I-5 HOT Lane Project
DRAFT SUPPLEMENTAL EIR / ENVIRONMENTAL REEVALUATION

To the Previously Approved Environmental Impact Report (EIR)
/ Finding of No Significant Impacts (FONSI)
for the I-5 HOV/Truck Lanes Project
SR-14 to Parker Road

LOS ANGELES COUNTY, CALIFORNIA
DISTRICT 7 – LA–005, PM R45.4/R59.0
EA 2332E0

Prepared by the
State of California Department of Transportation

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

Caltrans

March 2013

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Interstate 5, widen existing to include High Occupancy Toll (HOT) lanes, instead of High Occupancy Vehicle (HOV) lanes, from State Route 14 in the south to Parker Road in the north, in the City of Santa Clarita and unincorporated Los Angeles County, California

DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL REEVALUATION

Submitted Pursuant to: (State) Division 13, California Public Resources Code
California Environmental Quality Act

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

THE STATE OF CALIFORNIA
Department of Transportation

March 8, 2013
Date of Approval

Ron Kosinski
Deputy District Director
Division of Environmental Planning
California Department of Transportation
District 7 – Los Angeles

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Draft Supplemental EIR / Environmental Reevaluation

Title: I-5 High Occupancy Toll (HOT) Lane Project

State Clearinghouse No: 2007051028

Contact: Ron Kosinski, Deputy District Director
Division of Environmental Planning, MS16A
Caltrans, District 7
100 South Main Street
Los Angeles, CA 90012
(213) 897-0703

Date: March 2013

Abstract:
This document is a Supplemental/Reevaluation of the proposed I-5 HOV/Truck Lanes Project, which previously approved an Environmental Impact Report/ Finding of No Significant Impact (EIR/FONSI) prepared in accordance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The purpose of this Supplemental EIR/Environmental Reevaluation (SEIR/ER) is to evaluate the potential impacts associated with the project, as currently modified, and ensure that the environmental documentation reflects the current project.

The California Department of Transportation (Caltrans) and Los Angeles County Metropolitan Transportation Authority (Metro) propose to implement High Occupancy Toll (HOT) Lanes, one in the northbound and one in the southbound direction, in order to accelerate the construction of proposed carpool lanes on the I-5 from SR-14 to Parker Road in the North County of Los Angeles. HOT Lanes would replace the proposed HOV Lanes. Based on the analysis completed for this document, the change in the scope of the project would not result in any additional impacts.

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Chapter 1 Introduction

1.1 Background

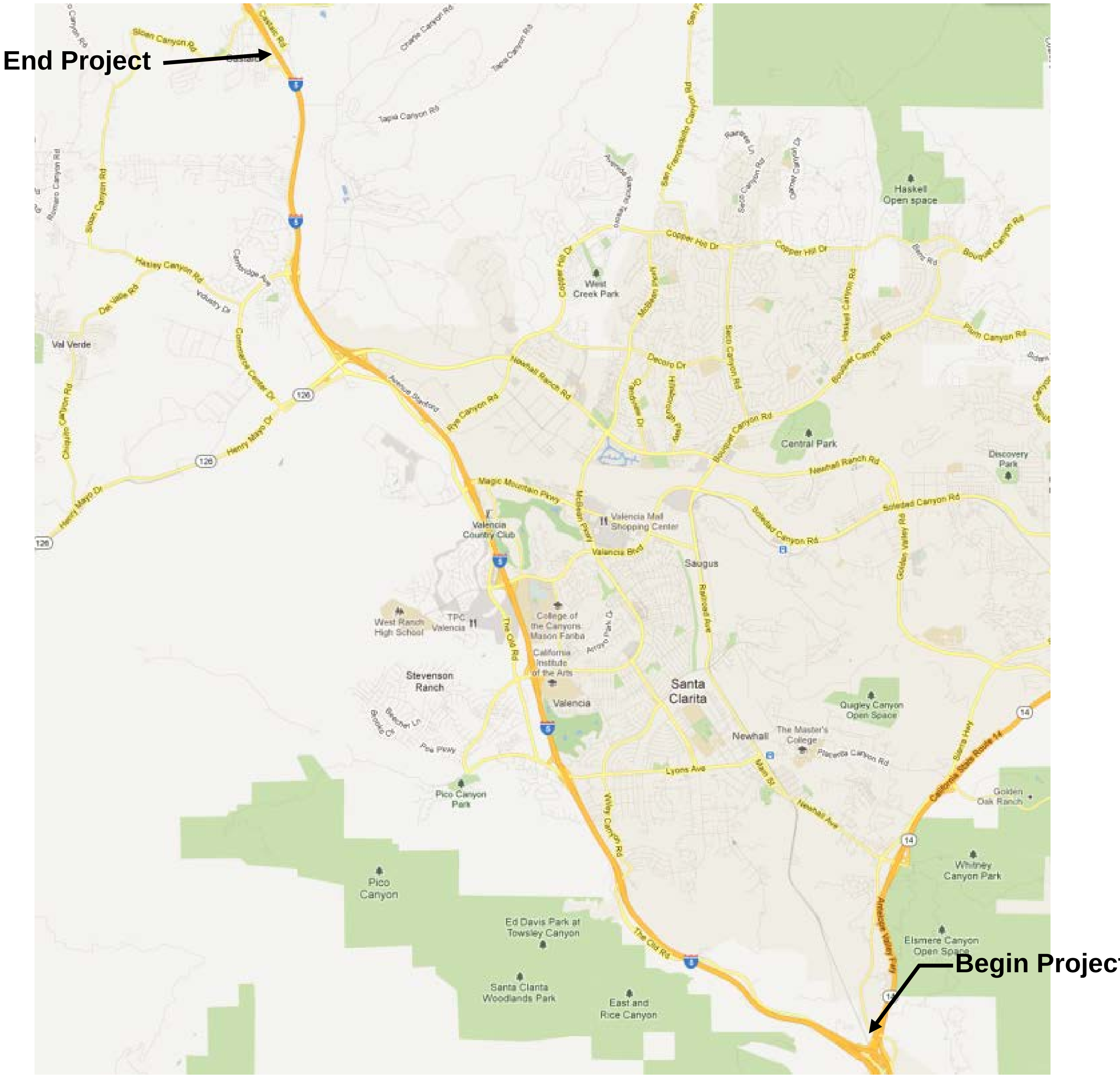
The California Department of Transportation approved the Final Environmental Impact Report/ Finding of No Significant Impact (EIR/FONSI) for the I-5 HOV/Truck Lanes Project (project) on September 1, 2009. Alternative 2 (Reduced Median Alternative) was identified as the Preferred Alternative.

The I-5 HOV/Truck Lanes Project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA), and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under NEPA. Caltrans is the lead agency under CEQA. In addition, FHWA's responsibility for environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 United States Code (USC) 327.

The project proposes to widen existing Interstate 5 (I-5) to include high-occupancy vehicle (HOV) lanes, truck climbing lanes, and additional auxiliary lanes from State Route 14 (SR-14) on the south to Parker Road on the north, a distance of approximately 13.6 miles (mi) (Figure 1.1). The project is located within the City of Santa Clarita and within unincorporated Los Angeles County.

Construction on the truck climbing lanes began in May 2012 and is expected to be completed in 2014. The project will add a truck lane to the outside of southbound I-5 by paving the median area and outside shoulder, and shifting the mixed-flow lanes inward. Median retaining walls and two short sections of outside retaining walls will be built to accommodate this widening. The cost of the project is $72 million, of which $70 million is provided by the State Highway Operation and Protection Program (SHOPP) and $2 million is provided by Measure R.

Figure 1.1 Project Location



1.2 Original Project Description

I-5 is a major north/south freeway connecting the States of California, Oregon, and Washington, and a major commuter route from the Santa Clarita Valley into the southern Los Angeles area. The existing I-5 facility within the project limits currently provides generally four mixed-flow lanes in each direction with the exception of through the midpoint of the I-5/SR-14 interchange, where there are three mixed-flow lanes in each direction. Two truck lanes in each direction pass through the I-5/SR-14 interchange area, separated from the mainline freeway. Within the project limits, this truck bypass route begins (southbound)/ends (northbound) just north of the I-5/SR-14 interchange consisting of ±5 percent grade.

The project description from the 2009 Final EIR/FONSI is provided below:

The project proposes to widen the center median and the outside shoulder of the northbound and southbound lanes between SR-14 and south of Parker Road to accommodate HOV, additional auxiliary, and truck lanes. The project would provide one HOV lane in each direction from the I-5/SR-14 interchange to south of the Parker Road interchange. The project would extend one northbound truck lane from where the truck lanes currently merge with northbound I-5 near the Weldon Canyon Road/I-5 overcrossing to the Calgrove Boulevard/I-5 interchange. Southbound truck climbing lanes are proposed between the Weldon Canyon Road overcrossing and Calgrove Boulevard interchange (two truck lanes) and from Calgrove Boulevard to south of the Pico Canyon Road/Lyons Avenue interchange (one truck lane). As discussed above, the truck lanes are currently in construction.

The proposed auxiliary lanes are as follows:

- in the northbound direction from SR-14 to the northbound truck lane merge, Calgrove Boulevard to Pico Canyon Road/Lyons Avenue, and Valencia Boulevard to Magic Mountain Parkway,
- in the southbound direction between SR-126 and Rye Canyon Road, Rye Canyon Road and Magic Mountain Parkway, and Valencia Boulevard and McBean Parkway.

The project proposes median and inside shoulder widths that are less than the California Department of Transportation (Caltrans) standard (48-foot [ft] median and less than 10 ft inside shoulders at median structure columns) within a maximum

210 ft cross section. The reduced minimum median width of 48 ft is measured from inside the Mixed Flow Lane (MFL), Edge of the Traveled Way (ETW), to inside the MFL ETW. Additional widening beyond the 48 ft minimum in the median area would be provided when necessary for horizontal stopping sight distance requirements. A 48 ft median would accommodate a 1 ft buffer, a 12 ft HOV lane, and a 10 ft inside shoulder. Shoulder widths along freeway ramps would be 8 ft. The project would not provide for a 10 ft continuous inside shoulder (at column locations) or a 4 ft buffer between HOV and adjacent mixed-flow lanes. The HOV buffer would be 1 ft. The maximum cross section width is intended to accommodate the proposed HOV and truck climbing lanes within the existing Caltrans right of way to the extent feasible to limit the number of right of way acquisitions.

Per Caltrans HOV lane guidelines, California Highway Patrol (CHP) enforcement areas are recommended every 2 mi. Based on Caltrans criteria, approximately five enforcement areas would be required within the 13.6 mi project limit. Additional width in the median (beyond the proposed 48 ft) is required to provide for those CHP enforcement areas and has been included in the design.

The project would not require realignment of any adjacent roadways.

Permanent Project Components

Mainline Improvements (HOV, Truck, and Auxiliary Lanes)

The project proposes:

- One HOV lane in the median in each direction from the I-5/SR-14 interchange (southern project limit) to south of the Parker Road interchange (northern project limit).
- One southbound truck lane south of Pico Canyon Road/Lyons Avenue and Calgrove Boulevard, and two southbound truck lanes from Calgrove Boulevard to just south of Weldon Canyon Road, where the truck bypass lanes (2) begin.
- Addition of one northbound truck lane from the I-5/SR-14 interchange to Calgrove Boulevard. All truck lanes would be built along the outside edge of the freeway.
- Auxiliary lanes in the northbound direction from SR-14 to the northbound truck lane merge, Calgrove Boulevard to Pico Canyon Road/Lyons Avenue, and Valencia Boulevard to Magic Mountain Parkway.

