

Source: GeoTracker & EnviroStor, 2020

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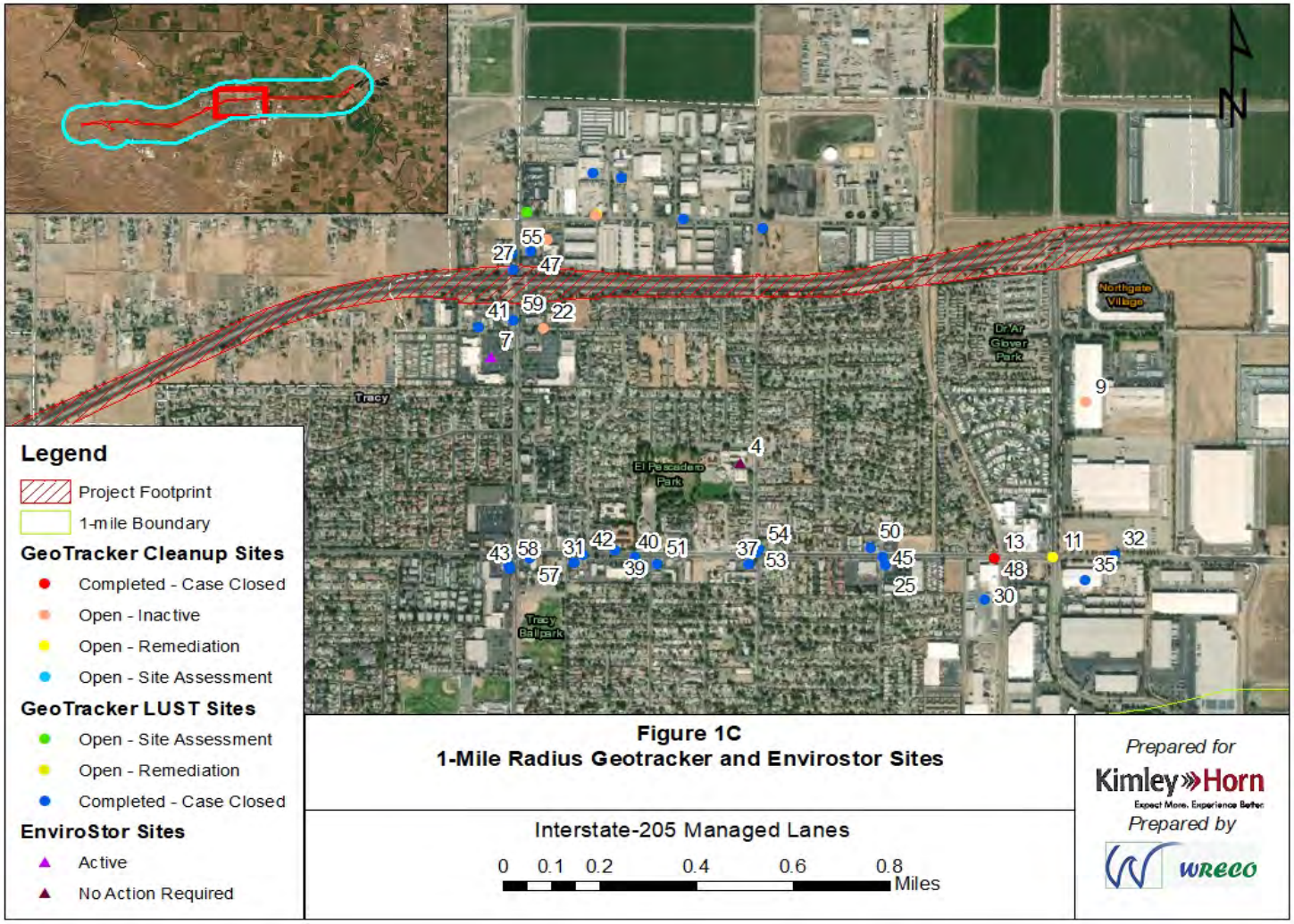


Figure 9. Project Area with GeoTracker and EnviroStor Sites within 1-Mile Radius

Source: GeoTracker & EnviroStor, 2020

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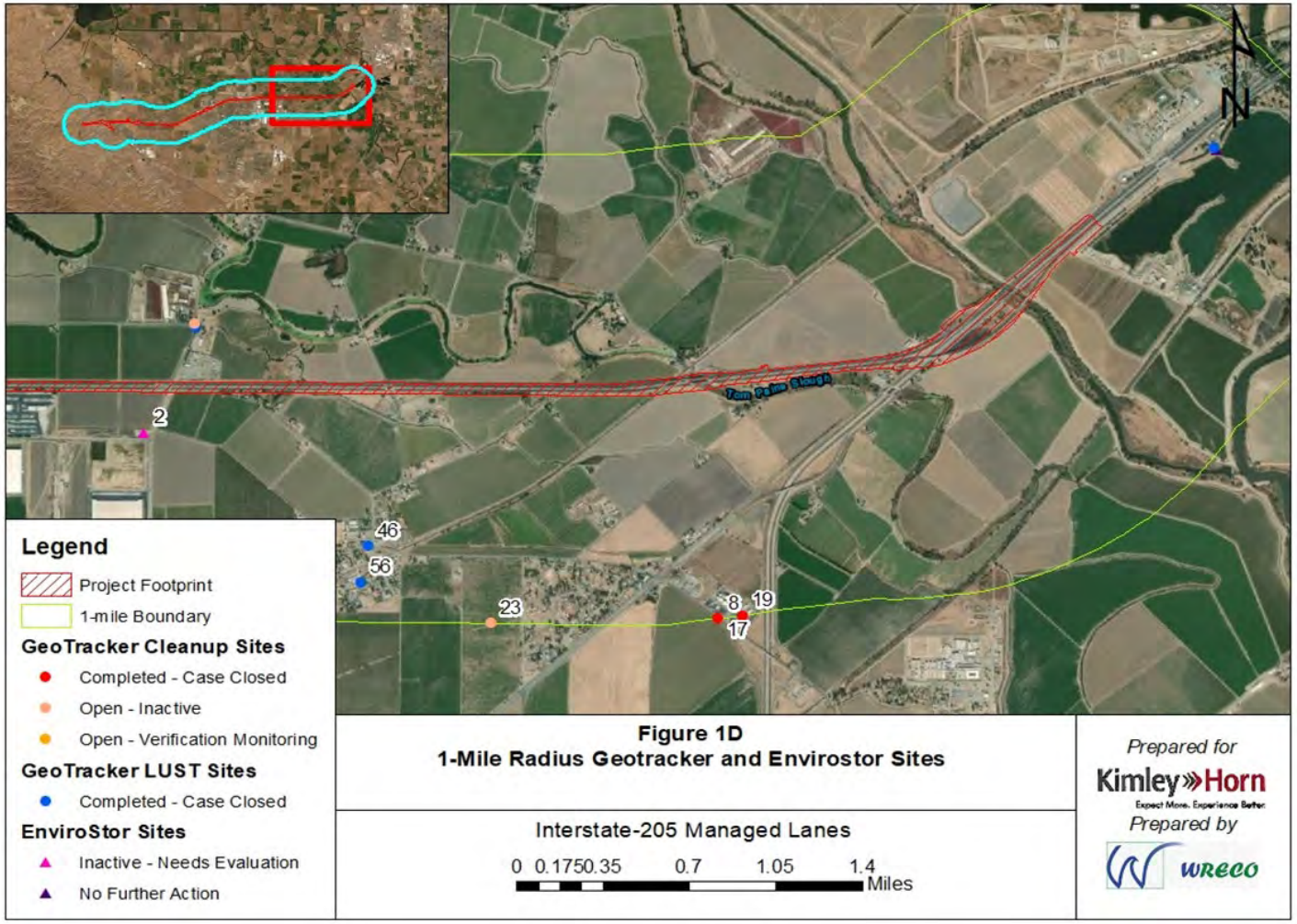


Figure 10. Project Area with GeoTracker and EnviroStor Sites within 1-Mile Radius

Source: GeoTracker & EnviroStor, 2020

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Attachments:

Web Soil Survey
FEMA FIRMs

Hydrologic Soil Group and Surface Runoff

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

Report—Hydrologic Soil Group and Surface Runoff

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

Hydrologic Soil Group and Surface Runoff–Alameda Area, California			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
118—Capay clay, 0 to 2 percent slopes			
Capay	85	High	C

Hydrologic Soil Group and Surface Runoff–Alameda Area, California			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
119—Capay clay, 1 to 6 percent slopes, MLRA 17			
Capay	85	High	D
223—Reiff loam, 0 to 2 percent slopes			
Reiff	85	Very low	A
AmE2—Altamont clay, moderately deep, 30 to 45 percent slopes, eroded			
Altamont	85	Very high	D
ArD—Altamont rocky clay, moderately deep, 7 to 30 percent slopes			
Altamont	70	High	D
CdB—Clear Lake clay, drained, 3 to 7 percent slopes			
Clear lake	85	Medium	C
DbD—Diablo clay, 15 to 30 percent slopes, MLRA 15			
Diablo	85	Very high	C
Gp—Gravel pits			
Gravel pits	95	Very low	—
LaC—Linne clay loam, 3 to 15 percent slopes			
Linne	85	Medium	C
LaD—Linne clay loam, 15 to 30 percent slopes, MLRA 15			
Linne	85	—	D
LaE2—Linne clay loam, 30 to 45 percent slopes, eroded			
Linne	85	High	C
Pd—Pescadero clay loam, 0 to 6 percent slopes, MLRA 14			
Pescadero	85	Low	C/D
RdA—Rincon clay loam, 0 to 3 percent slopes			
Rincon	85	Medium	C
RdB—Rincon clay loam, 3 to 7 percent slopes			
Rincon	85	High	C
So—Sycamore silt loam, 0 to 2 percent slopes, MLRA 14			
Sycamore	85	Low	B
W—Water			
Water	100	—	—

Hydrologic Soil Group and Surface Runoff–San Joaquin County, California			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**

Hydrologic Soil Group and Surface Runoff–San Joaquin County, California			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
113—Calla clay loam, 2 to 8 percent slopes			
Calla	85	Medium	C
114—Calla-Carbona complex, 8 to 30 percent slopes			
Calla	45	High	C
Carbona	40	Very high	C
115—Calla-Carbona complex, 30 to 50 percent slopes			
Calla	50	Very high	C
Carbona	35	Very high	C
116—Calla-Pleito complex, 8 to 30 percent slopes			
Calla	60	High	C
Pleito	25	High	C
118—Capay clay, 0 to 1 percent slopes, MLRA 17			
Capay	85	High	C
119—Capay clay, 1 to 6 percent slopes, MLRA 17			
Capay	85	High	D
121—Capay clay, wet, 0 percent slopes, MLRA 17			
Capay	85	High	C
122—Capay-Urban land complex, 0 percent slopes, MLRA 17			
Capay	50	High	C
Urban land	35	Very high	—
123—Carbona clay loam, 2 to 8 percent slopes			
Carbona	85	High	C
130—Columbia fine sandy loam, drained, 0 to 2 percent slopes, MLRA 17			
Columbia	85	Low	C
131—Columbia fine sandy loam, partially drained, 0 to 2 percent slopes, occasionally flooded			
Columbia	85	High	A
132—Columbia fine sandy loam, channeled, partially drained, 0 to 2 percent slopes, frequently flooded			
Columbia	85	High	A
133—Columbia fine sandy loam, clayey substratum, partially drained, 0 to 2 percent slopes			
Columbia	85	High	A
147—Dello sandy loam, clayey substratum, drained, 0 to 2 percent slopes			
Dello	85	Very low	A

Hydrologic Soil Group and Surface Runoff–San Joaquin County, California			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
153—Egbert silty clay loam, partially drained, 0 to 2 percent slopes, MLRA 16			
Egbert	85	Very low	C
156—El Solyo clay loam, 0 to 2 percent slopes			
El solyo	85	High	C
166—Grangeville fine sandy loam, partially drained, 0 to 2 percent slopes			
Grangeville	85	Very low	A
167—Grangeville clay loam, partially drained, 0 to 2 percent slopes			
Grangeville	85	Medium	C
197—Merritt silty clay loam, partially drained, 0 to 2 percent slopes			
Merritt	85	Medium	C
198—Merritt silty clay loam, partially drained, 0 to 2 percent slopes, occasionally flooded			
Merritt	85	Medium	C
211—Pescadero clay loam, partially drained, 0 to 2 percent slopes			
Pescadero	85	Very high	D
223—Reiff loam, 0 to 2 percent slopes			
Reiff	85	Very low	A
252—Stomar clay loam, 0 to 2 percent slopes			
Stomar	85	High	C
253—Stomar clay loam, wet, 0 to 2 percent slopes			
Stomar	85	High	C
268—Vernalis clay loam, 0 to 2 percent slopes			
Vernalis	85	Medium	C
269—Vernalis clay loam, wet, 0 to 2 percent slopes			
Vernalis	85	Medium	C
274—Willows clay, partially drained, 0 to 2 percent slopes			
Willows	85	Very high	D
281—Zacharias clay loam, 0 to 2 percent slopes			
Zacharias	85	Medium	C
W—Water			
Water	100	—	—

Data Source Information

Soil Survey Area: Alameda Area, California
Survey Area Data: Version 14, May 29, 2020

Soil Survey Area: San Joaquin County, California
Survey Area Data: Version 14, May 29, 2020

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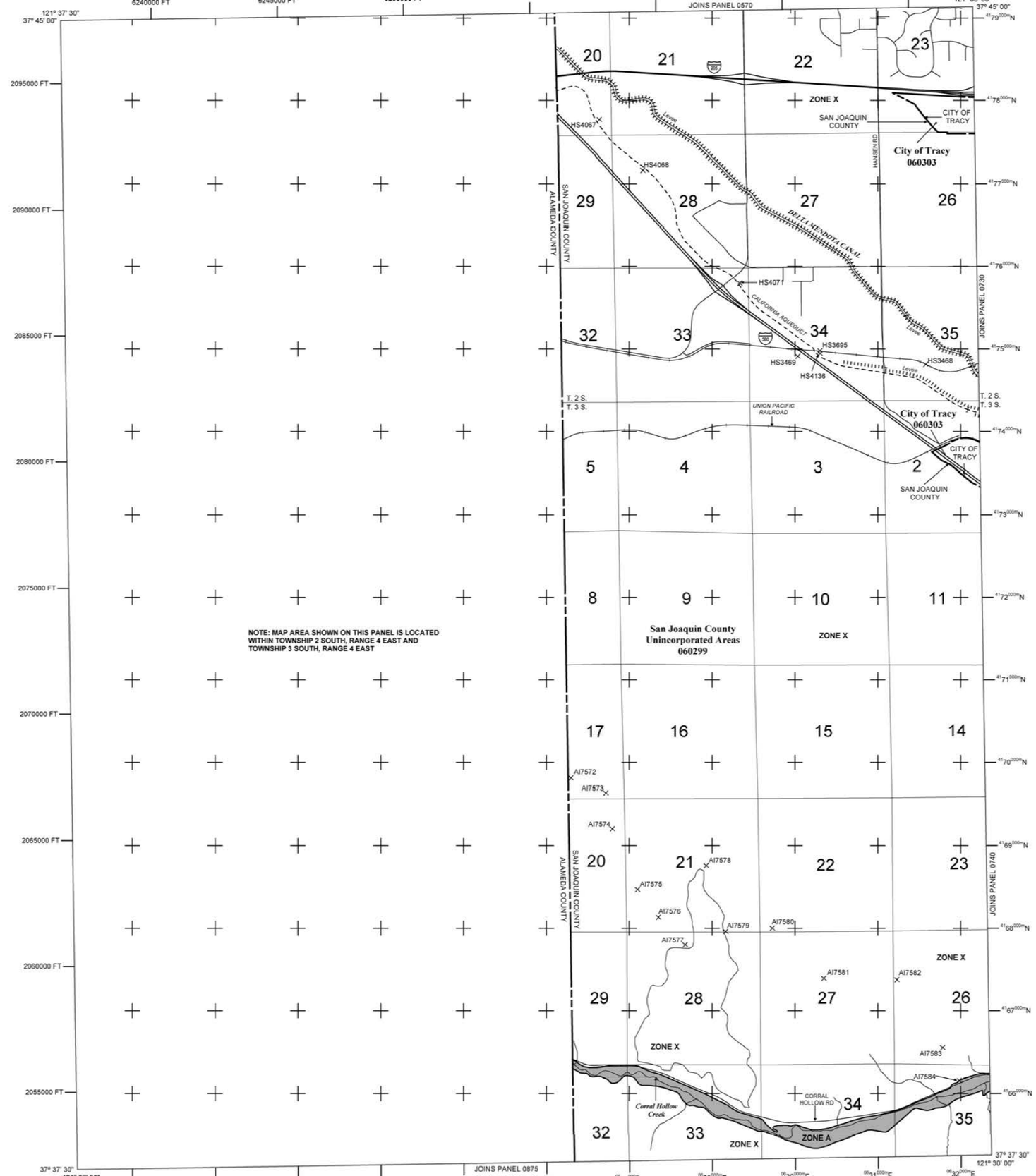
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ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

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- DX5510 ×: Bench mark (see explanation in Notes to Users section of this FIRM panel)
- •M1.5: River Mile

MAP REPOSITORIES
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EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
October 16, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

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MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

600 0 600 1200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0725F

FIRM

FLOOD INSURANCE RATE MAP

SAN JOAQUIN COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 725 OF 950

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN JOAQUIN COUNTY	060299	0725	F
TRACY, CITY OF	060303	0725	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06077C0725F

EFFECTIVE DATE
OCTOBER 16, 2009

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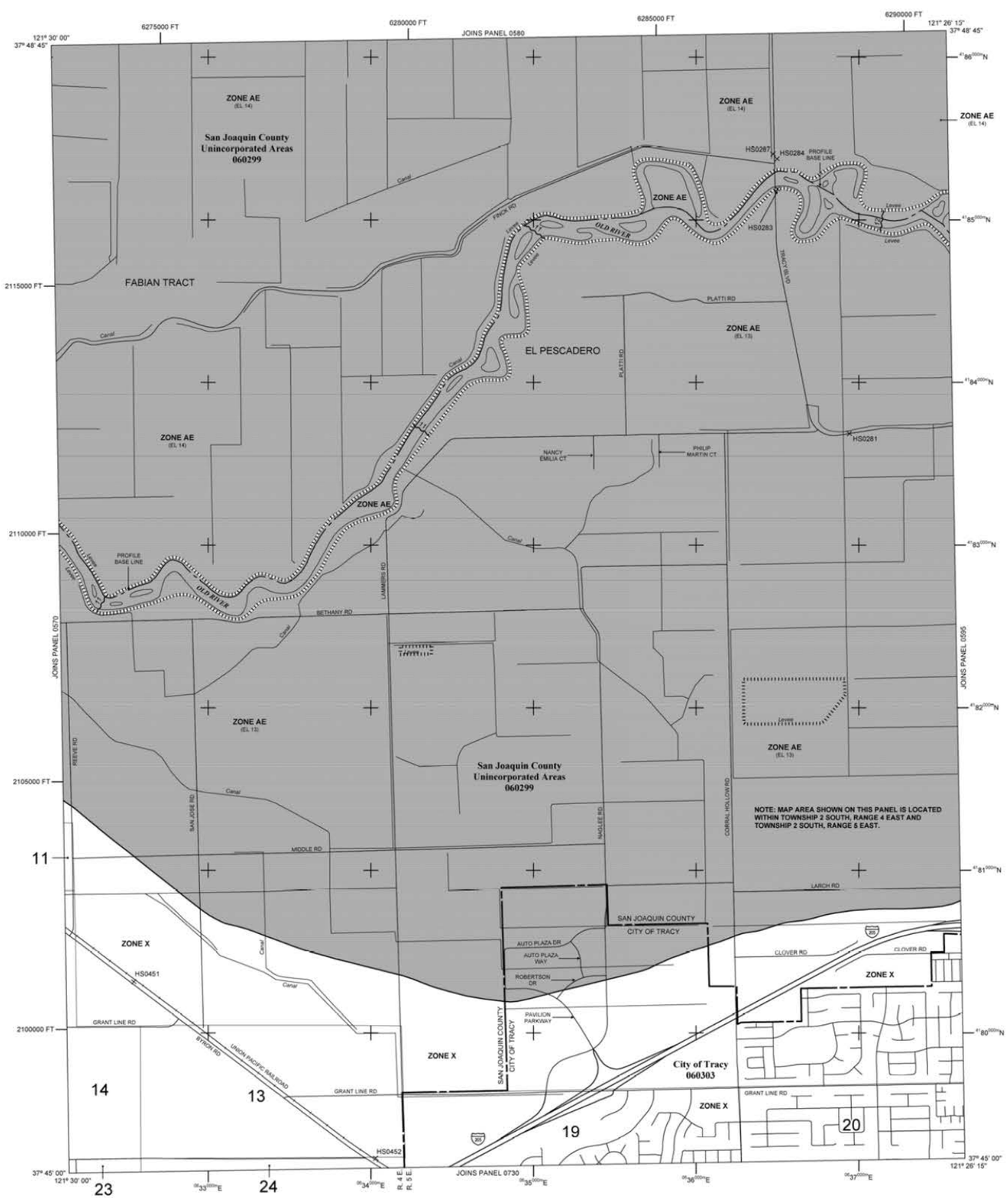
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LEGEND

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October 16, 2009

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500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0590F

FIRM

FLOOD INSURANCE RATE MAP

SAN JOAQUIN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 590 OF 950

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

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Federal Emergency Management Agency

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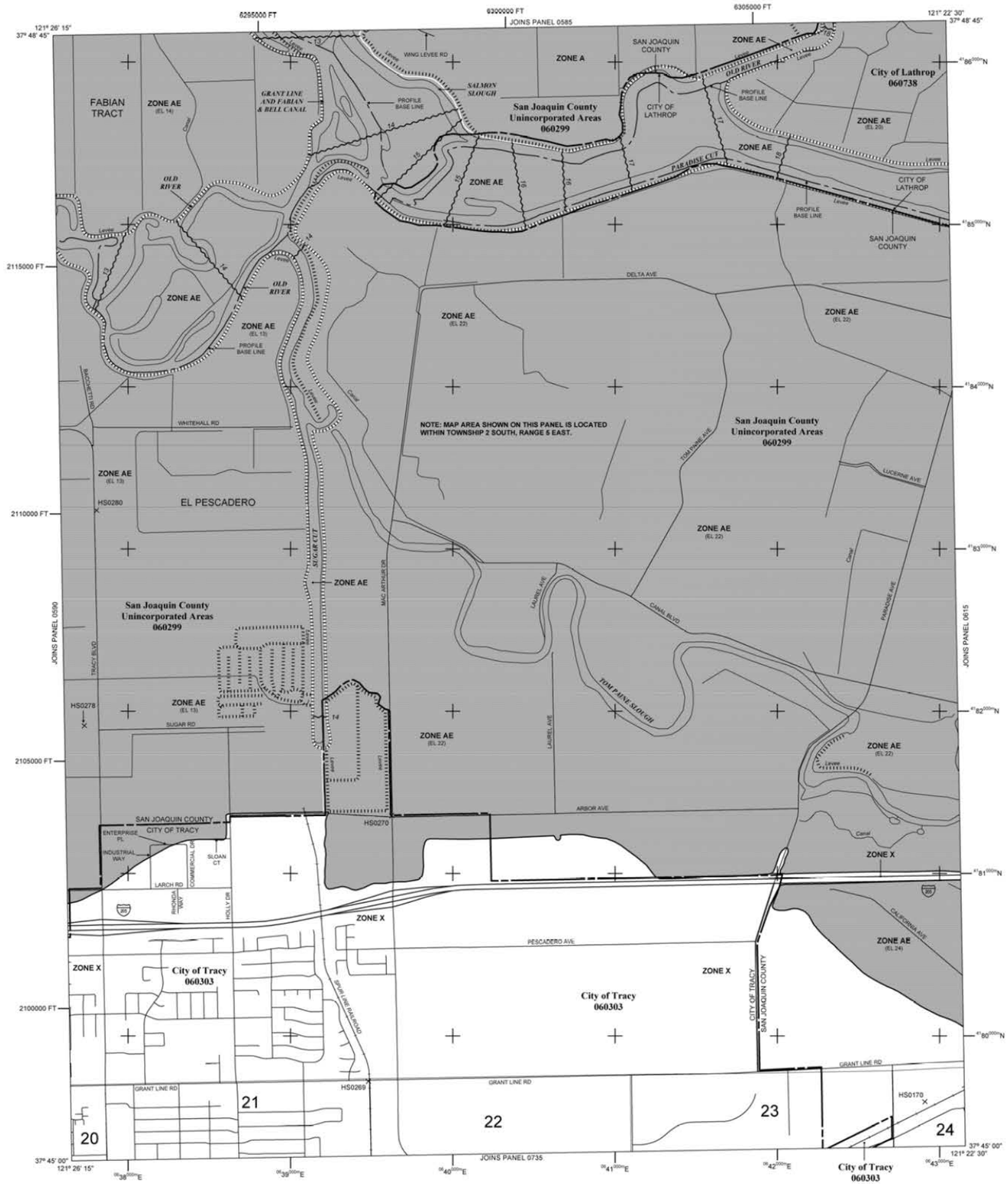
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NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0595F

FIRM

FLOOD INSURANCE RATE MAP

SAN JOAQUIN COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 595 OF 950

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LATHROP, CITY OF	060738	0595	F
SAN JOAQUIN COUNTY	060299	0595	F
TRACY, CITY OF	060303	0595	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06077C0595F

EFFECTIVE DATE
OCTOBER 16, 2009

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) Zone 10N. The **horizontal datum** was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey, SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit their website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was derived from multiple sources. This information was compiled from the U.S. Geological Survey, 2002, National Geodetic Survey, 2002, City of Lathrop, 1997, City of Manteca, Department of Public Works, 2001, and San Joaquin County Community Development Department, 2008. Additional information was photogrammetrically compiled at a scale of 1:12,000 from U.S. Geological Survey aerial photography dated 1989, 1993 and 2002.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

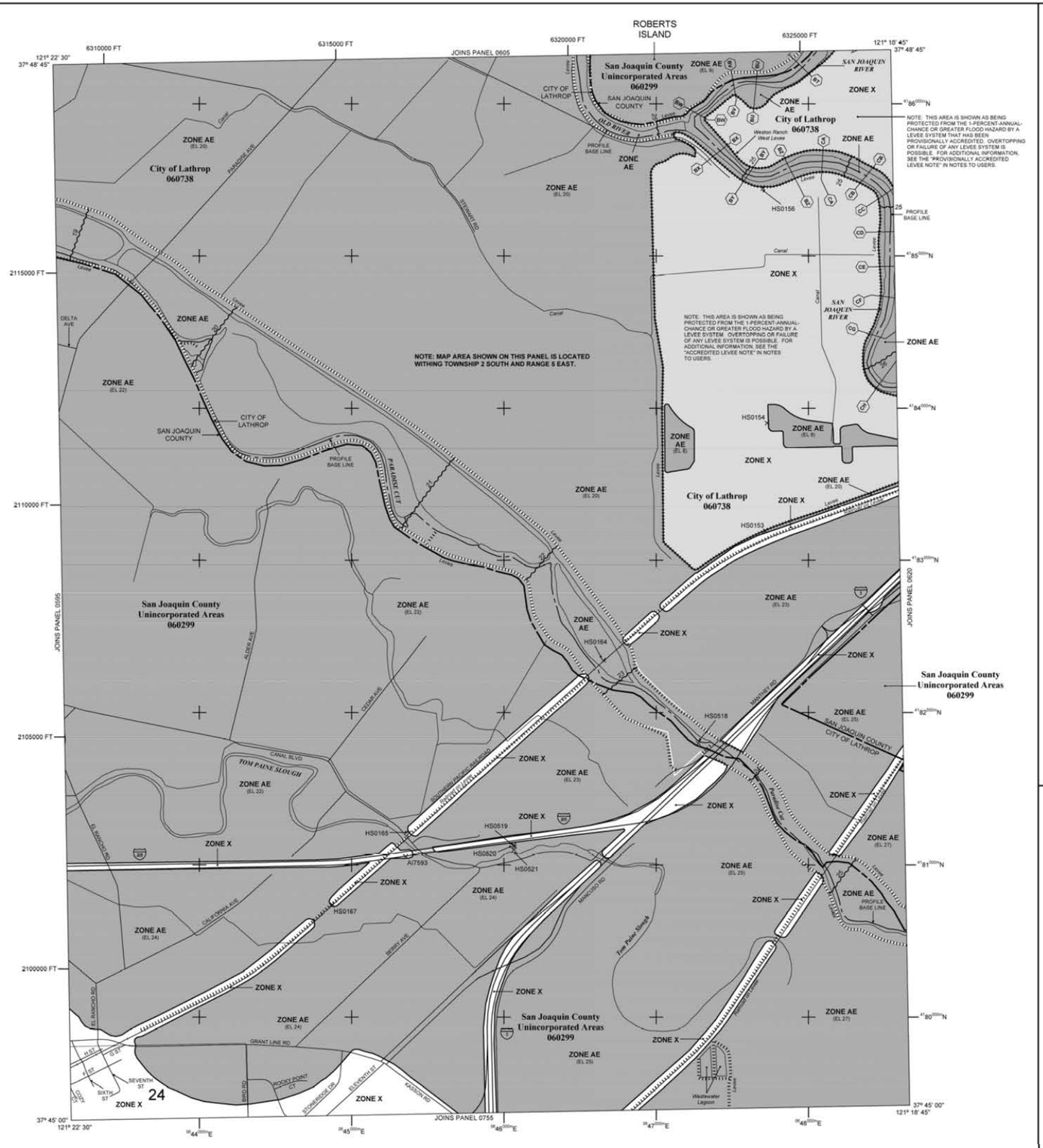
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and their website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1- 877- FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.

Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.

Provisionally Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To maintain accreditation, the levee owner or community is required to submit the data and documentation necessary to comply with Section 65.10 of the NFIP regulations by August 23, 2009, for Weston Ranch South Levee (on panel 06077C0620F); and March 30, 2010, for all other levees. If the community or owner does not provide the necessary data and documentation or if the data and documentation provided indicate the levee system does not comply with Section 65.10 requirements, FEMA will revise the flood hazard and risk information for this area to reflect de-accreditation of the levee system. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equalled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** — No Base Flood Elevations determined.
- **ZONE AE** — Base Flood Elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D Boundary
- CBRS and OPA Boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- A — A — Cross section line
- 23 — 23 — Transect line
- 97° 07' 30", 32° 22' 30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 6759000mE — 1000-meter Universal Transverse Mercator grid values, zone 10
- 600000 FT — 5000-foot grid ticks: California State Plane coordinate system, zone III (FIPSZONE 0403), Lambert Conformal Conic Projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index.

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP PANEL
October 16, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0615F

FIRM

FLOOD INSURANCE RATE MAP

SAN JOAQUIN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 615 OF 950

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LATHROP, CITY OF	060738	0615	F
SAN JOAQUIN COUNTY	060299	0615	F

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MAP NUMBER
06077C0615F

EFFECTIVE DATE
OCTOBER 16, 2009

Federal Emergency Management Agency

Attachment G

Air Quality/Climate Change and Noise/Vibration Documentation for the I-205 Managed Lanes Project PEAR (EA 10-1H170K)

Introduction

The purpose of this technical memorandum is to provide an overview of air quality and noise/vibration issues associated with the I-205 Managed Lanes Project (project) and to support preparation of the Preliminary Environmental Analysis Report (PEAR) for the California Department of Transportation (Caltrans). The project would widen Interstate 205 (I-205) between the Interstate 580 (I-580) and Interstate I-5 (I-5) to the outside to install express lanes in both directions on I-205. Widening likely would be to the north from Grant Line Road to the Delta-Mendota Canal and on both sides from that point to the Union Pacific Railroad (former Southern Pacific Railroad Niles to Sacramento) overcrossing. Some widening is proposed along I-205 westbound from the Union Pacific Railroad overcrossing to the interchange with I-5 to conform with the new interchange configuration. The purpose of the project is to reduce traffic congestion and delay along I-205, encourage high-occupancy vehicle use in the I-205 corridor, improve regional mobility, and improve freight movement. A No-Build Alternative also is proposed (Figures 1 and 2 in the PEAR).

Project Description

The project proposes to install managed lanes on Interstate 205 through the City of Tracy, accommodate transit hubs, and improve interchanges between postmiles R1.7 on Interstate 580 and R13.5 on Interstate 5. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. Managed lanes are highway lanes that are actively managed to respond to an area's rapid growth. Interstate 205 in the City of Tracy has been identified as an area of heavy congestion resulting from high truck volumes and commuters that travel to and from the Bay Area. Examples of managed lanes being considered for the proposed project would be high occupancy-vehicle lanes, transit lanes, and express (or toll) lanes.

Alternatives

Four build alternatives and the no-build alternative (Alternative 1) will be considered.

No Build Alternative

Alternative 1. No-Build: Under the no-build alternative, no additional widening or lanes would be constructed. Other planned projects and maintenance would take place.

Build Alternatives

The four build alternatives all occur within the same corridor. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. The build alternatives are described briefly below.

Alternative 2. High-Occupancy Vehicle Lane Addition: This alternative would add a high-occupancy vehicle lane on Interstate 205 in each direction. High-occupancy vehicle lanes are reserved for vehicles carrying a certain number of passengers, generally 2 or 3 people. The high-occupancy vehicle lane would be added on the outside between the Interstate 580 and the West Grant Line Road interchange and the West Eleventh Street interchange. The high-occupancy vehicle lane would be added on the inside (in the median) east of the West Eleventh Street interchange. The highway would include three general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 3. High-Occupancy Vehicle Lane Conversion: No lanes would be added, and the number one lane (or left lane) in each direction would be converted to a high-occupancy vehicle lane. The highway would include two general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 4. Express Lanes: Interstate 205 would be widened to the outside to accommodate express lanes, leaving the median open for future planned transit improvements. Express lanes provide toll free travel lanes for high-occupancy vehicle, transit, and clean air vehicles and can be used by single-occupancy vehicles for a toll. The number one lane (or left lane) would be an express lane, providing free access to vehicles that meet a minimum occupancy or vehicle type requirement, and priced access to vehicles that do not meet those requirements. The highway would consist of three general purpose lanes, an express lane and in some auxiliary lanes in each direction. A new alignment would be constructed to cross the California Aqueduct and Delta Mendota Canal.

Alternative 5. Transit Only Lanes: This alternative would be the same as Alternative 4, but transit only lanes which would be reserved for busses would replace express lanes.

Structural Improvements

Depending on the alternative selected overcrossings, undercrossings, and interchanges may require widening, realignment or improvements.

No improvements to structures would be required under Alternative 1, No Build. Minimal alterations to structures or interchanges may be required under Alternative 3 to accommodate changes in traffic volumes.

Under Alternative 2, the following improvements or alterations would be necessary:

- Widen I-205 to the outside between I-580 and the West Eleventh Street interchange.
- Widen the bridge over the Delta Mendota Canal to the outside.
- Widen I-205 to the inside (median) from the West Eleventh Street interchange east to the end to of the project at the I-5 interchange.
- Widen the following structures to the inside (median):
    - Janney Overhead
    - Grant Line Road Overhead
    - Corral Hollow Road Undercrossing
    - Tracy Boulevard Undercrossing
    - Sugar Spur Overhead
    - MacArthur Drive Undercrossing
    - El Rancho Road Undercrossing
    - Tom Paine Slough Bridge
- Construct retention basins adjacent to I-205 to accommodate increased runoff
- Perpetuate the existing auxiliary lanes from Mountain House Parkway to Eleventh Street

Under Alternatives 4 and 5, the project would require the following structural improvements. Within the Alameda County limits, the project proposes a park-and-ride lot at the West Grant Line Road interchange; new alignments for westbound I-580, westbound I-205, and the West Grant Line Road off-ramp; and replacement of the following structures:

- Westbound I-580 – Midway Road undercrossing
- Westbound I-580 – I-205 separation structure
- Westbound I-205 off-ramp to Grant Line Road – westbound I-580 separation structure
- Westbound I-205 – Midway Road undercrossing
- Westbound I-205 – California Aqueduct bridge
- Westbound I-205 – North Midway Road undercrossing

Within San Joaquin County, the project would widen I-205 to the outside in the westbound and eastbound directions from the Delta Mendota Canal to the East Banta Union Pacific Railroad (UPRR) overhead. Eastbound I-205 widening would continue toward I-5, and the project would include new eastbound I-205 to northbound I-5 connectors. The southbound I-5 to I-205 connector and northbound I-5 connector would be realigned as part of the I-205/I-5 interchange improvements. Six interchanges would be affected by the I-205 widening. The West Grant Line Road interchange, the North Tracy Boulevard interchange, and the North MacArthur Drive interchange would be improved with this project. The Mountain House Parkway interchange, West 11th Street interchange, and Paradise Road interchange currently are under project development and will be constructed independent of this project. In addition to retaining walls and sound walls along the corridor, the project would widen or replace the following structures within San Joaquin County:

- Westbound I-205 – Delta Mendota Canal bridge
- I-205 – Box culvert
- I-205 – Mountain House Parkway overcrossing
- I-205 – Hansen Road overcrossing
- Eastbound I-205 – Irrigation canal bridge
- Westbound I-205 – West Byron Road/Janney UPRR overhead
- Eastbound I-205 – West Byron Road/Janney UPRR overhead
- Westbound I-205 – West Grant Line Road undercrossing
- Eastbound I-205 – West Grant Line Road undercrossing
- Westbound I-205 – North Corral Hollow Road undercrossing
- Eastbound I-205 – North Corral Hollow Road undercrossing
- Westbound I-205 – North Tracy Boulevard undercrossing
- Eastbound I-205 – North Tracy Boulevard undercrossing
- I-205 – Holly Drive overcrossing
- Westbound I-205 – Sugar Spur UPRR overhead
- Eastbound I-205 – Sugar Spur UPRR overhead
- Westbound I-205 – North MacArthur Drive undercrossing
- Eastbound I-205 – North MacArthur Drive undercrossing
- I-205 – Paradise Road overcrossing
- Westbound I-205 – El Rancho Road undercrossing
- Eastbound I-205 – El Rancho Road undercrossing
- Eastbound I-205 – East Banta UPRR overhead
- Eastbound I-205 – West Canal Boulevard/Tom Paine Slough bridge
- Eastbound 205 to northbound I-5 express lanes connector – southbound I-5 –separation structure
- Northbound I-5 – Paradise Cut bridge

Additional project work under all build alternatives could include detention or retention basins, access roads, and four transit hubs. Transit hubs could include park-and-ride lots, electrical vehicle (EV) charging stations, bus stops and train stops. Locations for transit hubs would be determined in coordination with stakeholders that include but are not limited to the following: Federal Highways Administration, Caltrans, Valley Link, San Joaquin Council of Governments, City of Tracy, Community of Mountain House, Alameda County, San Joaquin County, local transit, and the interested public to improve access to the transit facility and to avoid precluding connectivity to the local communities. The proposed project would construct facilities within the right-of-way, such as rail stops, to accommodate connection to the corridor, but may or may not construct the actual transit hubs.

Project Study Area

For the purpose of this PEAR, the project study area includes the project improvements shown in Figure 2 in the PEAR.

Air Quality/Climate Change

An Air Quality Report consistent with Caltrans, U.S. Environmental Protection Agency (EPA), and Federal Highway Administration (FHWA) standards would be prepared to assess the environmental impacts associated with the project. Particularly, compliance with the Clean Air Act State Implementation Plan (SIP) and the San Joaquin Council of Governments (SJCOG) *2017–2040 2018 Regional Transportation Plan and Sustainable Communities Strategy* (RTP/SCS) and the Metropolitan Transportation Commission (MTC) *2017 -2040 RTP/SCS for the San Francisco Bay Area* and 2019 *Federal Transportation Improvement Program (*FTIP) would be addressed. Project-related emissions of localized particulate matter less than 2.5 microns in diameter (PM2.5) and less than 10 microns in diameter (PM10) carbon monoxide (CO) and mobile source air toxics (MSATs) associated with the Build Alternative would be evaluated under the National Environmental Policy Act (NEPA) and California Environmental Quality Act.

The project study area is in the San Joaquin Valley Air Basin (SJVAB) and the San Francisco Bay Area Air Basin (SFBAAB). Table 1 and Table 2 summarizes the state and federal air quality attainment designations made by the EPA and California Air Resources Board (ARB) , respectively, for the project study area in San Joaquin County and Alameda County.

Table 1. Federal and State Attainment Status of the Project Study Area in San Joaquin County

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
8-hour ozone	Extreme nonattainment	Nonattainment
CO	Attainment	Attainment
PM_{10}	Serious maintenance	Nonattainment
$PM_{2.5}$	Moderate nonattainment*	Nonattainment

Sources: [1, 2]

*San Joaquin County is designated as serious nonattainment for the 2006 PM2.5 standard and moderate nonattainment for the 2012 PM2.5 standard.

Table 2. Federal and State Attainment Status of the Project Study Area in Alameda County

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
8-hour ozone	Nonattainment	Nonattainment
CO	Attainment	Attainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment

Regional conformity requires that the project description in the RTP and FTIP match that of the proposed project. The project currently is included in SJCOG's 2018–2040 RTP/SCS, as well as the currently adopted 2019 FTIP. It is not in MTC's 2017-2040 RTP/SCS. SJCOG and MTC recently have updated their 2021 FTIP, which has not been formally adopted by SJCOG or MTC.

The project study area is in an attainment area for the federal CO standard; therefore, transportation project conformity requirements for CO do not apply, and a CO hotspot analysis consistent with Caltrans is not required. The project study area is in a nonattainment area for the federal PM2.5 standard and a maintenance area for the federal PM10 standard (Table 1) in San Joaquin County. Therefore, the project must be shown not to cause or contribute to any new localized PM2.5 or PM10 violations. or to increase the frequency or severity of any existing PM2.5 or PM10 violations. Localized PM2.5 and PM10 impacts would be evaluated using EPA's November 2015 guidance, *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas.*[3] Existing traffic volumes along I-205 between I-580 and I-5

[1] U.S. Environmental Protection Agency. 2017. *The Greenbook Nonattainment Areas for Criteria Pollutants*. Last updated: November 30, 2020. Available: https://www.epa.gov/green-book. Accessed: December 15, 2020.

[2] California Air Resources Board. 2016. *Area Designations Maps/State and National.* Last updated: August 2019. Available: http://www.arb.ca.gov/desig/adm/adm.htm. Accessed: December 15, 2020.

[3] U.S. Environmental Protection Agency. 2015. *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas.* (EPA-420-B-15-084.) November. Available: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100NMXM.pdf. Accessed: February 5, 2021.

are as high as 137,000 annual average daily traffic (AADT), with trucks representing approximately 11% to 12% of the total AADT. Criteria for determining whether a project is a Project of Air Quality Concern (POAQC) were specified in the 2006 EPA guidance and did not change in the 2010 guidance. Generally, a project is not a POAQC unless it changes capacity or alignment of a road with more than 125,000 AADT and 8% trucks, more than 10,000 truck AADT (8% of 125,000), or otherwise may substantially increase or concentrate diesel exhaust emissions (e.g., bus terminals and transfer points, designated truck routes, and freight intermodal terminals).[4] Based on the existing average daily and truck traffic data, the project could be categorized as a POAQC, and a hot-spot analysis to satisfy PM conformity requirements may be required. The PM hot-spot analysis would be finalized after evaluation of the future Build and No Build Alternative traffic data. The project also would need to be evaluated for its potential emissions of mobile source air toxics (MSATs). FHWA's 2016 *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents* would be used to evaluate the project's MSAT impacts.[5] At a minimum, a qualitative MSAT analysis would be required. If project-specific traffic data for the future Build Alternative indicate that a quantitative analysis of MSAT emissions is required, the analysis would be conducted using ARB's latest EMFAC emissions model.

Land uses in the project study area are primarily urban. with residential subdivisions located immediately north and south of the project study area. Sensitive receptors include Jacobson Elementary School (1,200 feet south), North Elementary School (2,900 feet south), Tracy Care Center Sutter Gould Medical Foundation (850 feet south), Kaiser Permanente Tracy Medical Offices and Treatments (150 feet), Tracy Islamic Center (2,000 feet north), POC Missionary Baptist Church (1,450 feet north), and Living Water Community Church (1,000 feet north).

The project would require stationary work zones because the proposed work includes a park/ride facility and widening of I-205.. The following avoidance measures would be required pursuant to Caltrans' rules and regulations.

Caltrans' Standard Specification 14-9

- Comply with air-pollution-control rules, regulations, ordinances, and statutes that apply to work performed under the Contract, including those provided in Govt Code § 11017 (Pub Cont Code § 10231).

The project is a capacity-increasing project, quantitative analysis of construction and operational greenhouse gas emissions would be required to estimate long-term climate change impacts or benefits from the project consistent with Caltrans' requirements.

In addition to the Air Quality Report, applicable regional and project-level conformity documentation (i.e., a conformity checklist) would need to be completed. Specifically, to fulfill PM and ozone conformity requirements, appropriate interagency consultation documentation is

[4] California Department of Transportation. 2017. Quantitative *Particulate Matter Hot Spot Analysis Best Practices Guidebook Ver.2.0*. Last updated: June 2017. Available: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/f0006994-pm-hot-spot-best-practices-guidebook-a11y.pdf. Accessed: December 15, 2020.

[5] Federal Highway Administration. 2016. *INFORMATION: Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*. October 18.

required. If the project is prepared in accordance with 23 U.S. Code 327, a separate Air Quality Conformity Analysis and documentation checklist also would need to be prepared.

Noise and Vibration

Federal or federally funded highway projects must comply with the procedures for preparing operational and construction noise studies specified in 23 Code of Federal Regulations (CFR) 772 and the Caltrans *Traffic Noise Analysis Protocol* (Protocol) April 2020. The Protocol is Caltrans' policy document for implementing 23 CFR 772. Construction of a new highway or a reconstruction project that increases capacity or results in a substantial horizontal or vertical alteration is considered a Type I project under 23 CFR 772. The project is considered a Type I project because it would add managed lanes and increase the capacity of I-205 between two major freeways (I-580 and I-5). As such, the project would be evaluated to determine whether traffic noise impacts would occur during construction or operation of the project under 23 CFR 772. Furthermore, the noise and vibration analysis will include the full project limits as well as all planned and programmed projects. Traffic noise impacts are considered to occur if predicted traffic noise levels in the design year build condition would approach (i.e. come within 1 decibel [dB]) or exceed applicable noise abatement criteria at adjacent land uses, or if the project would result in a substantial increase (12 dB) in noise levels in the design year relative to existing conditions.

Several noise-sensitive land uses are located within 500 feet noise of the project, including residences, lodging facilities, parks, and associated outdoor use areas. These land uses potentially would be susceptible to noise impacts from the project. In addition, several commercial land uses in the project area may include frequently used outdoor areas like picnic tables or benches, which fall under Category E land use. Land uses adjacent to the project consist of residential, recreational, hotels, medical facilities, churches, industrial/commercial, agricultural, and undeveloped.[6] To document noise impacts associated with the project, a Noise Study Report (NSR) would be prepared. Where traffic noise impacts are identified, abatement measures would be considered and evaluated in terms of both feasibility and reasonability, as defined in the Protocol. In several areas, noise abatement in the form of barriers may be considered. These locations are identified in Figures 4-A, 4-B, and 4-C in this attachment. While noise abatement may be evaluated for all of these locations, noise barriers would be considered feasible only if they result in 5 dB of noise reduction at one or more affected receptors under future build conditions. Existing walls would be evaluated for retrofitting based on the guidance in the 2020 Protocol, if noise impacts are identified at the receptor locations associated with these walls.

Elevated noise levels also would be experienced temporarily at noise-sensitive receptors during construction of the project. The NSR would include a construction noise assessment based on the

[6] Section 3.1.8 of the 2020 Protocol specifies the requirement to identify the "best estimation of the future design year noise levels at various distances from the edge of the nearest travel lane of the highway improvement where the future noise levels meet the highway agency's definition of ''approach'' for undeveloped lands or properties within the project limits. At a minimum, identify the distance to the exterior noise abatement criteria in Table 1. This can be done with a simple table in the Noise Study Report that shows the distances for each major segment of the highway. "

Caltrans Standard Specification 14-8; the assessment would evaluate potential noise effects and provide abatement measures, if necessary.[7] Analysis of construction vibration impacts will follow the Caltrans Construction Vibration Guidance Manual (Caltrans, 2018).

Prior to publication of the draft environmental document, a preliminary noise abatement decision would be made, assuming that one or more noise barriers are evaluated in the NSR. For an evaluated noise barrier to be considered feasible, the barrier would need to achieve a minimum noise reduction of 5 dB at impacted receptors. To be considered acoustically reasonable for noise reduction it would also need achieve the noise reduction design goal of 7 dB insertion loss at one or more receptors. Ultimately the cost to construct noise abatement cannot exceed the reasonableness allowance calculated in the NSR for the soundwall, which is currently $107,000, multiplied by the number of benefitted receptors. A Noise Abatement Decision Report would be prepared to present key information on abatement, including a summary of the NSR, the engineers' cost estimate for evaluated abatement, evaluation of non-acoustical feasibility issues, the preliminary noise abatement decision, and preliminary information on secondary effects of abatement on other environmental topical areas (e.g., visual/aesthetics, biological resources, cultural resources, and hazardous materials).

[7] Transportation and Construction Vibration Guidance Manual (September 2013).

Figure 4-A. Wall Locations (existing and to be evaluated)



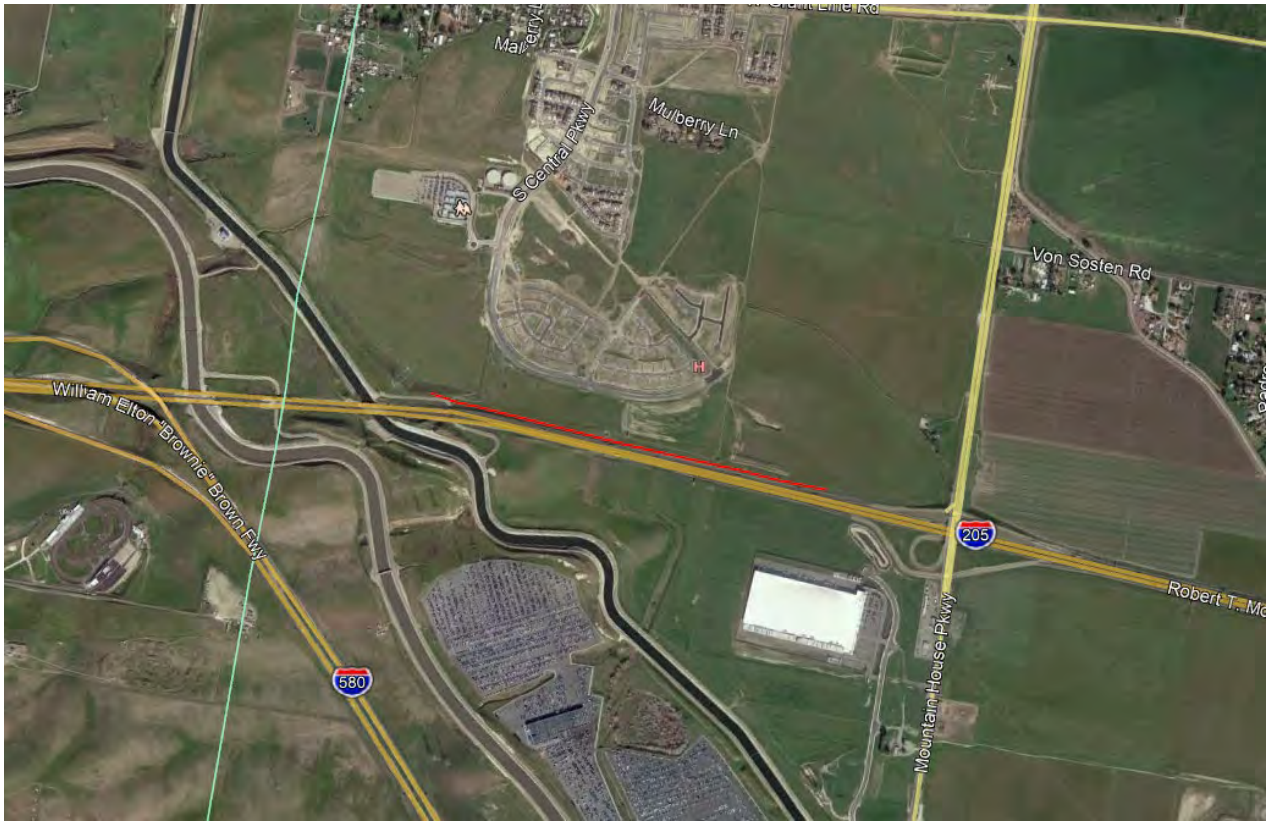


Figure 4-B. Wall Locations (existing and to be evaluated)

Figure 4-C. Wall Locations (existing and to be evaluated)





Figure 4-D. Wall Locations (existing and to be evaluated)

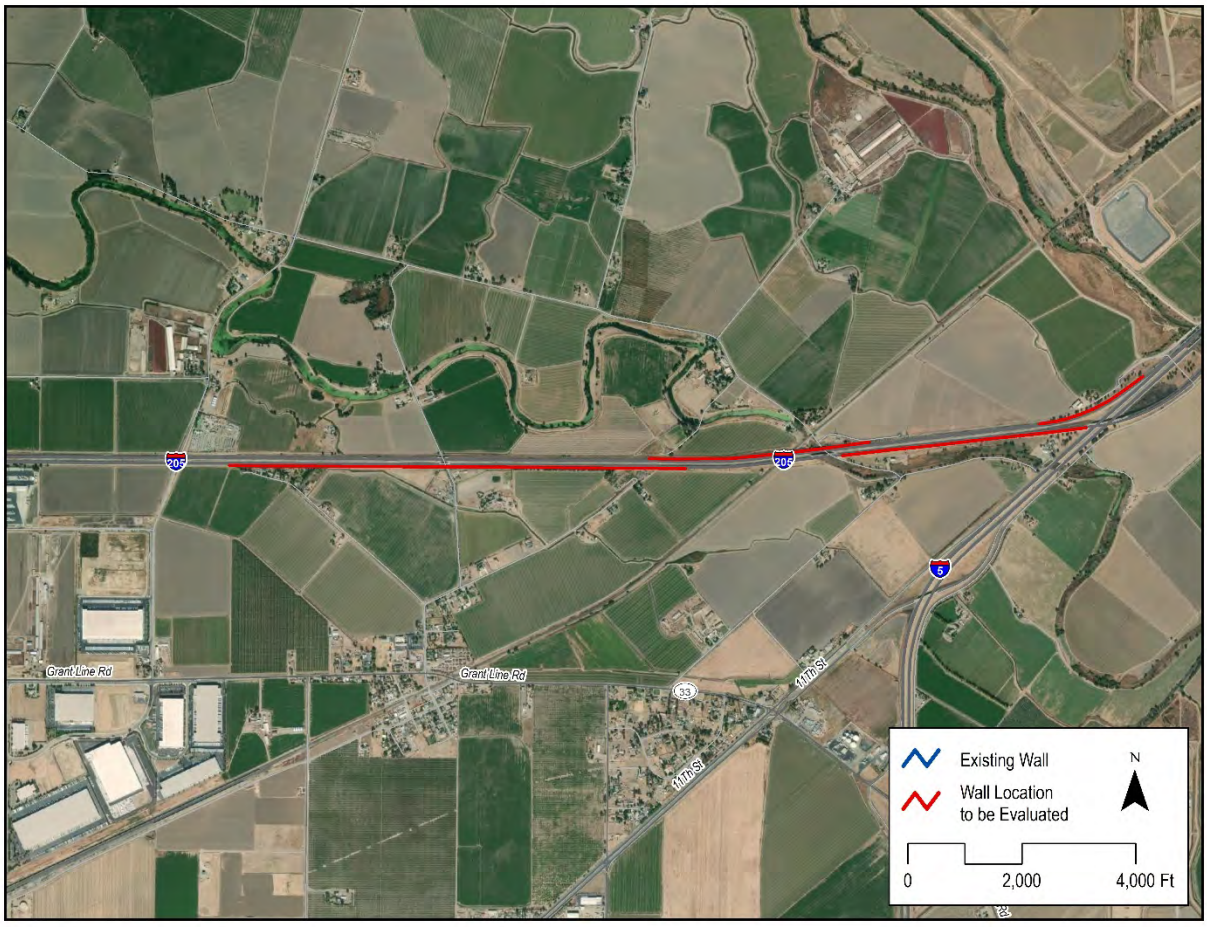


Figure 4-E. Wall Locations (existing and to be evaluated)

Preparers

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Date: June 3, 2021

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Attachment H: I-205 Managed Lanes Project



Draft Paleontological Identification Report

Interstate 205 from Interstate 580 to Interstate 5
San Joaquin and Alameda Counties, California
10-SJ-205–PM 0.0-12.54 / 10-ALA-205–PM 0.0-3.24
EA 10-1H170K

March 2021

I-205 Managed Lanes Project
Draft Paleontological Identification Report

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March 2021

STATE OF CALIFORNIA
Department of Transportation, and
San Joaquin Council of Governments

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Draft Paleontological Identification Report I-205 Managed Lanes Project

Introduction

The California Department of Transportation (Caltrans), in cooperation with the San Joaquin Council of Governments (SJCOG) proposes to widen Interstate 205 (I-205) between two major freeways, Interstate 580 (I-580) and Interstate 5 (I-5), hereafter referred to as the project, in San Joaquin and Alameda Counties, California (Appendix A: Figure 1). The purpose of the project is to reduce traffic congestion and delay along I-205, accommodate and facilitate regional multi-modal transportation development, improve regional mobility, improve freight movement, and improve safety by constructing improvements at current locations with recurring congestion and where collisions occur.

This paleontological identification report (PIR) describes the paleontological constraints associated with the project and is the first in a series of paleontological reports required by Caltrans. Depending on the sensitivity of site resources and the potential for impacts, a project may require a subsequent Paleontological Evaluation Report (PER) and Paleontological Mitigation Plan (PMP). As described in Caltrans' *Standard Environmental Reference* (2014: Chapter 8), this PIR accomplishes the following.

- Evaluates paleontological sensitivity within the project corridor.
- Evaluates the project's potential to affect paleontological resources (limited but potentially significant).
- Provides coordination requirements.

Project Description

The project proposes to install managed lanes on Interstate 205 through the City of Tracy, accommodate transit hubs, and improve interchanges between postmiles R1.7 on Interstate 580 and R13.5 on Interstate 5. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. Managed lanes are highway lanes that are actively managed to respond to an area's rapid growth. Interstate 205 in the City of Tracy has been identified as an area of heavy congestion resulting from high truck volumes and commuters that travel to and from the Bay Area. Examples of managed lanes being considered for the proposed project would be high occupancy-vehicle lanes, transit lanes, and express (or toll) lanes.

Alternatives

Four build alternatives and the no-build alternative (Alternative 1) will be considered.

No Build Alternative

Alternative 1. No-Build: Under the no-build alternative, no additional widening or lanes would be constructed. Other planned projects and maintenance would take place.

Build Alternatives

The four build alternatives all occur within the same corridor. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. The build alternatives are described briefly below.

Alternative 2. High-Occupancy Vehicle Lane Addition: This alternative would add a high-occupancy vehicle lane on Interstate 205 in each direction. High-occupancy vehicle lanes are reserved for vehicles carrying a certain number of passengers, generally 2 or 3 people. The high-occupancy vehicle lane would be added on the outside between the Interstate 580 and the West Grant Line Road interchange and the West Eleventh Street interchange. The high-occupancy vehicle lane would be added on the inside (in the median) east of the West Eleventh Street interchange. The highway would include three general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 3. High-Occupancy Vehicle Lane Conversion: No lanes would be added, and the number one lane (or left lane) in each direction would be converted to a high-occupancy vehicle lane. The highway would include two general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 4. Express Lanes: Interstate 205 would be widened to the outside to accommodate express lanes, leaving the median open for future planned transit improvements. Express lanes provide toll free travel lanes for high-occupancy vehicle, transit, and clean air vehicles and can be used by single-occupancy vehicles for a toll. The number one lane (or left lane) would be an express lane, providing free access to vehicles that meet a minimum occupancy or vehicle type requirement, and priced access to vehicles that do not meet those requirements. The highway would consist of three general purpose lanes, an express lane and in some auxiliary lanes in each direction. A new alignment would be constructed to cross the California Aqueduct and Delta Mendota Canal.

Alternative 5. Transit Only Lanes: This alternative would be the same as Alternative 4, but transit only lanes which would be reserved for busses would replace express lanes.

Structural Improvements

Depending on the alternative selected overcrossings, undercrossings, and interchanges may require widening, realignment or improvements.

No improvements to structures would be required under Alternative 1, No Build. Minimal alterations to structures or interchanges may be required under Alternative 3 to accommodate changes in traffic volumes.

Under Alternative 2, the following improvements or alterations would be necessary:

- Widen I-205 to the outside between I-580 and the West Eleventh Street interchange.
- Widen the bridge over the Delta Mendota Canal to the outside.
- Widen I-205 to the inside (median) from the West Eleventh Street interchange east to the end to of the project at the I-5 interchange.
- Widen the following structures to the inside (median):
    - Janney Overhead
    - Grant Line Road Overhead
    - Corral Hollow Road Undercrossing
    - Tracy Boulevard Undercrossing
    - Sugar Spur Overhead
    - MacArthur Drive Undercrossing
    - El Rancho Road Undercrossing
    - Tom Paine Slough Bridge
- Construct retention basins adjacent to I-205 to accommodate increased runoff
- Perpetuate the existing auxiliary lanes from Mountain House Parkway to Eleventh Street

Under Alternatives 4 and 5, the project would require the following structural improvements. Within the Alameda County limits, the project proposes a park-and-ride lot at the West Grant Line Road interchange; new alignments for westbound I-580, westbound I-205, and the West Grant Line Road off-ramp; and replacement of the following structures:

- Westbound I-580 – Midway Road undercrossing
- Westbound I-580 – I-205 separation structure
- Westbound I-205 off-ramp to Grant Line Road – westbound I-580 separation structure
- Westbound I-205 – Midway Road undercrossing
- Westbound I-205 – California Aqueduct bridge
- Westbound I-205 – North Midway Road undercrossing

Within San Joaquin County, the project would widen I-205 to the outside in the westbound and eastbound directions from the Delta Mendota Canal to the East Banta Union Pacific Railroad (UPRR) overhead. Eastbound I-205 widening would continue toward I-5, and the project would include new eastbound I-205 to northbound I-5 connectors. The southbound I-5 to I-205 connector and northbound I-5 connector would be realigned as part of the I-205/I-5 interchange improvements. Six interchanges would be affected by the I-205 widening. The West Grant Line

Road interchange, the North Tracy Boulevard interchange, and the North MacArthur Drive interchange would be improved with this project. The Mountain House Parkway interchange, West 11th Street interchange, and Paradise Road interchange currently are under project development and will be constructed independent of this project. In addition to retaining walls and sound walls along the corridor, the project would widen or replace the following structures within San Joaquin County:

- Westbound I-205 – Delta Mendota Canal bridge
- I-205 – Box culvert
- I-205 – Mountain House Parkway overcrossing
- I-205 – Hansen Road overcrossing
- Eastbound I-205 – Irrigation canal bridge
- Westbound I-205 – West Byron Road/Janney UPRR overhead
- Eastbound I-205 – West Byron Road/Janney UPRR overhead
- Westbound I-205 – West Grant Line Road undercrossing
- Eastbound I-205 – West Grant Line Road undercrossing
- Westbound I-205 – North Corral Hollow Road undercrossing
- Eastbound I-205 – North Corral Hollow Road undercrossing
- Westbound I-205 – North Tracy Boulevard undercrossing
- Eastbound I-205 – North Tracy Boulevard undercrossing
- I-205 – Holly Drive overcrossing
- Westbound I-205 – Sugar Spur UPRR overhead
- Eastbound I-205 – Sugar Spur UPRR overhead
- Westbound I-205 – North MacArthur Drive undercrossing
- Eastbound I-205 – North MacArthur Drive undercrossing
- I-205 – Paradise Road overcrossing
- Westbound I-205 – El Rancho Road undercrossing
- Eastbound I-205 – El Rancho Road undercrossing
- Eastbound I-205 – East Banta UPRR overhead
- Eastbound I-205 – West Canal Boulevard/Tom Paine Slough bridge
- Eastbound 205 to northbound I-5 express lanes connector – southbound I-5 –separation structure
- Northbound I-5 – Paradise Cut bridge

Additional project work under all build alternatives could include detention or retention basins, access roads, and four transit hubs. Transit hubs could include park-and-ride lots, electrical vehicle (EV) charging stations, bus stops and train stops. Locations for transit hubs would be determined in coordination with stakeholders that include but are not limited to the following: Federal Highways Administration, Caltrans, Valley Link, San Joaquin Council of Governments, City of Tracy, Community of Mountain House, Alameda County, San Joaquin County, local transit, and the interested public to improve access to the transit facility and to avoid precluding connectivity to the local communities. The proposed project would construct facilities within the right-of-way, such as rail stops, to accommodate connection to the corridor, but may or may not construct the actual transit hubs.

Regulatory Background

The following sections describe the federal, state, and local regulations that protect paleontological resources and provide the context for this report.

Paleontological Resources Act of 2009

The Paleontological Resources Act of 2009 (Pub. L. No. 111-11, Subtitle D) includes provisions for the protection and preservation of paleontological resources. The law also prohibits collection of paleontological resources from federal land without a permit, except in the case of noncommercial collecting that complies with other regulations for that federal land.

Federal Antiquities Act

The Federal Antiquities Act of 1906 (Pub. L. No. 59-209, 16 United States Code [USC] 431–433) prohibits appropriation, excavation, injury, or destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" located on lands owned or controlled by the federal government, without permission of the Secretary of Agriculture or Secretary of the Interior. It also establishes criminal penalties, including fines or imprisonment, for these acts and sets forth a permit requirement for collection of antiquities on federally owned lands.

Neither the Federal Antiquities Act itself nor its implementing regulations (43 Code of Federal Regulations [CFR] 3) specifically mention paleontological resources. However, several federal agencies—including the National Park Service, U.S. Bureau of Land Management, and U.S. Forest Service—have interpreted "objects of antiquity" to include fossils. Consequently, the Federal Antiquities Act represents an early cornerstone for efforts to protect the nation's paleontological resources.

Archaeological and Paleontological Salvage Statute and Federal-Aid Highway Act

The Archaeological and Paleontological Salvage Statute (23 USC 305) amended the Federal Antiquities Act of 1906 with the following text.

> Funds authorized to be appropriated to carry out this title to the extent approved as necessary, by the highway department of any State, may be used for archaeological and paleontological salvage in that state in compliance with the Act entitled "An Act for the preservation of American Antiquities," approved June 8, 1906 (PL 59-209; 16 USC 431-433), and State laws where applicable.

The Federal-Aid Highway Act of 1935 (20 USC 78) authorizes the use federal funds for salvage of paleontological sites affected by highway projects. Together, the Archaeological and Paleontological Salvage Statute and Federal-Aid Highway Act permit paleontological resources salvage to be carried out under federal highway project funding, as long as the excavated materials and any information recovered from such materials are made available to the public and not for private gain.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) does not provide specific guidance regarding paleontological resources, but the NEPA requirement that federal agencies take all practicable measures to "preserve important historic, cultural, and natural aspects of our national heritage" (NEPA Section 101[b][4]) is interpreted as applying to paleontological materials. Under NEPA, paleontological resources typically are treated in a manner similar to that used for cultural resources.

California Codes

Several sections of the California Public Resources Code protect paleontological resources. Section 5097.5 prohibits "knowing and willful" excavation, removal, destruction, injury, and defacement of any paleontologic feature on public lands (lands under state, county, city, district, or public authority jurisdiction, or the jurisdiction of a public corporation), except where the agency with jurisdiction has granted express permission. Section 30244 requires reasonable mitigation for impacts on paleontological resources that occur as a result of development on public lands.

The sections of the California Administrative Code relating to the State Division of Beaches and Parks afford protection to geologic features and "paleontological materials" but grant the director of the state park system authority to issue permits for specific activities that may result in damage to such resources, if the activities are in the interest of the state park system and for state park purposes (Title 14 California Administrative Code Sections 4307–4309).

The California Environmental Quality Act (CEQA) includes in its definition of historical resources "any object [or] site … that has yielded or may be likely to yield information important in prehistory" (CEQA Guidelines Section 15064.5[3]), which typically is interpreted as including fossil materials and other paleontological resources. More specifically, destruction of a "unique paleontological resource or site or unique geologic feature" could be a significant impact under CEQA (CEQA Guidelines Appendix G [CEQA Checklist]). Treatment of paleontological resources under CEQA generally requires evaluation of resources in a project's area of potential effect; assessment of potential impacts on significant or unique resources; and development of

mitigation measures for potentially significant impacts, which may include monitoring combined with data recovery and/or avoidance.

Alameda County General Plan

The Alameda County General Plan (Alameda County 2012) does not contain policies that directly address paleontological resources. However, two polices that pertain to cultural resources can be interpreted to include paleontological resources. Policy 136 requires that Alameda County identify and preserve significant resources, and Policy 137 requires that project development be designed to avoid resources or to implement mitigation measures to offset adverse impacts on resources when avoidance is infeasible.

San Joaquin County General Plan

The San Joaquin County General Plan does not contain policies that directly address paleontological resources. Volume III of the general plan does have a county action that requires an archaeologist to be contacted if paleontological resources are found during construction (San Joaquin County 1992: IV G-8).

City of Tracy General Plan

The City of Tracy General Plan (City of Tracy 2011) contains two policies regarding paleontological resources. Policy P4 requires as part of the development review process a standard condition of approval that, if any paleontological resources are discovered during project construction, all operations within the project area shall halt until a professional paleontologist has assessed the resource(s) and any potential adverse impacts. Policy P5 requires that any paleontological resources on private property shall be preserved onsite or adequately documented and conserved as a condition of removal. If any unanticipated discoveries occur during project development, construction must halt immediately until the resources are assessed by a professional paleontologist and resource conservation measures are implemented.

Data Collection Methods

Information on geologic setting and site paleontology presented in this PIR was derived from published scientific literature. In addition, the database of the University of California Museum of Paleontology (UCMP) was searched for records of fossil finds in the project vicinity and in the geologic units of interest elsewhere in the county and in adjacent counties. Google Earth imagery of the project site was reviewed. No new fieldwork or surveys were conducted for this PIR. References are cited in the text and provided in *References Cited*.

Criteria Used to Determine Resource Sensitivity

The basis for assessments of paleontological sensitivity (i.e., potential to contain scientifically important paleontological resources) followed Caltrans' tripartite scale (California Department of Transportation 2014). As stated in Caltrans' Standard Environmental Reference (SER) Chapter 8, Caltrans criteria use three categories to describe the likelihood that a geologic unit contains significant fossil materials: high potential, low potential, and no potential (Table 1).