- Auxiliary lanes in the southbound direction between SR-126 and Rye Canyon Road, Rye Canyon Road and Magic Mountain Parkway, and Valencia Boulevard and McBean Parkway.
- Additional widening to provide standard horizontal stopping sight distance (SSD) (70 mph) on all 13 mainline horizontal curves.

Bridges

Several bridge structures require widening and/or replacement under the project as follows: the replacement of Weldon Canyon Bridge and the widening of the following seven bridges: Gavin Canyon undercrossing, Calgrove Boulevard undercrossing, Butte Canyon Bridge, I-5/SR-26 Separation (Magic Mountain Parkway overcrossing), Santa Clara Overhead, Rye Canyon undercrossing, and Castaic Creek Bridge.

The project proposes to improve the vertical clearance and provide SSD (70 mph) for the southbound I-5 lanes at the Pico Canyon Road/Lyons Avenue overcrossing structure.

Right-of-Way Acquisition

Acquisition of two parcels would be required for additional right of way. The acquisition would be limited to one partial parcel take and one full parcel take.

Major Drainage Facilities

Drainage facilities are proposed in order to provide additional capacity for the existing drainage facilities based on the design flows established for the crossings. These facilities include the upsizing or replacement of existing culverts.

Water quality treatment devices include numerous vegetated swales to provide biofiltration, three detention basins, one gross solids removal device, and two Austin sand media filters. Depending on actual groundwater elevations, the detention basins may be able to function as infiltration basins. The locations of water quality treatment facilities will continue to be refined during final design.

Retaining Walls

Retaining walls are required to retain fill or cut slopes to avoid impacts and additional right of way throughout the corridor.

Retaining walls are required in the median where the elevation differences between the northbound and southbound lanes exceed 2 ft. Median retaining walls are generally required between SR-14 and Valencia Boulevard and between SR-126 and Parker Road. The heights of the median retaining walls vary from 2 ft to 18 ft.

Retaining walls are also required along the outside shoulder in many locations throughout the project to reduce impacts and minimize additional right of way requirements. The outside shoulder retaining walls' heights range from 2 ft to 39 ft.

Sound Barriers

The project includes construction of sound barriers (SB) to reduce traffic noise associated with the proposed project. The following sound walls are considered reasonable and feasible on the basis of cost and effectiveness:

- 10 ft sound barrier outside of Caltrans right of way adjacent to homes along Foxtail Court (SB No. 1-2).
- 6 ft sound barrier outside of Caltrans right of way adjacent to homes along The Old Road (SB No. 1-6).
- 10 ft sound barrier outside of Caltrans right of way, adjacent to homes along Los Arqueros and Playa Serena Drive (SB No. 2-1).
- 8 ft sound barrier for Alternative 2 and 12 ft sound wall for Alternative 3 outside of Caltrans right of way, adjacent to homes along Baviera Way (SB No. 2-2).
- 12 ft sound barrier outside of Caltrans right of way, adjacent to homes along Sycamore Meadow Drive (SB No. 2-3) for Alternative 2, and 14 to 16 ft for Alternative 3.
- 12 ft sound barrier outside of Caltrans right of way, adjacent to homes along Silver Aspen Way (SB No. 2-4).
- 16 ft sound barrier along the edge of shoulder within Caltrans right of way, adjacent to homes on Sandwedge Lane (SB No. 2-5)
- 6 ft sound barrier outside of Caltrans right of way, adjacent to homes along Altos Drive (SB No. 2-6).
- 6 ft sound barrier outside of Caltrans right of way, adjacent to the homes along Romeo Canyon Road (SB No. 3-3).
- 12 ft sound barrier outside of Caltrans right of way for Alternative 2, and 10 ft barrier for Alternative 3, adjacent to homes along Holmby Court (SB No. 3-7).
- A 10 ft sound barrier outside of Caltrans right-of-way, adjacent to homes along Desert Rose Drive (SB No. 3-8).
- 16 ft sound barrier along the edge of Caltrans right of way, adjacent to homes along Daisy Court (SB No. 3-11a).

Additional input from affected property owners would be obtained before the start of final design to confirm whether the walls would be constructed.

On- and Off-Ramps

Modifications to all the on- and off-ramps in the project limits are required to transition to the mainline widening.

Utilities

Utility relocations would be required in local roadways primarily at the transverse crossing of the mainline and, in some cases, adjacent to the Caltrans right of way to allow widening of the mainline. In general, the utility relocations are limited to areas where the local roadways cross I-5 at the interchanges and other structures and adjacent to the I-5 right of way where the widening encroaches onto the local roadway. Utilities to be relocated include general telephone cable, water lines, communication conduits, sewer lines, gas pipes, electrical lines, and oil transmission pipes.

Intelligent Transportation System (ITS) Facilities

The project would include the addition of the following ITS facilities:

- Five new Closed Circuit Television (CCTV) cameras
- Nine new Ramp Metering Stations/Traffic Monitoring Stations (RMS/TMS)
- A new communication conduit throughout the project from SR-14 to Parker Road
- The upgrading of four CCTV cameras
- The upgrading of 19 RMS/TMS stations
- Upgrading three Changeable Message Signs (CMS)
- Upgrading a Weigh-in-Motion system (WIM)

These elements would provide needed links and fill data gaps in the current ITS system and provide for more comprehensive corridor management.

Landscaping and Irrigation Systems

Landscaping and irrigation systems would be provided where necessary within the corridor to provide aesthetic treatment, replacement planting, or mitigation planting for the project. The areas available for planting would be identified and coordinated with operations and maintenance to ensure consistency with their objectives and requirements. New irrigation systems would be designed to use reclaimed water (if available).

Design Exceptions

The project would require mandatory design exceptions for the spacing between interchanges from Rye Canyon Road to Magic Mountain Parkway and from Rye Canyon Road to SR-126. The spacing between these interchanges would be less than 1 mi. In addition, a mandatory design exception would be required to the standard 10 ft inside shoulder at structure columns (a minimum 7.4 ft shoulder is proposed) and the standard 8 ft outside shoulder at the Magic Mountain Parkway northbound on-ramp (a 4 to 8 ft shoulder is proposed).

The following advisory design exceptions would be required for the project: (1) 2:1 sideslopes instead of the standard 4:1 sideslopes; (2) a 26 ft standard between the outer edge-of-travel-way (ETW) of I-5 and the ETW of the frontage road for the project at various locations; (3) a median width of 22 ft rather than the standard 36 ft median; (4) outer separation distance, with guardrails and/or walls proposed where the separation distance is less than 26 ft; (5) use of the Rye Canyon Interchange as a partial interchange, with all ramps not connecting to a single cross street; and (6) at ramps at SR-14, Calgrove Boulevard, Pico Canyon Road/Lyons Avenue, and Hasley Canyon where the entrance and exit convergence/divergence geometry is not met. This design exception is needed to avoid reverse curves along ramps to tie back into existing ramps, realignment of frontage roads, higher or increased retaining walls and/or existing ditch reconstruction.

Soil Balance

The project would result in approximately 216,000 cubic yards (cy) of excess soil material that would require disposal.

Temporary Project Components

Construction

Staging of the construction would be required for all ramp reconstruction, freeway widening, and profile adjustments. The number of through lanes would be maintained by restriping and shifting traffic on the existing lanes to maintain the existing capacity. Closure of I-5 is not anticipated; however, temporary ramp closures are expected at various interchanges within the corridor.

The majority of the project involves widening the median area and the outside shoulder area of I-5 in two stages. Stage 1 involves placing temporary railing in the median area, constructing the median retaining walls and widening the median. Stage 2 involves placing temporary railing near the outside edge of traveled way, constructing outer retaining walls, and widening the proposed outside pavement. Widening of existing structures would be constructed in a similar sequence, with interior widening completed first, followed by exterior widening. Late-night closures in each direction may be necessary for removal of the existing and construction of the new Weldon Canyon Bridge. Reconstruction at the ramp exit and entrances may require short-term closures.

The southbound lanes at the westbound to southbound loop on-ramp at the Pico Canyon Road/Lyons Avenue interchange would be closed for three to five months during the reconstruction of the profile of southbound I-5 to provide standard vertical clearance and improved SSD. The ramp provides access from westbound Pico Canyon Road to southbound I-5. The reconstruction of the profile would require shifting of the mainline travel lanes to the east to allow for the removal of material to lower the profile. During the closure period, the existing southbound on-ramp that serves eastbound Pico Canyon Road would be temporarily reconfigured to also allow left turns from westbound Pico Canyon Road to maintain the vehicle movement affected by the ramp closure. To allow left turns from westbound Pico Canyon Road onto the ramp, the westbound approach would require temporary restriping and a temporary two-phase traffic signal would be required to control the left turns and conflicting eastbound traffic.

All construction activities would be closely coordinated with other construction projects that are occurring. Existing state facilities such as changeable message signs, traffic cameras, and traffic count stations would also be protected during construction. Close coordination would also be needed with the City, the County, Caltrans, and the public to ensure that traffic along I-5 and surrounding streets remains at an acceptable level of operation during construction.

Construction Vehicle Access and Material Staging

Construction vehicle access and staging of construction materials would occur within disturbed or developed areas inside the existing right of way or the proposed additional right of way. Vehicle access and materials staging during construction of walls adjacent to Caltrans right of way would occur in approved designated areas. All construction vehicle access, materials staging and storage, and other construction activities would occur within the defined disturbance limits for the project.

Construction Lighting

The project would require nighttime construction activities in some parts of the project area, which would require use of portable equipment to light up the work areas.

Temporary Construction Easements

Temporary construction easements (TCEs) would be necessary for constructing walls along the right of way, for the extension of major drainage facilities, for widening bridges, and for water quality improvements that extend outside of the existing right of way. The project would require 18 TCEs.

1.3 Purpose of this Document

Since the approval of the environmental document for the I-5 HOV/Truck Lanes Project, there has been a substantial change in the scope of the project. The change in scope is discussed in Chapter 2 of this document. The purpose of this Draft Supplemental EIR/Environmental Reevaluation (DSEIR/ER) is to evaluate the potential impacts associated with the scope change and ensure that the environmental documentation reflects the current project.

There have been no changes to the environmental setting and the environmental circumstances from what was described in the Final EIR/FONSI.

1.3.1 Basis in NEPA

As a highway project proceeds in its development from environmental review through construction, there may be circumstances that could affect the validity of its NEPA documentation or approval. The Federal Highway Administration (FHWA) regulations to implement the National Environmental Policy Act (NEPA) (23 CFR 771) and Technical Advisory T6640.8A provide direction on determining when a project's NEPA documentation must be re-examined. FHWA and Caltrans have developed *Joint Highway Administration – California Division/California Department of Transportation Regulatory Guidance on NEPA Consultation/ Reevaluation (Joint Guidance)* and a *NEPA/CEQA Re-validation form* for documenting consultation and reevaluations.

The Joint Guidance is organized around three trigger points for consultation and/or re-evaluation: (1) the project is proceeding to the next major federal approval, (2) project changes, and (3) the 3-year timeframe for an Environmental Impact Statement (EIS). This Reevaluation is being prepared because there have been project changes since the Final EIR/FONSI was prepared in 2009. Project changes discussed in the Joint Guidance and relevant to the project include changes to project engineering/design.

Based on the nature and extent of the changes, the determination has been made that additional documentation is needed to maintain the validity of the original FONSI but does not require the preparation of a new or higher level document.

1.3.2 Basis in CEQA

According to the CEQA Guidelines (Title 14 California Code of Regulations §15163), a subsequent or supplemental environmental impact report may be required if "substantial changes" in the project or its circumstances will require major revisions to the EIR. Namely, one or more of the following events occurs:

1. Substantial changes are proposed in the project that will require major revisions of the environmental impact report due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

2. Substantial changes occur with respect to the circumstances under which the project is being undertaken which will require major revisions in the environmental impact report due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

3. New information, which was not known and could not have been known at the time the environmental impact report was certified as complete, becomes available. New information includes:

    - The project will have one or more significant effects not discussed in the previous EIR;
    - Significant effects previously examined will be substantially more severe than shown in the previous EIR;
    - Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the Department declines to adopt them; or

- Mitigation measures or alternatives, which are considerably different from those analyzed in the previous EIR, would substantially reduce one or more significant effects on the environment, but the Department declines to adopt them.

A supplement to an EIR may be prepared if any of the conditions listed above would require the preparation of a subsequent EIR, and only minor additions or changes would be necessary to make the previous EIR adequately apply to the changed project.

Chapter 2 Change in Project Scope

The California Department of Transportation (Caltrans) and Los Angeles County Metropolitan Transportation Authority (Metro) propose to implement High Occupancy Toll (HOT) Lanes, one in the northbound and one in the southbound direction, in order to accelerate the construction of proposed carpool lanes on the I-5 from SR-14 to Parker Road in the North County of Los Angeles. The length of the project is 13.5 miles.

The following is a brief description of the proposed I-5 HOT Lane project:

The existing number of general-purpose lanes (four in each direction) and truck lanes are assumed. The proposed project includes the addition of one HOT (toll) lane in each direction along the I-5 Freeway between SR 14 and Parker Road. HOT lanes are proposed to replace the HOV lanes. All the other project components discussed in Chapter 1 would remain the same. Ingress/egress points would be provided along the corridor to access the HOT lanes.

The proposed change is consistent with the following objectives of the I-5 HOV and Truck Lanes project:

- ☐ Reduce delays to vehicles caused by slower-moving trucks through the hilly southern portion of this segment of I-5;
- ☐ Improve operational and safety design features to facilitate the movement of people, freight, and goods on the project segment; and
- ☐ Reduce existing forecast traffic congestion on the project segment of I-5 to accommodate planned growth within the study area.

In addition to these objectives, the proposed HOT Lanes are expected to result in improved throughput during peak hours due to more efficient use of both the mixed flow and HOT lanes by providing single occupant vehicles a choice to use the HOT lanes.

2.1 Reason for the Change

As documented in the Final Environmental Impact Report/ Finding of No Significant Impact (EIR/FONSI) dated September 2009, I-5 is experiencing greater automobile and truck congestion as a result of population growth in north Los Angeles County and goods movement into and out of the Ports of Los Angeles and Long Beach. An increase in freeway traffic volumes in the future, as predicted by the SCAG model, will continue to cause substantial delays.

I-5 HOV/Truck Lanes Project is part of a multi-phase project identified in Metro's Long Range Transportation Plan (LRTP) as I-5 North Capacity Enhancements, which includes adding new lanes, such as truck and/or carpool lanes, to relieve congestion between SR-14 and Kern County Line. The estimated cost of the entire project is approximately $5 billion. Because of its high cost, the project is broken down by phases for implementation:

- Phase 1 includes the new truck lanes currently in construction.
- Phase 2a provides for new carpool lanes (one in each direction) from SR-14 to Parker Rd. However funds designated for Phase 2a will not be sufficient to develop and construct the full scope as approved in the environmental document. Furthermore, the funds allocated will only be available a portion at a time over the next 30 years. This will require the project to be built incrementally as funds become available.
- Phase 2b is intended to extend capacity improvements from Parker Rd further north towards the Kern County Line. At this time there is no funding for Phase 2b. To initiate Phase 2b new funding sources have to be first identified.

In order to construct the full scope of this element earlier than planned, new funding sources are required to cover the funding shortfall. Tolling the proposed carpool lane on I-5 to pay for the funding shortfall is being proposed. This new source of revenue would avoid a 30 year delay to finance and build 13.5 miles of carpool lanes through the Santa Clarita area 2018. The scope of the proposed HOT lane project is described in the sections below.

2.2 Proposed Project Scope

The I-5 HOT Lane project is one of the six elements of the Accelerated Regional Transportation Improvements (ARTI) Package. The six elements are identified below:

Element	Project Location	Project Scope	Length (miles)
A	I-5 North Capacity Enhancements from SR-14 to Parker Road	Add one carpool lane in each direction from SR-14 to Parker Road in Santa Clarita	13.5
B	I-5 North Pavement Rehabilitation	Repaving general purposes lanes from SR-14 to Parker Road in Santa Clarita	13.5
C	SR-71 Gap Closure from I-10 to Mission Boulevard	Add one carpool and one general purpose lanes in each direction from I-10 to Mission Boulevard in Pomona	1.7
D	SR-71 Gap Project, Mission Boulevard to Rio Rancho Road	Add one carpool and one general purpose lanes in each direction from Mission to Rio Rancho Road in Pomona	2.6
E	Soundwall Package 10	Construct soundwalls at various locations along I-210 in Arcadia and Pasadena	3.8
F	Soundwall Package 11	Construct soundwalls at various locations along SR-170 between SR-134 and Sherman Way, and I-405 in the vicinity of Stagg Street in Los Angeles	5.5

2.2.1 Tolls

A toll collection system would be developed and implemented during final design of the project. The price would vary during the course of the day. Toll rates are anticipated to be from $0.25 to $1.40 per mile, similar to Metro's ExpressLanes tolls on the I-10 and I-110. Consistent with current Metro toll policy used on the I-10 ExpressLanes, vehicles with three or more occupants would not pay a toll, vehicles with two occupants would pay a toll during peak periods only, and vehicles with one occupant would pay a toll at all times.

Tolls would be continually adjusted according to traffic conditions to maintain a free-flowing level of traffic using congestion pricing. During peak periods, when there is more traffic, the toll is higher to discourage new solo drivers from entering and to maintain a minimum speed of 45 mph. During off-peak periods, the toll is lower. By changing the toll in response to the level of demand, the HOT lane keeps traffic flowing smoothly. The toll price would be locked in at the time of entry into the HOT lane.

If the lanes become too full and the tolls have reached the maximum amount, the message displayed on the overhead sign would change to "HOV ONLY". This message would inform potential toll paying drivers that they would not be allowed to enter the HOT lane until the speeds climb back up. If you are a toll paying driver already using the HOT lane when the sign message changes to "HOV ONLY", you would be able to complete your trip.

The Business Rules in the Tolling Policy would also be the same as the current Board approved Business Rules for the ExpressLanes Project:

- All vehicles are required to have a transponder;
- Trucks (other than 2 axle) are not allowed on the HOT lane facility;
- Motorcycles and buses (both public and privately operated) travel toll-free; and
- Emergency vehicles travel toll-free when responding to incidents.

2.2.2 Tolling Points

Locations of the HOT Lane signs and electronic tolling equipment would be determined during final design. The possible locations of the Toll Gantries are as follows:

- The northbound I-5, in the vicinity of the SR 14 interchange
- The northbound I-5 in the vicinity of the Pico Canyon Road/Lyons Avenue interchange
- The northbound I-5 from in the vicinity of the Valencia Boulevard interchange
- The northbound I-5 in the vicinity of the Magic Mountain Parkway interchange
- The northbound I-5 in the vicinity of the SR 126 interchange
- The southbound I-5 just south of Parker Road
- The southbound I-5 in the vicinity of the SR 126 interchange
- The southbound I-5 in the vicinity of the Rye Canyon Road interchange
- The southbound I-5 in the vicinity of the Magic Mountain Parkway interchange
- The southbound I-5 in the vicinity of the Valencia Boulevard interchange
- The southbound I-5 in the vicinity of the Pico Canyon Road/Lyons Avenue interchange
- The southbound I-5 in the vicinity of the Calgrove Boulevard interchange

2.2.3 Entrance and Exit Points

Preliminary plans provide for entrance and exit points to and from the HOT lanes. The number and location of ingress/egress points, as shown on the following table, are for analysis purposes only. The final number and location of ingress/egress points would be determined during final design. The preliminary locations are illustrated in Figure 2.1.

Table 2.A HOT Lane Ingress/Egress Points

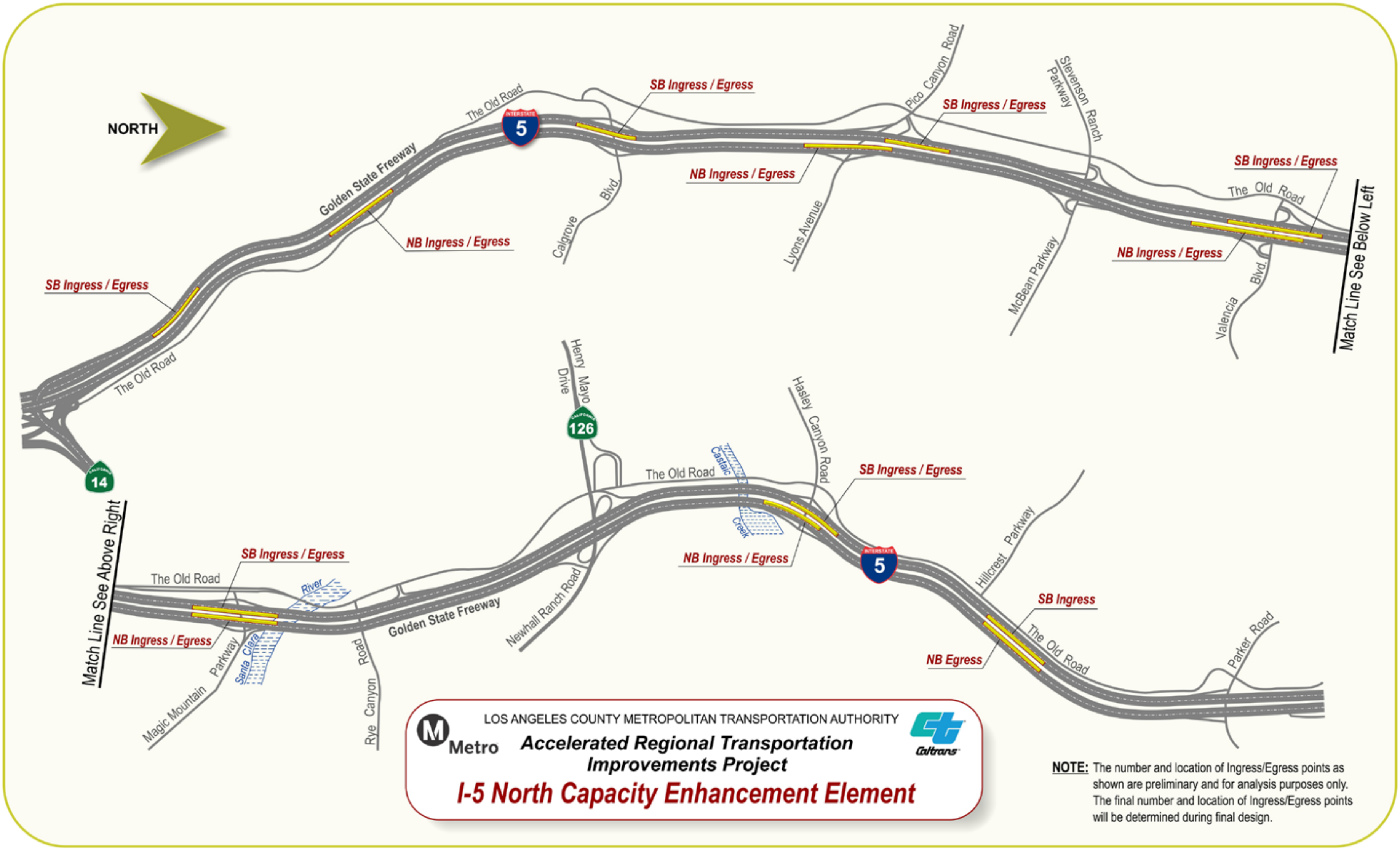
Northbound		
Location	**PM**	**Description**
1	47.46	Approx. 1900 ft South of Gavin Canyon
2	50.13	At Pico / Lyons Ave.
3	52.18	At Valencia Blvd.
4	53.39	At Magic Mnt. Pkwy.
5	56.43	At Hasley Caynon Rd.
6	57.63	Approx. 4500 ft North of HasleyCanyon Rd.
Southbound		
Location	**PM**	**Description**
1	46.64	Approx. 5000 ft North of I-5/SR-14 Interchange
2	49.14	At Calgrove Blvd.
3	50.71	At Pico / Lyons Ave.
4	52.70	At Valencia Blvd.
5	53.77	At Magic Mnt. Pkwy.
6	56.91	At Hasley Canyon Rd.
7	58.00	Approx. 4500 ft North of HasleyCanyon Rd.