Table 1. California Department of Transportation Paleontological Sensitivity Terminology

Caltrans Sensitivity Designation	Characteristics of Geologic Units in This Category
High Potential (High Sensitivity)	This category consists of rock units known to contain important vertebrate, invertebrate, or plant fossils anywhere within their geographic extent, including sedimentary rock units that are suitable for the preservation of fossils, as well as some volcanic and low-grade metamorphic rock units. This category includes rock units with the potential to contain • abundant vertebrate fossils • a few significant fossils (large or small vertebrate, invertebrate, or plant fossils) that may provide new and significant taxonomic, phylogenetic, ecologic, and/or stratigraphic data • areas that may contain datable organic remains older than Recent, including Neotoma (sp.) middens • areas that may contain unique new vertebrate deposits, traces, and/or trackways Fossiliferous deposits with very limited geographic extent or an uncommon origin (e.g., tar pits and caves) are given special consideration and ranked as highly sensitive.
Low Potential (Low Sensitivity)	This category includes sedimentary rock units that • are potentially fossiliferous, but have not yielded significant fossils in the past • have not yet yielded fossils, but have the potential to contain fossil remains • contain common and/or widespread invertebrate fossils of species whose taxonomy, phylogeny, and ecology are well understood Note that sedimentary rocks expected to contain vertebrate fossils are considered highly sensitive, because vertebrates are generally rare and found in more localized strata.
No Potential (No Sensitivity)	This category includes rock units and deposits either too young to contain fossils or are of intrusive igneous origin, most extrusive igneous rocks, and moderate- to high-grade metamorphic rocks.

Source: California Department of Transportation 2014.

Geologic Setting

Regional Geomorphic and Geologic Setting

The project area is located in the northwestern portion of the San Joaquin Valley, which in turn forms the southern portion of California's Great Valley geomorphic province (Norris and Webb 1990: 412–414). The Great Valley, also called the Central Valley, is a nearly flat alluvial plain that lies between the Sierra Nevada on the east and the Coast Ranges on the west. Its south end is defined by the Tehachapi Mountains north of Los Angeles, and its north end is defined by the Klamath Mountains. Subdivided into the Sacramento Valley to the north and the San Joaquin Valley to the south, the valley has an average width of about 50 miles and is about 400 miles long overall (Norris and Webb 1990: 412–414; Bartow 1991: 2).

The Great Valley is floored by a thick sequence of sedimentary deposits ranging in age from Jurassic through Quaternary. Under the eastern and central portions of the valley, the base of the sequence likely rests on Mesozoic crystalline rock allied to the plutons of the Sierra Nevada; to the west, basement rocks are believed to be Franciscan metasediments and/or mélange similar to exposures in the Coast Ranges. Mesozoic sedimentary rocks, now in the subsurface, record

marine deposition. They are overlain by Tertiary strata reflecting marine, estuarine, and terrestrial conditions, which are in turn, overlain by Quaternary fluvial and alluvial strata recording uplift and erosion of the Sierra Nevada and Coast Ranges to approximately their present shape (Norris and Webb 1990: 412–414; Bartow 1991: 2).

The sediments and sedimentary rock units that are included in the Great Valley geomorphic province are relatively undeformed compared to the surrounding highly deformed rock units that are exposed along the margins of the Sierra Nevada and Coast Ranges (Norris and Webb 1990). Sediments below the basin axis are as thick as 20,000 meters (~20 kilometers), and sediments are also thicker along the valley's western end compared to the eastern end (Harden 2004).

Site Geology

The site is located at the western margin of the San Joaquin Valley, where geologically young and nearly flat-laying valley floor deposits meet alluvial fans developed along the eastern flank of the Diablo Range.

Most of the project alignment is directly underlain by alluvial fan deposits and surficial sediments of Holocene age (Dibblee and Minch 2006; Wagner et al. 1991; Appendix A: Figure 3). These two units are mapped by different authors and have different names, although they are considered to be equivalent. The eastern end of the project alignment is directly underlain by the Holocene Dos Palos Alluvium (Wagner et al. 1991; Appendix A: Figure 3). Holocene age deposits such as alluvial fan deposits, surficial sediments, and Dos Palos Alluvium typically overlie Pleistocene alluvial fan deposits and locally form only a thin veneer atop the older strata (Knudsen and Lettis 1997: 8; Wagner et al. 1991). The depth at which Pleistocene sediments underlie Holocene deposits in the project area is not known (Knudsen and Lettis 1997).

The westernmost end of the project alignment is situated on older deposits, which have been mapped as late Miocene to Pliocene age Orinda and Oro Loma Formations, late Miocene age Neroly Formation, and late Cretaceous age Panoche Formation (Dibblee and Minch 2006) (Appendix A: Figure 3).

Artificial fill has been placed over native substrate materials along several major roadway alignments. Locally, artificial fill may be as much as 100 feet thick (Knudsen and Lettis 1997), but the local thickness where the project alignment crosses I-205 is unknown. Google Earth imagery shows that artificial fill, hardscape, landscaping, and agricultural land cover most of the project area and adjacent areas.

Holocene age alluvial fan deposits and surficial sediments generally consist of moderately to poorly sorted and bedded sand, gravel, silt, and clay (Knudsen and Lettis 1997: 8). Similarly, Holocene age Dos Palos Alluvium consists of unconsolidated deposits of arkosic sand, gravel, silt, and clay—all of which primarily are derived from plutonic rocks of the Sierra Nevada (Knudsen and Lettis 1997). Holocene sedimentary deposits were laid down in modern terrestrial streams and channels, and generally are less topographically developed with less dissected surfaces, compared to older sedimentary units.

Pleistocene age alluvial fan deposits consist of variable amounts of sand, gravel, silt, and clay—all of which were laid down in ancient terrestrial streams and channels. Compared to younger Holocene age alluvial deposits, Pleistocene age alluvial fan deposits typically have moderately- to well-developed soil horizons, are more topographically developed, and have moderately to well dissected surfaces, except where obscured by erosion (Dibblee and Minch 2006).

The Orinda and Oro Loma Formations are considered to be undivided and of late Miocene and Pliocene age within the project region, although they are recognized as individual formations elsewhere (USGS 2020; Dibblee and Minch 2006). The Orinda Formation was named by Lawson and Palache (1902) for exposures in the Orinda, San Francisco region in Contra Costa County. The unit has a maximum thickness of approximately 6,000 feet and comprises freshwater conglomerate, sandstone, shale, clay, limestone, and volcanic tuff (Lawson 1914). The Oro Loma Formation was named by Briggs (unpublished paper [USGS 2020]) and consists of deep red, poorly consolidated silt, sand, and gravel (Davis and Carlson 1952). The unit has a maximum thickness of approximately 300 feet and is named from exposures in Oro Loma Creek in Fresno County (Briggs 1953). These sediments are mapped at the western end of the project alignment and may be present at depth beneath younger sedimentary deposits within the project alignment (Dibblee and Minch 2006; Appendix A: Figure 3).

The late Miocene age Neroly Formation was named by Clark in 1929 for exposures at Neroly Station on the SPRR, northeast of Mount Diablo in Contra Costa County. The formation has a maximum thickness of approximately 4,000 feet and generally comprises sandstone, conglomerate, and shale (Clark 1930). Locally, within the project region, the Neroly Formation interfingers with late Miocene to Pliocene age Orinda Formation to the west and the Miocene to late Pliocene age Mehrten Formation to the east, and sediments consist of nonmarine, blue to blue-gray, thick bedded, medium-grained, and locally pebbly sandstone, conglomerate, and shale (Dibblee and Minch, 2006). These sedimentary rocks are mapped at the western end of the project alignment and may be present at depth beneath younger sedimentary deposits within the project alignment (Dibblee and Minch 2006; Appendix A: Figure 3).

The late Cretaceous age Panoche Formation was named by Anderson and Pack (1915) for sediments exposed during development in the Panoche Hills within the Diablo Range in Fresno County. The formation often is classified as part of the Great Valley Sequence; has a maximum thickness of approximately 22,000 feet; and consists of marine sandstone, mudstone, and interbedded sandstone and shale—with an upper portion that alternates shale with concretionary sandstone (Anderson and Pack 1915). This formation conformably underlies the late Cretaceous age Moreno Shale and unconformably overlies the Jurassic to early Cretaceous age Franciscan Complex (Anderson and Pack 1915; Dibblee 1981). These sedimentary rocks are mapped at the western end of the project alignment and may be present at depth beneath younger sedimentary deposits within the project alignment (Dibblee and Minch 2006; Appendix A: Figure 3).

Results

Paleontological Sensitivity

The basis for assessments of paleontological sensitivity (i.e., the potential to contain scientifically important paleontological resources) followed standard Caltrans SER criteria (California Department of Transportation 2014). As noted above, Caltrans criteria use three categories to describe the likelihood that a geologic unit contains significant fossil materials—high potential, low potential, and no potential, defined in Table 1.

Artificial fill materials are extremely unlikely to contain fossil materials—fossil content in anthropogenic materials would be a fluke occurrence attributed to the source of the materials used as fill; therefore, any resource would lack original stratigraphic context—an essential component of the scientific criteria for significance. Artificial fill deposits in the project area accordingly are evaluated as having no sensitivity for paleontological resources based on Caltrans (2014) guidelines.

Holocene deposits (i.e., the alluvial fan deposits and Dos Palos Alluvium) typically are not evaluated as paleontologically sensitive because biological remains are not considered fossils unless they are older than 10,000 years. There may be site-specific exceptions to this general approach, but the UCMP database contains no records for fossil finds from Holocene units in San Joaquin County (UCMP 2017). Accordingly, the Holocene alluvial fan deposits that immediately underlie the majority of the project alignment are considered to have no sensitivity to low sensitivity for paleontological resources based on Caltrans (2014) guidelines.

The **deposits of Pleistocene age** underlying the Holocene alluvial fan deposits are considered to have high sensitivity for paleontological resources based on Caltrans (2014) guidelines, consistent with the prevailing standard of care. California's Pleistocene nonmarine strata have yielded a wealth of stratigraphically important vertebrate fossils, including the assemblages that defined both the Rancholabrean and Irvingtonian Stages of the North American Land Mammal Chronology, which is used as a reference by paleontologists and stratigraphers across the country. Because of this wealth of information, continental deposits of Pleistocene age are almost universally treated as paleontologically sensitive in California. Demonstrating the potential for vertebrate finds in San Joaquin and Alameda County Pleistocene units, the UCMP database lists 15 distinct vertebrate fossil localities comprising 29 records in San Joaquin County and 64 distinct vertebrate fossil localities comprising 1,233 records in Alameda County. Fossil specimens from San Joaquin County include bony fish (Osteichthyes), pocket gopher (*Thomomys* sp.), horse (*Equus* sp.), mammoth (*Mammuthus* sp.), mastodon (*Mammut* sp.), camel (*Camelops* sp.), bison (*Bison* sp.), and ground sloth (*Megalonyx* sp.) (UCMP 2017, 2020). Fossil specimens from Alameda County include toad (*Bufo*), frog (*Rana*), salamander (*Ambystoma*), newt (*Taricha*), turtle (*Actinemys* sp., *Clemmys*), horned lizard (*Phrynosoma*), garter snake (*Thamnophis*), gopher snake (*Pituophis* sp.), king snake (*Lampropeltis*), goose (*Brant*a sp.), dabbling duck (*Anas* sp.), perch (*Archoplites* sp.), bony fish (Osteichthyes), blackfish (*Orthodon*), ground squirrel (*Spermophilus*), deer mouse (*Peromyscus* sp.), pocket mouse (*Perognathus* sp.), woodrat (*Neotoma*), pocket gopher (*Thomomys*), vole (*Microtus*), mole

(Scapanus sp.), cottontail (*Sylvilagus*), badger (*Taxidea*), otter (*Enhydra*), horse (*Equus* sp.), mammoth (*Mammuthus* sp.), mastodon (*Mammut* sp.), bovid (*Euceratherium* sp.), bison (*Bison* sp.), deer (*Odocoileus*), dwarf pronghorn (*Capromeryx*), pronghorn (*Tetrameryx* sp.), peccary (*Platygonus*), ground sloth (*Glossotherium* sp., *Megalonyx* sp.), camel (*Camelops* sp., *Hemiauchenia*), fox (*Vulpes*), coyote (*Canis latrans*), dire wolf (*Canis dirus*), short-faced bear (*Arctodus*), scimitar-toothed cat (*Dinobastis, Homotherium* sp.), and saber-toothed cat (*Smilodon* sp.) (UCMP2020).

Additionally, numerous vertebrate fossil localities are recorded from Pleistocene deposits in the adjacent counties of Amador, Calaveras, Contra Costa, Sacramento, and Stanislaus.

The UCMP database lists one distinct vertebrate fossil locality comprising one record in Amador County. The fossil includes bear (*Ursus*) (UCMP 2020).

The UCMP database list six distinct vertebrate fossil localities comprising 188 records in Calaveras County. Fossil specimens include newt (*Taricha*), bird (Aves), deer mouse (*Peromyscus* sp.), pocket mouse (*Perognathus* sp.), kangaroo rat (*Dipodomys*), woodrat (*Neotoma*), vole (*Microtus*), mole *(Scapanus* sp.), bat (*Myotis* sp.), ground squirrel (*Spermophilus*), pocket gopher (*Thomomys*), beaver (*Aplodontia* sp.), hare (*Lepus*), cottontail (*Sylvilagus*), tapir (*Tapirus* sp.), horse (*Equus*), deer (*Odocoileus*), bovid (*Euceratherium* sp.), and ground sloth (*Megalonyx* sp.) (UCMP 2020).

The UCMP database lists 57 distinct vertebrate fossil localities comprising 9,954 records in Contra Costa County. Fossil specimens include salamander (*Ambystoma* sp., *Aneides* sp.), alligator lizard (*Elgaria* sp.), anguid lizard (*Gerrhonotus*), turtle (*Actinemys* sp., *Clemmys*), rattlesnake (*Crotalus*), grebe (*Aechmophorus* sp.), dabbling duck (*Anas* sp.), scoter (*Melanitta*), quail (*Callipepla*), sage grouse (*Centrocercus*), road runner (*Geococcyx*), short-eared owl (*Asio* sp.), eagle ray (*Myliobatis*), bony fish (Osteichthyes), stickleback (*Gasterosteus* sp.), pack rat (*Neotoma* sp.), pocket mouse (*Perognathus* sp.), kangaroo rat (*Dipodomys*), vole (*Microtus* sp.), bat (*Antrozous*, *Eptesicus*, *Lasiurus*), ground squirrel (*Spermophilus*), hare (*Lepus* sp.), cottontail (*Sylvilagus*), badger (*Taxidea*), otter (*Enhydra* sp.), canine (*Cynodesmus* sp.), horse (*Equus* sp.), mammoth (*Mammuthus* sp.), mastodon (*Mammut* sp.), elephant (*Elephas*), bison (*Bison* sp.), dwarf pronghorn (*Capromery*x sp.), pronghorn (*Antilocapra* sp.), deer (*Cervus*, *Odocoileus* sp.), ground sloth (*Glossotherium* sp., *Megalonyx* sp.), and camel (*Camelops* sp.) (UCMP 2020).

The UCMP database lists six distinct vertebrate fossil localities comprising 126 records in Sacramento County. Fossil specimens include toad (*Scaphiopus*), frog (*Rana*), garter snake (*Thamnophis*), bird (Aves), bony fish (Osteichthyes), blackfish (*Orthodon*), harvest mouse (*Reithrodontomys*), woodrat (*Neotoma*), vole (*Microtus*), mole *(Scapanus* sp.), shrew (*Sorex*), pocket gopher (*Thomomys*), ground squirrel (*Spermophilus*), cottontail (*Sylvilagus*), horse (*Equus*), bison (*Bison* sp.), mammoth (*Mammuthus* sp.), ground sloth (*Glossotherium* sp.), coyote (*Canis latrans*), and dire wolf (*Canis dirus*) (UCMP 2020).

The UCMP database lists 17 distinct vertebrate fossil localities comprising 31 records in Stanislaus County. Fossil specimens include horse (*Equus*), mammoth (*Mammuthus* sp.),

proboscid (*Gomphotherium, Rhynchotherium* sp.), bison (*Bison* sp.), ground sloth (*Glossotherium* sp., *Megalonyx* sp.), and camel (*Camelops* sp.) (UCMP 2020).

The **late Miocene to Orinda and Oro Loma Formations** have a high sensitivity for paleontological resources based on Caltrans (2014) guidelines because of the large number of vertebrate fossils found in both Pliocene and Miocene deposits in San Joaquin and Alameda Counties. The UCMP database list three distinct vertebrate fossil localities comprising three records in San Joaquin County and two distinct vertebrate fossil localities comprising two records in Alameda County from Pliocene age deposits. Fossil specimens from San Joaquin County include horse (*Equus*) (UCMP 2020). Fossil specimens from Alameda County include rodent (Rodentia) and horse (*Nannippus* sp.) (UCMP 2020).

Additionally, numerous vertebrate fossil localities are recorded from Pliocene deposits in the adjacent county of Contra Costa. The UCMP database lists nine distinct vertebrate fossil localities comprising 1,268 records from Contra Costa County. Fossil specimens include turtle (*Actinemys* sp.), deer mouse (*Peromyscus*), mouse (*Repomys* sp., *Ogmodontomys* sp.), rabbit (*Hypolagus*), mole *(Scapanus* sp.), tree squirrel (*Sciurus*), ground squirrel (*Protospermophilus*), pocket gopher (*Thomomys*), horse (*Equus* sp.), and dwarf pronghorn (*Capromeryx*) (UCMP 2020).

Further, the UCMP database lists three distinct vertebrate fossil localities comprising four records in Alameda County and 24 distinct vertebrate fossil localities comprising 138 records in Contra Costa County from Miocene age deposits that are attributed to the Orinda Formation. Fossil specimens attributed to Miocene age deposits of the Orinda Formation in Alameda County include rabbit (*Hypolagus*) and horse (*Nannippus* sp.) (UCMP 2020). Fossil specimens from Contra Costa County include reptile (Reptilia), tortoise (*Hesperotestudo*), bony fish (Osteichthyes), gar (*Lepisosteus*), mouse (*Copemys*), shrew (*Sorex*), pocket gopher (*Pliosaccomys*), artiodactyl (*Cranioceras*), horse (*Hipparion* sp., *Nannippus* sp., *Pliohippus* sp.), oreodont (*Ticholeptus*), hippopotamus-like creature (*Desmostylus*), proboscid (*Gomphotherium* sp.), camel (*Procamelus)*, rhinoceros (*Aphelops*), and false saber-toothed cat (*Barbourofelis*) (UCMP 2020).

The **late Miocene age Neroly Formation** has a high sensitivity for paleontological resources based on Caltrans (2014) guidelines. A search of the UCMP database yielded one distinct vertebrate fossil locality comprising four records in San Joaquin County. Fossil specimens include dwarf pronghorn (*Capromeryx*), horse (*Nannippus*), and canid (*Osteoborus*) (UCMP 2020).

The **late Cretaceous age Panoche Formation** is considered to have high sensitivity for paleontological resources based on Caltrans (2014) guidelines. A search of the UCMP database did not yield any results for vertebrate fossil localities within San Joaquin and Alameda Counties. However, the search did yield several records for vertebrate fossil localities within Fresno and Stanislaus counties from the late Cretaceous age Moreno Shale, which lies stratigraphically below and is, in part, lithologically similar to the Panoche Formation. Specimens from Fresno County include turtle (*Basilemys*), ray-finned fish (*Enchodus, Protosphyraena, Saurodon*), large bony fish (*Bonnerichthys gladius*), sevengill shark (*Heptranchias*), plesiosaur (*Hydrotherosaurus*

alexandrae, *Morenosaurus stocki*), mosasaur (*Plotosaurus tuckeri*, *Plotosaurus bennisoni*, *Plesiotylosaurus crassidens, Prognathodon* waiparaensis, *Halisaurus*), and duck-billed dinosaur (Hadrosauridae) (UCMP 2020). Specimens from Stanislaus County include mosasaur (*Plotosaurus tuckeri*) and duck-billed dinosaur (Hadrosauridae), which are recorded from the Puerto Canyon Locality near Patterson (UCMP 2020). Additionally, numerous records for invertebrate fossil localities that have been recovered from the Panoche Formation in Alameda, Fresno, Inyo, Kings, and Merced Counties (UCMP 2020). Further, the results of a museum record search that was conducted for a Pacific Gas and Electric Company project yielded records for several vertebrate fossil localities from the late Cretaceous age Panoche Formation in Fresno County, including the holotypes of the extinct bony fish *Paraberyx californica*, *Driverius cretaceus*, and *Goudkoffia delicata* (see Appendix A of Paleo Solutions 2015).

Conclusion

Holocene age alluvial fan deposits, surficial sediments, Dos Palos Alluvium, and artificial fill underlie the majority of the project alignment. These younger Holocene age deposits typically are underlain by Pleistocene alluvial fan deposits, although the depth at which this contact exists within the project alignment is not known (Knudsen and Lettis 1997: 8; Wagner et al. 1991). The westernmost end of the project alignment is mapped as Orinda and Oro Loma Formations, which are considered to be undivided and of late Miocene to Pliocene age in the project region, late Miocene age Neroly Formation, and late Cretaceous age Panoche Formation (Dibblee and Minch 2006; Appendix A: Figure 3). Further, these older sedimentary units may underlie younger sedimentary units at depth elsewhere within the project alignment.

Due to the relatively young age of Holocene age alluvial fan deposits, surficial sediments, and Dos Palos Alluvium, these units are considered to have no to low paleontological sensitivity based on Caltrans (2014) guidelines. Similarly, resources that are discovered in artificial fill will lack stratigraphic context because they would have been displaced from their original spot of deposition; therefore, they are considered to have no paleontological sensitivity based on Caltrans (2014) guidelines.

Pleistocene age deposits have produced a plethora of vertebrate fossil localities throughout both San Joaquin and Alameda Counties, as well as the adjacent counties of Amador, Calaveras, Contra Costa, Sacramento, and Stanislaus. Additionally, Pliocene age deposits have produced numerous vertebrate fossil localities from San Joaquin, Alameda, and Contra Costa Counties. Further, Miocene age deposits that are attributed to the Orinda Formation have produced numerous vertebrate fossil localities in Alameda and Contra Costa Counties. Pleistocene age alluvial fan deposits and the late Miocene to Pliocene age Orinda and Oro Loma Formations, therefore, have a high paleontological sensitivity based on Caltrans (2014) guidelines.

The late Miocene age Neroly Formation has produced several vertebrate fossils in San Joaquin County and therefore is considered to have a high paleontological sensitivity based on Caltrans (2014) guidelines.

The late Cretaceous age Panoche Formation has produced several vertebrate fossil localities in Fresno County, including the holotypes of several extinct bony fish. This formation also has

produced numerous invertebrate fossil localities in Alameda, Fresno, Inyo, Kings, and Merced Counties. The late Cretaceous age Panoche Formation therefore is considered to have a high paleontological sensitivity based on Caltrans (2014) guidelines.

Recommendations

This PIR will be updated as needed during the Project Approval & Environmental Document phase, and a PER will be prepared for inclusion in the draft Environmental Document. It is recommended that a paleontological field survey of the project alignment be conducted in order to document any fossils currently exposed on the surface, verify the mapped geology, and better assess the paleontological potential of the geologic units underlying the project alignment. The results of the pedestrian field survey should be incorporated into the PER. The PER will also include the preliminary mitigation measures regarding paleontological resources as well as the updated PIR, the latter of which will be included as an appendix.

Prior to project construction, a PMP should be prepared. The PMP should provide detailed recommended monitoring locations; a description of a worker training program; detailed procedures for monitoring, fossil recovery, laboratory analysis, and museum curation; and notification procedures in the event of a fossil discovery by a paleontological monitor or other project personnel.

Time Estimates

[TBD based on Caltrans review and the construction ground disturbing activities schedule.]

Preparers

This PIR was prepared by Ellen Unsworth (B.A., geology, Sacramento State University, interdisciplinary M.S., biology/geology/technical communication, Boise State University) and reviewed by Gary Clendenin (CA PG-6396; B.S., geology, Marietta College; M.S., geology, Ohio University). It was further updated by Paleo Solutions staff members Joey Raum (B.S., geology, University of Maryland, College Park) and Courtney Richards (B.S., earth and space science, University of Washington; M.S., biological sciences, Marshall University), and reviewed by Jeff Hathaway (CA PG-8327; B.S., geology, chemistry, California State University, Fullerton; M.S., geology, California State University, Fullerton).

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Appendix A: Project Maps



Figure 1. Project Location Map.

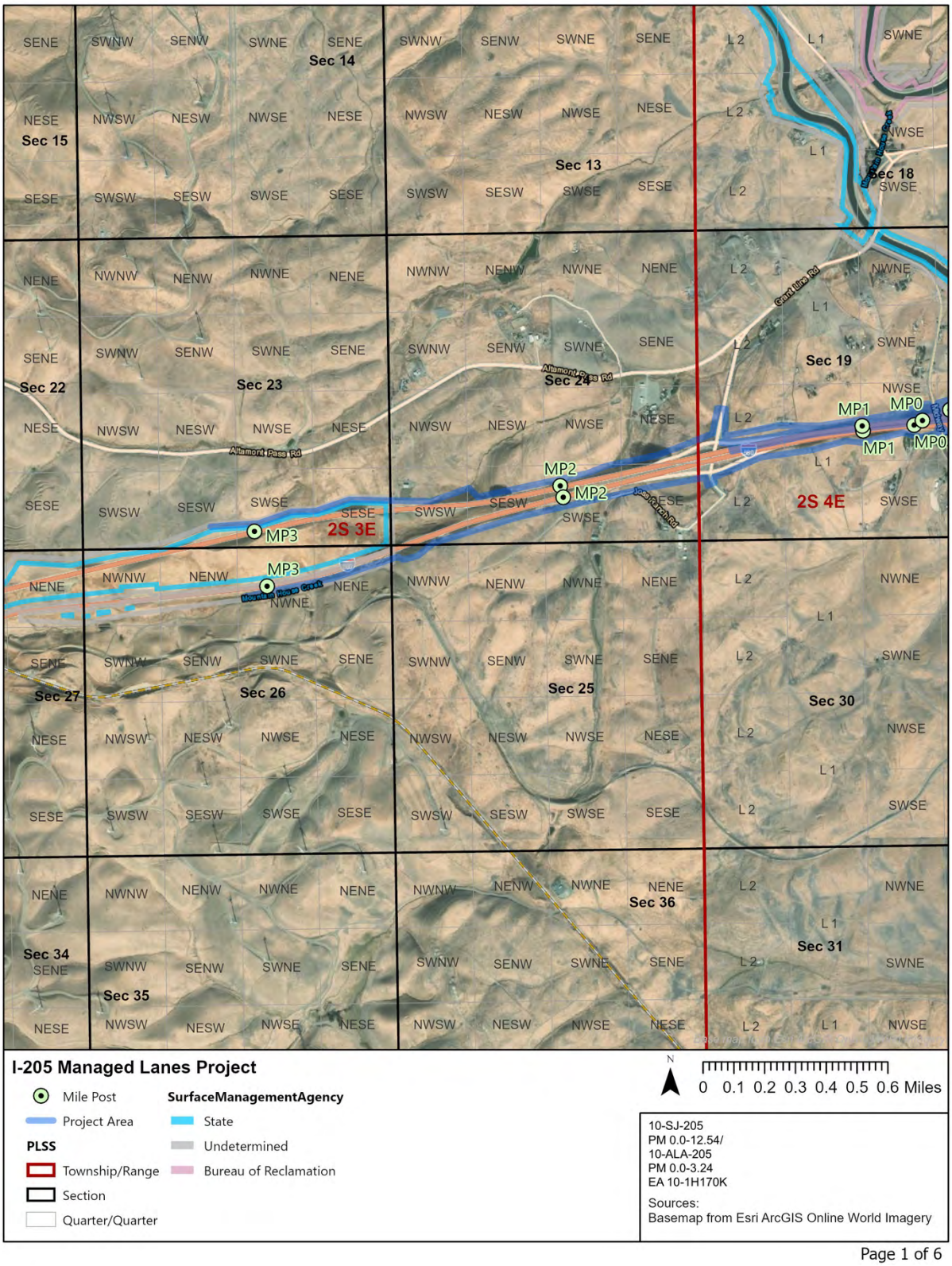
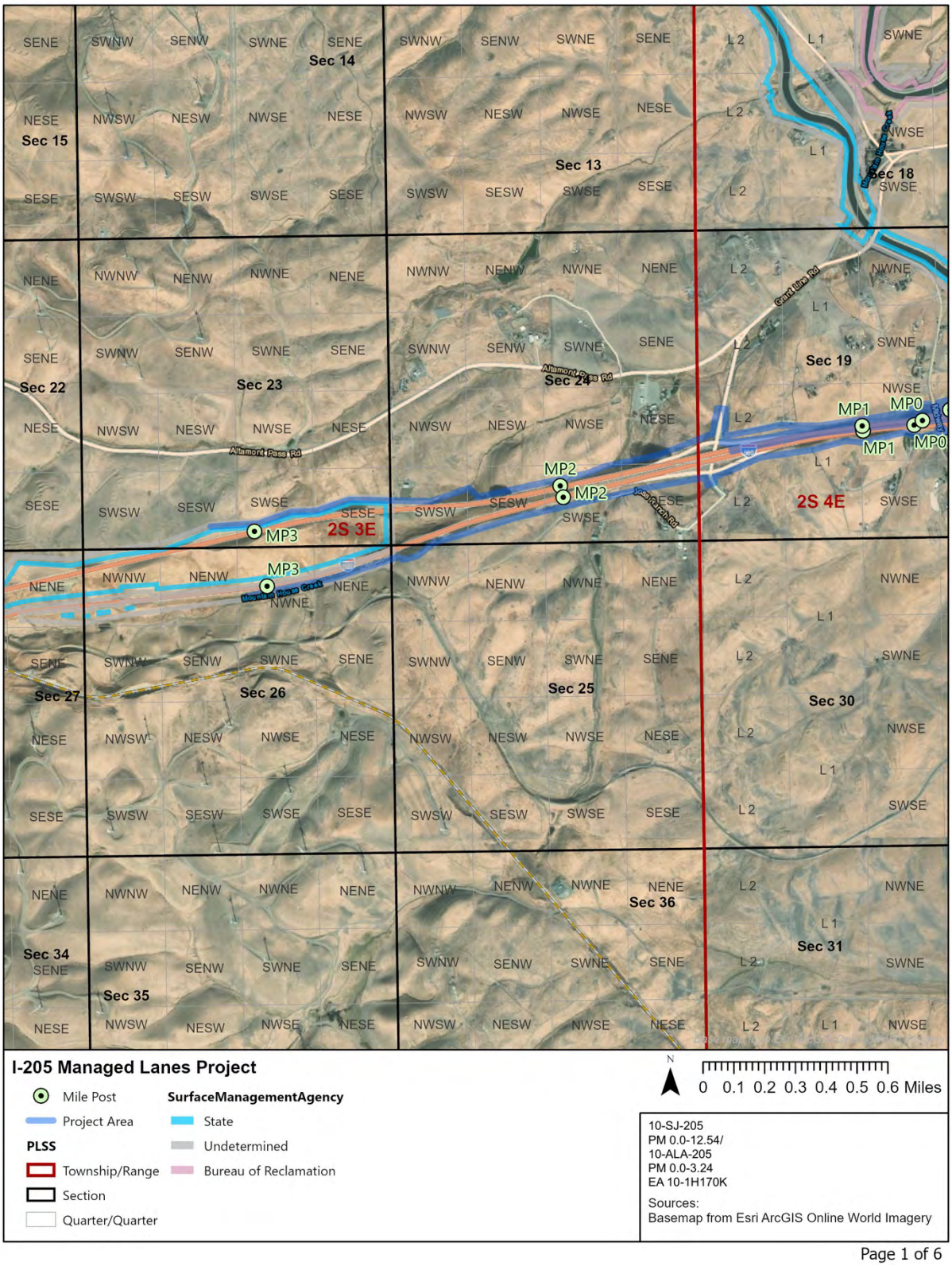
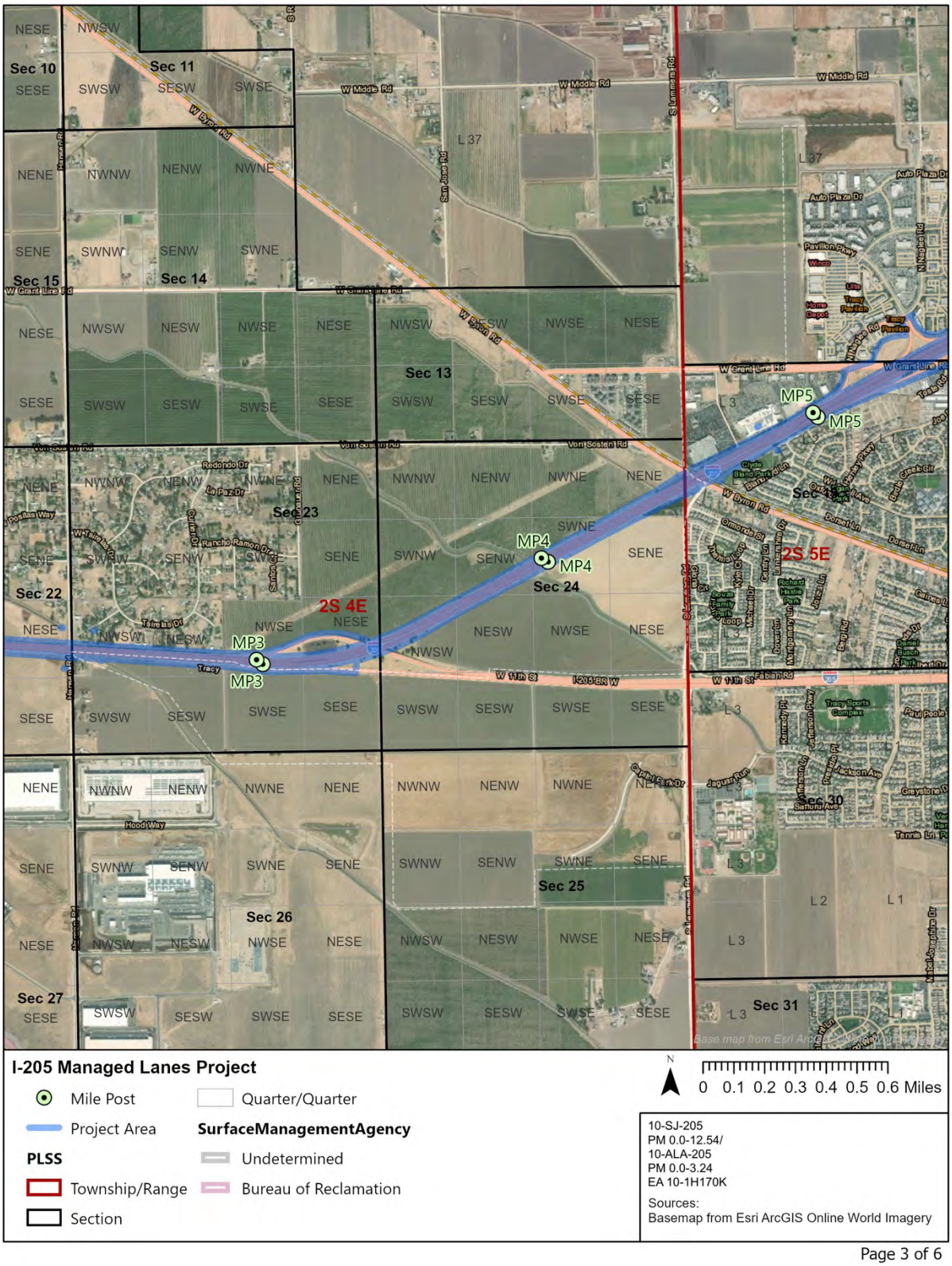


Figure 2a. Project Overview Map.



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Figure 2b. Project Overview Map.