Northbound

There would be five ingress points and six egress points in the northbound direction, beginning with the transition from the HOV lane just north of SR-14 and continuing to the final egress point just south of Parker Road. The existing HOV lane would transition into HOT lane just north of SR-14. The first entrance point would be just north of the SR-14 interchange. Vehicles without a transponder would be required to exit at this location, and vehicles with a transponder would be permitted to enter. Vehicles entering here would be able to exit the HOT lanes at four intermediate points and one final exit point to access McBean Parkway / Stevenson Ranch Parkway and Valencia Boulevard, Magic Mountain Parkway, Henry Mayo Drive / SR-126 and Hasley Canyon Road, or two access points located south of Parker Road, at which point the HOT lane would transition into a mixed flow lane.

The second northbound ingress/egress would be located at Lyons Avenue / Pico Canyon Road. Drivers exiting here would be able to transition to the McBean Parkway / Stevenson Ranch Parkway and Valencia Boulevard exits. Drivers entering here could next exit the HOT lane at Valencia Boulevard to access Magic Mountain Parkway.

Figure 2.1 HOT Lane Ingress/Egress Locations



The third northbound ingress/egress would be located at Valencia Boulevard and would provide an egress point for drivers wishing to exit at Magic Mountain Parkway. Drivers entering at this location could next exit at Magic Mountain Parkway to access SR-126 / Henry Mayo Drive and Hasley Canyon Road or stay in the HOT lane until it transitions into a mixed flow lane just south of Parker Road.

The fourth northbound ingress/egress would be located at Magic Mountain Parkway and would allow enough distance for a transition from the HOT lane to the SR-126 exit ramp. Drivers entering the HOT lane at this location could next exit at Hasley Canyon Road or continue in the HOT lane until it transitions into a mixed flow lane just south of Parker Road.

The fifth northbound ingress/egress would be located at Hasley Canyon Road, meaning that vehicles that enter I-5 from SR-126 could access the HOT lane for a limited time prior to the HOT lane transition into a mixed flow lane just south of Parker Road. Drivers could exit the HOT lane at this location to access Parker Road or could continue to the end of the HOT lane and transition into a mixed flow lane.

The final northbound egress location would be south of Parker Road. All vehicles, both HOT and HOV, would exit the facility at this point as the HOT lane transitions into a mixed flow lane.

Southbound

There would be seven ingress points and six egress points in the southbound direction, beginning just south of Parker Road and transitioning to the HOV lane just north of SR-14.

The first entrance point would be just south of Parker Road. Drivers entering here would be able to exit the HOT lane at five intermediate ingress/egress points and one final exit point to access The Old Road / Henry Mayo Drive / SR-126 and Magic Mountain Parkway, Valencia Boulevard, McBean Parkway/Stevenson Ranch Parkway and Lyons Avenue / Pico Canyon Road, Calgrove Boulevard, SR-14, or to exit the HOT lane just north of SR-14 prior to the transition to the HOV lane at SR-14. Single occupant vehicles would have transition length to safely merge to the mixed flow lanes prior to the start of the HOV lane.

The second southbound ingress/egress would be located at Hasley Canyon Road. Vehicles exiting here would be able to access SR-126, The Old Road, and Henry Mayo Drive as well as Magic Mountain Parkway. Vehicles entering here would next have the option to exit at Magic Mountain Parkway in order to access Valencia Boulevard.

The third southbound ingress/egress would be at Magic Mountain Parkway, far enough south of SR-126 that vehicles entering I-5 South from SR-126 would have time to safely merge to the HOT lane access point. Drivers exiting here could transition to the main line to access the Valencia Boulevard off-ramp. Drivers entering here would be able to exit the HOT lane at Valencia Boulevard in order to access Stevenson Ranch Parkway / McBean Parkway, Pico Canyon Road / Lyons Avenue and other exits further south.

The fourth southbound ingress/egress would be located at Valencia Boulevard. Drivers exiting here could access McBean Parkway / Stevenson Ranch Parkway and Lyons Avenue / Pico Canyon Road, as well as other exits further south. Drivers entering here could next exit at the Lyons Avenue / Pico Canyon Road ingress/egress location or continue in the HOT lane.

The fifth southbound ingress/egress would be located at Lyons Avenue / Pico Canyon Road. Drivers entering here would be able to exit at the Calgrove Boulevard egress or at the southern limit of the HOT lane and would be able to merge into the mixed flow lane, or continue in the HOV lane if there are two or more occupants.

The sixth southbound ingress/egress would be located at Calgrove Boulevard, allowing drivers the opportunity to exit the HOT lane, transition to the main line and access SR-14. Drivers entering here would either exit at the next ingress/egress point to exit the HOT lane, or vehicles with two or more occupants could continue in the HOV lane.

The final southbound ingress/egress is located just north of SR-14. Vehicles could continue in or enter the HOV lane here if they carry two or more occupants. Single-occupant vehicles must exit the HOT lane at this location.

2.2.4 Operations

The I-5 HOT lanes would operate similar to the I-10 and I-110 ExpressLanes. Solo drivers with a transponder would have the choice to pay a toll to use the I-5 HOT lanes. Carpools and vanpools meeting the minimum occupancy requirements, as well as motorcycles, can use the I-5 HOT lane free with a transponder. Prior to starting a trip, the driver would set the transponder to indicate the number of people in the vehicle. As the driver approaches the I-5 HOT lane, two toll amounts would be displayed on an electronic overhead sign: (1) the current toll from the entrance to the next major exit, and (2) the current toll from this entrance to the end of the I-5 HOT lane. The toll rate would vary with the level of congestion in the mixed flow lanes. The toll per mile would increase as more vehicles enter the HOT lane (due to congestion on mixed flow lanes) to manage demand in order to ensure a congestion-free operation.

When the vehicle enters/exits the I-5 HOT lane, the overhead antenna would read the transponder and the amount of the toll would be deducted from the user's account. The tolls charged would be based on the distance travelled in the HOT lane and the level of congestion in adjacent mixed flow lanes.

Similar to the Metro ExpressLanes, enforcement would be effected through a combination of visual monitoring by California Highway Patrol (CHP) vehicles, photo enforcement and the transponder. When traveling on the I-5 HOT lane, a beacon light would indicate the transponder occupancy setting. The beacon light is visible to the CHP who would perform a visual verification of the vehicle occupancy and cite non-compliant drivers. If a driver uses the HOT lane without a valid transponder, a photo of the vehicle license plate would be taken and the registered owner of the vehicle would be issued a toll evasion violation notice.

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Chapter 3 Changes to Environmental Impacts of the Project

This Draft Supplemental EIR/Environmental Reevaluation (DSEIR/ER) is being prepared to evaluate the potential environmental impacts associated with the HOT lanes. As indicated before, the project area's social, economic and environmental setting remains essentially the same as when the Final EIR/FONSI was approved. In addition, the environmental circumstances have not changed since the approval. In evaluating potential additional impacts, the same environmental baseline condition previously used in the approved September 2009 Final EIR/FONSI is assumed to be in place, unless otherwise stated.

Based on the review of the affected environmental conditions and the proposed scope change, resources with potential changes in project effects or impacts were identified and analyzed. Consequently, only those resources are being discussed in this DSEIR/ER. The remaining technical sections of the Final EIR/FONSI are not included, as they have not been modified as the result of the change in scope. In other words, the proposed changes to the project discussed in Chapter 2 would have no effect on those resources and would not result in a substantial change from the analysis, consideration, and findings within the Final EIR/FONSI.

The following resources were analyzed for potential additional impacts:

- Traffic
- Air Quality
- Noise

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3.1 Traffic

The information in this section is based on the I-5 High-Occupancy Toll Lane Project Traffic Technical Report (LSA Associates, Inc., January 2013). This traffic report updates the findings of the previous traffic analysis (I-5 PA&ED HOV & Truck Lanes – SR-14 to Parker Road, Austin Foust Associates, Inc. dated October 2007 and Supplemental Traffic Data report dated May 2008).