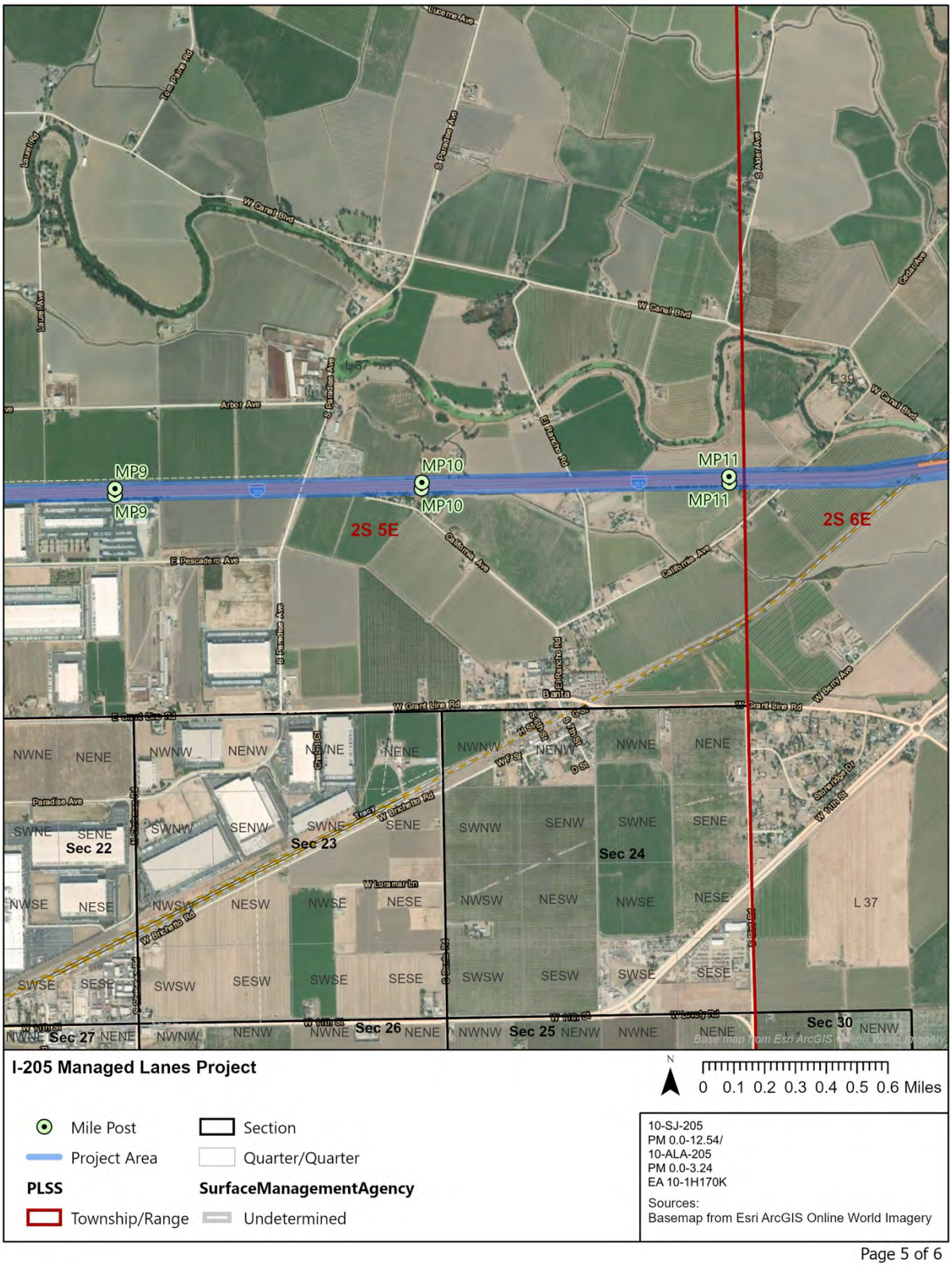


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Figure 2c. Project Overview Map.

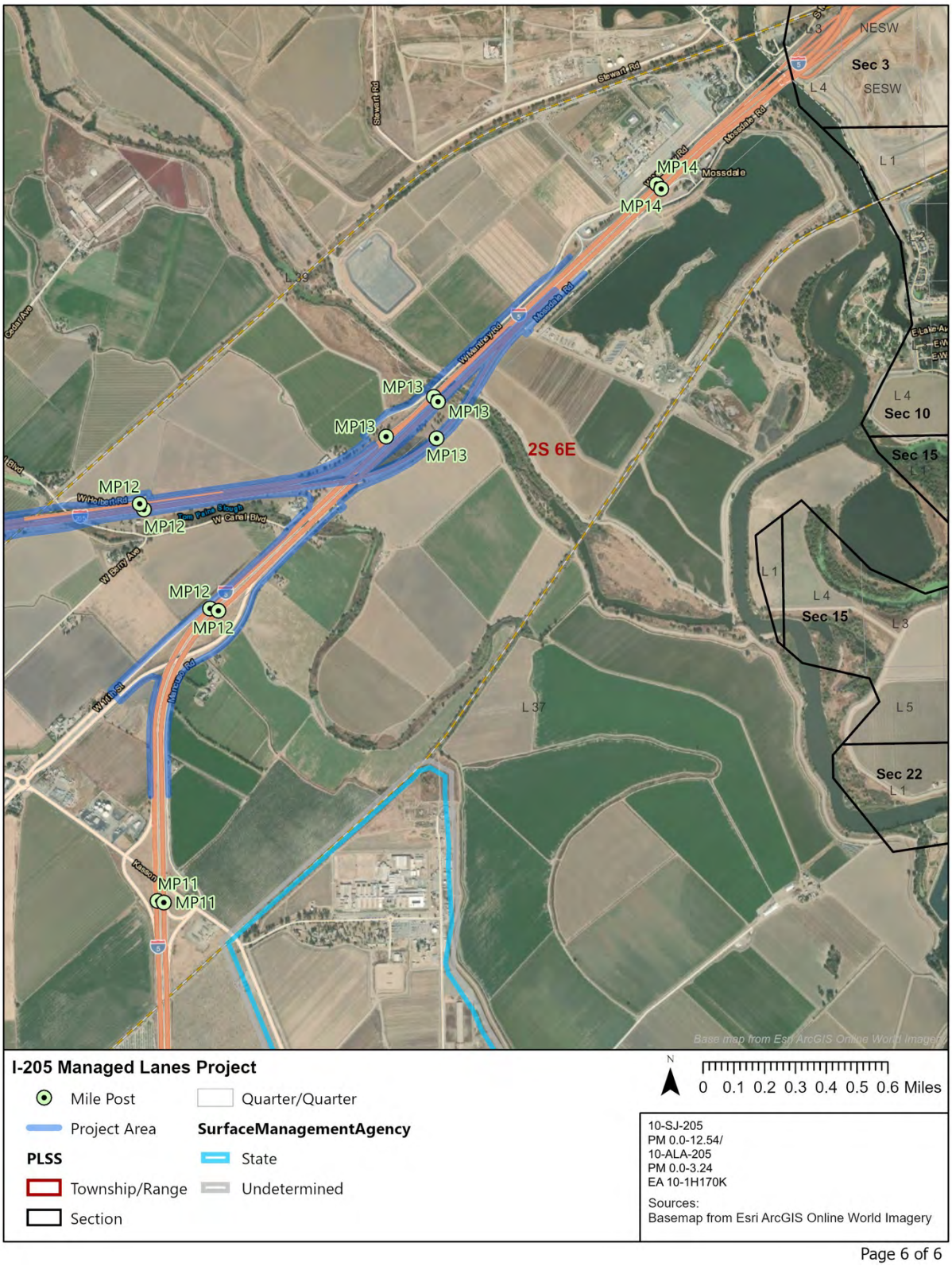


Figure 2d. Project Overview Map.



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Figure 2e. Project Overview Map.



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Figure 2f. Project Overview Map.

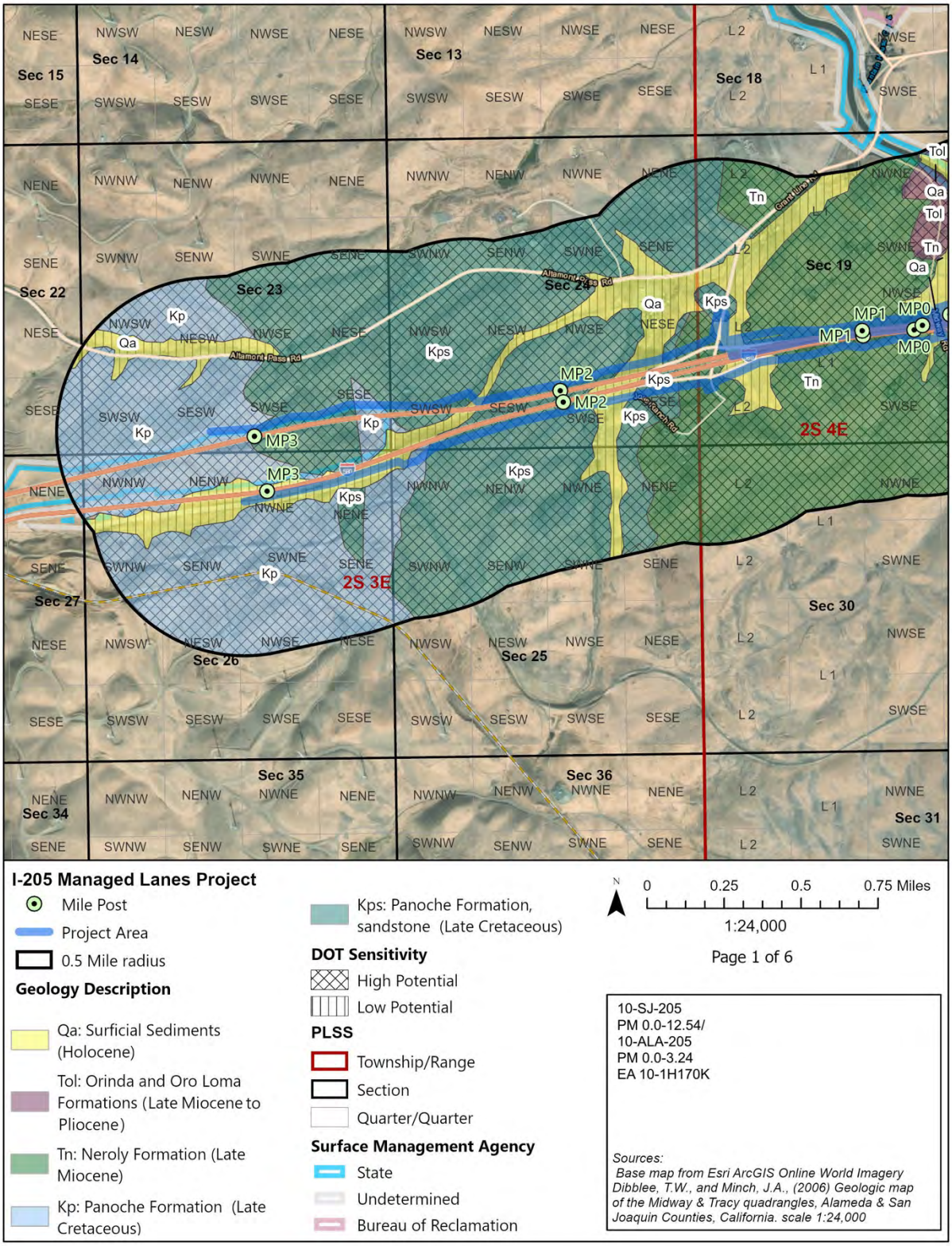


Figure 3a. Project Geology Map.

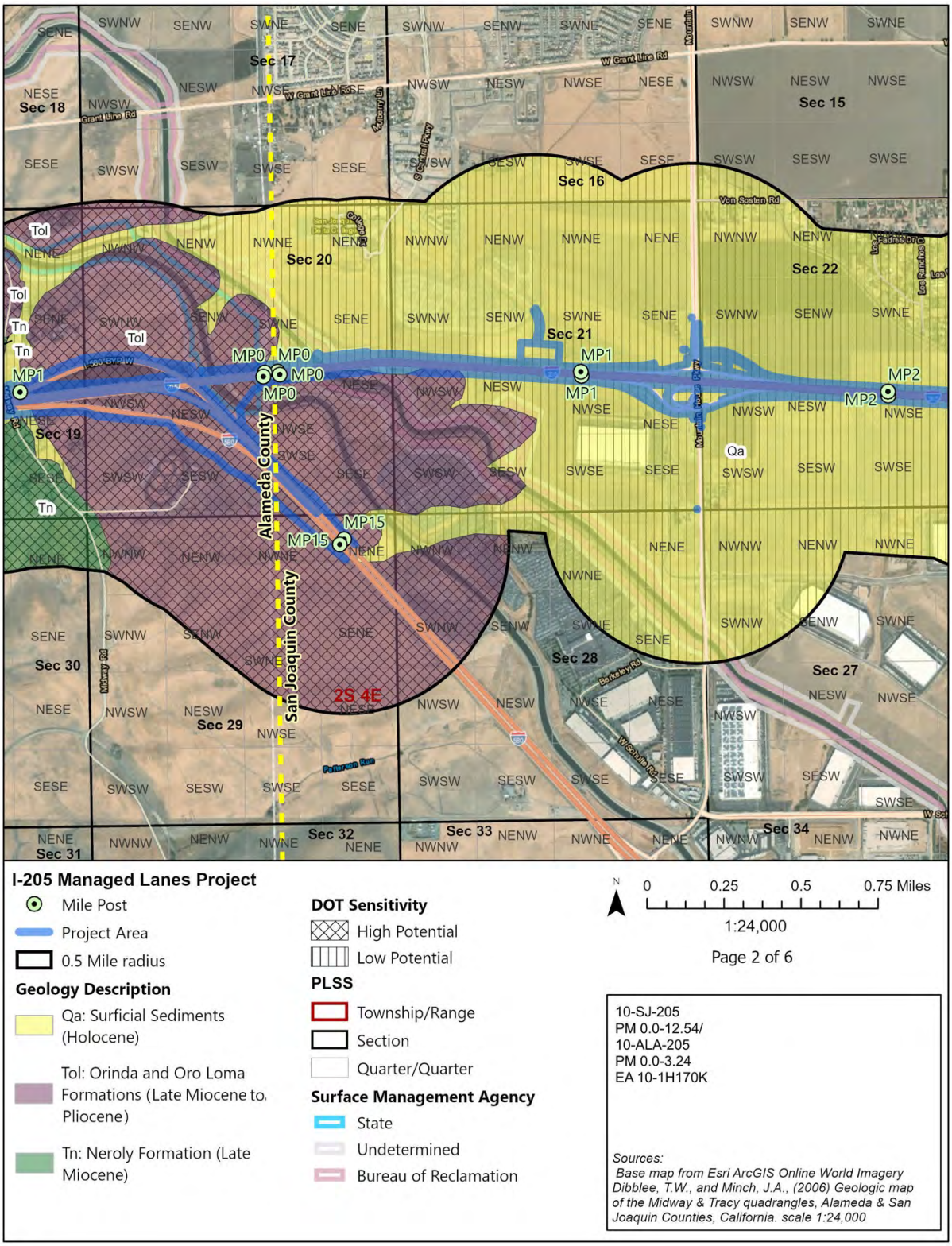


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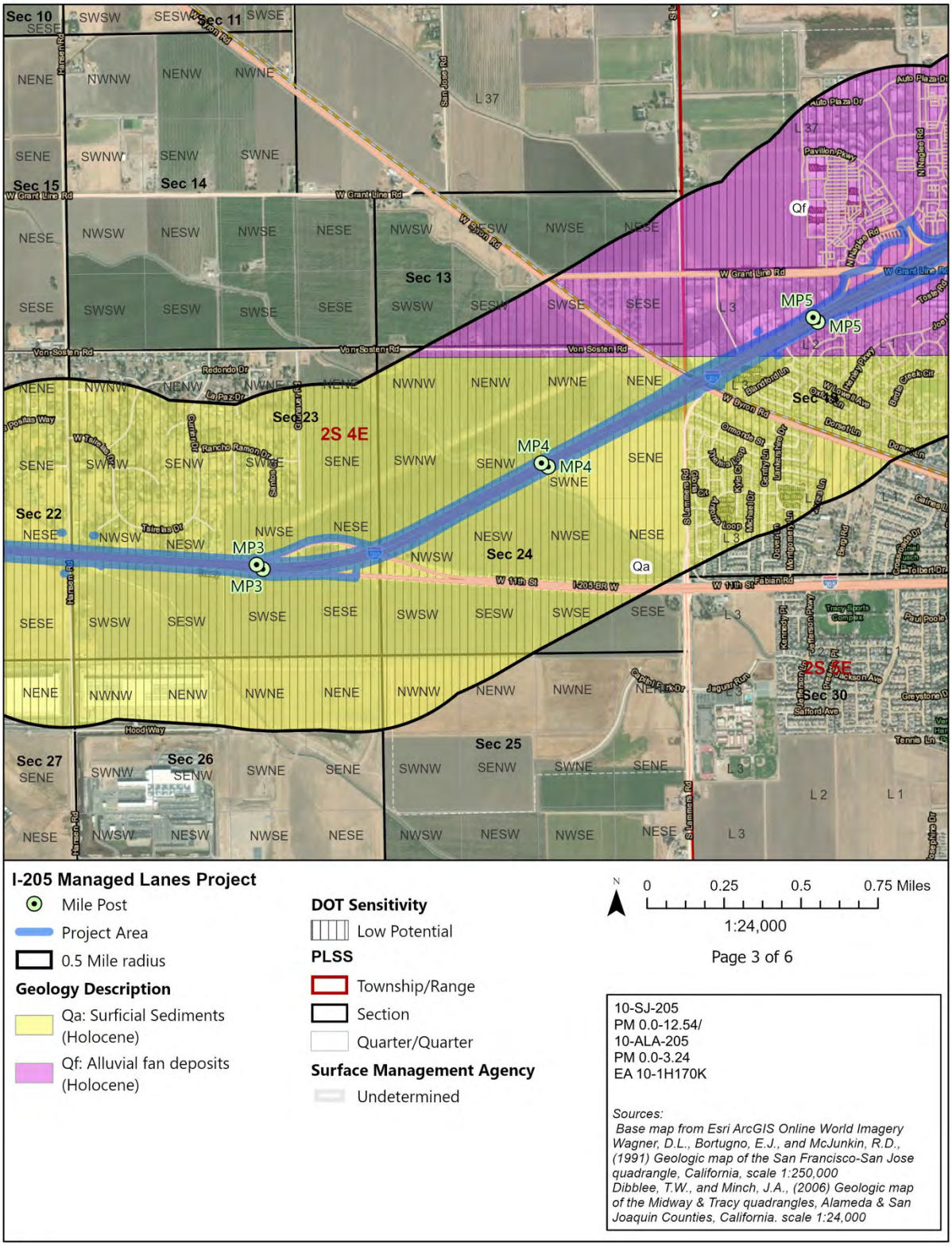


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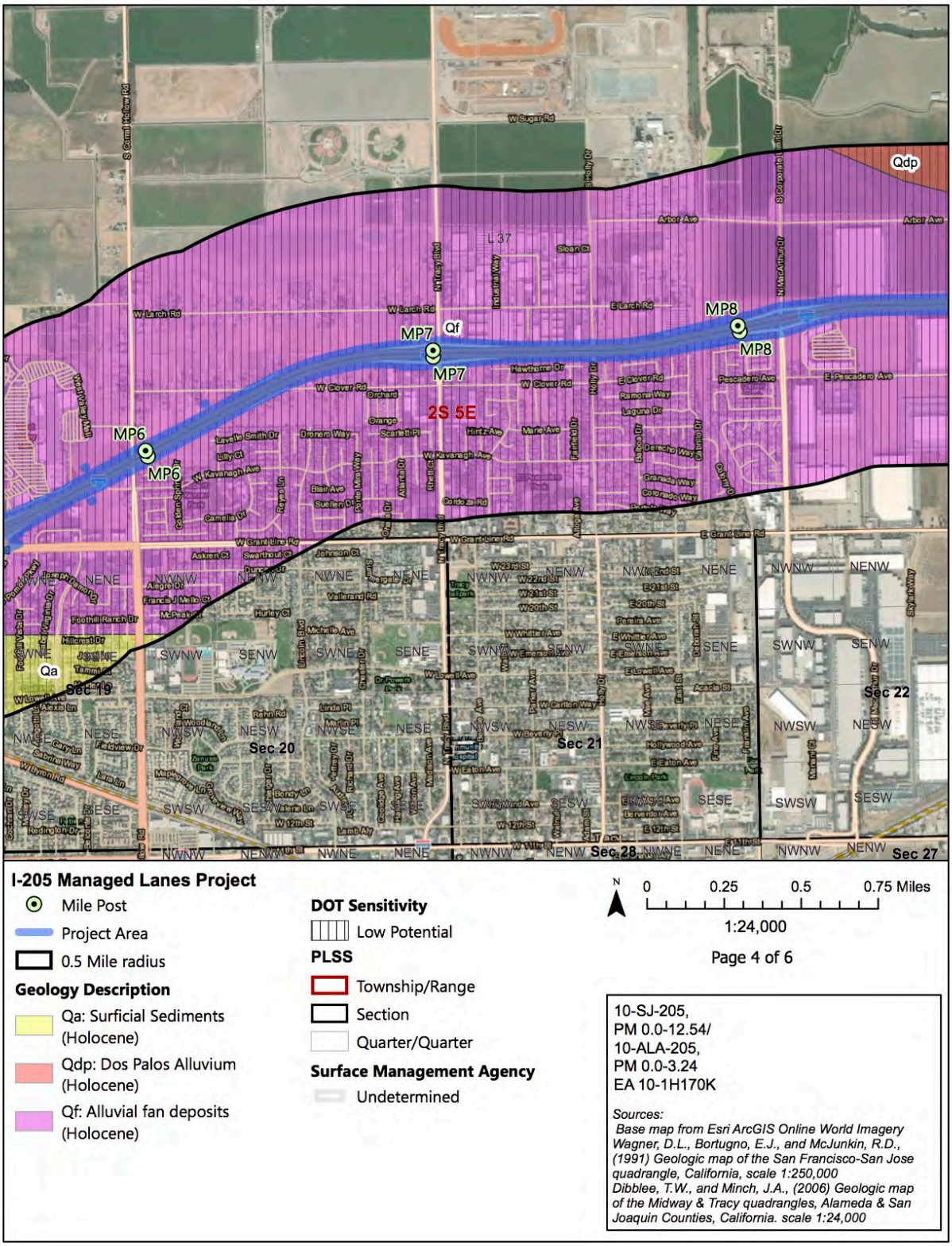


Figure 3d. Project Geology Map.

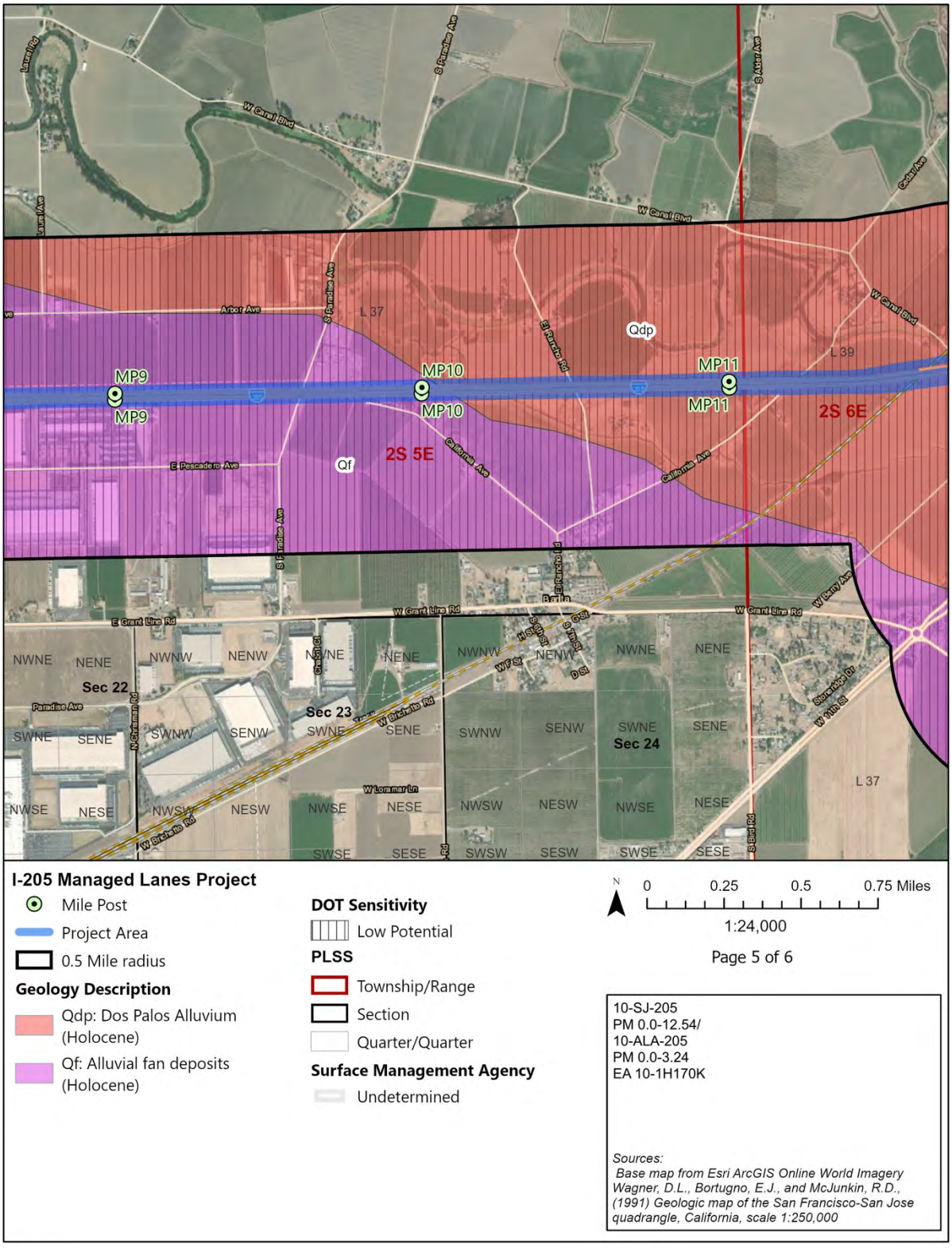


Figure 3e. Project Geology Map.

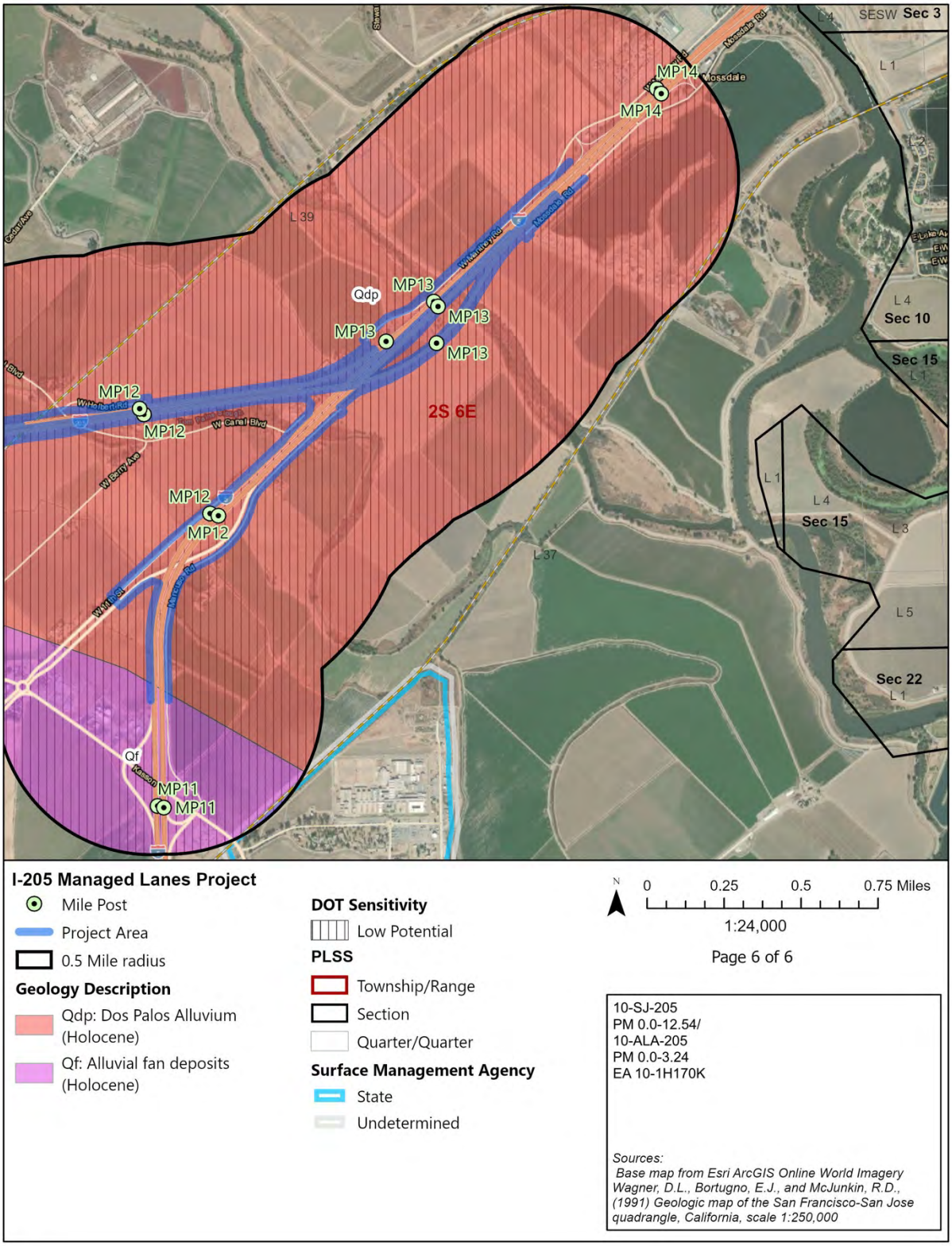


Figure 3f. Project Geology Map.

Attachment I

Biological Environment Documentation for the I-205 Managed Lanes Project PEAR (EA 10-1H170K)

Introduction

The purpose of this technical memorandum (memo) is to provide an overview of biological resources issues and constraints for the I-205 Managed Lanes Project (project) and to support preparation of the Supplemental Preliminary Environmental Analysis Report (PEAR) for the California Department of Transportation (Caltrans).

This memo describes the biological resources in the project study area and provides a general evaluation of potential project effects on biological resources. The memo also identifies studies or focused surveys that could be required to support the California Environmental Quality Act (CEQA) environmental document and a list of potential permits or agency authorizations, including timelines, to assist in project planning and scheduling.

Project Description

The project proposes to install managed lanes on Interstate 205 through the City of Tracy, accommodate transit hubs, and improve interchanges between postmiles R1.7 on Interstate 580 and R13.5 on Interstate 5. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. Managed lanes are highway lanes that are actively managed to respond to an area's rapid growth. Interstate 205 in the City of Tracy has been identified as an area of heavy congestion resulting from high truck volumes and commuters that travel to and from the Bay Area. Examples of managed lanes being considered for the proposed project would be high occupancy-vehicle lanes, transit lanes, and express (or toll) lanes.

Alternatives

Four build alternatives and the no-build alternative (Alternative 1) will be considered.

No Build Alternative

Alternative 1. No-Build: Under the no-build alternative, no additional widening or lanes would be constructed. Other planned projects and maintenance would take place.

Build Alternatives

The four build alternatives all occur within the same corridor. The project limits extend from the Interstate 580 and the West Grant Line Road interchange in Alameda County to the Interstate 205 and the Interstate 5 interchange in San Joaquin County. The build alternatives are described briefly below.

Alternative 2. High-Occupancy Vehicle Lane Addition: This alternative would add a high-occupancy vehicle lane on Interstate 205 in each direction. High-occupancy vehicle lanes are reserved for vehicles carrying a certain number of passengers, generally 2 or 3 people. The high-occupancy vehicle lane would be added on the outside between the Interstate 580 and the West Grant Line Road interchange and the West Eleventh Street interchange. The high-occupancy vehicle lane would be added on the inside (in the median) east of the West Eleventh Street interchange. The highway would include three general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 3. High-Occupancy Vehicle Lane Conversion: No lanes would be added, and the number one lane (or left lane) in each direction would be converted to a high-occupancy vehicle lane. The highway would include two general purpose lanes and a high-occupancy vehicle lane in each direction.

Alternative 4. Express Lanes: Interstate 205 would be widened to the outside to accommodate express lanes, leaving the median open for future planned transit improvements. Express lanes provide toll free travel lanes for high-occupancy vehicle, transit, and clean air vehicles and can be used by single-occupancy vehicles for a toll. The number one lane (or left lane) would be an express lane, providing free access to vehicles that meet a minimum occupancy or vehicle type requirement, and priced access to vehicles that do not meet those requirements. The highway would consist of three general purpose lanes, an express lane and in some auxiliary lanes in each direction. A new alignment would be constructed to cross the California Aqueduct and Delta Mendota Canal.

Alternative 5. Transit Only Lanes: This alternative would be the same as Alternative 4, but transit only lanes which would be reserved for busses would replace express lanes.

Structural Improvements

Depending on the alternative selected overcrossings, undercrossings, and interchanges may require widening, realignment or improvements.

No improvements to structures would be required under Alternative 1, No Build. Minimal alterations to structures or interchanges may be required under Alternative 3 to accommodate changes in traffic volumes.

Under Alternative 2, the following improvements or alterations would be necessary:

- Widen I-205 to the outside between I-580 and the West Eleventh Street interchange.
- Widen the bridge over the Delta Mendota Canal to the outside.

- Widen I-205 to the inside (median) from the West Eleventh Street interchange east to the end to of the project at the I-5 interchange.
- Widen the following structures to the inside (median):
    - Janney Overhead
    - Grant Line Road Overhead
    - Corral Hollow Road Undercrossing
    - Tracy Boulevard Undercrossing
    - Sugar Spur Overhead
    - MacArthur Drive Undercrossing
    - El Rancho Road Undercrossing
    - Tom Paine Slough Bridge
- Construct retention basins adjacent to I-205 to accommodate increased runoff
- Perpetuate the existing auxiliary lanes from Mountain House Parkway to Eleventh Street

Under Alternatives 4 and 5, the project would require the following structural improvements. Within the Alameda County limits, the project proposes a park-and-ride lot at the West Grant Line Road interchange; new alignments for westbound I-580, westbound I-205, and the West Grant Line Road off-ramp; and replacement of the following structures:

- Westbound I-580 – Midway Road undercrossing
- Westbound I-580 – I-205 separation structure
- Westbound I-205 off-ramp to Grant Line Road – westbound I-580 separation structure
- Westbound I-205 – Midway Road undercrossing
- Westbound I-205 – California Aqueduct bridge
- Westbound I-205 – North Midway Road undercrossing

Within San Joaquin County, the project would widen I-205 to the outside in the westbound and eastbound directions from the Delta Mendota Canal to the East Banta Union Pacific Railroad (UPRR) overhead. Eastbound I-205 widening would continue toward I-5, and the project would include new eastbound I-205 to northbound I-5 connectors. The southbound I-5 to I-205 connector and northbound I-5 connector would be realigned as part of the I-205/I-5 interchange improvements. Six interchanges would be affected by the I-205 widening. The West Grant Line Road interchange, the North Tracy Boulevard interchange, and the North MacArthur Drive interchange would be improved with this project. The Mountain House Parkway interchange, West 11th Street interchange, and Paradise Road interchange currently are under project development and will be constructed independent of this project. In addition to retaining walls and sound walls along the corridor, the project would widen or replace the following structures within San Joaquin County:

- Westbound I-205 – Delta Mendota Canal bridge
- I-205 – Box culvert

- I-205 – Mountain House Parkway overcrossing
- I-205 – Hansen Road overcrossing
- Eastbound I-205 – Irrigation canal bridge
- Westbound I-205 – West Byron Road/Janney UPRR overhead
- Eastbound I-205 – West Byron Road/Janney UPRR overhead
- Westbound I-205 – West Grant Line Road undercrossing
- Eastbound I-205 – West Grant Line Road undercrossing
- Westbound I-205 – North Corral Hollow Road undercrossing
- Eastbound I-205 – North Corral Hollow Road undercrossing
- Westbound I-205 – North Tracy Boulevard undercrossing
- Eastbound I-205 – North Tracy Boulevard undercrossing
- I-205 – Holly Drive overcrossing
- Westbound I-205 – Sugar Spur UPRR overhead
- Eastbound I-205 – Sugar Spur UPRR overhead
- Westbound I-205 – North MacArthur Drive undercrossing
- Eastbound I-205 – North MacArthur Drive undercrossing
- I-205 – Paradise Road overcrossing
- Westbound I-205 – El Rancho Road undercrossing
- Eastbound I-205 – El Rancho Road undercrossing
- Eastbound I-205 – East Banta UPRR overhead
- Eastbound I-205 – West Canal Boulevard/Tom Paine Slough bridge
- Eastbound 205 to northbound I-5 express lanes connector – southbound I-5 –separation structure
- Northbound I-5 – Paradise Cut bridge

Additional project work under all build alternatives could include detention or retention basins, access roads, and four transit hubs. Transit hubs could include park-and-ride lots, electrical vehicle (EV) charging stations, bus stops and train stops. Locations for transit hubs would be determined in coordination with stakeholders that include but are not limited to the following: Federal Highways Administration, Caltrans, Valley Link, San Joaquin Council of Governments, City of Tracy, Community of Mountain House, Alameda County, San Joaquin County, local transit, and the interested public to improve access to the transit facility and to avoid precluding connectivity to the local communities. The proposed project would construct facilities within the right-of-way, such as rail stops, to accommodate connection to the corridor, but may or may not construct the actual transit hubs.

Project Study Area

For the purposes of this PEAR, the project study area consists of the project limits, which include the proposed improvements and right-of-way (Figure 2 in the PEAR).

Background Search and Field Survey

To determine what types of biological resources could be affected by the project, Burleson biologists reviewed known species occurrence data for the region, (i.e., the California Natural Diversity Database[1] [CNDDB]; California Native Plant Society[2] [CNPS] Inventory of Rare and Endangered Plants of California; and U.S. Fish and Wildlife Service[3] [USFWS] list of endangered, threatened, and proposed species), a National Marine Fisheries Service[4] (NMFS) California species list, and Google Earth aerial imagery of the project study area. Burleson biologists conducted a reconnaissance-level field survey on December 14, 2020, to identify sensitive biological resources (i.e., habitat for special-status species, aquatic resources, and nesting bird substrate). A map depicting the CNDDB occurrences in the project study area vicinity is provided at the end of this attachment (Figures 3a and 3b).

Results

The project study area encompasses the I-205 corridor, including the median, overheads, undercrossings, Paradise Cut, and the Tom Paine Slough Bridge. The land adjacent to I-205 supports development, annual grassland, agriculture (hay and fallow fields), Sugar Spur, Paradise Cut, and Tom Paine Slough. The annual grasslands are highly disturbed by surrounding agriculture, development, and roadway maintenance (i.e., spraying and mowing). Typical annual grassland species observed were oats (*Avena* spp.), ripgut brome (*Bromus diandrus*), soft chess (*B. hordeaceus*), foxtail barley (*Hordeum murinum*), and Italian ryegrass (*Festuca perennis*). Nonnative forbs commonly observed were milk thistle (*Silybum marianum*), charlock (*Sinapis arvensis*), and Italian thistle (*Carduus pycnocephalus*).

Sensitive biological resources (i.e., aquatic resources, special-status plants, and special-status wildlife) that may be present in the project study area and those with the potential to be affected by

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[1] California Department of Fish and Wildlife. 2020. *California Natural Diversity Database, RareFind*. Available: https://map.dfg.ca.gov/rarefind/view/QuickElementListView.html. Accessed: December 11, 2020.

[2] California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.45). Available: http://www.rareplants.cnps.org. Accessed: December 11, 2020].

[3] U.S. Fish and Wildlife Service. 2020. List of threatened and endangered species that may occur in and/or may be affected by the I-205 Tracy HOV widening project. Obtained from the IPaC website. Available: http://ecos.fws.gov/ipac). Accessed: December 11, 2020.

[4] National Marine Fisheries Service. 2020. List of ESA-listed NMFS species, critical habitat, Essential Fish Habitat, and Marine Mammal Protection Act resources under NMFS purview in California. Available: https://archive.fisheries.noaa.gov/wcr/maps_data/california_species_list_tools.htm. Accessed: December 20, 2020.

the project are discussed below. The dense emergent marsh in Tom Paine Slough was the only sensitive natural community observed in the project study area and is described below as an aquatic resource. Additionally, the I-205 corridor acts as a wildlife barrier and project design should address the need to create additional wildlife crossings. This will be further discussed in project's Natural Environmental Study (NES) report.

Aquatic Resources

The primary aquatic resources observed in the project study area during the reconnaissance-level site visit were Paradise Cut (Upper Old River on EPA Water Features), Tom Paine Slough, Mountain House Creek, and Sugar Spur. Paradise Cut contained flowing water and riparian forest within the levee limits. Tom Paine Slough contained a dense stand of common reed (*Phragmites australis*) and had observable flow during the December 14, 2020 survey. A few small willows (*Salix* sp.) and a cottonwood (*Populus fremontii*) were on the west side of the slough, but they did not support riparian habitat. Paradise Cut is a historical branch of the San Joaquin River that supports a 300- to 400-foot riparian zone, consisting of a low-flow channel and floodplain that is bordered on both sides by levees. At the upstream end, the channel is separated from the main channel of the San Joaquin River by a low berm that can be overtopped during flood events. At the downstream end, the channel connects with Old River. Riparian vegetation, consisting of cottonwood and willow trees, is present along the margins of the floodplain. The channel is inundated primarily from irrigation runoff, and large stands of water hyacinth (*Eichhornia crassipes*) are present. Sugar Spur is concrete lined and contains scattered clumps of emergent vegetation such as cattails (*Typha latifolia*) and tall flatsedge (*Cyperus eragrostis*). Mountain House Creek is a rock-lined, artificially engineered channel located at the far west end of the project study area. No riparian habitat was observed in Mountain House Creek during the survey. Sugar Spur flows north through the project study area and contains trash and other debris.

According to U.S. Geological Survey (USGS) topographic mapping, Paradise Cut and Tom Paine Slough are blue-line features that have an apparent hydrologic connection to Old River, which is northwest of the project study area. Sugar Spur is not mapped as a blue-line feature but has an apparent hydrologic connection to Old River. Mountain House Creek is mapped as a blue-line feature with hydrologic connectivity to the San Joaquin River. Tom Paine Slough, Mountain House Creek, Paradise Cut, and Sugar Spur are potential waters of the United States or State. A delineation of aquatic resources would be required to submit a preliminary jurisdictional determination for these features to the U.S. Army Corps of Engineers (USACE) for verification. The results of the delineation also would be presented in the Natural Environment Study (NES) and CEQA document. The project study area could contain potential waters of the United States or State that were not identifiable during the reconnaissance-level site visit.

Special-Status Plants

The records search of the CNDDB and CNPS inventory identified 72 special-status plant species that have been reported in the project region. The project study area does not contain potential habitat or is substantially outside the elevation range for 62 of the 72 special-status plant species. The remaining 10 special-status plant species were determined to have relatively low potential to occur

in the annual grassland and emergent marsh in the project study area. The grassland and emergent marsh in the project study area contain debris and have been altered by their proximity to development and the construction and operation of I-205. Although it is unlikely for special-status plants to occur in the project study area, these species cannot be dismissed without appropriately timed botanical surveys to document whether the project is expected to affect special-status plants. These surveys are to coincide with the reported blooming periods for the 10 special-status species with low potential to occur in the project study area. The two survey windows for these species would be in May-June and August-September. Botanical survey methods and results would be documented in the NES.

Special-Status Wildlife

The project study area is centered on the existing I-205 corridor, which includes areas that are routinely disturbed and have a low likelihood of supporting special-status wildlife. However, the surrounding areas include habitats that are known to support special-status species. The western end of the project study area is surrounded by annual grassland, and the eastern end extends into a tributary lined with riparian vegetation that feeds into the San Joaquin River. Most of the project study area is bordered by, or is proximate to, active and fallow agricultural fields. Habitats required by many of the special-status wildlife known or with the potential to occur in the project region are not present in the project study area—specifically, vernal pools and seasonal wetlands. Vernal pool fairy shrimp (*Branchinecta lynchi*) is a species whose occurrence depends on the presence of vernal pools/seasonal wetlands or ponds. The species was identified by the CNDDB to occur within the 5-mile buffer of the study area; however, none of the species required habitat was observed during the December 14, 2020 survey. Aerial analysis was conducted to determine if habitat suitable for the vernal pool fairy shrimp is present within the project footprint. Based on a Google Earth desktop survey and evaluation of historical imagery, perennial and seasonal ponds were found to the north and south of I-205 extending from the western most edge of the project study area to Mountain House Parkway. However, no habitat suitable for vernal pool fairy shrimp was found within the project footprint where work is expected to take place. For this reason, potential impacts on vernal pool fairy shrimp are not addressed in this memo.

Potential habitat is present in the project study area for 11 special-status wildlife species. Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), western pond turtle (*Actinemys marmorata*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), burrowing owl (*Athene cunicularia*), northern harrier (*Circus hudsonius*), tricolored blackbird (*Agelaius tricolor*), riparian brush rabbit (*Sylvilagus bachmani riparius*) and San Joaquin kit fox (*Vulpes macrotis mutica*) have the potential to occur in the project study area. There is also a potential for California red-legged frog (*Rana draytonii*), and California tiger salamander (*Ambystoma californiense*) to occur in the project study area. Several bridge crossings in the project study area provide crack and crevice habitat that may be suitable for roosting bats. The project study area also provides nesting habitat for other non-special-status migratory birds protected under the California Fish and Game Code and Migratory Bird Treaty Act.

Information about each of the 15 special-status wildlife species identified with the potential to occur in the project study area is provided below.

Valley elderberry longhorn beetle. Valley elderberry longhorn beetle (VELB) is listed as a threatened species under the federal Endangered Species Act (FESA). The closest CNDDB record of occurrence is just under 6 miles south of the project study area. Elderberry shrubs, the host plant for VELB, are commonly found in riparian understory; however, they also occur in low densities in grasslands that are close to water. If elderberry shrubs are present, VELB could be present. A focused survey for elderberry shrubs is recommended to identify potential VELB habitat (see *Focused Surveys* below).

California red-legged frog and California tiger salamander. Both California red-legged frog (CRLF) and California tiger salamander (CTS) are listed as threatened species under FESA and CTS is listed as threatened by the California Department of Fish and Wildlife (CDFW). Suitable habitat for CRLF and CTS surround the western portion of the project study area. These species have the potential to disperse long distances through upland habitat from occupied breeding areas (up to 1 mile for CRLF and up to 1.24 miles for CTS). CNDDB notes multiple occurrences of CRLF near the project study area. One observation occurred within 38 feet of the southwestern edge of the study area in Mountain House Creek in April 1994. One observation occurred approximately 0.1 mile north of I-580 adjacent to West Grant Line Road in March of 2001. Another observation from January 2017 occurred within 0.5 mile of the westernmost portion of the study area in a small pond feature. The closest CTS occurrence is 0.5 mile to the west in August 2015, and 0.5 mile to the south of the project study area in July 2015. California tiger salamanders were also observed approximately 1.8 miles north west of the project study area adjacent to Altamont Pass Road and in two ponded areas 0.7 mile north of I-580, both observations occurred as recently as 2016. Based on the heavy disturbance associated with the existing interstate traffic, CRLF and CTS have a low potential to occur in the project study area. However, due to their propensity for traveling to find suitable mating and aquatic breeding habitat, it is recommended that a focused survey be conducted to assess the potential for the species to use upland habitats in the project study area (see *Focused Surveys* below).

Western pond turtle. Western pond turtle is listed by CDFW as a species of special concern. The closest CNDDB record of occurrence is approximately 1.4 miles northwest of the project study area. There is potential for western pond turtle to occur within the canals and sloughs that intersect with the project study area, including Tom Paine Slough, Sugar Spur, and Paradise Cut. Tom Paine Slough contained a dense stand of common reed in the vicinity of the project study area at the time of the December 14, 2020 survey. The dense vegetation in Tom Paine Slough makes it unsuitable for western pond turtle. Sugar Spur is a concrete-lined irrigation channel with steep banks that contains patches of emergent vegetation and shopping carts and other debris. Paradise Cut is a flowing riverine feature where it crosses the project study area and is lined with riparian vegetation on both sides of the waterway. Western pond turtle could be present should appropriate basking structures be within Paradise Cut. A focused survey is recommended to assess the potential for the species to be present (see *Focused Surveys* below).

Swainson's hawk. Swainson's hawk is listed as a threatened species under the California Endangered Species Act (CESA). Numerous CNDDB occurrences for Swainson's hawk have been documented between 5 miles and just outside the project study area (see CNDDB

map). Suitable trees for nesting are present within the project limits (Figure 2) and within 0.5 mile of the project study area. Although no Swainson's hawks were observed during the December 14, 2020 survey, a protocol survey for Swainson's hawk is recommended to identify nesting activity within 0.5 mile of the project study area (see *Focused Surveys* below).

White-tailed kite. White-tailed kite is designated by CDFW as a fully protected species. Agricultural land that provides potential foraging habitat and suitable trees for nesting are present in the project study area. One CNDDB record for white-tailed kite is approximately 2.5 miles northwest of the project study area. No white-tailed kites were observed during the December 14, 2020 survey. However, a focused survey for nesting birds is recommended to better assess the potential for this species to occur in the project study area (see *Focused Surveys* below).

Northern harrier. Northern harrier is designated by CDFW as a species of special concern. Agricultural land that provides potential foraging habitat and suitable trees for nesting are present in the project study area. Two CNDDB records for northern harrier were found as close as 0.25 mile and as far away as 4.5 miles from the project study area. One northern harrier was observed foraging north of I-205 during the December 14, 2020 survey. Given the sighting during the December 14, 2020 survey, it is recommended that a focused survey for nesting birds be conducted to assess the potential for this species to occur in the study area (see *Focused Surveys* below).

Burrowing owl. Burrowing owl is designated by CDFW as species of special concern. Ground squirrel burrows are present within annual grasslands, around the edges of agricultural fields, and within ruderal and disturbed areas in the study area that provide potential habitat for burrowing owl. The highest quality habitat is in the western end of the project. No burrowing owls were observed during the December 14, 2020 survey. However, multiple CNDDB occurrence records are within the boundary of the project study area. For this reason, a focused survey for burrowing owls should be conducted to assess the potential for this species to occur in the sturdy area (see *Focused Surveys* below).

Tricolored blackbird. Tricolored blackbird is listed by CESA as threatened. The CNDDB described multiple observations of the species as colonies near the project study area as recently as 2014. Wetland habitat near the study area may be suitable for tricolored blackbird. Tricolored blackbird colonies tend to move from one area to another from year to year. Although no tricolored blackbirds were observed during the December 14, 2020 survey, nesting bird surveys should be conducted to determine presence or absence of the species (see *Focused Surveys* below).

San Joaquin kit fox. San Joaquin kit fox is listed under FESA as endangered and CESA as threatened. Although historical CNDDB records for San Joaquin kit fox exist in the western half of the project study area, no sightings have been reported from the species' northern range in the last 10 years. Based on the lack of recent sightings and high level of disturbance associated with the existing interstate, San Joaquin kit fox has a low potential to occur in the project study area. A habitat assessment for San Joaquin kit fox should be conducted to

assess the potential for the species to use habitats in the project study area (see *Focused Surveys* below).

Riparian brush rabbit. Riparian brush rabbit is listed under both FESA and CESA as an endangered species. Five CNDDB observations occurred along Paradise Cut, in the eastern portion of the project study area, with the most recent observation being January 7, 2010. No sighting of the species has been reported in the last 11 years. The preferred habitat (patches of shrubs adjacent to tall dense stands of herbaceous plants) was observed along Paradise Cut during the December 14, 2020 survey. A habitat assessment for riparian brush rabbit should be conducted to assess the potential for the species to use habitats in the project study area (see *Focused Surveys* below).

Roosting bats. Occurrence data are limited or not available for most bat species, given the species' nocturnal behavior and because suitable roosting habitat probably is a limited resource across the landscape. However, several bat species in California are widespread and associated with structure habitat (i.e., bridge expansion joints) including Mexican free-tailed bats (*Tadarida brasiliensis*), Yuma myotis (*Myotis yumanensis*), and pallid bat (*Antrozous pallidus*), which is a CDFW species of special concern. During the December 14, 2020 survey, the bridge crossings over Tom Paine Slough were observed to have potentially suitable expansion joints and weep holes for roosting bats. A focused bat survey would be recommended to determine whether the roosting bats are present in the bridge crossings in the project study area (see *Focused Surveys* below).

Special-Status Fish

The project study area encompasses the I-205 corridor that crosses several drainages and two canals including Tom Paine Slough, Paradise Cut, Sugar Spur (a perennial irrigation ditch), the California Aqueduct, and the Delta-Mendota Canal (Figure 2). These drainages have potential, or are known, to support special-status fish species. Only Paradise Cut has a direct, unimpeded hydrologic connection with Old River and the south Delta and therefore is likely to support special-status fish species. Fish passage impediments downstream of the I-205 crossing on Tom Paine Slough (berms with pumps) and Sugar Spur (vertical drops) prevent fish in Old River from accessing these drainages in the project study area. These drainages and several other unnamed drainages crossed by I-205 are listed as unassessed stream crossings in the CalFish fish passage assessment database (PAD). The California Aqueduct and Delta-Mendota Canal are concrete lined and deliver water pumped from the south Delta to agricultural and municipal customers well south of the project study area. Although screened at their intakes, these two canals are known to contain fish commonly found in the Delta, including special-status species, because water conveyed by the canals is pumped from the south Delta and the screens are not 100% effective at preventing fish entrainment. Because there is no way for fish in these canals to return to the Delta, they either end up as permanent residents of the canals or are transported to terminal reservoirs (e.g., San Luis Reservoir) or irrigation ditches with the delivered water.

Nine special-status fish species have the potential to be present within Paradise Cut and to be affected by the proposed project: California Central Valley (CCV) steelhead distinct population segment (DPS) (*Oncorhynchus mykiss*), Central Valley (CV) fall- and late fall–run Chinook salmon

evolutionarily significant unit (ESU) (*Oncorhynchus tshawytscha*), southern DPS of North American green sturgeon (*Acipenser medirostris*), delta smelt (*Hypomesus transpacificus*), longfin smelt (*Spirinchus thaleichthys*), Sacramento splittail (*Pogonichthys macrolepidotus*), river lamprey (*Lampetra ayresii*), Pacific lamprey (*Entosphenus tridentata*), and white sturgeon (*Acipenser transmontanus*). Only Sacramento splittail and green sturgeon have the potential to be in Paradise Cut year-round. In addition, Paradise Cut is designated as critical habitat for CCV steelhead, the southern DPS of North American green sturgeon, and delta smelt. All of the drainages within the project study area also are designated as freshwater essential fish habitat (EFH) for Pacific salmon (i.e., Chinook salmon), although only Paradise Cut supports one or more of the elements of freshwater EFH for Chinook salmon within the project study area.

Information about each of the nine special-status fish species with the potential to occur in the project study area is provided below, in addition to a description of designated critical habitat and EFH in the project study area.

California Central Valley steelhead. CCV steelhead is listed as a threatened species under FESA. There is suitable migration and seasonal rearing habitat for CCV steelhead in Paradise Cut in the project study area; spawning habitat is not present in the project study area. This species could be present in Paradise Cut as adults during their upstream spawning migration from September through December or as smolts (juveniles that have undergone a physiological transformation that allows them to switch to a marine environment) from January to June. Their occurrence in Paradise Cut is expected to be limited because fish typically can enter Paradise Cut only from Old River, as the upstream end of Paradise Cut is connected with the San Joaquin River only when flows exceed 18,000 cubic feet per second (cfs) at Vernalis. CCV steelhead are not expected to occur in the project study area during the summer construction season. Paradise Cut is designated as critical habitat for the species.

Central Valley fall-run Chinook salmon. CV fall-run Chinook salmon is a federal species of concern and a California species of special concern. Potential suitable migration and seasonal rearing habitat for CV fall-run Chinook salmon in Paradise Cut is present in the project study area; spawning habitat is not present. This species could be present in Paradise Cut as adults during their upstream spawning migration from October to early January; or as fry, juveniles, or smolts from December to July—although most would be expected in April, May, and June. Like steelhead, their occurrence in Paradise Cut is expected to be limited for similar reasons. CV fall-run Chinook salmon are not expected to occur in the project study area during the summer construction season.

North American green sturgeon. Green sturgeon is listed as a threatened species under FESA and is a California species of special concern. Potential suitable rearing habitat for juvenile green sturgeon is present in Paradise Cut in the project study area; spawning habitat is not present. This species could be present year-round. Adult green sturgeon are most likely to enter Paradise Cut from Old River when San Joaquin River flows exceed 18,000 cfs at Vernalis. Paradise Cut is designated as critical habitat for the species.

Delta smelt. Delta smelt is listed as a threatened species under FESA and as an endangered species under CESA. Potential suitable spawning and rearing habitat for delta smelt is

present in Paradise Cut in the project study area. This species could be present in Paradise Cut as adults during their spawning season from January to July, but most spawning occurs from April through mid-May. It is unknown whether delta smelt spawn in Paradise Cut. Delta smelt are not expected to occur in the project study area during the summer construction season. Paradise Cut is designated as critical habitat for the species.

Longfin smelt. Longfin smelt is a candidate species under FESA and a threatened species under CESA. Potential suitable spawning and rearing habitat in Paradise Cut is present in the project study area, although spawning in the south Delta by longfin smelt is presumed to be a rare event. This species could be present in Paradise Cut as adults during their spawning season from November to June, but most spawning likely would occur from January through April. It is unknown whether longfin smelt spawn in Paradise Cut. Longfin smelt are not expected to occur in the project study area during the summer construction season.

Sacramento splittail. Sacramento splittail was removed from the FESA threatened species list in 2003; the species is a California species of special concern. Potential spawning and rearing habitat in Paradise Cut is present in the project study area. Sacramento splittail spawn as early as January and may continue through early July, although most spawning occurs from March through May. Sacramento splittail could be present in the project study area during the summer construction season.

River lamprey. River lamprey is a California species of special concern but has no other state or federal listing status. Potential suitable rearing and migration habitat in Paradise Cut is present in the project area; spawning habitat is not present. This species could be present year-round in Paradise Cut as ammocoetes (juveniles), which burrow into silty backwater areas. Adult river lamprey are most likely to enter Paradise Cut from Old River when San Joaquin River flows exceed 18,000 cfs at Vernalis.

Pacific lamprey. Pacific lamprey is a federal species of concern and a California species of special concern. Potential suitable rearing and migration habitat in Paradise Cut is present in the project area; spawning habitat is not present. This species could be present year-round in Paradise Cut as ammocoetes (juveniles), which burrow into silty backwater areas. Adult Pacific lamprey are most likely to enter Paradise Cut from Old River when San Joaquin River flows exceed 18,000 cfs at Vernalis.

White sturgeon. White sturgeon is a California species of special concern but has no other state or federal listing status. Potential suitable rearing habitat for juvenile white sturgeon is present in Paradise Cut in the project study area; spawning habitat is not present. This species could be present year-round. Adult white sturgeon are most likely to enter Paradise Cut from Old River when San Joaquin River flows exceed 18,000 cfs at Vernalis.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires federal agencies to consult with NMFS on activities that may adversely affect EFH. Important components of EFH are substrate; water quality; water quantity, depth, and velocity; channel gradient and stability; food; cover and habitat complexity; space; access, and passage; and habitat connectivity.

The NMFS species list for the Midway USGS 7.5-minute quadrangle identifies EFH for coho salmon and Chinook salmon. The project study area is within a watershed located on the Central Valley side of the Coast Ranges and is designated as EFH only for Chinook salmon. Likewise, the NMFS species lists for the Tracy, Union Island, and Lathrop USGS 7.5-minute quadrangles identify EFH for Chinook salmon. Paradise Cut, Sugar Spur, and Tom Paine Slough, as well as other drainages in the project study area, all fall within the San Joaquin Delta Hydrologic Unit Code, which is designated by NMFS as EFH for Chinook salmon.

The NES would contain a discussion of these species and their potential to occur in the project study area.

Native Oaks

Valley oaks (*Quercus lobata*) are on the slope adjacent to westbound I-205 on the west side of Tom Paine Slough and within the banks of Paradise Cut. These trees likely would be protected as native oaks under the San Joaquin County tree ordinance.

Project Effects

Construction of the project has the potential (albeit low) to temporarily disturb and permanently remove potential habitat for special-status plants (i.e., emergent marsh, annual grasslands). Construction also could disturb or remove protected native oak trees and result in temporary or permanent placement of fill in potential waters of the United States or State.

Construction also could disturb (from dust generation) or remove VELB habitat if elderberry shrubs are present within or adjacent to the project study area.

Construction could disturb western pond turtles if they were present in the vicinity of the project study area.

Ground disturbance and construction noise during the breeding season for migratory birds and raptors (generally February through August) could disturb active nests, if present; or cause abandonment of nearby nests for species including Swainson's hawk, white-tailed kite, northern harrier, tricolored blackbird, burrowing owl, and other migratory birds and raptors.

Construction could temporarily disturb and permanently remove potential habitat for San Joaquin kit fox and riparian brush rabbit.

Construction also could result in disturbance to or loss of habitat for roosting bats if they are present in or adjacent to the project study area. Construction noise or other disturbance (e.g., increased vibration, emissions, and light from night work) also could disturb roosting individuals or colonies, or cause abandonment of maternity roosts during the maternity season for bats, which is generally from April through September.

Construction of the project at the eastern end of the project study area within Paradise Cut has the potential to temporarily disturb and permanently remove potential habitat for special-status fish,

including designated critical habitat and EFH for Chinook salmon. Underwater noise from pile driving also could injure, kill, or disturb special-status fish in the vicinity of the project study area if impact pile driving is proposed. There is extremely low-potential for special-status fish to be present in the other aquatic features of the project study area.

There is a low potential for CRLF and CTS to be present in the project study area; if present, no effects on these species are anticipated.

Focused Surveys

Two rounds of botanical surveys for special-status plants, the first in May-June and the second in August-September, are recommended to document whether the project is expected to affect special-status plants. A jurisdictional determination is required to ascertain whether the aquatic resources in the project study area are waters of the United States or State. If the valley oak trees would be subject to disturbance (e.g., pruning) or removal from project implementation, a tree survey and arborist report likely would be required.

A focused survey for elderberry shrubs is recommended to identify VELB habitat for avoidance in and within 100 feet of the project study area. Elderberry surveys may be conducted at any time of year.

A focused survey for western pond turtle in spring or summer is recommended to assess the potential for the species to be present in waterways within the project study area, primarily in Sugar Spur and Paradise Cut. Additionally, an upland habitat assessment for this species is recommended to assess the potential for the species to use upland habitats in the project study area.

A focused survey for nesting birds is recommended in April or June to assess the potential for burrowing owls, white-tailed kites, northern harriers, tricolored blackbirds, and other migratory birds and raptors to nest in the project study area.

A protocol survey for Swainson’s hawk is recommended to identify nesting activity within 0.5 mile of the project study area. This survey would follow the protocol outlined in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* prepared by the Swainson's Hawk Technical Advisory Committee in 2000. The survey would consist of approximately nine site visits between March 20 and July 30, but this amount could be reduced depending on the timing of construction.

A habitat assessment for San Joaquin kit fox is recommended to assess the potential for the species to use habitats in the project study area.

A focused habitat assessment would be required to assess the potential for roosting bats to use crack and crevice habitat provided by bridge crossings in the project study area. This may consist of multiple surveys to determine whether bats are using the bridge crossings and if so, the type of roost (e.g. maternity roost, night roost, or hibernaculum). These surveys should be conducted well in advance of project construction and preferably over multiple seasons to plan for any avoidance and minimization measures, and to reduce project delays. At least one survey should occur during the

maternity season (approximately March 1 through September 31) to better detect potential maternity roosts.

An upland habitat assessment for CRLF and CTS is recommended to assess the potential for the species to use habitats in the project study area.

A focused habitat assessment for shaded riverine aquatic cover is recommended to assess the potential for impacts on this cover type. Shaded riverine aquatic cover is an important component of salmonid habitat, including designated critical habitat and EFH.

A hydroacoustic analysis of underwater sound would be required to assess impacts on special-status fish from any impact pile driving in, or within 200 feet of, water with the potential to provide habitat for special-status fish species.

A first pass fish passage assessment of all stream crossings within the project footprint, including those listed in the PAD, is recommended to assess whether fish passage is constrained at these crossings and to determine whether further assessment and remediation of fish passage barriers at these stream crossings is warranted.

Avoidance and Minimization Efforts and Mitigation

Implementation of appropriately timed botanical surveys would help avoid or minimize potential project impacts on special-status plants. If special-status plants are identified in the project study area, measures would be developed to mitigate adverse effects. Formal studies of the aquatic resources and native oaks would help avoid or minimize potential project impacts on those resources and determine the mitigation that would be required for potential project effects.

Based on the presence of potential nesting habitat for migratory birds, tricolored blackbirds, and raptors within and near the project study area—including special-status species (Swainson's hawk, white-tailed kite, northern harrier, and burrowing owl), preconstruction surveys should be conducted for project activities during the breeding season (generally February through August); and exclusion zones should be established to protect any occupied bird or raptor nests and to prevent loss of adults, young, or eggs.

If VELB, roosting bats, San Joaquin kit fox, riparian brush rabbit, special-status fish, or western pond turtle are determined to be potentially present in the project study area, avoidance and minimization measures would be implemented, including preconstruction surveys, establishment of no disturbance buffers if necessary, environmental training for construction personnel, and measures during construction (e.g., covering or ramping trenches/pits, inspecting pipes and culverts prior to their use, installing exclusion fencing, implementing trash abatement, minimizing disturbance areas, and avoiding the use of rodenticides and herbicides).

If elderberry shrubs are detected within the project study area, USFWS may require compensatory mitigation, depending on the location of the shrubs (riparian or non-riparian) and the shrub's potential for occupancy by VELB.

If Swainson's hawks are observed nesting in the vicinity of the project study area, CDFW may require compensatory mitigation for loss of nesting or foraging habitat. Implementation of avoidance and minimization measures for other special-status wildlife with the potential to occur in the project study area is expected to be sufficient to avoid adverse impacts on sensitive biological resources.

Previous Biological Opinions for this area did not require compensation for temporary or permanent loss of potential San Joaquin kit fox habitat.

In addition to implementation of construction best management practices, implementation of appropriately timed in-water work, including pile driving if proposed, would help avoid or minimize potential project impacts on special-status fish. Measures would be developed to mitigate adverse effects on special-status fish and their habitat. Compensatory mitigation for permanent loss of shallow water habitat for delta smelt and critical habitat for steelhead, green sturgeon, and delta smelt may be required by CDFW, USFWS, and NMFS.

Permits and Agency Consultation

The aquatic resources in the project study area may be regulated as waters of the United States. The results of the delineation of aquatic resources should be submitted to USACE for review and verification to determine whether a Section 404 permit and Section 401 certification are required. The aquatic resources also may be regulated as waters of the State under the Porter-Cologne Water Quality Control Act. The Central Valley Regional Water Quality Control Board should be contacted to determine the jurisdictional status of these features and the need to obtain a permit for project implementation.

As described above, VELB is listed under FESA. If elderberry shrubs are located in or within 100 feet of the project study area and direct and indirect impacts on the shrubs may result in take of VELB, incidental take authorization from USFWS would be required. If project design features or avoidance and minimization measures are implemented to avoid potential take, incidental take authorization would not be required. This would be determined after the elderberry shrub survey is conducted and potential impacts of the project are evaluated.

Avoidance and minimization measures are expected to avoid adverse impacts on nesting birds, including Swainson's hawk, a state listed species. If Swainson's hawk nests are detected within the project area during focused surveys, consultation with CDFW is recommended to discuss appropriate avoidance and minimization measures. Though avoidance and minimization measures generally reduce the risk of affecting nesting Swainson's hawk, the project has the potential to result nest abandonment due to disturbances from construction activities. CDFW may consider nest abandonment to be "take" under the California Endangered Species Act and may require and incidental take authorization (or 2081 permit).

Because San Joaquin kit fox is both federally and state listed, incidental take authorization under Section 7 of FESA or under CESA may be required if the proposed project could result in take. The potential for take of San Joaquin kit fox would be based on current species locality information,

results of the habitat assessment, and the expected impacts of the project. Because the threshold for take is higher under CESA (i.e., the project would result in mortality) than under FESA (i.e., harm or harassment, including loss of habitat), it is possible that Caltrans would seek incidental take authorization under FESA but not under CESA. This would be determined after additional information is gathered and the potential effects of the project are evaluated. If take (including harm, harassment, and permanent loss of habitat) can be avoided, incidental take authorizations would not be required. Based on the proposed project's location next to an existing freeway and the lack of recent sightings of San Joaquin kit fox in the project vicinity, it is unlikely that incidental take authorization from USFWS or CDFW would be necessary.

As described above, delta smelt, the southern DPS of North American green sturgeon, and CCV steelhead are listed under FESA. Direct and indirect impacts on these species or their designated critical habitat may result in take of these species and would require incidental take authorization from NMFS or USFWS for species under their purview. Because delta smelt also are listed as endangered under CESA, incidental take authorization from CDFW may be required if the proposed project could result in mortality (take) of delta smelt. In addition, the project study area is within designated EFH for Chinook salmon. If it is determined that project activities may adversely affect EFH, consultation with NMFS under the MSA would be required.

Early coordination with CDFW, NMFS, and USFWS is recommended to ensure that the appropriate take avoidance measures are incorporated into project planning.

Preparers

Kevin Ghalambor, BS Earth Systems Science and Policy/Principal Scientist, 16 years of experience

_____ Date: June 3, 2021

Phillip Reyes, BS Earth Systems Science and Policy/Restoration Specialist, 9 years of experience

_____ Date: June 3, 2021

Jeff Kozlowski, BS/MS, Senior Fish Biologist, 34 years of experience

_____ Date: March 17, 2021

Robert Preston, PhD, Senior Botanist/Wetlands Ecologist, 30 years of experience

_____ Date: December 26, 2020

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Plant

- big tarplant
- brittlescale
- California alkali grass
- caper-fruited tropidocarpum
- Congdon's tarplant
- Delta button-celery
- diamond-petaled California poppy
- heartscale
- lesser saltscale
- Livermore tarplant
- long-styled sand-spurrey
- Mason's lilaeopsis
- recurved larkspur
- San Joaquin spearscale
- shining navarretia
- slough thistle
- stinkbells
- Valley Sink Scrub
- woolly rose-mallow
- Wright's trichocoronis

Project Boundaries

- Project right of way
- Project area 5 mile buffer
- Project foot print

Figure 3a
Plant CNDDB Occurences within 5 Miles of the Project Area I-205 HOV PEAR

0 1.25 2.5 5

Miles

NOT TO SCALE

Burleson Consulting, Inc.