Study Area:

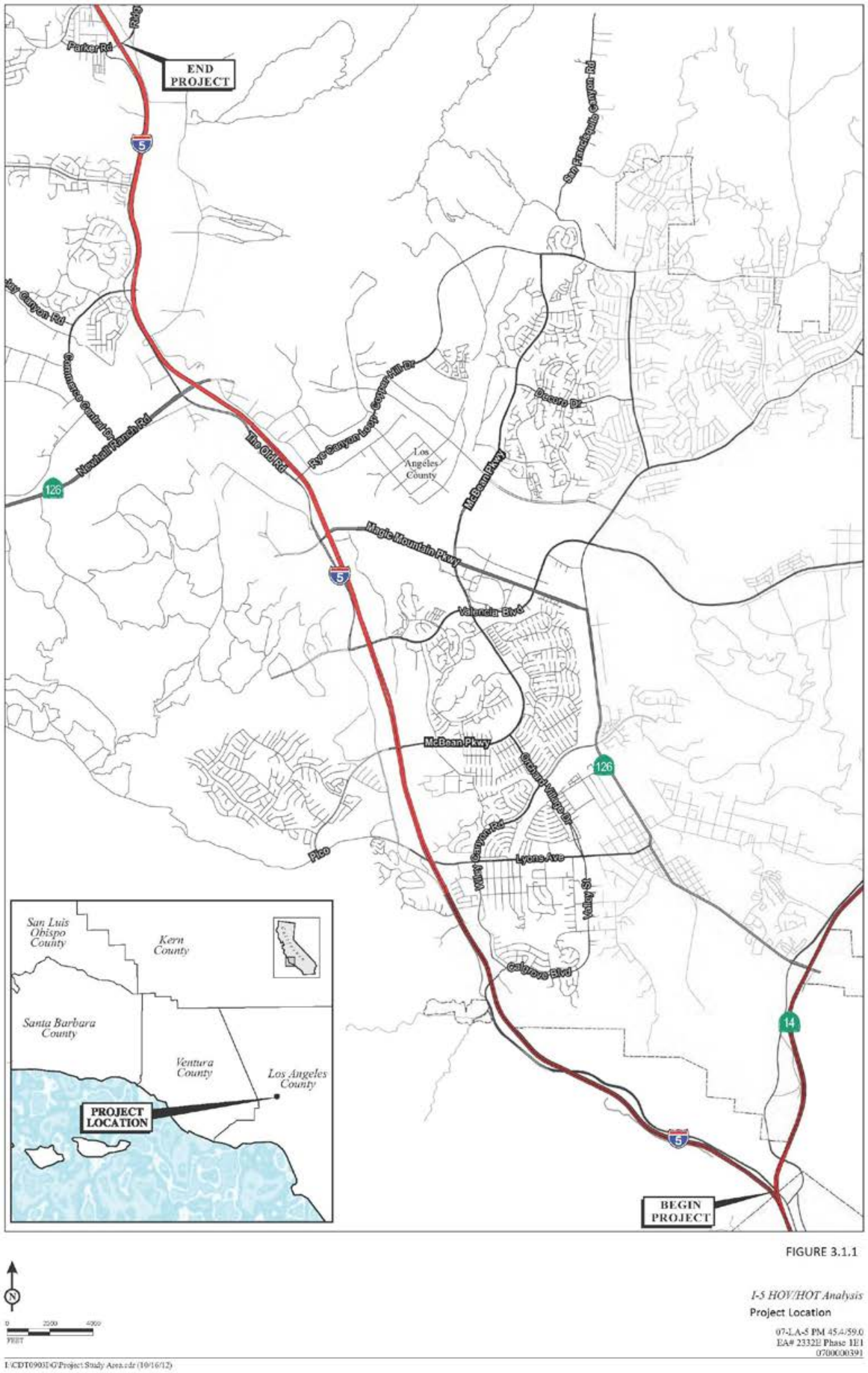
For the traffic analysis, the study area is the Interstate 5 (I-5) corridor from San Fernando Road on the south to Lake Hughes Road on the north, which extends one interchange south and north of the limits of the proposed improvement (State Route 14 [SR-14] to south of Parker Road). The project location is shown in Figure 3.1.1. Within the study area, I-5 currently provides generally four mixed-flow lanes in each direction, with the exception of three mixed-flow lanes in each direction at the I-5/ SR-14 interchange. Two truck lanes are separated from the mainline freeway south of the Weldon Canyon Overcrossing. This truck bypass route begins/ends just north of the I-5/SR-14 interchange. As discussed in Chapter 1, the extension of these truck lanes are currently in construction. The terrain of this area varies between flat (0 percent) and up to a 5 percent grade.

Ten freeway mainline segments on the northbound and eleven on the southbound I-5 have been identified for analysis to determine the operational improvement or impact of the HOT Lanes. These locations are consistent with the traffic analysis in the Final EIR/FONSI. The following basic freeway segments were analyzed:

Northbound

I-5 between SR-14 and Truck Bypass
I-5 between Truck Bypass to Calgrove Boulevard
I-5 between Calgrove Boulevard and Pico Canyon Road/Lyons Avenue
I-5 between Pico Canyon Road/Lyons Avenue and McBean Parkway
I-5 between McBean Parkway and Valencia Boulevard
I-5 between Valencia Boulevard and Magic Mountain Parkway
I-5 between Magic Mountain Parkway and Newhall Ranch Road (SR-126)
I-5 between Newhall Ranch Road and Hasley Canyon Road
I-5 between Hasley Canyon Road and Parker Road
I-5 between Parker Road and Lake Hughes

Figure 3.1.1 Project Location



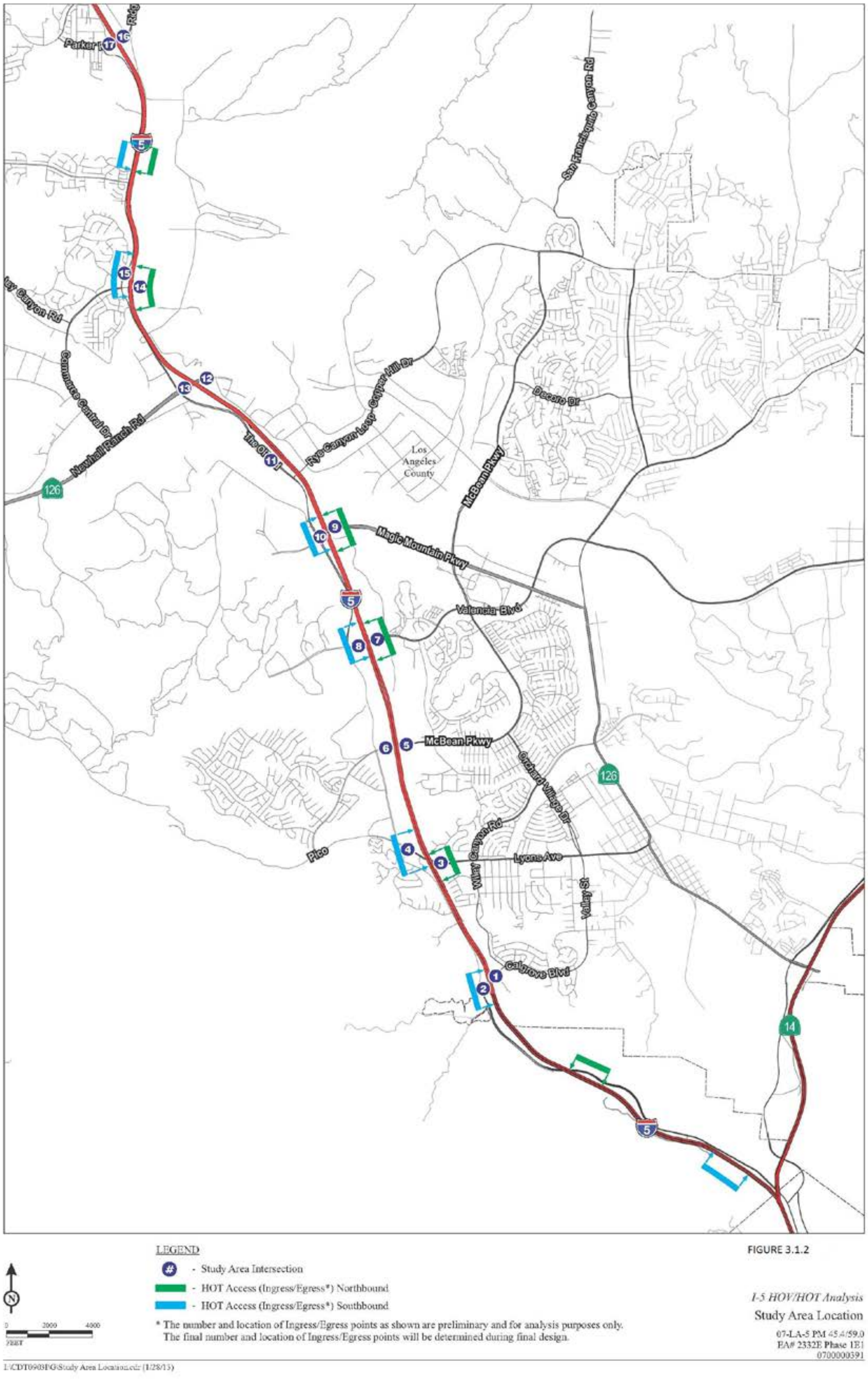
Southbound

I-5 between Lake Hughes and Parker Road
I-5 between Parker Road and Hasley Canyon Road
I-5 between Hasley Canyon Road and Newhall Ranch Road (SR-126)
I-5 between Newhall Ranch Road and Rye Canyon Road
I-5 between Rye Canyon Road and Magic Mountain Parkway
I-5 between Magic Mountain Parkway and Valencia Boulevard
I-5 between Valencia Boulevard and McBean Parkway
I-5 between McBean Parkway and Pico Canyon Road
I-5 between Pico Canyon Road and Calgrove Boulevard
I-5 between Calgrove Boulevard and Truck Bypass
I-5 between Truck Bypass and SR-14

The following ramp intersections in the study area were analyzed. Figure 3.1.2 shows the study area intersection locations.

1. I-5 Northbound Ramps/Calgrove Boulevard
2. I-5 Southbound Ramps/Calgrove Boulevard
3. I-5 Northbound Ramps/Pico Canyon Road & Lyons Avenue
4. I-5 Southbound Ramps/Pico Canyon Road & Lyons Avenue
5. I-5 Northbound Ramps/McBean Parkway
6. I-5 Southbound Ramps/McBean Parkway
7. I-5 Northbound Ramps/Valencia Boulevard
8. I-5 Southbound Ramps/Valencia Boulevard
9. I-5 Northbound Ramps/Magic Mountain Parkway
10. I-5 Southbound Ramps/Magic Mountain Parkway
11. I-5 Southbound Ramps/Rye Canyon Road
12. I-5 Northbound Ramps/Newhall Ranch Road (SR-126)
13. I-5 Southbound Ramps/Newhall Ranch Road (SR-126)
14. I-5 Northbound Ramps/Hasley Canyon Road
15. I-5 Southbound Ramps/Hasley Canyon Road
16. I-5 Northbound Ramps/Parker Road
17. I-5 Southbound Ramps/Parker Road

Figure 3.1.2 Study Area Location



3.1.1 Existing Conditions

3.1.1.1 Basic Freeway Segments

The existing (2010) a.m. and p.m. peak-hour traffic volumes, average daily traffic (ADT), and percentage of trucks on I-5 within the project limits are shown in Table 3.1.A. The peak hour is the hour during the peak period when traffic congestion is greatest. The a.m. peak period is from 6:00 a.m. to 9:00 a.m. and the p.m. peak period is from 3:00 p.m. to 7:00 p.m. It should be noted that locations that indicate 0 percent trucks are those which include a separate truck bypass lane.

Future-year traffic forecasts have been developed from the Southern California Association of Governments (SCAG) regional traffic model.

The quality and density of traffic flow in the I-5 study area can be defined in terms of level of service (LOS) from A to F. LOS describes the efficiency of traffic flow, as well as how such conditions are perceived by those persons traveling in the traffic stream, and accounts for variables such as speed and travel time, freedom to maneuver, traffic interruptions, traveler comfort and convenience, and safety. LOS ranges from LOS A (free traffic flow with low volumes and high speeds, resulting in low densities) to LOS F (traffic volumes exceeding capacity and resulting in forced flow operations at low speeds, resulting in high densities). Table 3.1.B is a graphic depiction of relative levels of congestion and speed associated with each LOS.

The measure used to provide an estimate of LOS for basic freeway segments is density, where density is calculated from the average vehicle flow rate per lane and the average speed. LOS A represents a freeway segment with density less than or equal to 11 passenger cars per mile per lane (pc/mi/ln). LOS F represents a freeway segment with density greater than 45 pc/mi/ln.

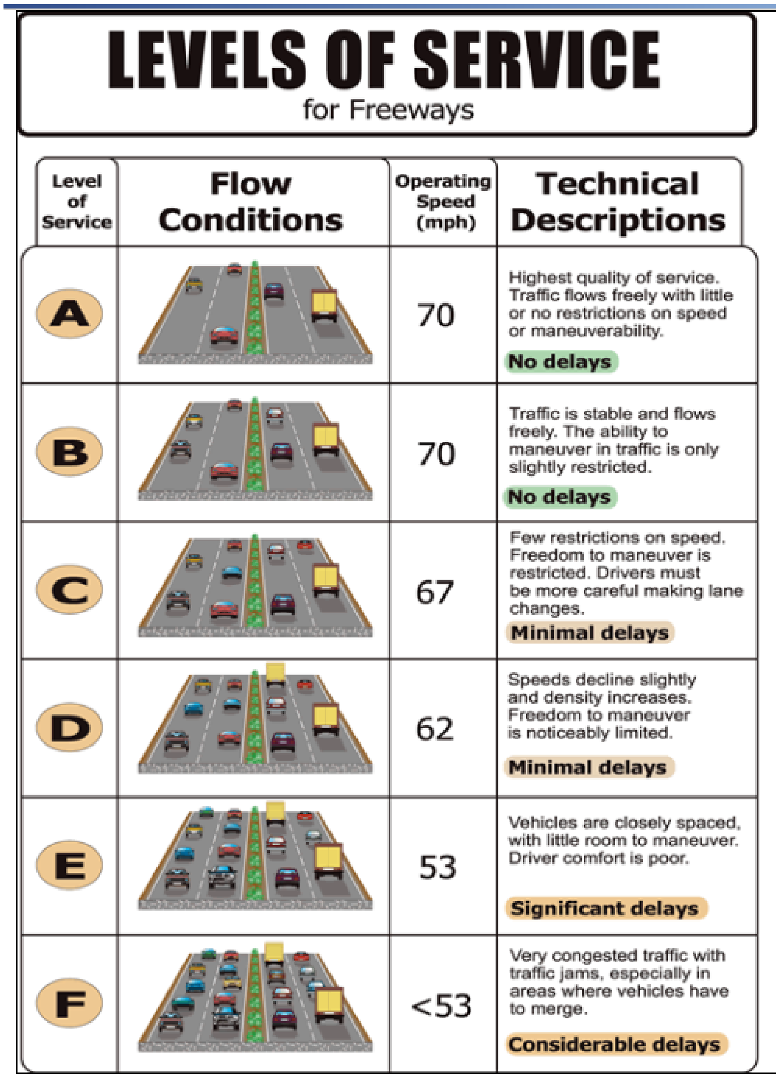
Table 3.1.C presents the results of the I-5 mainline LOS analysis. As this table indicates, six segments in the a.m. peak hour and seven segments in the p.m. peak hour are currently operating at LOS E or F.

Table 3.1.A Existing Freeway Mainline Volumes

I-5 Basic Segment	AM Peak Hour		PM Peak Hour		Truck %	ADT	
	SB	NB	SB	NB		SB	NB
North of Parker Road	4,451	4,039	3,914	4,186	24%	37,500	37,500
Between Parker Road and Hasley Canyon Road	5,467	4,129	4,260	5,240	19%	46,500	46,500
Between Hasley Canyon Road and SR -126	6,168	4,274	4,589	5,811	17%	54,000	54,000
Between SR -126 and Rye Canyon Road	6,084	4,847	4,801	6,199	15%	61,000	61,000
Between Rye Canyon Road and Magic Mountain Parkway	6,419	4,560	5,779	6,021	14%	66,500	66,500
Between Magic Mountain Parkway and Valencia Boulevard	6,438	5,426	6,200	6,700	12%	73,500	73,500
Between Valencia Boulevard and McBean Parkway	7,625	6,295	6,871	7,929	11%	85,000	85,000
Between McBean Parkway and Lyons Ave./Pico Canyon Road	7,959	6,743	7,219	8,381	10%	91,000	91,000
Between Lyons Ave./Pico Canyon Road and Calgrove Bouleva	9,430	6,938	7,351	9,249	9%	98,000	98,000
Between Truck Bypass and Calgrove Boulevard	9,735	6,661	7,413	9,087	9%	98,500	98,500
Between SR-14 and Truck Bypass	8,833	6,044	6,726	8,245	0%	98,500	98,500

Source: LSA Associates, Inc.
SB-Southbound
NB-Northbound

Table 3.1.B LOS Thresholds for a Basic Freeway Segment



LEVELS OF SERVICE
for Freeways

Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		70	Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. **No delays**
B		70	Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. **No delays**
C		67	Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. **Minimal delays**
D		62	Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. **Minimal delays**
E		53	Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. **Significant delays**
F		<53	Very congested traffic with traffic jams, especially in areas where vehicles have to merge. **Considerable delays**

Table 3.1.C Existing Freeway Mainline Peak Hour Level of Service Summary

Direction	Basic Segment	Existing					
		AM			PM		
		Speed (mph)	Density	LOS	Speed (mph)	Density	LOS
Northbound	SR-14 to Truck Bypass	59.2	37.7	E	<52.2	>45	F
	Truck Bypass to Calgrove Boulevard	66.1	29.2	D	<52.2	>45	F
	Calgrove Boulevard to Pico Canyon Road/Lyons Avenue	64.7	31.0	D	<52.2	>45	F
	Pico Canyon Road/Lyon Avenue to McBean Parkway	63.7	32.2	D	<52.2	>45	F
	McBean Parkway to Valencia Boulevard	67.4	27.3	D	56.4	41.1	E
	Valencia Boulevard to Magic Mountain Parkway	69.5	22.9	C	65.5	30.0	D
	Magic Mountain Parkway to Newhall Ranch Road (SR-126)	69.9	20.6	C	67.3	27.4	D
	Newhall Ranch Road (SR-126) to Hasley Canyon Road	70.0	18.4	C	68.4	25.5	C
	Hasley Canyon Road to Parker Road	70.0	17.9	B	69.5	22.9	C
	Parker Road to Lake Hughes	70.0	17.9	B	70.0	18.6	C
Southbound	Lake Hughes to Parker Road	70.0	19.7	C	70.0	17.3	B
	Parker Road to Hasley Canyon Road	69.1	24.0	C	70.0	18.5	C
	Hasley Canyon Road to Newhall Ranch Road (SR-126)	67.2	27.6	D	70.0	19.7	C
	Newhall Ranch Road (SR-126) to Rye Canyon Road	67.7	26.8	D	69.9	20.4	C
	Rye Canyon Road to Magic Mountain Parkway	66.5	28.6	D	68.7	24.9	C
	Magic Mountain Parkway to Valencia Boulevard	64.9	30.8	D	66.2	29.1	D
	Valencia Boulevard to McBean Parkway	<52.2	>45	F	60.2	36.5	E
	McBean Parkway to Pico Canyon Road/Lyon Avenue	56.5	41.0	E	62.7	33.5	D
	Pico Canyon Road/Lyon Avenue to Calgrove Boulevard	<52.2	>45	F	62.0	34.3	D
	Calgrove Boulevard to Truck Bypass Route	<52.2	>45	F	<52.2	>45	F
	Truck Bypass Route to SR-14	<52.2	>45	F	67.1	27.8	D

Source: LSA Associates, Inc.
Mph: miles-per-hour
Density: pc/mi/ln = passenger cars per mile per lane
▢ - LOS E or F

3.1.1.2 Intersections

LOS for signalized intersections is defined in terms of control delay. Control delay is a component of delay that results when a control signal causes a lane group to reduce speed or to stop; it is measured by comparison with the uncontrolled condition. Control delay includes initial acceleration delay, queue move-up time, stopped delay, and final acceleration delay. For the unsignalized intersections, the LOS is presented in terms of average approach delay of the minor street (in seconds per vehicle).

Peak-hour intersection counts were conducted at the 17 locations in August 2012. Figure 3.1.3 illustrates the existing peak-hour volumes. Table 3.1.D presents the results of the intersection LOS analysis. As Table C indicates, there are no ramp intersections that are currently operating at LOS E or F.

Table 3.1.D Existing Intersection Peak Hour Level of Service Summary

	Intersection	Existing			
		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1	I-5 NB Ramps/ Calgrove Blvd.[1]	12.1	B	29.7	D
2	I-5 SB Ramps/ Calgrove Blvd.[1]	15.1	C	16.2	C
3	I-5 NB Ramps/ Pico Canyon Rd. & Lyons A	8.6	A	13.8	B
4	I-5 SB Ramps/ Pico Canyon Rd. & Lyons A	5.7	A	9.0	A
5	I-5 NB Ramps/ McBean Pkwy.	4.9	A	8.5	A
6	I-5 SB Ramps/ McBean Pkwy.	4.0	A	6.3	A
7	I-5 NB Ramps/ Valencia Blvd.	9.4	A	10.2	B
8	I-5 SB Ramps/ Valencia Blvd.	6.4	A	11.3	B
9	I-5 NB Ramps/ Magic Mtn Pkwy.	11.9	B	12.0	B
10	I-5 SB Ramps/ Magic Mtn Pkwy.	8.3	A	9.1	A
11	I-5 SB Ramps/ Rye Canyon Rd.	12.7	B	14.5	B
12	I-5 NB Ramps/ Newhall Ranch Rd (SR-126	13.5	B	13.4	B
13	I-5 SB Ramps/ Newhall Ranch Rd (SR-126	7.9	A	7.8	A
14	I-5 NB Ramps/Hasley Canyon Rd.[2]	5.3	A	14.2	B
15	I-5 SB Ramps/Hasley Canyon Rd.	34.0	C	32.4	C
16	I-5 NB Ramps/Parker Rd.[1]	11.2	B	14.2	B
17	I-5 SB Ramps/Parker Rd.[1]	31.2	D	30.7	D

Source: LSA Associates, Inc.
1 Unsignalized Intersections
2 Roundabout Intersection
Delay: seconds per vehicle