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Fish
- longfin smelt

Mammal
- San Joaquin pocket mouse
- riparian brush rabbit
- American badger
- San Joaquin kit fox

Bird
- song sparrow ("Modesto" population)
- tricolored blackbird
- yellow-headed blackbird
- California horned lark
- loggerhead shrike
- burrowing owl
- short-eared owl
- white-tailed kite
- northern harrier
- Swainson's hawk
- ferruginous hawk

Reptile
- California glossy snake
- San Joaquin coachwhip
- coast horned lizard
- western pond turtle

Amphibian
- California tiger salamander
- California red-legged frog
- western spadefoot

Invertebrate
- California linderiella
- vernal pool fairy shrimp
- curved-foot hygrotus diving beetle
- Sacramento anthicid beetle
- Crotch bumble bee
- western bumble bee
- western ridged mussel

Project Boundaries
- Project right of way
- Project foot print
- Project area 5 mile buffer

Figure 3b
Wildlife CNDDB Occurences within 5 Miles of the Project Area
I-205 HOV PEAR

0 1.25 2.5 5

Miles

NOT TO SCALE

Burleson Consulting, Inc.

Attachment G
Storm Water Data Report – cover sheet

Dist-County-Route: 4-ALA-580, 10-SJ-205, 10-SJ-5
Post Mile Limits: R1.7/0.8, L0.0/R13.2, R12.9/R13.5
Type of Work: Managed Lane Widening
Project ID (EA): 101700016 (EA 10-1H170K)
Program Identification: 20.400 – Specially Funded Projects
Phase: ☒ PID ☐ PA/ED ☐ PS&E

Regional Water Quality Control Board(s): Central Valley, Region 5S

Total Disturbed Soil Area: 312.56 acres PCTA*: 191.69 acres

Alternative Compliance (acres): _____ ATA 2 (50% Rule)? Yes ☒ No ☐

Estimated Const. Start Date: 09/1/2026 Estimated Const. Completion Date: 09/31/2029

Risk Level: RL 1 ☐ RL 2 ☒ RL 3 ☐ WPCP ☐ Other: _____

Is MWELO applicable? Yes ☐ No ☐ **TBD in PA/ED and PS&E Phase**

Is the Project within a TMDL watershed? Yes ☐ No ☒

TMDL Compliance Units (acres): N/A

Notification of ADL reuse (if yes, provide date): Yes ☐ Date: TBD in PA/ED and PS&E No ☐

*Post Project Impervious Area (acres)

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

Analette Ochoa, Registered Project Engineer/Landscape Architect Date

I concur with the Construction water pollution control strategy and selected temporary BMPs in this report:

David Troop, District Construction SW Coordinator *Date*

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

Jes Padda, Project Manager *Date*

Robert Shanks, Designated Maintenance Representative *Date*

Brad Cole, Designated Landscape Architect Representative *Date*

[Stamp Required at PS&E only]

Mazin Al Ali, District/Regional Design SW Coordinator or Designee *Date*

Attachment H
Risk Register

LEVEL 3 - RISK REGISTER			Project Name: I-205 Managed Lanes			DIST- EA		10-1H170	Project Manager	Ryan Niblock: SJCOG Parag Mehta: Kimley-Horn									
Risk Identification						Risk Assessment											Risk Response		
						Probability		Cost Impact ($)				Time Impact (days)				Rationale			
Status	ID #	Category	Title	Risk Statement	Current status/assumptions	Low	High	Low	Most likely	High	Probable	Low	Most likely	High	Probable		Strategy	Response Actions	Risk Owner	Updated
Active	150.01	PM	Scope changes	As a result of the technical studies revealing an unanticipated condition, mitigation and the need for additional improvements may occur, which would lead to project cost and schedule impacts.	The scope of approved PID was increased to include Express Lanes and extend project limits beyond I-205	50%	100%	$ 50,000		$ 250,000	$ 113,000	20		40	23	Anticipated scope changes can be covered within contingency funds. Schedule delay could occur	Accept	Agree on scope changes in advance of work activity	PM/Design PE	6/8/21
Active	150.02	PM	Project Cost	As the result of unknown or under-assessed project elements, increase in project capital cost (i.e. under-budgeting project during preliminary engineering) may occur, which would lead to a lack of adequate project funding	Preliminary cost estimates are developed for supp PID and will be assessed and updated at each project phase	10%	40%	$ 20,000		$ 50,000	$ 8,750	0		0	0	Cost estimates will be updated with successive submittals	Avoid	Work with Caltrans on preliminary cost estimate in Supp PID. Agree on representative unit costs and contingencies	PM/Design PE	6/8/21
Active	150.03	PM	Project schedule	As a result of new alternatives proposed during the PA&ED phase, the need for additional design changes may occur, which would lead to schedule delays resulting from resource constraints.	The baseline schedule is developed to reflect anticipated effort	30%	40%	$ 10,000		$ 20,000	$ 5,250	60		120	32	Schedule assumes that any new alternative in the PA&ED phase will be within the supp PID project footprint. Schedule will be updated monthly	Accept	Review the schedule and agree on schedule impact in advance of work due to additional scope	PM/Design PE	6/8/21
Active	150.04	Organizational	Purpose and need	As the result of lack of consensus on the project P&N, an increase in project scope may occur, which would lead to an increase in project cost.	Supp PID includes P&N and will be confirmed/refined early in the PA&ED phase	10%	50%	$ 10,000		$ 50,000	$ 9,000		5			Supp PID is updating P&N from approved PID so less likely of more refinement in the PA&ED phase	Mitigate	Early stakeholder outreach is planned to build project consensus	PM/Design PE	6/8/21
Active	150.05	Organizational	Funding	As the result of the lack of identified funding, a delay in environmental clearance may occur, which would lead to impacts to the project cost.	SJCOG has identified funding for the next phase of the project	10%	20%	$ 10,000		$ 20,000	$ 2,250	0		0	0	Alternative in Supp PID exceeds funding identified in the approved PID	Accept	SJCOG is seeking various funding opportunities for construction. Project may be phased to meet available funding	PM	6/8/21
Active	150.06	Organizational	Express Lane management	As the result of the lack of an identified express lane operator, changes to the project improvements may occur, which would lead to impacts to the project cost.	SJCOG is working with Alameda CTC to determine who will be the express lane operator	10%	30%	$ 10,000		$ 30,000	$ 4,000					Need to identify operator early in the PA&ED phase to ensure express lane needs and features are consistent with operator requirements	Mitigate	SJCOG is actively working with Alameda CTC in the operator discussions	PM	6/8/21
Active	150.07	Design	Traffic Modeling	As the result of requests for additional traffic data and analysis, issues with model validation may occur, which would lead to project cost and schedule impacts.	Traffic analysis will proceed with approved data collection and methodology methods approved by Caltrans	10%	40%	$ 20,000		$ 120,000	$ 17,500	20		120	18	Data collection methodology and supplemental TEAP documents were approved by Caltrans	Mitigate	Model validation is not required in PID phase. Engage Caltrans early in the model validation and traffic analysis efforts, develop existing condition memo	PM/Design PE	6/8/21
Active	150.08	Design	Scope Creep	As the result of stakeholder input and the traffic operations analysis, additional improvements and extended project limits for the transit hubs may occur, which would lead to project cost and schedule impacts.	Supp PID project limits have been established to accommodate transit facility in the median. The project limits were extended from the approved PID	20%	60%	$ 100,000		$ 500,000	$ 120,000	60		240	60	Transit facility would require station area and parking and ride lot facilities and that could be outside the current project footprint. Impacts to the ongoing projects due to this project may require improvements beyond current project footprint	Mitigate	Continue stakeholder coordination to develop project improvements to accommodate transit facility. Identify impacts to ongoing projects to address operational issues beyond project limits	PM/Design PE	6/8/21
Active	150.09	Design	Additional Design alternatives/variations	As the result of stakeholders requests, the study of more alternatives or design variations may occur, which would lead to project cost and schedule impacts.	Current scope called for outside widening for express lanes with median open for transit facility. Three local interchanges will be evaluated with two options for each and new connector ramps will be proposed at east and west conform end of the project limits	30%	60%	$ 60,000		$ 260,000	$ 72,000	60		80	32	Supp PID alternative adds a new alternative and extends project limits. Keeping median open for future transit requires improvements to three local interchanges and impacts ongoing projects	Accept	Ultimate project footprint will accommodate minor variation to the current alternatives. Early stakeholder coordination in the PA&ED phase will help with timely alternative refinement	PM	6/8/21
Active	150.10	Design	Project Coordination	As the result of coordination with other projects like the Valley Link or SR-239 projects, the need to change the geometry to accommodate those projects may occur, which would lead to project cost and schedule impacts.	early coordination with other project designs is planned and will continue through the PAED and/or design phase.	30%	60%	$ 60,000		$ 260,000	$ 72,000	60		80	32	Experience from previous projects	Accept	Coordinate early in the alternative development process and have regular follow up meetings	PM/Design PE	6/11/21
Active	150.11	Design	Design exceptions	As the result of existing corridor and right of way constraints, design exceptions may occur that may not be approvable, which would lead to project cost and schedule impacts.	Non standard design features are identified in the Supp PID and will be coordinated with geometric review coordinator	40%	60%	$ 20,000		$ 50,000	$ 17,500	20		60	20	Experience from previous projects	Avoid	Work with Caltrans early in the alternative development phase to develop acceptable geometry	PM/Design PE	6/8/21
Active	150.12	Design	Viability of build alternatives	The viability of the proposed alternatives can lead to a delay in acceptance from Caltrans/FHWA, which would lead to project cost and schedule impacts.	Early coordination with FHWA/Caltrans is planned to review alternatives under consideration	10%	30%	$ 30,000		$ 120,000	$ 15,000	20		60	8	Viability of build alternatives per federal and state standards will be required for modifications to I-205xI-5 and I-205xI-580 interchanges	Mitigate	Engage Caltrans/FHWA early in the alternative development process and have regular follow up meetings	PM/Design PE	6/8/21
Active	150.13	Design	Impacts to unknown utilities	As the result of project improvements impacting unknown existing utilities, the need for additional project improvements may occur, which would lead to project cost and schedule impacts.	Utility owners have been contacted to identify utilities within the corridor	10%	40%	$ 20,000		$ 40,000	$ 7,500	10		20	4	Experience from previous projects	Mitigate	Obtain utility data early in the base map development and perform potholing to verify high risk utilities	PM/Design PE	6/8/21
Active	150.14	Design	Incomplete survey data	As the result of inaccuracies or incomplete information in the survey file, rework of the preliminary design may occur, which would result in project cost and schedule impacts.	No Field work has been done for the concept development. Available maps and as built information is used to develop preliminary alternatives. Survey work will be done under PA&ED phase	10%	40%	$ 20,000		$ 80,000	$ 12,500	20		40	8	Preliminary alternatives in the supp PID are developed from available survey data	Mitigate	Verify geometry and ROW impacts once topographic mapping is available - early in the PA&ED phase	PM/Design PE	6/8/21
Active	150.15	Environmental	Project impacts	As the result of the environmental studies, the project improvements may result in significant environmental impacts, which could lead to project cost and schedule impacts.	PEAR updated with supp PID identifies potential environmental impacts	10%	20%	$ 50,000		$ 500,000	$ 41,250	20		40	5	Project proposes a new alignment west of Mountain House interchange will be required to avoid impacts to historic canal	Mitigate	Avoid/minimize environmental impacts	PM/Design PE	6/8/21
Active	150.16	Environmental	Significant design changes	As the result of stakeholder input, significant design changes resulting in a larger project footprint may occur, which would lead project cost and schedule impacts.	PEAR was developed based on alternative developed in Supp PID	10%	30%	$ 30,000		$ 120,000	$ 15,000	20		60	8	potential to have significant change with median transit operations and transit hub locations	Mitigate	Early coordination to develop project alternatives to accommodate transit operations and refine alternatives to minimize/avoid impacts. Include mitigation costs in project estimates	PM/Design PE	6/8/21
Active	150.17	Environmental	Public engagement	As the result of public outreach, the express lane alternative could generate significant public comments elevating the environmental document to an EIS, which would lead to project cost and schedule impacts.	SJCOG's congested corridor study has introduced this concept to the public. Outreach will be conducted throughout the PA&ED phase	10%	25%	$ 30,000		$ 200,000	$ 20,130	30		240	24	This is the first express lane project in the county	Avoid	Initiate public engagement early and throughout the PA&ED phase to build project consensus and actively engage the public	PM/Design PE	6/8/21
Active	150.18	Environmental	VMT mitigation	As the result of the ongoing development of the VMT analysis tools and mitigation options, significant or unanticipated mitigation may occur, which would lead to project cost and schedule impacts.	Work with Caltrans to address VMT concerns and mitigation measures	20%	50%	$ 100,000		$ 300,000	$ 70,000	30		120	26	VMT analysis tool and mitigation options are still explored and Caltrans is working developing policy to address VMT impacts	Mitigate	Work with Caltrans early in the PA&ED phase	PM/Design PE	6/8/21

Attachment I
Utility Conflict Matrix

I-205 MANANAGED LANES PROJECT - UTILITY CONFLICT MATRIX

ID No.	Owner	Station + Offset	Facility	High Priority	State Owned Facility	Longitudinal Encroachment Exception	Remedy
1	WAPA	"I205"- 1096+00	OH ELECTRICAL	Yes	No	No	Protect in Place
2	WAPA	"I205"- Mountain House-18+56.08 Near Midway Road Aquaduct	OH ELECTRICAL	Yes	No	No	Protect in Place
2A	CALTRANS	"I205"- Mountain House-1086+19.74 31.5' Lt to 1114+10.59	FIBER OPRIC	No	Yes	No	Relocation
3	PG&E	"I205"- 26+00	OH ELECTRICAL	Yes	No	No	Protect in Place
4	PG&E	"I205"- 1033+00	OH ELECTRICAL	Yes	No	No	Protect in Place
4A	CRIMSON	"I205"- 1042+50	PETROLEUM	Yes	No	No	Protect in Place/Pothole
4B	AT&T	"I205"- 1045+00	OH ELECTRICAL 12KV	No	No	No	Protect in Place
4C	AT&T	"I205"- 1044+15.92	ELECTRICAL	No	No	No	Protect in Place
5	PG&E	"I205"-1034+44.33	OH ELECTRICAL	Yes	No	No	Protect in Place
5A	WAPA	"I205"-1065+00	OH ELECTRICAL	Yes	No	No	Protect in Place
6	CALTRANS	"I205"- Mountain House 1114+10.59 to 47+00	FIBER OPTIC	No	Yes	No	Relocation
7a	PG&E	"I205"- 1046+00	OH ELECTRICAL	No	No	No	Relocation/Protect in Place
7	PG&E	"I205"- Mountain House -44+82.45 to 66+76.28 175.58' Lt	OH ELECTRICAL	No	Yes	No	Relocation
8	BYRON BETHANY IRRIGATION DISTRICT	"I205"- -46+50.73	IRRIGATION	No	No	No	Relocation/Protect in Place
9	PG&E	"I205"-56+14.25 to 72+41.31	ELECTRICAL	No	No	No	Protect in Place/Pothole
10	CRIMSON	"I205"- Mountain House-57+02.71	PETROLEUM	Yes	No	No	Protect in Place/Pothole
11	PG&E	"I205"- Mountain House-57+20.85	NATURAL GAS	Yes	No	No	Protect in Place
12	PG&E	"I205"- Mountain House-59+12.87	NATURAL GAS	Yes	No	No	Protect in Place/Pothole
13	PG&E	"I205"- Mountain House-59+40.01	NATURAL GAS	Yes	No	No	Protect in Place/Pothole
14	CALTRANS	"I205"- Mountain House-conflict between 71+68.03 to 72+78.22	FIBER OPTIC	No	No	No	Relocation
15	PG&E	"I205"- Mountain House-72+46.76	UNDERGROUND ELECTRICAL EMPTY CONDUIT	No	No	No	Protect in Place
16	PG&E	"I205"- Mountain House-72+55.44	UNDERGROUND ELECTRICAL EMPTY CONDUIT	No	No	No	Protect in Place
17	PG&E	"I205"- Mountain House-72+67.64	ELECTRICAL	No	No	No	Protect in Place
18	PG&E	"I205"- Mountain House-72+89.44	ELECTRICAL	No	No	No	Protect in Place
19	PG&E	"I205"- Mountain House-73+30.06 472.94' Rt to 91+29.10 92.51'Rt	OH ELECTRICAL	No	No	No	Relocation
20	CALTRANS	"I205"- Mountain House-69+.49 to 79+21.64	FIBER OPTIC	No	No	No	Relocation
20A	PG&E	"I205"- Mountain House-71+64.21 238.08' Rt to 71+41.53 462.6' Rt	OH ELECTRICAL	No	No	No	Relocation/Protect in Place
21	CALTRANS	"I205"- Mountain House-85+94.18 to 90+74.69	ELECTRICAL	No	No	No	Relocation
22	PG&E	"I205"- Mountain House-89+7.31 to 99+36	ELECTRICAL	No	No	No	Relocation
23	AT&T	"I205"- Mountain House-125+56.65	TELEPHONE	No	No	No	Protect in Place
24	PG&E	"I205"- Mountain House-125+84.2	OH ELECTRICAL 12KV	No	No	No	Protect in Place
25	PG&E	"I205"- Mountain House-126+23.44	OH ELECTRICAL	No	No	No	Protect in Place
27	PG&E	"I205"- Mountain House-126+33.72	NATURAL GAS	Yes	No	No	Protect in Place
28	PG&E	"I205"- Mountain House-128+25.46	OH ELECTRICAL 12KV	No	No	No	Protect in Place
29	BYRON BETHANY IRRIGATION DISTRICT	"I205"- Mountain House-129+34.11	IRRIGATION	No	No	No	Protect in Place
30	CALTRANS	"I205"- Mountain House-148+80.12 76'Lt to 152+36.58 52' Rt	STORM DRAIN	No	No	No	Relocation
31	PG&E	"I205"- Mountain House-149+55.44	OH ELECTRICAL	Yes	No	No	Protect in Place
32	PG&E	"I205"- Mountain House-151+00	OH ELECTRICAL	Yes	No	No	Protect in Place
33	UNKNOWN	"I205"- Mountain House-148+36.97 to 155+97.93	SANITARY SEWER	Yes	No	No	Relocation/Protect in Place
34	BYRON BETHANY IRRIGATION DISTRICT	"I205"- Mountain House-155+28.08	IRRIGATION	No	No	No	Protect in Place
35	BYRON BETHANY IRRIGATION DISTRICT	"I205"-207+65.26	IRRIGATION	No	No	No	Protect in Place
36	PG&E	"I205"-240+37.10	OH ELECTRICAL	Yes	No	No	Protect in Place
37	AT&T	"I205"-240+45.93	TELEPHONE	No	No	No	Protect in Place
37A	COMCAST	"I205"-240+45.93	FIBER OPTIC	No	No	No	Protect in Place
38	CITY/CALTRANS	"I205"-240+57.56	ELECTRICAL	No	No	No	Protect in Place
40	PG&E	"I205"-240+72.28	NATURAL GAS	Yes	No	No	Protect in Place
41	CITY	"I205"-240+88.58	SEWER	Yes	No	No	Protect in Place
42	UNKNOWN	"I205"-241+20.39	FIBER OPTIC	No	No	No	Protect in Place
43	UNKNOWN	"I205"-241+37.26 124.63' Rt	TELEPHONE	No	No	No	Protect in Place
44	UNKNOWN	"I205"-241+36.02	TELEPHONE	No	No	No	Protect in Place
45	KINDER MORGAN	"I205"-241+44.69	PETROLEUM	Yes	No	No	Protect in Place
46	N BETHANY IRRIGATION DIST	"I205"-243+21.81	IRRIGATION	No	No	No	Protect in Place

I-205 MANANAGED LANES PROJECT - UTILITY CONFLICT MATRIX

ID No.	Owner	Station + Offset	Facility	High Priority	State Owned Facility	Longitudinal Encroachment Exception	Remedy
47	CALTRANS	"I205"-266+33.59 89.66' Rt to 269+15.03 91.35' Lt, Crosses Median at 271+64.53	ELECTRICAL	No	No	No	Relocation
48	CALTRANS	"I205"-271+64.53 99.42 Lt to 276+81.8 87.27 Lt	ELECTRICAL	No	No	No	Relocation
49	AT&T	"I205"-280+50	FIBER OPTIC	No	No	Yes	Protect in Place
50	PT&T CO	"I205"-280+50	TELEPHONE	No	No	Yes	Protect in Place
51	PG&E	"I205"-281+13.9	ELECTRICAL 12 KV	No	No	Yes	Protect in Place
52	PG&E	"I205"-282+03.16	ELECTRICAL	No	No	No	Protect in Place
53	PG&E	Extends from intersection of I-205/Grantline Rd to Grantline Rd/Joe Pombo Pkwy	ELECTRICAL	No	No	Yes	Protect in Place
54	CALTRANS	"I205"-291+81.32 110' Lt to 298+70.27 100'Lt	ELECTRICAL	No	No	No	Relocation
54A	AT&T		ELECTRICAL	No	No	No	Protect in Place
55	CALTRANS	"I205"-294+24.79 88' Rt to 302+27.83 92.18' Rt	ELECTRICAL	No	No	No	Relocation
56	CHEVRON	"C-Line"- 4+00 to 25+00	PETROLEUM	Yes	No	Yes	Protect in Place
57	N BETHANY IRRIGATION DIST	"C-Line"-4+00 to 25+00	IRRIGATION	No	No	Yes	Protect in Place
58	UNKNOWN	"C-Line"-4+20.04	ELECTRICAL	No	No	No	Protect in Place
59	CITY OF TRACY	C line 4+50, Naglee Rd On-ramp to I 205	JOINT TRENCH (ELECTRIC/GAS/TV)	No	No	No	Protect in Place
59A	COMCAST	C line, Along Naglee Road	ELECTRICAL	No	No	No	Protect in Place
59B	COMCAST	C line, Along Grant line Road to the intersecton of Grant line and Naglee Road	ELECTRICAL	No	No	No	Protect in Place
59C	COMCAST	Perpendicular to Grant line Road	ELECTRICAL	No	No	No	Protect in Place
59D	COMCAST	Along Grant line Rd;	ELECTRICAL	No	No	No	Protect in Place
60	PG&E	"C-Line"-5+32.01	NATURAL GAS	Yes	No	No	Protect in Place
60A	AT&T	"C-Line" West of Naglee road/Grant line intersection at the median	ELECTRICAL	No	No	No	Protect in Place
61	CALTRANS	"C-Line"-5+91.00	STORM WATER	No	Yes	No	Protect in Place
62	PG&E	"C-Line"-6+51.07	NATURAL GAS	Yes	No	No	Protect in Place
63	PG&E	"C-Line"-6+56.13	ELECTRICAL	No	No	No	Protect in Place
64	PG&E	"C-Line"-6+63.7	ELECTRICAL	No	No	No	Protect in Place
64A	UNKNOWN	"C-Line"-11+50	WATER	No	Unknown	No	Protect in Place
65	CITY OF TRACY	"C-Line"-15+12.61	WATER	No	No	Yes	Protect in Place
65A	CITY OF TRACY	"C-Line"-15+12.61	STORM DRAIN	No	No	Yes	Protect in Place
66	CALTRANS	"C-Line"-19+9.82	ELECTRICAL	No	Yes	No	Protect in Place
66A	AT&T	"C-Line"-4+00 to 25+00	ELECTRICAL	No	Yes	No	Protect in Place
66B	AT&T	"C-Line"-4+00 to 9+00	ELECTRICAL	No	No	No	Protect in Place
67	CALTRANS	"C-Line"-19+9.82	WATER	No	Yes	No	Relocation/Protect in Place
68	PG&E	"I205"276+81.18 87.207' Lt to 283+77.56 202.12'Rt	ELECTRICAL	No	No	No	Protect in Place
69						No	
69	PG&E	"I205"-281+80.35	NATURAL GAS	Yes	No	Yes	Protect in Place
70	NAGLEE BURK IRRIGATION DISTRICT	"I205"-305+7.00	IRRIGATION	No	No	No	Protect in Place
71	NAGLEE BURK IRRIGATION DISTRICT	"I205"-305+56.4	IRRIGATION	No	No	No	Protect in Place
72	CALTRANS	"I205"-309+8.23, 106.43 Lt to 314+68.42 -284.92 Lt	ELECTRICAL	No	Yes	No	Protect in Place
73						No	
74	PG&E	"I205"-314+10.67	ELECTRICAL 12 KV	No	No	No	Protect in Place
75	PG&E	"I205"-314+21.21	NATURAL GAS	Yes	No	No	Protect in Place
75A	CITY OF TRACY	"I205"-314+81	SEWER FORCE MAIN	Yes	No	No	Protect in Place
76	PG&E	"I205"-314+38.85	ELECTRICAL	No	No	No	Protect in Place
76A	COMCAST	"I205"313+50	FIBER OPTIC	No	No	No	Protect in Place
76B	COMCAST	"I205"313+50	COAXIAL LINE	No	No	No	Protect in Place
77	CALTRANS	"I205"-339+79	FIBER OPTIC	No	Yes	No	Relocation
78	PG&E	"I205"-340+84.3	NATURAL GAS	Yes	No	No	Protect in Place
79	CALTRANS	"I205"-339+82.91 , 91.38' Lt to 341+96.32 101.34' Lt	FIBER OPTIC	No	Yes	No	Protect in Place
80	CALTRANS	"I205"-342+02.61	FIBER OPTIC	No	Yes	No	Protect in Place
81	CALTRANS	"I205"-342+1.93 84.45' Lt to 347+94.63 -100.46' Lt	ELECTRICAL	No	Yes	No	Protect in Place
82	PG&E	"I205"-342+80.89	OH ELECTRICAL 12KV	No	No	No	Relocation

I-205 MANANAGED LANES PROJECT - UTILITY CONFLICT MATRIX

ID No.	Owner	Station + Offset	Facility	High Priority	State Owned Facility	Longitudinal Encroachment Exception	Remedy
83	CALTRANS	"I205"-343+87.59	ELECTRICAL	No	Yes	No	Relocation
84	UNKNOWN	"I205"-347+00	NATURAL GAS	Yes	No	No	Protect in Place
85	CALTRANS	"I205"-361+62.13	ELECTRICAL	No	Yes	No	Protect in Place
86	CALTRANS	"I205"-361+67.29, 123.89 Rt to 369+91.67 195.46 'Rt	ELECTRICAL	No	Yes	No	Protect in Place
87	PG&E	"I205"-370+00	ELECTRICAL	No	No	No	Protect in Place
88	PG&E	"I205"-370+5.35	NATURAL GAS	Yes	No	No	Protect in Place
88A	UNKNOWN	"I205"-369+59.86	TELEVISION	No	No	No	Protect in Place
89	CITY	"I205"-370+44.76	SANITARY SEWER	Yes	No	No	Protect in Place
90	CITY OF TRACY	"I205"-370+44.77	SANITARY SEWER	Yes	No	No	Protect in Place
92	PACIFIC BELL	"I205"-370+68.97	TELEPHONE	No	No	No	Protect in Place
93	PT&T CO	"I205"-370+75.62	TELEPHONE	No	No	No	Protect in Place
94	CALTRANS	"I205"-370+89.57	ELECTRICAL	No	Yes	No	Protect in Place
95	CALTRANS	"I205"-379+1.36	ELECTRICAL	No	Yes	No	Protect in Place
96	PG&E	5 GAS LINES ALONG N TRACY BLVD	NATURAL GAS	Yes	No	No	Protect in Place
97	CALTRANS	"I205"-371+50.44 185.08' LT to 383+59.11 95.5 Lt	ELECTRICAL	No	Yes	No	Protect in Place
98						No	
99	PT&T CO	"I205"-395+73.66	TELEPHONE	No	No	No	Protect in Place
100	PG&E	"I205"-395+83.66	NATURAL GAS	Yes	No	No	Protect in Place
101	CALTRANS	"I205"-395+94.57	ELECTRICAL	No	Yes	No	Protect in Place
102	UA CABLESYSTEMS	"I205"-397+50	OVERHEAD TELEVISION	No	No	No	Protect in Place
102A	UNKNOWN	"I205"-397+50	NATURAL GAS	Yes	No	No	Protect in Place
103	PGE/COMCAST	397+69.58	OVER HEAD ELECTRIC	Yes	No	No	Protect in Place
104	CALTRANS	"I205"-398+52.4	FIBER OPTIC	No	Yes	No	Protect in Place
105	AT&T	"I205"-396+90.20	TELEPHONE	No	No	No	Protect in Place
106	CITY OF TRACY	"I205"-414+51.07	SANITARY SEWER	No	No	No	Protect in Place
107	CITY OF TRACY	"I205"-414+61.15	SANITARY SEWER	No	No	No	Protect in Place
108	LEPRINO FOODS COMPANY	"I205"-414+98.49	SEWER FORCE MAIN	Yes	No	No	Protect in Place
109	CITY OF TRACY	"I205"-415+8.57	SANITARY SEWER	No	Yes	No	Protect in Place
110	UNKNOWN					No	
111	PG&E	"I205"-416+22.89	OH PRIMARY VOLATAGE	Yes	No	No	Protect in Place
112	PG&E	"I205"-429+9.37	ELECTRICAL	No	No	No	Protect in Place
113	PG&E	"I205"-429+19.12	OVER HEAD ELECTRIC	No	No	No	Protect in Place
113A	CITY OF TRACY	"I205"-429+44.33	SANITARY SEWER	No	No	No	Protect in Place
113B	CITY OF TRACY	"I205"-429+44.33	SANITARY SEWER	No	No	No	Protect in Place
113C	CITY OF TRACY	"I205"-430+50	SANITARY SEWER BOOSTER PUMP	No	No	No	Relocation
114	UNKNOWN	"I205"-429+28.90	WATER	No	Unknown	No	Protect in Place
115	UNKNOWN	"I205"-429+38.4	WATER	No	Unknown	No	Protect in Place
117	PG&E	"I205"-429+80.53	OVER HEAD ELECTRIC	No	No	No	Protect in Place
118	PG&E	"I205"-429+88.64 to 434+58.25	ELECTRICAL	No	No	No	Protect in Place
119	PG&E	"I205"-430+2.31	ELECTRICAL	No	No	No	Protect in Place
120	CALTRANS	"I205"-434+58.25	ELECTRICAL	No	No	No	Relocation
121	CALTRANS	"I205"-435+16.26	ELECTRICAL	No	No	No	Relocation
122	CALTRANS	"I205"-436+14.37	ELECTRICAL	No	Yes	No	Protect in Place
123	PRESCADERO IRRIGATION DISTRICT	"I205"-436+16.08	IRRIGATION	No	No	No	Protect in Place
124	NAHAMA &WEAGANT ENERGY &CO	"I205"-437+39.36	NATURAL GAS	No	No	No	Protect in Place
125	TRI VALLEY OIL AND GAS	"I205"-449+50	NATURAL GAS	Yes	No	No	Protect in Place
126	BYRON BETHANY IRRIGATION DISTRICT	"I205"-505+73.28	IRRIGATION	No	Unknown	No	Relocation/Protect in Place
127	BYRON BETHANY IRRIGATION DISTRICT	"I205"-505+83.92	IRRIGATION	No	Unknown	No	Protect in Place
128	PG&E	"I205"-506+25.75	OVER HEAD ELECTRIC	No	No	No	Protect in Place
129	AT&T	"I205"-507+41.9	TELEPHONE	No	No	No	Protect in Place
130	BYRON BETHANY IRRIGATION DISTRICT	"I205"-508+03.64	IRRIGATION	No	Unknown	No	Protect in Place
131	PG&E	"I205"-530+13.82	OVER HEAD ELECTRIC	No	No	No	Protect in Place
133	UNKNOWN	"I205"-536+34.83	WATER	No	Unknown	No	Protect in Place
134	PG&E	"I205"-553+25.31	OVER HEAD ELECTRIC	No	No	No	Protect in Place
134A	AT&T	"I205"-553+25.31	ELECTRICAL	No	No	No	Protect in Place
134B	AT&T	"I205"-553+25.31	ELECTRICAL	No	No	No	Protect in Place

I-205 MANANAGED LANES PROJECT - UTILITY CONFLICT MATRIX							
ID No.	**Owner**	**Station + Offset**	**Facility**	**High Priority**	**State Owned Facility**	**Longitudinal Encroachment Exception**	**Remedy**
135	PG&E	"I205"-591+39.03	OVER HEAD ELECTRIC	No	No	No	Protect in Place
136	PG&E	"I205"-626+74.77	OVER HEAD ELECTRIC	No	No	Yes	Protect in Place
136A	AT&T	"I205"-621+1.42	ELECTRICAL CONDUIT	No	No	No	Protect in Place
137	PG&E	"I205"-657+00	OVER HEAD ELECTRIC	No	No	No	Protect in Place
138	PG&E	"I205"-685+50	OVER HEAD ELECTRIC	No	No	No	Protect in Place
139	PG&E	"I205"-670+00 to 768+00	OVER HEAD ELECTRIC	No	No	No	Protect in Place

Attachment J
Previously Approved PSR-PDS, December 17, 2017

10 - SJ - 205 – L0.0/R12.5
10-1H170K – 1017000116
20.XXX.400.100 – Locally Generated Funds
PPNO No. 3260
December, 2017

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

To

Request Programming for Capital Support (Project Approval and Environmental Document Phase) in the 2018 STIP

On Route I-205

Between I-580

And I-5

APPROVAL RECOMMENDED:

David Ripperda, *PROJECT MANAGER*
SAN JOAQUIN COUNCIL OF GOVERNMENTS

APPROVAL RECOMMENDED:

Ken Baxter, *DEPUTY DISTRICT DIRECTOR*
PLANNING, LOCAL ASSISTANCE, AND ENVIRONMENTAL

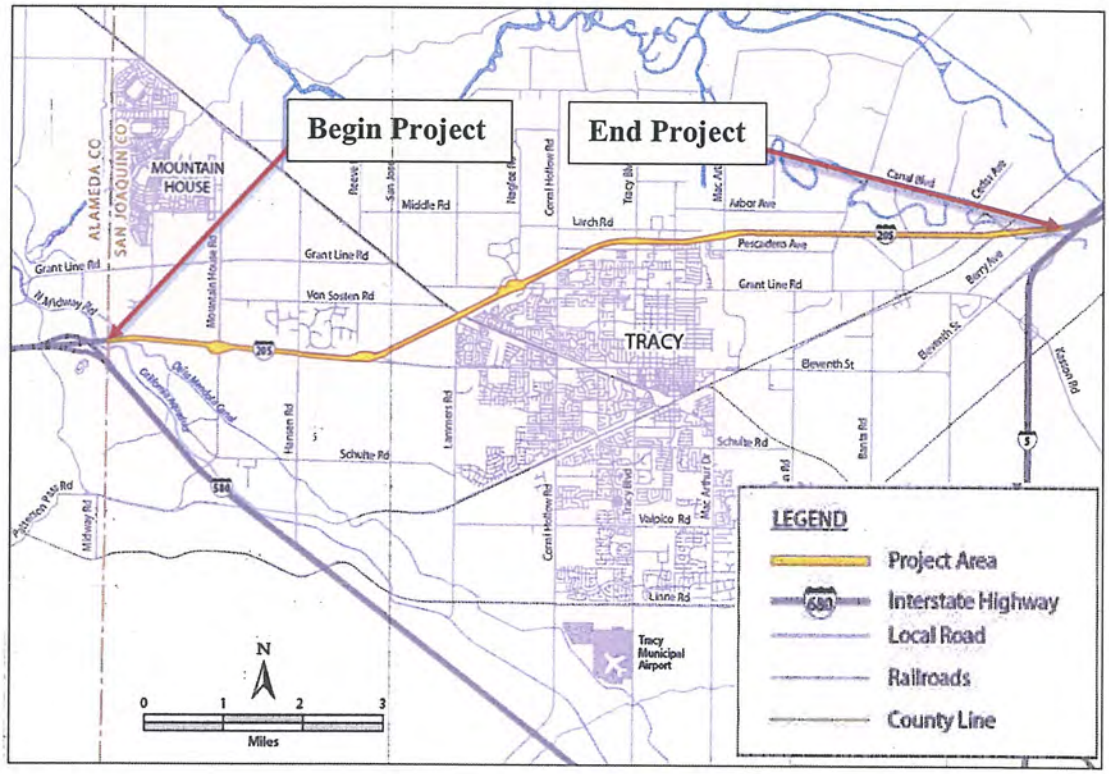
APPROVAL RECOMMENDED:

Michael C. Cook, *CALTRANS PROJECT MANAGER*

APPROVED:

for Dennis T. Agar, *DISTRICT DIRECTOR* — 12/15/17 *DATE*

Vicinity Map



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.