Figure 3.1.3 Existing Ramp Intersections Peak Hour Volumes

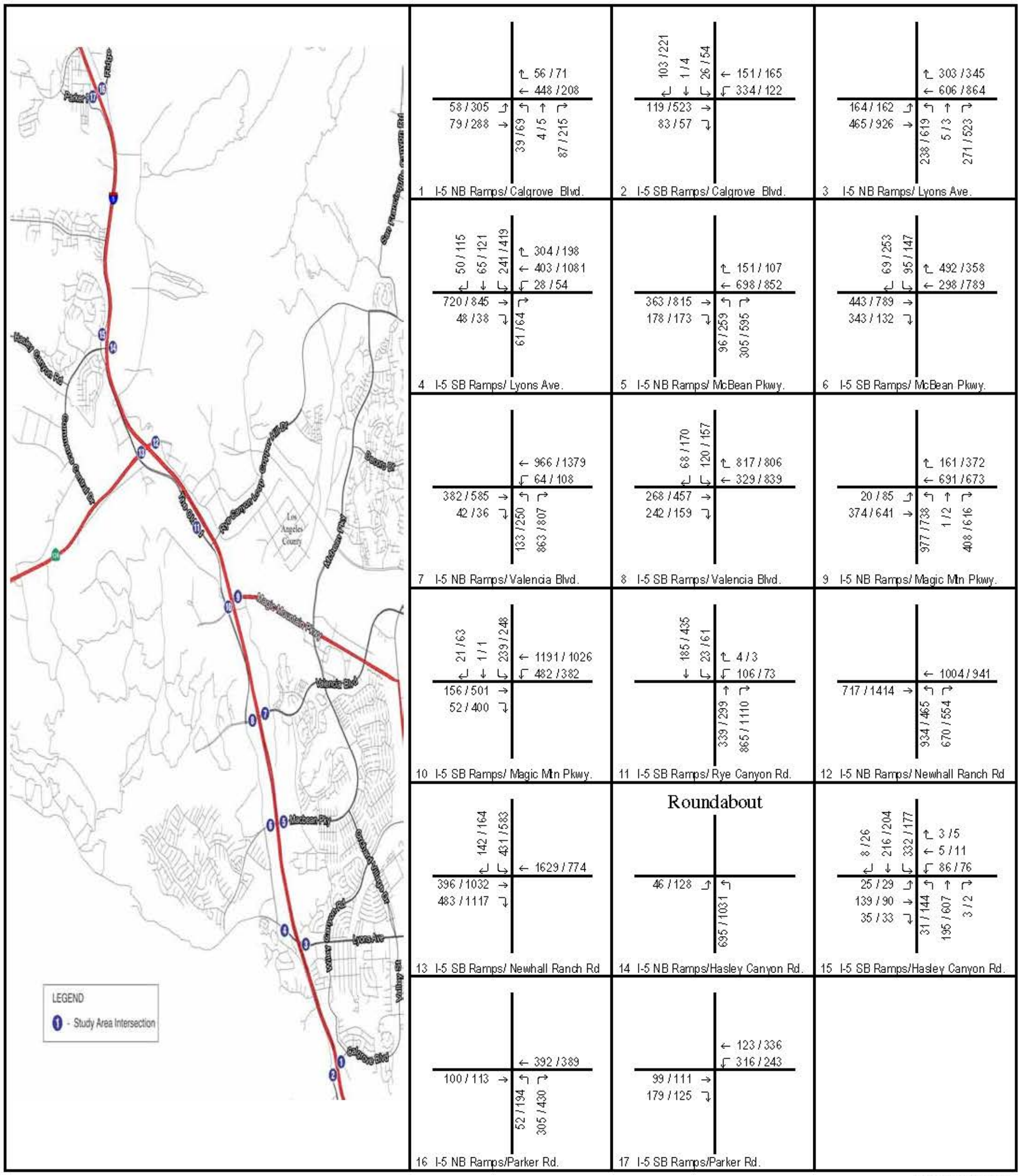


FIGURE 3

I-5/HOT Lanes Traffic Study

Existing Ramp Intersections Peak Hour Volumes

07-LA-5 PM 45.4/59.0

EA#2332E Phase 1E1

0700000391

123 / 456 AM / PM Peak Hour Volume

P:\CDT0903I HOT Lanes Traffic\xls\Graphics\Existing.xls (10/17/2012)

3.1.2 Opening Year (2018) Conditions

Caltrans has identified 2018 as the projected opening year of the HOT lane. As such, the following analysis for the No Build and HOT lane conditions correspond to this project opening year condition.

For the No build conditions, the existing numbers of mixed-flow lanes (four in each direction) are assumed. In addition, the existing truck lanes (SR-14 to south of Calgrove Boulevard both northbound and southbound) and approved truck lanes currently under construction (south of Calgrove Boulevard to Calgrove Boulevard northbound, and south of Calgrove Boulevard to Pico Canyon Road southbound) are included in the No Build analysis.

3.1.2.1 Basic Freeway Segments

2018 No Build. The 2018 daily, a.m., and p.m. peak-hour traffic volumes and truck percentages along the I-5 mainline for the No Build conditions are presented in Table 3.1.E. It should be noted that locations that indicate 0 percent trucks are those which include a separate truck bypass lane. Table 3.1.F presents the results of the I-5 mainline LOS analysis. As Table 3.1.F indicates, 11 segments in the a.m. peak hour and 11 segments in the p.m. peak hour are forecast to operate at LOS E or F in the 2018 No Build conditions.

2018 HOT Lane Alternative. The 2018 daily, a.m., and p.m. peak-hour traffic volumes and truck percentages along the I-5 mainline for the HOT lane alternative are presented in Table 3.1.G. Table 3.1.H presents the results of the I-5 mainline LOS analysis. As Table 3.1.H indicates, four segments in the a.m. peak hour and five segments in the p.m. peak hour are forecast to operate at LOS E or F under the 2018 HOT Lane alternative. As shown in the table, this presents an improvement as compared to the No Build conditions.

Table 3.1.E Year 2018 No Build Freeway Mainline Volumes

I-5 Basic Segment	AM Peak Hour				PM Peak Hour				ADT	
	Southbound		Northbound		Southbound		Northbound			
	Volume	Truck %	Volume	Truck %	Volume	Truck %	Volume	Truck %	SB	NB
North of Parker Road	7,065	11%	4,079	18%	4,565	12%	6,183	10%	63,024	61,229
Between Parker Road and Hasley Canyon Road	7,794	11%	4,553	18%	5,183	12%	6,965	10%	72,267	70,452
Between Hasley Canyon Road and SR -126	8,041	10%	4,425	17%	5,223	12%	7,244	9%	74,161	72,137
Between SR -126 and Rye Canyon Road	7,901	10%	4,535	17%	5,451	11%	7,086	9%	76,176	75,643
Between Rye Canyon Road and Magic Mountain Parkway	7,951	10%	4,535	16%	6,187	11%	7,086	9%	81,966	75,643
Between Magic Mountain Parkway and Valencia Boulevard	7,808	11%	5,496	16%	6,541	11%	7,461	9%	85,752	82,816
Between Valencia Boulevard and McBean Parkway	8,773	10%	6,469	13%	7,336	9%	8,585	8%	96,100	94,953
Between McBean Parkway and Lyons Ave./Pico Canyon Road	9,430	8%	6,761	11%	7,620	8%	8,851	7%	99,734	97,038
Between Lyons Ave./Pico Canyon Road and Calgrove Bouleva	10,184	0%	7,341	11%	7,774	0%	10,074	6%	111,418	109,145
Between Truck Bypass and Calgrove Boulevard	10,785	0%	6,552	0%	7,941	0%	9,746	0%	114,712	107,779
Between SR-14 and Truck Bypass	10,785	0%	6,552	0%	7,941	0%	9,746	0%	114,712	107,779

Source: LSA Associates, Inc.
SB-Southbound
NB-Northbound

Table 3.1.F Year 2018 No Build Freeway Mainline Peak Hour Level of Service Summary

Direction	Basic Segment	2018 No Build					
		AM			PM		
		Speed (mph)	Density	LOS	Speed (mph)	Density	LOS
Northbound	SR-14 to Truck Bypass	<52.2	>45	F	<52.2	>45	F
	Truck Bypass to Calgrove Boulevard	67.7	26.8	D	<52.2	>45	F
	Calgrove Boulevard to Pico Canyon Road/Lyons Avenue	61.6	34.8	D	<52.2	>45	F
	Pico Canyon Road/Lyon Avenue to McBean Parkway	63.2	32.9	D	<52.2	>45	F
	McBean Parkway to Valencia Boulevard	66.4	28.7	D	<52.2	>45	F
	Valencia Boulevard to Magic Mountain Parkway	69.2	23.8	C	61.2	35.3	E
	Magic Mountain Parkway to Newhall Ranch Road (SR-126)	70.0	19.4	C	63.8	32.1	D
	Newhall Ranch Road (SR-126) to Hasley Canyon Road	70.0	19.0	C	62.8	33.4	D
	Hasley Canyon Road to Parker Road	70.0	19.6	C	64.3	31.5	D
	Parker Road to Lake Hughes	70.0	17.6	B	67.9	26.5	D
Southbound	Lake Hughes to Parker Road	63.5	32.5	D	70.0	19.1	C
	Parker Road to Hasley Canyon Road	57.7	39.5	E	69.7	21.8	C
	Hasley Canyon Road to Newhall Ranch Road (SR-126)	55.6	42.0	E	69.7	22.0	C
	Newhall Ranch Road (SR-126) to Rye Canyon Road	57.1	40.3	E	69.5	22.9	C
	Rye Canyon Road to Magic Mountain Parkway	56.5	40.9	E	67.8	26.7	D
	Magic Mountain Parkway to Valencia Boulevard	56.2	41.3	E	64.6	31.1	D
	Valencia Boulevard to McBean Parkway	<52.2	>45	F	56.8	40.6	E
	McBean Parkway to Pico Canyon Road/Lyon Avenue	<52.2	>45	F	60.3	36.4	E
	Pico Canyon Road/Lyon Avenue to Calgrove Boulevard	<52.2	>45	F	61.4	35.1	E
	Calgrove Boulevard to Truck Bypass Route	<52.2	>45	F	60.1	36.6	E
	Truck Bypass Route to SR-14	<52.2	>45	F	<52.2	>45	F

Source: LSA Associates, Inc.
Mph: miles-per-hour
Density: pc/mi/ln = passenger cars per mile per lane
▢ - LOS E or F

Table 3.1.G Year 2018 HOT Freeway Mainline Volumes

I-5 Basic Segment	AM Peak Hour				PM Peak Hour				ADT	
	Southbound		Northbound		Southbound		Northbound			
	Volume	Truck %	Volume	Truck %	Volume	Truck %	Volume	Truck %	SB	NB
North of Parker Road	7,080	15%	4,165	23%	4,589	17%	6,310	14%	63,150	61,912
Between Parker Road and Hasley Canyon Road	6,416	15%	4,356	23%	4,877	17%	6,170	14%	72,463	71,191
Between Hasley Canyon Road and SR -126	6,693	15%	4,216	22%	4,917	16%	6,428	13%	74,440	72,769
Between SR -126 and Rye Canyon Road	6,597	14%	4,207	21%	5,183	15%	5,537	12%	76,195	76,704
Between Rye Canyon Road and Magic Mountain Parkway	6,462	14%	4,207	20%	5,293	14%	5,537	12%	83,459	76,704
Between Magic Mountain Parkway and Valencia Boulevard	6,589	15%	5,181	20%	5,614	14%	6,194	12%	87,669	84,958
Between Valencia Boulevard and McBean Parkway	7,778	13%	6,199	15%	6,511	11%	7,555	11%	98,993	98,275
Between McBean Parkway and Lyons Ave./Pico Canyon Road	8,490	11%	6,524	14%	6,753	10%	7,835	9%	103,126	100,504
Between Lyons Ave./Pico Canyon Road and Calgrove Boulevard	9,038	0%	7,389	12%	6,762	0%	9,111	8%	113,795	113,912
Between Truck Bypass and Calgrove Boulevard	9,377	0%	6,303	0%	6,976	0%	8,570	0%	116,498	111,334
Between SR-14 and Truck Bypass	9,377	0%	6,303	0%	6,976	0%	8,570	0%	116,498	111,334