12/6/17

Bala Rajappan
REGISTERED CIVIL ENGINEER

DATE



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1. INTRODUCTION

Project Description:

The project proposes to add one high occupancy vehicle (HOV) lane in each direction of Interstate 205 (I-205) between Alameda/San Joaquin County line and the junction of I-5 and I-205. Lane additions on the western portion of the project (west of Eleventh Street Interchange) will be made on the *outside* and lane additions on the eastern portion of the project will be made on the *inside* of the existing lanes. To meet lifecycle requirements, outside and inside widening will be accomplished using continuously reinforced concrete pavement (CRCP). Additional right-of-way is anticipated as a result of widening and/ or supplementing existing retention basins for storm water. Table 1 summarizes the proposed project information.

Table 1 – Project information summary

Project Limits	10-SJ-205 L0.0/ R12.50
Number of Alternatives	Build & No-Build
Current Capital Outlay Support Estimate for PA&ED	$ 12.36 M
Current Capital Outlay Construction Cost Range	$ 251 M - $ 321 M
Current Capital Outlay Right-of-Way Cost Range	$ 6 M – $ 6.6 M
Funding Source	STIP (IIP and RIP), Trade Corridor Enhancement Program, Solutions for Congested Corridors Program, Local Partnership Program and Measure K
Type of Facility	6 lane freeway, 2 auxiliary lanes
Number of Structures	19
Anticipated Environmental Determination or Document	Initial Study-Mitigated Negative Declaration / Environmental Assesment (IS/MND) / EA
Legal Description	Construction on Interstate 205 in San Joaquin County and in Tracy from 0.1 miles west of the Delta-Mendota Canal to 0.5 miles west of the Interstate 5 Connector
Project Development Category	Category 4, Projects that do not require a location adoption or a freeway agreement and do not meet the criteria of Categories 5 or 6.

Of the 19 structures included in the project, 18 will be joined to form 9 new structures. The remaining structure, the Delta-Mendota Canal bridge will be widened on the outside.

At least two interchange projects along I-205 will be constructed prior to construction of this project. They are the Mountain House Parkway-International Parkway Interchange

Modification and new construction of the Lammers/ Eleventh Street Interchange. Both projects will either add or modify auxiliary lanes along the mainline freeway. Auxiliary lanes built prior to the start of the HOV project will be maintained by the HOV project.

The remaining capital outlay support, right-of-way, and construction components of the project are preliminary estimates and are not suitable for design or construction phase programming purposes. Either a project report or a supplemental PID following the format of a PSR will serve as the programming document for the remaining (design/ construction) components of the project. A project report will serve as approval of the "preferred" alternative.

Other approvals required are:

- Union Pacific Rail Road – Construction & Maintenance
- State Water Resources Control Board - Construction National Polution Discharge Elimination System Permit
- Central Valley Regional Water Quality Control Board - 401 Certification
- California Department of Fish & Wildlife - 1601 Permit
- Army Corps of Engineers - Nationwide (aka 404) Permit
- United States Department of Fish & Wildlife - Section 7 Agreement

2. BACKGROUND

Congestion has been building steadily on I-205 during peak weekday travel periods. Data from the *Corridor System Management Plan* (CSMP) for I-205/ I-5 and the *I-205 Transportation Concept Report* (TCR) demonstrates this conclusively[1]. To address the congestion, Caltrans and its partner agencies SJCOG, (San Joaquin Council of Governments), StanCOG (Stanislaus Council of Governments) and MCAG (Merced County Association of Governments) adopted an interim strategy of widening the freeway to 6-lanes and adding auxiliary lanes. These were completed in the latter half of the last decade and the beginning of this decade. In addition to the interim strategy, a longer term dual strategy of targeted capacity expansion of managed lanes and the installation of Intelligent Transportation Systems (ITS) technologies was adopted. Phase 1 of the ITS installation is nearing completion. This project is intended to fulfill the second half of the dual strategy, namely, the development of managed lanes.

3. PURPOSE AND NEED

Purpose

The purpose of the project, which is to add HOV lanes along I-205 between two major freeways I-580 and I-5 in San Joaquin County, is to:

- Reduce traffic congestion and delay along I-205
- Encourage High Occupancy Vehicle (HOV) use in the I-205 corridor

[1] *I-205/ I-5 CSMP*, Caltrans, Division of Transportation Planning, May 2010 and I-205 TCR, Caltrans, June, 2014

- Improve regional mobility
- Improve freight movement
- Encourage use of ridesharing, transit and low emission vehicles
- Improve corridor travel times, and
- Increase corridor throughput of people and goods
- Add ITS technologies
- Add bike and pedestrian facilities to make the project multimodal to be eligible for various funding sources

Need

The project is needed because traffic congestion and delay have increased significantly during both AM and PM peak periods over the last few years. The peak periods have extended up to five hours during each peak period. The worsening of congestion and commuter delay is expected to continue, experiencing substantial traffic growth – both locally from new development and regionally from adjacent communities such as Tracy, Manteca, Lathrop and San Joaquin County as a whole. Further traffic growth is also expected from through traffic between adjacent counties such Alameda to the west and Stanislaus to the east.

In addition, I-205 is also a major intercity and interstate trucking route for goods movement, particularly to and from the Port of Oakland and the Bay Area. With rapid development of warehousing facilities along the I-205 corridor, truck volumes to Port of Oakland and the Bay Area are also expected to experience additional increase.

This growth in commuter traffic in combination with high truck volumes is expected to worsen congestion and delay, and worsen air quality.

4. TRAFFIC ENGINEERING PERFORMANCE ASSESSMENT

A Traffic Engineering Performance Assessment (TEPA) has been completed for the project and is included as Attachment D. A Technical Traffic Memorandum was prepared prior to development of the TEPA in consultation with Caltrans to verify the methodology to be used. The resulting assessment is based on existing data including Caltrans PeMS, Caltrans 2015 Traffic Volumes and Daily Truck Traffic, and Traffic Reports for the following projects:

- I-205/ Chrisman Road Interchange Project
- I-205/ Lammers Road Interchange Project
- I-205 and I-5 HOT Lane Feasibility Review
- I-205/ I-5 Corridor System Management Plan
- Northern San Joaquin Valley Regional Metering and HOV Master Plan

Existing daily traffic ranges from a low of 83,000 between Eleventh Street and Grant Line Road to a high of 123,000 between Grant Line Road and Tracy Blvd. Truck traffic is relatively high compared with other California interstate freeways within the Primary Freight Network and ranges between 11.17 and 12.00 percent. In the westbound direction, peak hour is between 4:00 AM and 5:00 AM, with persistent congestion extending three more hours. In the

eastbound direction, peak hour is between 5:00 PM and 6:00 PM, with rising congestion two hours before and trailing congestion two hours after PM peak period.

The existing facility features three lanes in each direction. Most of the basic freeway segments currently operate at level-of-service (LOS) E/F in both the AM and PM peak hours. Travel demand within the I-205 freeway corridor in the study area, is forecast to increase, leading to worsening of the conditions within the study area. Under future (2045) no-build scenario, LOS E/F conditions are projected to deteriorate even further in both directions during morning and evening commute periods. Addition of HOV lanes on I-205 is expected to mitigate a majority of the negative effects of this traffic growth. Addition of the HOV lanes would result in fewer overall operational deficiencies and would provide additional capacity to accommodate the projected traffic growth by the horizon year.

During AM peak hour, under the future No Build alternative, 13 segments are projected to operate unsatisfactorily (LOS E/F), whereas under future Build alternative 4 segments are projected to operate unsatisfactorily (LOS E/F). During PM peak hour, under future No Build alternative 12 segments are projected to operate unsatisfactorily (LOS E/F), whereas under future Build alternative 2 segments are projected to operate unsatisfactorily (LOS E/F).

Under the Build alternative, all of the HOV segments are projected to operate at satisfactory levels with volume-to-capacity ratio of less than 1. Overall, the Build alternative meets the project's stated purpose and need, to reduce traffic congestion and delay along I-205 and to encourage HOV use in the I-205 corridor.

The scope of studies during the PA&ED phase includes:

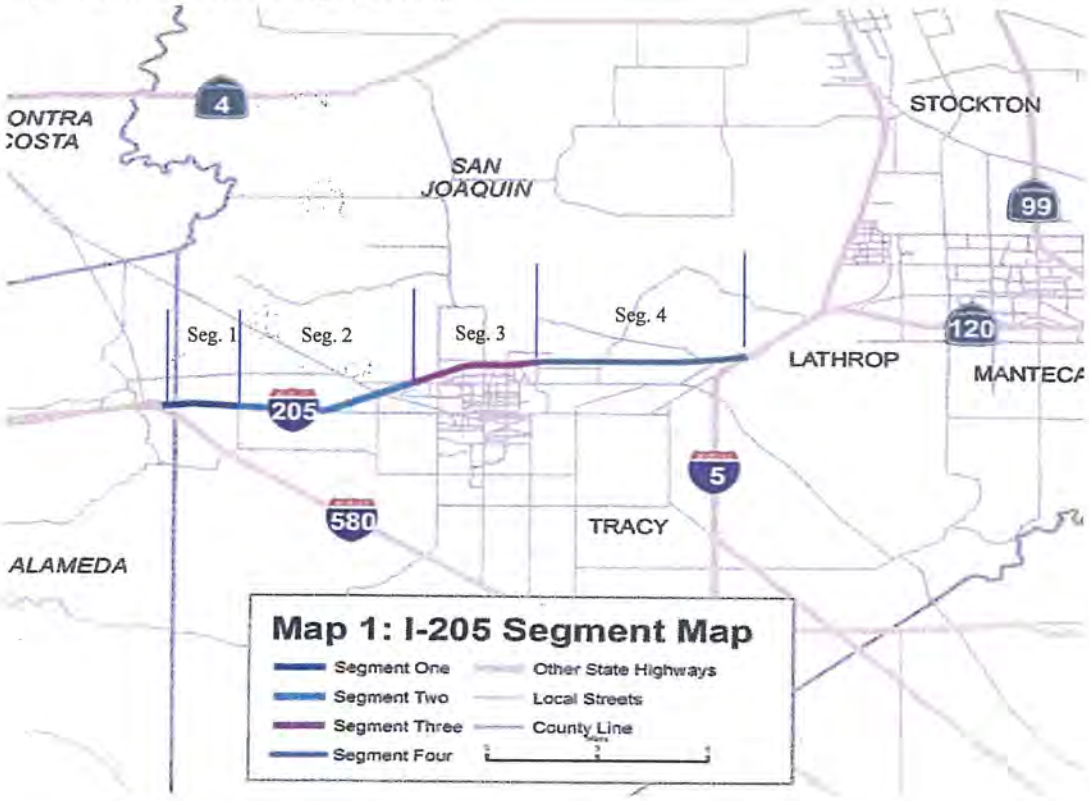
- New traffic volume and ridership (occupancy) counts,
- Ramp turning movement counts,
- Traffic forecasts utilizing updated available modeling tools including the most current version of the Three County (SJ-Stan-Mer) model, and
- Traffic Impact/Circulation Study
  - Freeway Analysis
    - Mainline LOS (capacity analysis)
    - Ramp, merge and diverge LOS
    - Weaving analysis
    - Managed lane (HOV Lanes) analysis
  - Ramp terminal intersection LOS (exit Ramp storage/queue analysis)
  - Intersection Control Evaluation (ICE)
  - Ramp metering system analysis (interchange specific and corridor-wide)
  - Ramp metering queue storage
  - Intersection control alternatives analysis (Signal warrant analysis)
  - Conventional intersection analysis (capacity analysis, delay studies, queuing and channelization storage analysis)
- Safety Analysis

A microsimulation model may be considered during the PA&ED phase.

5. DEFICIENCIES

Per the I-205 TCR[2] the concept level of service (LOS) for rural Inter-Regional Route System (IRRS) route segments in Caltrans District 10 is C. For IRRS route segments in urban settings, the concept level is D. The route segment map for I-205 is provided in Figure 1 below. There are four segments in total. The Department's Inter-Regional Transportation Strategic Plan (ITSP) lists I-205 as a priority within the (IRRS), and consequently, for Interregional Transportation Improvement Program (ITIP) funding. Currently, Segments 1 and 4 within the City of Tracy are classified as rural[3]. Nevertheless, recent studies indicate that westbound route Segments 1, 2 and 3 operate at LOS F (significant delay/congestion), with demand/capacity ratio in the mixed flow lanes from 0.93 – 1.00, and LOS E (minimal to substantial delay or congestion), with demand/ capacity ratio in the mixed flow lanes between 0.70 – 0.92 on weekdays during morning peak hour periods[4]. During afternoon peak hour periods, all route segments operate between LOS E and F, only in the eastbound direction. This is reflected in Table 2. Consequently, the facility can be described as deficient during weekday peak hour periods.

Figure 1: I-205 Route Segment Map



[2] *TCR*, page 4, Caltrans District 10, 2014

[3] Ibid, page 11

[4] Caltrans, *I-205/ I-5 CSMP*, pages 76-78, May, 2010

Table 2: AM/PM Level of Service by Route Segment, I-205

Mixed Flow Segments	AM LOS	PM LOS
1	F	E
2	F	F
3	E	F
4	E	F

Symptomatic of capacity deficiencies, bottleneck locations occur at the I-205 interchanges with I-580, Mountain House Parkway, Naglee Road, West Grant Line Road and MacArthur Drive in the westbound direction. These bottlenecks accompany lane drops from auxiliary lanes, lane drops from lane merges, and short weaving transitions. From the bottleneck point, traffic delays extend upstream to a point where a slowdown begins. In the eastbound direction, bottlenecks occur at the junction with I-5, Tracy Blvd, MacArthur Drive, East Grant Line Road, and Mountain House Parkway.

Apart from these capacity deficiencies, insufficient ITS or real-time traffic information prevents the existing system from operating as efficiently as possible. Operational improvements in the form of TMS, Changeable Message Signs (CMS), Closed Circuit Television (CCTV) cameras, loop detectors and ramp meters are in design, and are planned for construction/ installation between 2019 and 2020 with the Phase 2 Smart Corridor Project. Installation of fiber optic trunk line is nearing completion with Phase 1 of the Smart Corridor Project.

As a part of the National Highway Priority Network (NHPN) for trucks, Segment 1 is also deficient. This is due primarily to the known boardings and departures of trucks from warehouses in the western Tracy/ Cordes Ranch subdivision within the City of Tracy. Truck volumes, while not inordinately high, slow other motorists who must decelerate in order to accommodate the slower speeds of trucks carrying heavier loads. While a westbound truck climbing lane (TCL) has been scoped for over a decade by Caltrans[5], the project is listed as only a Tier 2 project by SJCOG[6]. Moreover, the I-580 Corridor System Management Plan (CSMP) developed for the route segment west of I-205 in Alameda County – where the bulk of the TCL would be constructed – does not include a truck climbing lane7, and attempts by Caltrans District 4 to include it in the RTP have been rejected by Alameda County CTC8. Alameda County views the Altamont Pass as a gateway into their communities, and prefers to encourage the use of other routes by trucks. By and large, Metropolitan Transportation Commission (MTC) supports this view of the route; their 2013 RTP, as well as their (draft) 2018 RTP9, does not include a westbound truck climbing lane.

[5] Caltrans, *Precise Project Report, I-205 Westbound Truck Climbing Lane,* 2005. The project limits are from the I-205/Mountain House Parkway-International Parkway Interchange to the North Flynn Road/ I-580 Interchange.

[6] 2011 RTP, project listings

[7] Alameda Countywide Transportation Plan, Alameda CTC, 2016

[8] Transportation System Development Plan (TSDP), Caltrans District 4, 2011

[9] Metropolitan Transportation Commission, Draft Plan Bay Area 2040, project listing

6. CORRIDOR AND SYSTEM COORDINATION

6.1 System Planning

With known congestion and capacity issues dating back to the last decade of the 20th century, planning for capacity increasing capital improvements began soon after the turn of the century. The initial planning for longer term capacity improvements in the form of High Occupancy Vehicle (HOV) lanes was scoped as part of the Northern San Joaquin Regional Ramp Metering and HOV Lane Master Plan10. This particular type of lane allows for capacity improvements in a managed fashion, typically with occupancy requirements whose net effect is to reduce the number of single-occupancy vehicles (SOV) on the roadway. These types of improvements were included as part of the County MPO's Regional Transportation Plan (RTP) as early as 2011.

The I-205 Corridor is the essential link from the San Joaquin Valley to the San Francisco Bay Area. A recent report documents that over 15% of all home-to-work trips originating in San Joaquin County have destinations over the Altamont Pass11 To accomplish this, travelers use a series of other freeways which connect with I-205. These include SR 99, I-5, SR 4 and SR 120. Consequently, the network of routes connecting with I-205 plays a large role in generating the volumes experienced during morning and evening commutes.

Subsequent to the planning for HOV lanes, the I-205 TCR collated data from 2010 and 2011 to establish a more current perspective of traffic conditions. In authoring the document, the Department also identified a series of strategies to address known operational and capacity issues. In the short term, efficiency improvements such as the installation of ITS, TMS, CCTV, and CMS in the service of real-time traffic information was deemed a priority. Over the longer term, connections to commuter services such as BART and ACE were identified as prudent and feasible, followed by the provision of more park-and-ride lots.

As identified in the TCR, the facility's short-term concept (2035 horizon year) is 8 lanes including HOV12, while the longer term (post-25 year) concept is as a ten-lane freeway with HOV. While right-of-way is currently available for an 8-lane facility for all route segments, additional right-of-way will likely be needed for some segments of the route in order to meet a (future/ ultimate) 10-lane facility.

The District System Management Plan (DSMP)13 is the Department's strategic policy and planning document that focuses on system preservation, operating, managing, and developing the transportation system. While HOV projects are not listed in the DSMP's project list, they are mentioned as opportunities for the route in the body of the document. Consequently, managed lanes are consistent with the scope of this project's purpose and need.

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[10] *NSJV Regional Ramp Metering and HOV Lane Master Plan,* SJCOG, 2009

[11] *Interregional Multi-Modal Commute Trip Planning Study*, Kittelson and Associates, 2013

[12] TCR, page 5

[13] DSMP, Caltrans District 10, 2015

6.2 Transportation Planning Scoping Information Sheet

Following is a summary of the Transportation Planning Scoping Information Sheet. A copy of this sheet is included in Attachment C.

Project Funding – Funding for the PA&ED phase of the project is from Local Development Impact Fees. State and Federal funds in the State Transportation Improvement Program (STIP) may also be available for use in subsequent phases of this project.

Regional Planning – cf. section 6.3, infra.

Native American Consultation and Coordination - Native American Consultation and Coordination will be conducted as part of the PA&ED project phase.

System Planning – cf. section 6.1, supra.

Local Development-Intergovernmental Review (LD-IGR) – There are several projects either currently or recently being considered by the City of Tracy Planning Commission. They range in scope from residential to commercial properties of varying size. Some will generate traffic impact fees which can be used towards the City's Capital Improvement Program.

Community Planning – No community groups in the project area have been involved in the project. During PA&ED, the environmental documents will be circulated for public comment and a required public meeting will be held. Context sensitive solutions (aesthetic themes, bike/ pedestrian improvements) will be incorporated into the project.

Freight Planning – Regional distribution centers and warehousing are present along the minor arterial International Parkway. The I-205/ Mountain House Parkway- International Parkway and I-580/ Patterson Pass Rd- International Parkway Interchanges provide convenient access to this arterial. With Phase 1 of the I-205 and I-580 SMART Corridor projects nearing completion, along with an interconnect between the Caltrans District 10 and City of Tracy Traffic Management Center, monitoring for freight movement is imminent.

Transit – San Joaquin Regional Transit District (RTD) provides weekday peak-hour bus service along I-205 between the communities of Stockton, Manteca, Lathrop and Tracy to and from the Dublin/ Pleasanton BART station. Departures are approximately hourly.

Bicycle – There are several arterials which cross I-205 which SJCOG has designated as part of their Regional Congestion Management Program (RCMP) bicycle network. These include International Parkway, Corral Hollow Rd, Tracy Blvd, and Grant Line Road. The City of Tracy has also designated several arterials crossing I-205 as either part of their existing or proposed Bicycle Network (cf. TMP page 4-141, Figure 4-6).

Pedestrian – The City of Tracy TMP includes an inventory of existing and proposed sidewalks pedestrians can use throughout the City. Many of these either lead to or cross over/ under I-205 (Figure 4-7, TMP page 4-151).

Equestrian – There are no provisions for equestrian facilities in the City of Tracy TMP. Likewise, there is no mention of SJCOG planning for the use of horses along City or County roadways throughout San Joaquin County. The San Joaquin County General Plan does speak to equestrian facilities, but only in the context of recreational land uses.

Intelligent Transportation System (ITS) – As part of the City of Tracy Transportation Master Plan (TMP), the City has developed a traffic control center where they can monitor congestion and traffic at city streets around the community. ITS elements figure prominently in their plans. The stated goal of the system is to (a) reduce emergency response times (b) encourage alternate mode choices (c) lower greenhouse gas (GHG) emissions, and (d) improve safety. Existing ITS elements on Route I-205 include closed circuit television cameras (11) and roadside weather information stations (2). There are existing ramp meters at the eastbound (EB) and westbound (WB) on-ramps for the International Parkway-Mountain House Parkway interchange in western Tracy. Also nearing construction completion is the installation of a fiber optic trunk line along the median of I-205 as part of Phase 1 for the I-205 Smart Corridor. Other planned ITS elements for Route I-205 include improvements scoped in Phase 2 of the I-205 Smart Corridor. These include the addition of ramp meters at on-ramps for Tracy Blvd (EB, WB), MacArthur Rd (EB, WB), Grant Line Rd (EB), Naglee Rd (WB) and the installation of overhead changeable message signs (CMS). Two new interchanges also plan for the inclusion of ramp meters. These are the Chrisman/ Paradise interchange and the Lammers/ Eleventh Street interchange.

6.3 Regional Planning

As an interstate freeway, the SJCOG Regional Congestion Management Plan (RCMP) network includes all of I-205 in San Joaquin County. By definition, the RCMP network is eligible for funding from the RTIF (Regional Transportation Impact Fee) program. Some intersections along I-205 ramps have also been included in the RCMP network. These are the four eastbound/ westbound ramps on Tracy Blvd in the City of Tracy, and the four eastbound/ westbound ramps at Mountain House Parkway/ International Parkway in the County of San Joaquin. Designation of RCMP intersections adds resolution for congestion monitoring and appropriately focuses attention at locations where operational constraints are typically experienced on arterial roadways.

6.4 Local Planning

The City of Tracy has adopted a I-205 Corridor Specific Plan that speaks to the existing and planned land uses bordering the freeway. The City's TMP also discusses bicycle, pedestrian, motor vehicle, truck, transit and ITS elements of the arterial network bordering the freeway. In general, these arterials have been and will continue to be developed in support of freeway operations.

7. ALTERNATIVES

7.1 No-Build Alternative

Under this alternative, no reconstruction or improvements would be made to the existing freeway between the San Joaquin County line to the west and I-5 other than routine maintenance and currently programmed improvements. These improvements include ramp metering throughout the corridor. This alternative does not address the need and purpose of the project. The need to correct existing deficiencies identified in Section 4 (TEPA) and detailed in Section 5 (DEFICIENCIES) would go unmet. The need to address future deficiencies would also go unmet.

7.2 Build Alternative - HOV Lane Additions

This alternative proposes to construct a high occupancy vehicle (HOV) lane in each direction between the San Joaquin line on the west and I-5 on the east. Throughout the western limits of the project, between San Joaquin County line and 11th Street, where the median width is 22-feet, lanes will be added on the outside of the existing mixed flow lanes, and the inside lane converted to an HOV lane. The existing Auxiliary lanes, west of Mountain House Parkway and from east of Mountain House Parkway to 11th street will be maintained. Throughout the eastern limits, from 11th Street to I-5, widening will occur on the inside, where HOV lanes will be constructed with standard shoulder and paved median. Operational analysis will be performed during the PA&ED phase to determine the optimal locations of the eastbound and westbound HOV lane transitions.

The eastbound HOV lane is proposed to drop prior to the existing I-205/I-5 outside connector near the Mossdale Wye. An extension of the HOV lane, via I-5 Mossdale HOV Widening Project (EA#10-1H160) to the north and east of the project limits have been discussed. The I-5 Mossdale HOV Widening Project (EA#10-1H160) may be programmed in the upcoming long-range 2018 Regional Transportation Plan and Sustainable Communities Strategy (SJCOG RTP/SCS, 2018) in phases at the eastern end of the project. SJCOG and Caltrans are in agreement that the I-205 HOV project needs direct HOV connectors from the eastern end to the median of I-5 north of the I-205/I-5 interchange. These connectors would eliminate the potential for bottleneck at I-205 HOV lane drop and provide smooth connectivity to I-5. SJCOG intends to construct these improvements as part of a separate project, the I-5 Mossdale Wye HOV (EA#10-1H160).

The I-5 Mossdale Wye project (EA# 10-1H160) is proposed to be constructed in two phases. The first phase would propose to construct the direct HOV connectors from I-205 to I-5 and construct HOV lanes on I-5 between I-205 and the I-5/Louise Avenue interchange. The second phase would include additional widening of I-5 between the I-205 and SR 120 and direct HOV connector ramps between I-5 and SR 120. The 2018 RTP/SCS anticipates the I-205 HOV lane project will be completed two years ahead of the I-5 Mossdale Wye HOV project. During the PA&ED phase of the I-205 HOV project, the direct I-205 and I-5 HOV connector component will be studied both operationally and for geometric conformity with I-5. Furthermore, all

opportunities will be explored to build the I-205 HOV project and the connectors to I-5 simultaneously for smooth HOV connectivity.

Prior to full completion of the Mossdale Wye HOV connector project, the I-205 HOV lane drop at the eastern end will be located based on analyzed downstream congestion queue, speed and stopping sight distance, throughout its 20-year design period. If it is determined that the lane drop is acceptable, the analysis will also include determination of optimal location for the lane drop. This lane drop will remain in place even if the proposed I-5 Mossdale Wye HOV project never materializes or is delayed.

The I-205 HOV project's western limit is at the San Joaquin County line. Improvements to I-580 into and out of the bay area are necessary for smooth connectivity with I-205 HOV, particularly in the westbound direction. Currently the Alameda CTC does not have any capacity improvements planned for I-580 in the near future. Nevertheless, coordination of the I-205 HOV project with any I-580 improvement project is necessary.

Proposed Pavement Sections

Based on discussions with material and traffic units of District 10 during PDT meetings, it was determined that Continuously Reinforced Concrete Pavement (CRCP) should be used for this project based on expected heavy truck traffic in the near future and forecast years. Truck traffic and Traffic Index for this facility could approach that of recently complete I-5 widening in Stockton, and it was agreed that the CRCP sections used in the I-5 project would be appropriate for scoping and cost estimating purposes at this stage. The pavement section for HOV lanes and shoulders will be designed for heavy truck traffic since these lanes will be used by all vehicles during construction staging.

Much of the information that we need to adequately design the CRCP for I-205 is not yet completed i.e., future Average Daily Traffic (ADT), peak hour Traffic Volumes, calculated Traffic Index and Geotechnical information. The pavement sections shown will be fine-tuned in the next phase when the Life Cycle Cost Analysis is completed. Throughout the limits of the project, roadway excavation and pavement removal depth will be limited to the proposed depth of the CRCP pavement section. A concrete median barrier will also be constructed. Current cross slopes will be maintained in both directions, and adequate costs are allocated in the estimate for drainage improvements.

Improvements to Existing Pavement Sections

During the PDT meetings with the Traffic and Material functional units, it was also determined that the existing Asphalt Concrete (AC) pavement and shoulder sections will be replaced with CRCP along the entire limits and width of the I-205 project. The existing pavement sections include, Hot-Mix-Asphalt (HMA) with aggregate base and subbase as well as HMA with Portland Cement Concrete (PCC) base and aggregate subbase. The CRCP replacement sections will be fine-tuned after completion of the Life Cycle Cost Analysis in the next phase of the project. Attachment B, shows pavement section considerations.

Constructability

Project constructability was discussed during the PDT meetings that included traffic and material units and project management. It was determined that sufficient median width and right of way is available in both directions that will allow for stage construction and traffic handling to maintain minimum three through lanes plus auxiliary lanes, where applicable, in both directions at all times. A detailed constructability review will be completed when sufficient traffic, geotechnical and survey information becomes available in the next phase to develop plans.

Furthermore, the PDT also discussed Resident Engineer (RE) trailer, coordination with neighboring programed projects and revisions to maintenance agreements with City of Tracy, Cost estimate was updated to include anticipated costs from these items, and it was further agreed that these topics will be addressed in detail in the next phase.

Traffic Management Plan

Based on existing geometry and Right of Way, the construction of this project can be completed with 3 lanes of roadway open at all times plus auxiliary lanes, where applicable, in both directions during all stages. For the project limits between San Joaquin County line and 11th Street, the widening will be done on the outside in both directions. The total available roadway width of 69 feet will be restriped to two minimum shoulders, three 11 feet through lanes, one 11 feet auxiliary lanes, where applicable, and room for K-rail for a total width of 54 feet. This will allow up to 15 feet for use by construction vehicles on the outside. When the outside construction is completed, traffic will be shifted over and inside pavements will be replaced or constructed as needed.

For the section between 11th Street and I-5, the widening will take plane on the inside. Currently, median is 18 feet wide in either direction with total median width of 36 feet. The existing roadway will be restriped to allow for K-rail, three 11 feet lanes and minimum shoulders which will provide a clearance of 13ft on the inside for use by construction vehicles to construct the median and inside lanes. When the median construction is completed, traffic will be shifted over and the existing pavement on the outside will be replaced with CRCP.

We will also be developing a detailed TMP and stage construction plans in the next phase to fully address traffic control and staging during construction.

Side-Slopes

Throughout the majority of the project limits, side slopes will be constructed to meet 4:1 design standards. At locations where 4:1 slopes would require acquisition of residential properties, retaining walls will be used.

Reversible Lanes

While the addition of reversible lanes will assist in meeting the capacity deficiencies of the route, it is not consistent with the long-range plan of either SJCOG or Caltrans. In addition, while operational characteristics do demonstrate strong directionality – westbound in the morning and eastbound in the evening – best practices for reversible lanes requires at least 65:35% peak period directionality (Reversible Lane Guidance (Interim)), consistent with AB 2542. Based on 2042 forecast the directionality is 55:45, which does not meet the 65:35 requirement. Nevertheless, a reversible lane option will be re-evaluated during the PA&ED phase of the project as a design variation of the HOV Build Alternative.

Structural Modifications

Several structures will need modification. Of the 19 bridges crossing local arterials, railroads, or waterways, 18 will be widened on the inside, resulting in 9 joined bridges. One structure – the Delta-Mendota Canal Bridge – will be widened on the outside. Table 3 documents anticipated structure modifications. Standard side slopes will be met in conjunction with the use of retaining walls.

Table 3: Structure Modifications

Bridge Name & Number	Scope of Work	Design Assumption & Notes
Delta Mendota Canal Bridge No. 29-0037	Outside Widening	• Left Widen = 11'-4 ¼" • Right Widen = 12'-5 ¾" • Final Configuration = 4 Lanes @ 12' w/10' shoulders • Type 736 Concrete Barriers • New approach Slab
Mountain House Parkway Overcrossing Bridge No. 29-0180	Abutment Improvements	• Slope paving
Hansen Road Overcrossing Bridge No. 29-0208	Abutment Improvements	• Slope Paving • Close Abutment seat
Janney Overhead Bridge (UPRR)/Byron Rd. Bridge No. 29-0074 R/L	Inside Widening	• Inside Widening = 37.40' • Total Structure Width = 153'-8" • Replace existing type 9 barrier railing @ left bridge with type 736 barrier • Type 60 barrier at centerline I-205 • New approach Slab

Bridge Name & Number	Scope of Work	Design Assumption & Notes
Grant Line Road Undercrossing Bridge No. 29-0186 R/L	Inside Widening	• Inside Widening = 37.73' • Total Structure Width = 154'-0" • Replace existing type 9 barrier railings @ left & right bridges with type 736 barriers • Type 60 barrier at centerline I-205 • New approach Slab
Corral Hollow Road Undercrossing Bridge No. 29-0132 R/L	Inside Widening	• Inside Widening = 37.4' • Total Structure Width = 153'-8" • Replace existing type 9 barrier railings @ left & right bridges with type 736 barriers • Type 60 barrier at centerline I-205 • New approach Slab
Tracy Boulevard Undercrossing Bridge No. 29-0178 L/R	Inside Widening	• Inside Widening = 37.4' • Total Structure Width = 153'-8" • Replace existing type 9 barrier railings @ left & right bridges with type 736 barriers • Type 60 barrier at centerline I-205 • New approach Slab
Sugar Spur Overhead (UPRR) Bridge No. 29-0183 L/R	Inside Widening	• Inside Widening = 37.5' • Total Structure Width = 158-11 ¼" minimum & varies • Replace existing type 9 barrier railing @ left bridge with type 736 barrier • Type 60 barrier at centerline I-205 • Superstructure Type: CIP/RC Box Girder (match existing) • New approach Slab
MacArthur Drive Undercrossing Bridge No. 29-0184 L/R	Inside Widening	• Inside Widening = 37.73' • Total Structure Width = 154'-0" • Replace existing type 9 barrier railings @ left & right bridges with type 736 barriers • Type 60 barrier at centerline I-205 • New approach Slab
Paradise Road Overcrossing Bridge No. 29-0187	Abutment improvements	• Slope paving • Close Abutment Seat
El Rancho Road Undercrossing Bridge No. 29-0214 L/R	Inside Widening	• Inside Widening = 37.4' • Total Structure Width = 153'-8" • Replace existing type 9 barrier railings @ left & right bridges with type 736 barriers • Type 60 barrier at centerline I-205 • New approach Slab

Bridge Name & Number	Scope of Work	Design Assumption & Notes
East Banta Overhead (UPRR) Bridge No. 29-0179 L/R	Inside Widening	• Inside Widening = 37.4' • Total Structure Width = 153'-8" • Replace existing type 9 barrier railings @ left & right bridges with type 736 barriers • Type 60 barrier at centerline I-205 • New approach Slab
Tom Paine Slough Bridge No. 29-0180 L/R	Inside Widening	• Inside Widening = 37.7' • Total Structure Width = 154'-0" • Replace existing type 9 barrier railings @ left & right bridges with type 736 barriers • Type 60 barrier at centerline I-205 • New approach Slab

Stormwater Data Information

This project must comply with the Department's National Pollutant Discharge Elimination System (NPDES) Permit (Order 2012-0011-DWQ and its subsequent updates). The Department's NPDES Permit requires projects that create and/or replace one acre or more of impervious highway surface to implement Stormwater treatment measures. This project is expected to surpass this threshold; therefore, permanent Stormwater treatment measures will be incorporated into the project design; these measures may include infiltration, biofiltration, detention, or media filter devices. Retention basins will be placed where no discharge to receiving water bodies occurs. Post-construction Stormwater treatment is not required where impervious surface discharges to retention basins because there is no discharge to a downstream receiving water.

This project will disturb one or more acres of soil and must comply with the Statewide Construction General Permit (Order No. 2009-0009-DWQ, and its subsequent updates). A Storm Water Pollution Prevention Plan (SWPPP) will be required for the Project. The SWPPP will be developed prior to the start of construction and detail the temporary best management practices to be utilized during construction. The SWPPP will also include the development of a Construction Site Monitoring Program detailing the monitoring and sampling to be completed during construction.

Receiving Water Bodies

There are 10 water bodies within the project area, which are identified as blue lines on the United States (U.S.) Geological Survey quadrangle maps for the area. The Governor Edmund G. Brown California Aqueduct (California Aqueduct) crosses I-205 at post mile (PM) 0.01, the Delta-Mendota Canal at PM 0.15, the Lower Main Canal at approximately PM R3.92, and Tom Paine Slough at PM.R11.72. The Delta Waterways, where Tom Paine Slough outfalls to, is located downstream of the Project.

This project is located in two CalWater watersheds:

- West of I-205/Hansen Road, the project is within the Carbona Hydrologic Unit, undefined Hydrologic Area, Hydrologic Sub-Area 575.00
- East of I-205/Hansen Road, the project is within the San Joaquin Delta Hydrologic Unit, undefined Hydrologic Area, Hydrologic Sub-Area 544.00

Beneficial Uses

The California Aqueduct and the Delta-Mendota Canal have beneficial uses stated in *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region* (RWQCB 2016); the other water bodies previously identified do not have any listed beneficial uses.

Water Quality Permits

The following permits, reviews, certifications, and approvals have been identified in Table 4, as potentially being required for project construction. The need for these would be confirmed during the PA&ED phase.

Table 4. Water Quality Permits

Agency	Permit/Approval	Status
Central Valley Regional Water Quality Control Board	Section 401 Certification for impacts to waters of the United States	To be obtained before construction
United States Army Corps of Engineers	Section 404 Permit for impacts to wetlands and waters of the United States	To be obtained before construction
California Department of Fish and Wildlife	Section 1602 Agreement for Streambed Alteration impacts	To be obtained before construction
United States Fish and Wildlife Service	Section 7 Agreement for federally-listed endangered and threatened species	To be obtained prior to approval of the Final Environmental Document

Soil

The Natural Resources Conservation Service's (NRCS's) Web Soil Survey (U.S. Department of Agriculture 2016) was used to determine Hydrologic Soil Groups (HSGs) within the project area. The site mostly contains soils within HSG A and C. HSG A soils, which are located near Tom Paine Slough, have low runoff potential and high-water transmission rates. HSG C soils, which are spread throughout the project area, have moderately high runoff potential and restricted water transmission rates. A

preliminary geotechnical investigation will be done during the PA&ED phase to determine site-specific soil characteristics within the Project area.

Topography

The project area is relatively flat, with the highest point of elevation at 290 feet at the I-205/I-580 Interchange. Elevation typically ranges from sea level to 30 feet (U.S. Geological Survey 2015).

Geology

The project area is within the Great Valley Geomorphic Province, an alluvial plain with constantly depositing sediment since the Jurassic era (California Geological Survey 2002). A preliminary geotechnical investigation would be done during the PA&ED phase to determine the geology of the project area.

Retention Basins

Stormwater runoff will be handled with the expansion of existing storm water retention basins and possibly new retention basins while minimizing right-of-way acquisition. Expansion and addition of retention basins is due to an additional 87 acres of new impervious surface being added. There are 19 existing retention basins along the corridor, accommodating stormwater runoff from Mountain House Parkway interchange to 11th Street and from the Grantline Road interchange to the Holly Drive OC. It is anticipated that new retention basins will be required to handle runoff at the western and eastern most limits of the project.

Retaining Walls

The addition and expansion of retention basins will require additional right-of-way. Anticipated parcel acquisition is listed in Section 8 of this document. The acquisition of residential properties will be mitigated as feasible by use of retaining walls.

Sound Walls

There are three locations along the alignment where sound walls are existing.

1. North of I-205 from Hansen Road OC to 11th Street
2. South of I-205 from Byron Rd. to Grant Line Rd
3. South of I-205 from Holly Drive OC to Mac Arthur Rd.

In reference to the list above, sound wall one (1) is located where outside widening is planned and therefore will be removed and rebuilt. It is anticipated that the added capacity of the build alternative will require additional sound wall at other locations. Placement of new sound wall will be determined during the PA&ED phase in accordance with noise study results.

Complete Streets

As noted in Section 6.2 Both SJCOG's Regional Congestion Management Program (RCMP) and the City of Tracy's Transportaion Master Plan (TMP) identify cross links for bicycles on City/ County roads. Table 5 identifies existing and planned improvements, which include the following:

- Signing
- Striping
- Shoulder Paving
- Physical barrier
- Bicycle slot

Table 5 – Existing Planned Pedestrian Facilities - City of Tracy TMP[1]

Facility Name	MHP-IP OC (Imprvmts)	Hansen Rd OC	Prom. Prkwy OC	Lammers Rd OC	Byron Rd OH (Imprvmnts)	Grant Line Rd UC (Imprvmnts)	Corral Hlw Rd OC (Imprvmnts)
Travel Dirx	NB	NB	NB	NB	NB	WB	NB
existing	cl 3	cl 3	null	null	cl 3	cl 3	cl 2
proposed	cl 2 (1,2)	cl 2 (1,2)	cl 2 (6)	cl 1 (6)	cl 2 (1,2,3)	cl 2 (1,2)	cl 1 (4)
Travel Dirx	SB	SB	SB	SB	SB	EB	SB
existing	cl 3	cl 3	null	null	cl 3	cl 3	cl 2
proposed	cl 1 (1,2,3)	cl 2 (1,2)	cl 2 (6)	cl 1 (6)	cl 2 (1,2,3)	cl 2 (1,2)	cl 1 (4)

Facility Name	Tracy Blvd UC	Holly Dr UC	Sugar Spur UC/ OH	MacArthur Rd UC	Paradise Rd UC	El Rancho Rd UC	E. Banta OH	Canal Blvd OC
Travel Dirx	NB	NB	NB	NB	NB	NB	NB	NB
existing	cl 3	cl 3	null	cl 3	cl 3	cl 3	null	cl 3
proposed	cl 3	cl 3	null	cl 3	cl 1 (6)	cl 3	null	cl 3
Travel Dirx	SB	SB	null	SB	SB	SB	SB	SB
existing	cl 3	cl 3	null	cl 3	cl 3	cl 3	null	cl 3
proposed	cl 3	cl 3	null	cl 2 (1,2,5)	cl 1 (6)	cl 3	null	cl 3

[1] TMP - Transportation Master Plan, Ch.4

Improvements:

1 signing
2 striping
3 shoulder paving
4 physical barrier
5 bicycle slot
6 initial Con/ Recon

With construction/ reconstruction currently in the preliminary engineering phase for several of these cross links, incorporation of improvements may or may not be included in the State's project. Inclusion will be the subject of further discussions during the PA&ED phase of the HOV project.

As noted in Section 6.2 pedestrian planning has been an active concern for the City of Tracy and SJCOG Existing and planned improvements for pedestrians, including Americans With Disabilities Act (ADA) improvements, are identified in Table 6, which include the following:

- Sidewalk
- Push button activation
- Curb & gutter
- Crosswalk
- ADA ramps

Table 6 – Existing Planned Pedestrian Facilities - City of Tracy TMP[1]

Facility Name	MHP-IP OC (Imprvmts)	Hansen Rd OC	Prom. Prkwy OC	Lammers Rd OC	Byron Rd OH (Imprvmnts)	Grant Line Rd UC (Imprvmnts)	Corral Hlw Rd OC (Imprvmnts)
Travel Dirx	NB	NB	NB	NB	NB	WB	NB
existing	1-3, 5-8	null	null	null	2	1-6	1-7
proposed	same	1-3, 6	1-8	1-8	1-8	same	same
Travel Dirx	SB	SB	SB	SB	SB	EB	SB
existing	null	1-3	null	null	1-8	1-7	1-7
proposed	4-8	same	1-8	1-8	2	same	same

Facility Name	Tracy Blvd UC	Holly Dr UC	Sugar Spur UC/ OH	MacArthur Rd UC	Paradise Rd UC	El Rancho Rd UC	E. Banta OH	Canal Blvd OC
Travel Dirx	NB	NB	NB	NB	NB	NB	NB	NB
existing	1-7	1-3, 5,6	null	1-3		null	null	null
proposed	same	same	null	same	1-8	same	null	same
Travel Dirx	SB	SB	null	SB	SB	SB	SB	SB
existing	1-7	1-3,6	null	1-3	null	null	null	null
proposed	same	same	null	same	1-8	same	null	same

[1] TMP - Transportation Master Plan, Ch.4

Improvements:

1 sidewalk
2 curb
3 gutter
4 push button activator
5 crosswalk
6 ADA ramp(s)
7 ped head
8 con/ recon

With construction/ reconstruction currently in the preliminary engineering phase for several of these cross links, incorporation of improvements may or may not be included in the State's project. Inclusion will be the subject of further discussions during the PA&ED phase of the HOV project.

Park-&-Ride Lot

A Park & Ride lot is to be developed with improvements of I-205. Caltrans will coordinate with SJCOG and City of Tracy to locate a new Park & Ride Lot. I-205 previously featured a Park & Ride at Grant Line Road, however it was removed due to commercial development. A new location for a Park & Ride lot is to be scoped.

Other Improvements for the Build Alternative

Other improvements under the I-205 HOV build alternative include:

- Maintain existing Overhead Changeable Message Sign (some need to be replaced due to outside widening)
- Weigh-in-Motion detectors in both directions
- Fiber Optic Trunkline Access Modification
- California Highway Patrol (CHP) pull-outs
- Supplemental ITS System
- HOV Monitoring Cameras
- Maintenance Vehicle Pullouts (MVP)

7.3 Non-Standard Features

There are currently two location where design features of the build alternative do not meet geometric standards. This feature is reflected in Table 7.

Table 7: Non-standard Design Features –I-205 HOV lanes project

Design Standards Risk Assessment			
Alternative	Design Standard from Highway Design Manual Tables 82.1A & 82.1B	Probability of Design Exception Approval (None, Low, Medium, High,)	Justification for Probability Rating
I-205 HOV Lanes	Index 305 – median width requirement (Advisory)	High	Required minimum median width for freeways and expressways in urban areas is 36 feet, only 22 feet median is provided along the inside widening between Hansen Rd OC and I-5.
I-205 HOV Lanes	Index 502.2 – Partial Interchanges (Mandatory)	High	Existing partial interchange at 11th Street as part of existing freeway agreement, will be removed when Lammers (New) Interchange is built

Paul Gennaro, Project Delivery Coordinator, provided the probability of acceptance on non-standard geometric design features on November 2nd, 2017, as shown in Table 7. Approval of Fact Sheets for Exceptions to Mandatory and Advisory Design Standards will be required prior to approval of the Project Report.

7.4. Alternatives Considered but Not Moving Forward

A. Mixed Flow Lanes

While the addition of mixed flow (aka 'general purpose') lanes in both directions will assist in meeting the capacity deficiencies of the route, it is not in keeping with the long-range plan of either SJCOG or Caltrans. It also will not meet the conformity requirements of the San Joaquin Valley Air Pollution Control District (SJVAPCD) as the San Joaquin airshed continues to be in nonconformity for post mile 2.5, nitrous oxides and carbon monoxide.

B. Express (HOT) Lanes

While the addition of toll or express lanes in both directions would assist in meeting the capacity deficiencies of the route, it is not in keeping with the long-range plan of either SJCOG or Caltrans. There is also no regional organization capable of handling the financial requirements of express lanes.

C. Dual HOV Lanes

As noted in Section 6.1, the facility concept up to 2035 is for an 8-lane freeway with one HOV lane in each direction. At the same time the TCR recognized the need for a 10-lane freeway on Segment 1 by 2035. The ultimate configuration scoped in the TCR for I-205 is a 10-lane freeway, however it considers the addition of a mixed flow lane to achieve the additional lane (from 8 to 10) to be viable (page 5, last paragraph). Currently, there are no plans for a 10-lane facility in SJCOG's RTP(SCS). An update of the RTP(SCS) is scheduled for 2018. Consequently, consideration of the addition of a second lane – either as a mixed flow (general purpose) lane or an HOV lane - will be considered during the PA&ED phase for any of the segments.

7.5 Coordination with Other Projects

There are several planned and/ or programmed projects within the project vicinity. These are tabulated in Table 8 below.

Table 8 - List of planned and/or programed projects

EA	Scope	Limits	Funding Source	Construction Award
10-0H880	Chrisman (New) IC	R9.0/R9.6	Developer Contributution	1/30/2020
10-0X700	MVP & Roadside Paving	2.3/R9.7	SHOPP 235	1/30/2019
10-1C330	Install ITS, Phase 2	0.5/1.3	SHOPP 310	1/30/2020
10-1E210	IP-MHP IC	0.5/1.3	Developer Contribution	7/1/2019
10-OH910	Lammers/11th Street IC (New)	2.6/R5.1	Developer Contribution	6/30/2019

Most or all will be complete prior to the construction award date for this project. Any projects for which construction continues adjacent or within the project limits for this project will be coordinated with, both in regards to lane closures and signing, but also with regards to field maintenance activities.

8. RIGHT-OF-WAY

Land

Soil conditions and limitations on receiving waters along the freeway obviate the potential to discharge storm water either to ground water or surface water. This is why existing basins are of the retention variety. Nevertheless, as a consequence of pavement widening, the project will generate additional storm water runoff that must be treated. The current strategy to address additional stormwater runoff is to both expand the existing retention basins and supplement them with additional basins. The current estimate on the number of partial acquisitions is 27. If an alternative for adding a second lane in each direction, reversible lane, or express (HOT) lanes are considered during PA&ED, both the number of parcels and their area will increase. This impact to ROW is included in the Risk Register for the project. Table 9 identifies these parcels by Assessor's Parcel Number.

Table 9: Anticipated Partial Parcel Acquisitions

			ROW TAKE
	APN	ZONING	AREA (SF)
1	209-080-38	AG	8,083
2	209-080-37	AG	2,347
3	209-460-21	AG	37,257
4	209-460-31	Ind	26,882
5	209-370-17	RES	1,161
6	209-370-16	RES	11,098
7	209-370-15	RES	288
8	209-370-13	RES	5,426
9	209-370-12	RES	3,278
10	214-020-29	COM	5,069
11	214-020-12		1,258
12	214-020-37		508
13	214-020-02	COM	1,960
14	214-020-01	RES	264
15	212-190-32	RES	637
16	212-170-43	Ind	3,806
17	212-170-39	AG	3,454
18	212-170-38	COM	1,867
19	214-180-01	RES	5,007
20	214-180-02	RES	533
21	214-180-03	RES	518
22	214-180-45		2,097
23	214-180-46	RES	2,080
24	212-250-08	Ind	1,384

25	212-250-10	Ind	1,889
26	212-250-11	Ind	4,096
27	212-250-12	Ind	4,233

At some locations along the alignment, the catch-point for 4:1 side-slopes has the potential to fall outside of the existing right-of-way boundary. As the cost to supplement existing right-of-way is expensive, to the extent possible retaining walls will be used to intercept the side-slopes. Retaining wall intercepts on side-slopes will minimize the need for right-of-way acquisition.

Utilities

Locations of known utilities are illustrated in Attachment E. The following utilities would be affected by the project:

Table 10: Utility Locations

Utility Conflict	Conflict Location(s)
Sprint	Janney Overhead, East Banta Overhead
PacBell	Janney Overhead, Corral hollow Rd Undercrossing
Zayo (fiber optic)	Janney Overhead
Comcast Conduit	Janney Overhead, Corral Hollow Rd Undercrossing,
PG&E OH	Janney Overhead
PG&E Gas	Grant Line Rd. Undercrossing, Corral Hollow Rd. Undercrossing
City of Tracy Wastewater	Sugar Spur Overhead
AT&T Telephone	Tom Paine Slough
Chevron Gas	Grant Line Rd. Undercrossing

Railroad

Union Pacific Railroad with 3 overheads:

- Janney OH
- Sugar Spur
- East Banta OH

An Agreement for Preliminary Engineering Services ("PE Letter") will be drafted for execution by the Department with Union Pacific Rail Road (UPRR). Existing operation and maintenance agreements with the railroad will be obtained in anticipation of filing California Public Utilities Commission (CUPC) grade crossing modification application, General Order 88-B and supplemental exhibits will be prepared. Ultimately, an amendment to the existing Construction & Maintenance (C&M) agreement will be executed with the railroad.

9. STAKEHOLDER INVOLVEMENT

There are several stakeholders who hold an interest in the project. Both the City of Tracy and the County of San Joaquin hold an interest in the project as it traverses portions of their jurisdictions. Likewise, SJCOG also holds an interest, as the project is part of their long-range transportation plan. The State Transportation Department (District 10, Caltrans) has an interest as the owner-operator of the facility. The Federal Highway Administration (FHWA) has an interest as the route is an interstate. Finally, there are several transit agencies which hold an interest in the project either in anticipation of a surge in ridership the opening of HOV lanes represents or in competing with rubber tired commute options. These include Tracer, which provides connecting service to interregional travelers, ACE (San Joaquin Regional Rail Authority), for interregional rail patrons, Bay Area Rapid Transit (BART), who is interested in connecting San Joaquin and Stanislaus coach riders to their network, the Stanislaus Regional Transit for their weekday commuter buses, and San Joaquin Regional Transit, for their weekday commuter buses.

10. ENVIRONMENTAL DETERMINATION/DOCUMENT

Caltrans will serve as the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) lead agency under its assumption of responsibility pursuant to 23 USC 327. The information provided to date indicates that the project would qualify for an Initial Study/Mitigated Negative Declaration (IS/MND) under CEQA and an Environmental Assessment (EA) under NEPA. This decision is based on review of the issues and anticipated mitigation (costs).

Studies currently scoped address aesthetics/ visual resources, air quality, cultural resources (archeological, architectural/ built environment), biological resources, climate change, community impacts, cumulative impacts, floodplain impacts, geological/soils resources, hazardous wastes/materials, noise/vibration, paleontological resources, storm water, and water quality. Estimated time for the PA&ED phase is 18 months. Agency coordination for traffic, air quality, cultural resources, and the biological environment could affect the project schedule.

Biological Resources

Potential waters of the United States and/or State were identified in the project study area and would need to be delineated to prepare a preliminary jurisdictional determination for submittal to the U.S. Army Corps of Engineers. The grasslands and emergent marsh in the project study area have low potential habitat for special-status plants based on the degree of past and ongoing disturbance. The project study area also

supports native oak trees that may be regulated under the San Joaquin County tree ordinance.

The project study area contains potential habitat for Swainson's hawk, white-tailed kite, burrowing owl, and other non-special-status migratory birds and raptors protected under the California Fish and Game Code and Migratory Bird Treaty Act. The project study area also provides potential habitat for valley elderberry longhorn beetle and western pond turtle and potential roosting habitat for bats protected under the California Fish and Game Code. There is also a low potential for San Joaquin Kit Fox and a very low potential for California Red-Legged Frog and California Tiger Salamander to occur in the project study area. The project study area does not provide suitable habitat for special-status fish species.

Community Impacts

The project would not physically divide a community because the project would widen an existing facility. Sliver right-of-way acquisitions would be required from 27 properties, but are unlikely to result in residential or commercial relocations. No Environmental Justice impacts are anticipated because the project would affect populations throughout the corridor equally, and beneficial impacts would result from reducing congestions, improving air quality, and increasing mobility.

Cultural Resources

Though no known archaeological resources are located within the project area, it is sensitive for buried archaeological resources based on the presence of Holocene period soils and known sites in the vicinity. One historic resource, the Delta-Mendota Canal is located within the project area. Impacts to the resource would be temporary and the project would not directly or indirectly affect the character-defining features of the resource and therefore there would be no adverse effect to the Delta-Mendota Canal.

Farmlands

The additional right-of-way required for the project could result in direct impacts on farmlands, including Prime Farmland and Farmland of Statewide Importance.

Greenhouse Gases

GHG Emissions Analysis is being deferred to the future Environmental Phase (PA&ED) since in-depth GHG Analysis will be performed for the Environmental Document. Because the project is a capacity-increasing project, quantitative analysis of construction and operational greenhouse gas emissions would be required to estimate long-term climate change impacts or benefits from the project consistent with Caltrans requirements.

Hazardous Waste/Materials

Because the project would include bridge and pavement work, there is the potential to disturb lead based paints and asbestos containing materials. Additionally, aerially deposited lead may be present within the project area.

Noise and Vibration

The project is considered to be a Type I project under 23 CFR 772 because it would add HOV lanes and increase capacity on I-205. The project has the potential to result in noise levels that approach or exceed thresholds and result in noise impacts on noise-sensitive land uses. Noise abatement measures will likely need to be considered.

Paleontology

The paleontological sensitivity of this geologic unit is likely low overall but may have areas of high sensitivity toward the western end of the project area on the south side of the alignment. Detention basins proposed in this area may be excavated to a depth of 10 feet. Additional analysis (a Paleontological Evaluation Report or PER) would be required to determine if a paleontological resource would be affected by project excavation. If so mitigation would be required.

Section 4(f)

No parks or wildlife refuges are anticipated to be affected by the project. The project would involve the expansion of a bridge over the Delta-Mendota Canal, which is eligible for listing in the National Register of Historic Places (NRHP) and is therefore a Section 4(f) resource. Impacts to the canal are expected to be temporary and the Section 106 finding of effect is anticipated to be No Adverse Effect, therefore a "de minimis" finding is anticipated.

Visual/Aesthetics

The project would be largely in keeping with the existing visual environment associated with the existing transportation facilities as seen by all viewer groups at all locations, and would not have a substantial visual effect on these viewers.

11. FUNDING

There are several viable funding sources for the project. STIP (both IIP and RIP) funding will be sought during the next (2018) STIP cycle. Funding from the Trade Corridor Enhancement Program as well as the Solutions for Congested Corridors Program will be sought. Measure K is the regional transportation sales tax measure which supports regional and interregional transportation projects in San Joaquin County. In addition, the RTIF funds projects on both the regional and interregional network. Funding from the Jobs-Benefit program which SJCOG offers can arguably be used for some spot improvements where local jobs are generated. The City of Tracy has a Traffic Improvement Fund (TIF) which can be used for improving access to the interstate system. It has been determined that this project is eligible for Federal-aid funding.

Capital Outlay Project Estimate

Table 11: Capital Outlay Project Estimate

	Range of Estimate		STIP Funds		Other Funds	
	Construction	Right-of-Way	Construction	Right-of-Way	Construction	Right-of-Way
Build Alternative 1	$251M - $321M	$6.0M - $6.6M	$ 0.0M	$ 0.0M	$251M - $321M	$6.0M - $6.6M

The level of detail available to develop these capital outlay project estimates is only accurate to within the above ranges and is useful for long-range planning purposes only. The capital outlay project estimates should not be used to program or commit State-programmed capital outlay funds.

Capital8Outlay Support Estimate

Capital outlay support estimate, recommended for programming PA&ED in the 2018 STIP for this project in fiscal year 2018/19 is $ 12.36 M.

12. DELIVERY SCHEDULE

Project Milestones		Scheduled Delivery Date (Month/Day/Year)
PROGRAM PROJECT	M015	April 2018
BEGIN ENVIRONMENTAL	M020	August 2018
CIRCULATE DED EXTERNALLY	M120	December 2019
PA & ED	M200	December 2020

The anticipated funding fiscal year for construction is 2022/23.

13. RISKS

Caltrans defines 3 levels of risk in their risk registers. A qualitative, level-1 risk register is appropriate for scoping documents. Known risks are tabulated in Attachment I of this PSR-PDS. These include risks that will impact the schedule, risks that will impact the cost and risks that will impact both schedule and cost. All of the risks carry a priority that is currently low, meaning that they are risks that are not unusual for multi-lane freeway projects.

14. FHWA COORDINATION

As a project with a capital cost of more than $100M, the project has been identified as a Project of Division Interest. A financial plan will be prepared and submitted to FHWA-CA for approval during the PA&ED phase.

At this time, there are no actions requiring Caltrans coordination with FHWA for review and approval of the project.

15. PROJECT REVIEWS

Field Review		Date 09/13/17
District Maintenance	Roger Abellana	Date 11/02/17
District Operations	Vu H. Nguyen	Date 11/02/17
Headquarters Project Delivery Coordinator	Patricia Scrivner	Date 11/02/17
Project Manager	Mike Cook	Date 11/02/17
FHWA	Jeff Holm	Date 11/02/17
District Safety Review	Mark Orr	Date 11/02/17
Constructability Review	Central Region Reviewers	Date 11/02/17

16. PROJECT PERSONNEL

SJCOG	
David Ripperda, Associate Regional Planner	209-235-0450
Ryan Niblock, Sr. Transportation Planner	209-235-0588
Caltrans	
Project Management, Michael Cook, Sr. TE	209-470-2909
Project Management, Yvette Monje	209-948-7833
Traffic Management, Wilmar Kuhl, Sr. TE	209-948-7963
Traffic Management, Wuthy Seng, TE	209-948-7728
Traffic Operations, Vu Nguyen, Sr. TE	209-603-5126
Traffic Forecasting, Sinaren Pheng	209-948-7071
Traffic Forecasting, Mahendra Patel	209-941-1221
DES, Michael Downs, Asso, BE	916-227-9365
DES, Reza Erfanian, Sr. Bridge Engineer	916-227-8196
Hydraulics, Sam Wong, Sr. TE	559-243-3507
Maintenance, Tong Yang, Asso. TE	209-948-3611
Design Oversight, Sheikh Alum	209-942-6172
Design, Manuel Palerno,	209-942-6028
Design Oversight, Nomer Gutierrez,	209-948-7079
Jag Brar, TE, Range D	209-948-3954
Traffic Operations, Jose Mujica, TE, Range D	209-942-6026
Environmental Planning, Jaycee Azevedo, Sr. EP	209-941-1919
Environmental Planning, Juan Perez, Asso. EP	
Roger Abellana, TE, Range D	209-948-7111
Traffic Operations, Jaime Quesada, TE, Range D	
NPDES Stormwater, Ethan Heilman, TE	209-941-1918
City of Tracy	
Public Works, Zabih Zaca, Sr. Civil Engineer	209-831-6452
SJ County	
Jeffrey Levers	209-953-7631
Mountain House CSD	
Nader Sharegi	209-831-2300
Rajappan & Meyer Consulting Engineers, Inc.	
Bala Rajappan, PE	408-280-2772
Lee Taubeneck, PE	408-280-2772

17. ATTACHMENTS (Number of Pages)

A. Location map	(1)
B. Build Alt. Title Sheet, Cross Sections & Layouts sheets	(23)
C. TPSIS	(17)
D. TEPA	(23)
E. RW Conceptual Cost Estimate & Data Sheet Build Alternative	(3)
F. Capital Outlay Project Estimate (PSR-PDS Level)	(10)
G. Preliminary Environmental Analysis Report (PEAR)	(77)
H. K-Phase Level Storm Water Data Report – Signed Cover Sheet	(1)
I. Risk Register	(1)

Attachment K
Conceptual Cost Estimate – Right-of-Way Component

CONCEPTUAL COST ESTIMATE – RIGHT OF WAY COMPONENT

To: District Branch ChiefR/W Local Public Agency Services

From: Marie Santos
Kimley-Horn
(619) 744-0145

Date: 11/4/20215
4 - ALA - 580 - R1.7/0.8
10 - SJ - 205 - L0.0/R13.2
10 - SJ - 5 - R12.9/R13.5
10-1H170 - 1017000116 – 3260
Program Code 075.600

*A Field Review was conducted*____Yes __X__No

Scope of the Right of Way:

Provide a general description of the right of way including the location attributes.
Right of Way Required__X__Yes ____No
Number of Parcels ___1-10 ____11-25 ____26-50 __X_51-100 ____>100
__X__Urban ____Rural
Land Area: Fee_29 acres___ Easement_____
Displaced Persons/Businesses __X_Yes _____No
Demolition/Clearance __X_Yes _____No
Railroad Involvement __X_Yes ____No
Utility Involvements __X__Yes ____No __11_Number of Utilities in area

Cost Estimates:

Support Costs
____ $0-$25,000
____ $25,001-$100,000
____ $100,001-$250,000
____ $250,001-$500,000
____$500,001-$1,000,000
____$1,000,001-$5,000,000
____$5,000,001-$10,000,000
__X_>$10,000,000

Capital Costs
____$0-$100,000
____$100,001-$500,000
____$500,001-$1,000,000
____$1,000,001-$5,000,000
____$5,000,001-$15,000,000
____$15,000,001-$50,000,000
____$50,000,001-$100,000,000
__X_>$100,000,000

Schedule:

Right of Way will require up to 24 months to deliver Right of Way Certification #1 from PA&ED approval estimated December 2023. This estimate is based on a Right of Way Certification date of April 2024.

Areas of Concern:
Provide a description of areas in close proximity to the project footprint that are likely to result in complex right of way issues if impacted (i.e. junkyards, cemeteries, utility towers, etc.).

Project is not anticipated to result in complex right of way issues. Impacts are primarily to front yards of private property and standard underground electric, gas and water line relocations.

Assumptions and Limiting Conditions:
Provide a description of assumptions and limiting conditions.

Refer to the Supplemental PSR-PDS for project displays. The right of way acquisition cost for *Maximum Alternative* was estimated using approximate estimates of the market value. The partial takes areas follow from a total of 59 separate private right of way parcels.

29 acre impact x $1M/acre = $29M

The total right of way acquisition value was escalated to 2024 for a total value of $36M. Project scope and limits could change as the project development process moves along. Further certainty would be obtained during the next PA&ED phase when the preferred alternative is identified, and a right of way data sheet is prepared.

Attachment L
Performance Report

Project - Accomplishment - Performance Measures - Benefits

District: 10 **Tool ID:** 23458 **Project ID:** 1017000116 **EA:** 1H170 **Co-Rte-PM:** SJ-205-L0.0/R13.2 (Primary Location)

Res In PID WP: **Project Manager:** Dina El-Nakhal

Save to Excel

☑ Bridge ☐ Pavement ☐ Drainage ☐ Facilities ☑ Safety, Signs & Lighting ☑ Mobility ☐ Roadside ☑ Complete Streets ☐ Sustainability /Climate Change ☐ Advance Mitigation /Mitigation ☐ Major Damage & Betterments ☐ Green-house Gases ☐ Relinquishment

Performance & Accomplishments (TYP)

	ActID	Activity Detail	Performance Objective	Unit of Measurement	Quantity	Pre-Good	Pre-Fair	Pre-Poor	New	Post-Good	Post-Fair	Post-Poor	HQ Program Review - Agree with District?	HQ Comment	Review Date	Performance Change Date After Review	Comment
1	A02	Bridge Replacement/New Construction (201.110, .111, .113, .322)	Bridge and Tunnel Health	Square Feet	71528.0	8590.000	43723.000		19215.0	52313.000							
2	A02		Bridge Scour Mitigation			52313.000				52313.000							
3	A02		Bridge Seismic Restoration			52313.000				52313.000							
4	A02		Bridge Goods Movement Upgrades			35812.000	7911.000	8590.000		52313.000							
5	A03	Bridge Rail (201.112)	Bridge Rail Replacement and Upgrade	Linear Feet	10458.0	6668.000	3790.000			10458.000							
6	A08	Number of Bridges	No Performance Objective in the SHSMP	Each	24.0												
7	A11	Fish Passage Not in the Priority List	No Performance Objective in the SHSMP	Each	0.0												
8	A12	Fish Passage in the Priority List	Fish Passage	Each	0.0												
9	E24	Lighting - Rehabilitation (201.170)	Lighting Rehabilitation	Each	3.0				3.0								
10	E25	Overhead Sign Structures Rehabilitation (201.170)	Overhead Sign Structures Rehabilitation	Each	39.0			39.000		39.000							
11	E26	Sign Panel Replacement	Sign Panel Replacement	Each	159.0			80.000	79.0	80.000							
12	E55	Proactive Safety Vehicles	Proactive Safety	Annual Fatal & Serious Injury Collisions	0.0												
13	F06	Ramp Meter (201.315)	No Performance Objective in the SHSMP	Each	8.0				8.0								
14	F08	Widen Roadway (201.310)	No Performance Objective in the SHSMP	Linear Feet	88176.0				88176.0								Quantity is based on Typical Cross Sections in the attachement
15	F45	TMS Structure Component	Transportation Management System Structures	Each	8.0				8.0								
16	F46	TMS Technology Component	Transportation Management Systems	Each	8.0				8.0								
17	H32	Is any Location Within the Project Limits Ped/Bike Accessible?	No Performance Objective in the SHSMP	Yes/No	No												

Project - Accomplishment - Performance Measures - Benefits

District: 10 **Tool ID:** 23458 **Project ID:** 1017000116 **EA:** 1H170 **Co-Rte-PM:** ALA-580-0.8R/R1.7R (Location 2)

Res In PID WP: **Project Manager:** Dina El-Nakhal

Save to Excel

☑ Bridge ☐ Pavement ☐ Drainage ☐ Facilities ☐ Safety, Signs & Lighting ☑ Mobility ☐ Roadside ☐ Complete Streets ☐ Sustainability /Climate Change ☐ Advance Mitigation /Mitigation ☐ Major Damage & Betterments ☐ Green-house Gases ☐ Relinquishment

Performance & Accomplishments (TYP)

	ActID	Activity Detail	Performance Objective	Unit of Measurement	Quantity	Pre-Good	Pre-Fair	Pre-Poor	New	Post-Good	Post-Fair	Post-Poor	HQ Program Review - Agree with District?	HQ Comment	Review Date	Performance Change Date After Review	Comment
1	A02	Bridge Replacement/New Construction (201.110, .111, .113, .322)	Bridge and Tunnel Health	Square Feet	12368.0			12368.000		12368.000							
2	A02		Bridge Scour Mitigation			12368.000				12368.000							
3	A02		Bridge Seismic Restoration			12368.000				12368.000							
4	A02		Bridge Goods Movement Upgrades			12368.000				12368.000							
5	A03	Bridge Rail (201.112)	Bridge Rail Replacement and Upgrade	Linear Feet	676.0		676.000			676.000							
6	A08	Number of Bridges	No Performance Objective in the SHSMP	Each	1.0												
7	A11	Fish Passage Not in the Priority List	No Performance Objective in the SHSMP	Each	0.0												
8	A12	Fish Passage in the Priority List	Fish Passage	Each	0.0												

Project - Accomplishment - Performance Measures - Benefits

District: 10 **Tool ID:** 23458 **Project ID:** 1017000116 **EA:** 1H170 **Co-Rte-PM:** SJ-005-R12.9/R13.5 (Location 3)

Res In PID WP: **Project Manager:** Dina El-Nakhal

Save to Excel

☑ Bridge ☐ Pavement ☐ Drainage ☐ Facilities ☐ Safety, Signs & Lighting ☑ Mobility ☐ Roadside ☐ Complete Streets ☐ Sustainability /Climate Change ☐ Advance Mitigation /Mitigation ☐ Major Damage & Betterments ☐ Green-house Gases ☐ Relinquishment

Performance & Accomplishments (TYP)

	ActID	Activity Detail	Performance Objective	Unit of Measurement	Quantity	Pre-Good	Pre-Fair	Pre-Poor	New	Post-Good	Post-Fair	Post-Poor	HQ Program Review - Agree with District?	HQ Comment	Review Date	Performance Change Date After Review	Comment
1	A03	Bridge Rail (201.112)	Bridge Rail Replacement and Upgrade	Linear Feet	996.0		996.000			996.000							
2	A08	Number of Bridges	No Performance Objective in the SHSMP	Each	2.0												
3	A11	Fish Passage Not in the Priority List	No Performance Objective in the SHSMP	Each	0.0												
4	A12	Fish Passage in the Priority List	Fish Passage	Each	0.0												