Source: LSA Associates, Inc.
SB-Southbound
NB-Northbound

Table 3.1.H Year 2018 No Build and 2018 HOT Freeway Mainline Peak Hour Level of Service Summary Comparison

Direction	Basic Segment	2018 No Build						Year 2018 HOT					
		AM			PM			AM			PM		
		Speed (mph)	Density	LOS	Speed (mph)	Density	LOS	Speed (mph)	Density	LOS	Speed (mph)	Density	LOS
Northbound	SR-14 to Truck Bypass	<52.2	>45	F	<52.2	>45	F	68.4	25.5	C	54.3	43.7	E
	Truck Bypass to Calgrove Boulevard	67.7	26.8	D	<52.2	>45	F	68.4	25.5	C	54.3	43.7	E
	Calgrove Boulevard to Pico Canyon Road/Lyons Avenue	61.6	34.8	D	<52.2	>45	F	68.5	25.3	C	62.7	33.5	D
	Pico Canyon Road/Lyon Avenue to McBean Parkway	63.2	32.9	D	<52.2	>45	F	63.6	32.4	D	54.6	43.3	E
	McBean Parkway to Valencia Boulevard	66.4	28.7	D	<52.2	>45	F	67.3	27.4	D	59.9	36.9	E
	Valencia Boulevard to Magic Mountain Parkway	69.2	23.8	C	61.2	35.3	E	70.0	18.0	C	69.9	20.8	C
	Magic Mountain Parkway to Newhall Ranch Road (SR-126)	70.0	19.4	C	63.8	32.1	D	70.0	18.4	C	69.3	23.5	C
	Newhall Ranch Road (SR-126) to Hasley Canyon Road	70.0	19.0	C	62.8	33.4	D	70.0	18.5	C	66.6	28.5	D
	Hasley Canyon Road to Parker Road	70.0	19.6	C	64.3	31.5	D	70.0	19.2	C	67.5	27.1	D
	Parker Road to Lake Hughes	70.0	17.6	B	67.9	26.5	D	70.0	18.4	C	67.0	27.9	D
Southbound	Lake Hughes to Parker Road	63.5	32.5	D	70.0	19.1	C	62.5	33.7	D	70.0	19.7	C
	Parker Road to Hasley Canyon Road	57.7	39.5	E	69.7	21.8	C	66.4	28.8	D	69.9	21.0	C
	Hasley Canyon Road to Newhall Ranch Road (SR-126)	55.6	42.0	E	69.7	22.0	C	65.0	30.7	D	69.9	21.0	C
	Newhall Ranch Road (SR-126) to Rye Canyon Road	57.1	40.3	E	69.5	22.9	C	69.6	22.5	C	70.0	17.6	B
	Rye Canyon Road to Magic Mountain Parkway	56.5	40.9	E	67.8	26.7	D	69.7	22.0	C	70.0	17.9	B
	Magic Mountain Parkway to Valencia Boulevard	56.2	41.3	E	64.6	31.1	D	62.7	33.5	D	68.1	26.0	D
	Valencia Boulevard to McBean Parkway	<52.2	>45	F	56.8	40.6	E	65.0	30.7	D	69.1	24.1	C
	McBean Parkway to Pico Canyon Road/Lyon Avenue	<52.2	>45	F	60.3	36.4	E	<52.2	>45	F	65.5	30.0	D
	Pico Canyon Road/Lyon Avenue to Calgrove Boulevard	<52.2	>45	F	61.4	35.1	E	<52.2	>45	F	66.9	28.0	D
	Calgrove Boulevard to Truck Bypass Route	<52.2	>45	F	60.1	36.6	E	<52.2	>45	F	66.1	29.2	D
	Truck Bypass Route to SR-14	<52.2	>45	F	<52.2	>45	F	<52.2	>45	F	<52.2	>45	F

Source: LSA Associates, Inc.
Mph: miles-per-hour
Density: pc/mi/ln = passenger cars per mile per lane
▭ - LOS E or F

3.1.2.2 Intersections

2018 No Build. The 2018 a.m. and p.m. peak-hour traffic volumes for the ramp intersection locations are illustrated in Figure 3.1.4. Table 3.1.I presents the results of the intersection LOS analysis. As Table 3.1.I indicates, there are no intersections forecast to operate at LOS E or F in the a.m. peak hour, and three intersections are forecast to operate at LOS E or F in the p.m. peak hour for the 2018 No Build condition.

2018 HOT Lane Alternative. The 2018 a.m. and p.m. peak-hour traffic volumes for the ramp intersection locations in the HOT lane alternative are illustrated in Figure 3.1.5. Table 3.1.J presents the results of the intersection LOS analysis. As Table 3.1.J indicates, there are no intersections forecast to operate at LOS E or F in the a.m. peak hour, and three intersections are forecast to operate at LOS E or F in the p.m. peak hour for the 2018 HOT lane alternative. As shown in the table, there is no change in number of LOS E or F locations between the HOT alternative and the No Build condition.

Figure 3.1.4 Year 2018 No Build Ramp Intersections Peak Hour Volumes

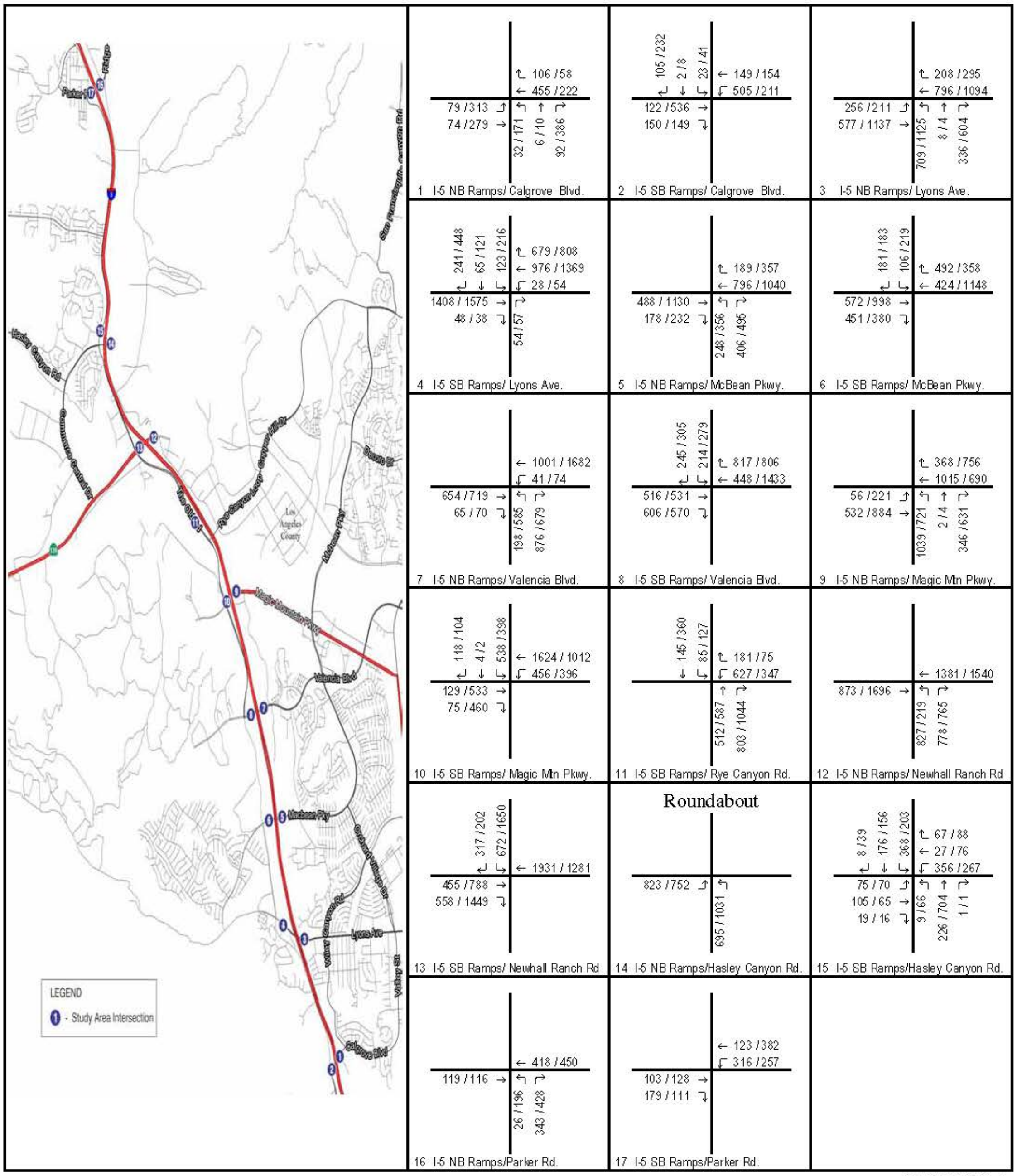


FIGURE 4

I-5/HOT Lanes Traffic Study

Year 2018 No Build Ramp Intersections Peak Hour Volumes

123 / 456 AM / PM Peak Hour Volume

07-LA-5 PM 45.4/59.0
EA#2332E Phase 1E1
0700000391

P:\CDT0903I HOT Lanes Traffic\xls\Graphics\2018 No Build Vol.xls (10/17/2012)

Table 3.1.I Year 2018 No Build Intersection Peak Hour Level of Service Summary

	Intersection	2018 No Build			
		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1	I-5 NB Ramps/ Calgrove Blvd.[1]	12.3	B	140.0	F
2	I-5 SB Ramps/ Calgrove Blvd.[1]	28.9	D	22.2	C
3	I-5 NB Ramps/ Pico Canyon Rd. & Lyons Ave	17.4	B	39.9	D
4	I-5 SB Ramps/ Pico Canyon Rd. & Lyons Ave	6.7	A	13.9	B
5	I-5 NB Ramps/ McBean Pkwy.	6.4	A	9.1	A
6	I-5 SB Ramps/ McBean Pkwy.	4.8	A	7.6	A
7	I-5 NB Ramps/ Valencia Blvd.	10.6	B	11.0	B
8	I-5 SB Ramps/ Valencia Blvd.	10.6	B	22.0	C
9	I-5 NB Ramps/ Magic Mtn Pkwy.	15.5	B	14.8	B
10	I-5 SB Ramps/ Magic Mtn Pkwy.	11.3	B	12.4	B
11	I-5 SB Ramps/ Rye Canyon Rd.	21.9	C	22.7	C
12	I-5 NB Ramps/ Newhall Ranch Rd (SR-126)	23.4	C	29.6	C
13	I-5 SB Ramps/ Newhall Ranch Rd (SR-126)	10.9	B	20.5	C
14	I-5 NB Ramps/Hasley Canyon Rd.[2]	12.3	B	140.8	F
15	I-5 SB Ramps/Hasley Canyon Rd.	39.6	D	27.4	C
16	I-5 NB Ramps/Parker Rd.[1]	11.7	B	15	B
17	I-5 SB Ramps/Parker Rd.[1]	31.8	D	41.1	E

Source: LSA Associates, Inc.
1 Unsignalized Intersections
2 Roundabout Intersection
Delay: seconds per vehicle
▢ - LOS E or F

Figure 3.1.5 Year 2018 HOT Ramp Intersections Peak Hour Volumes

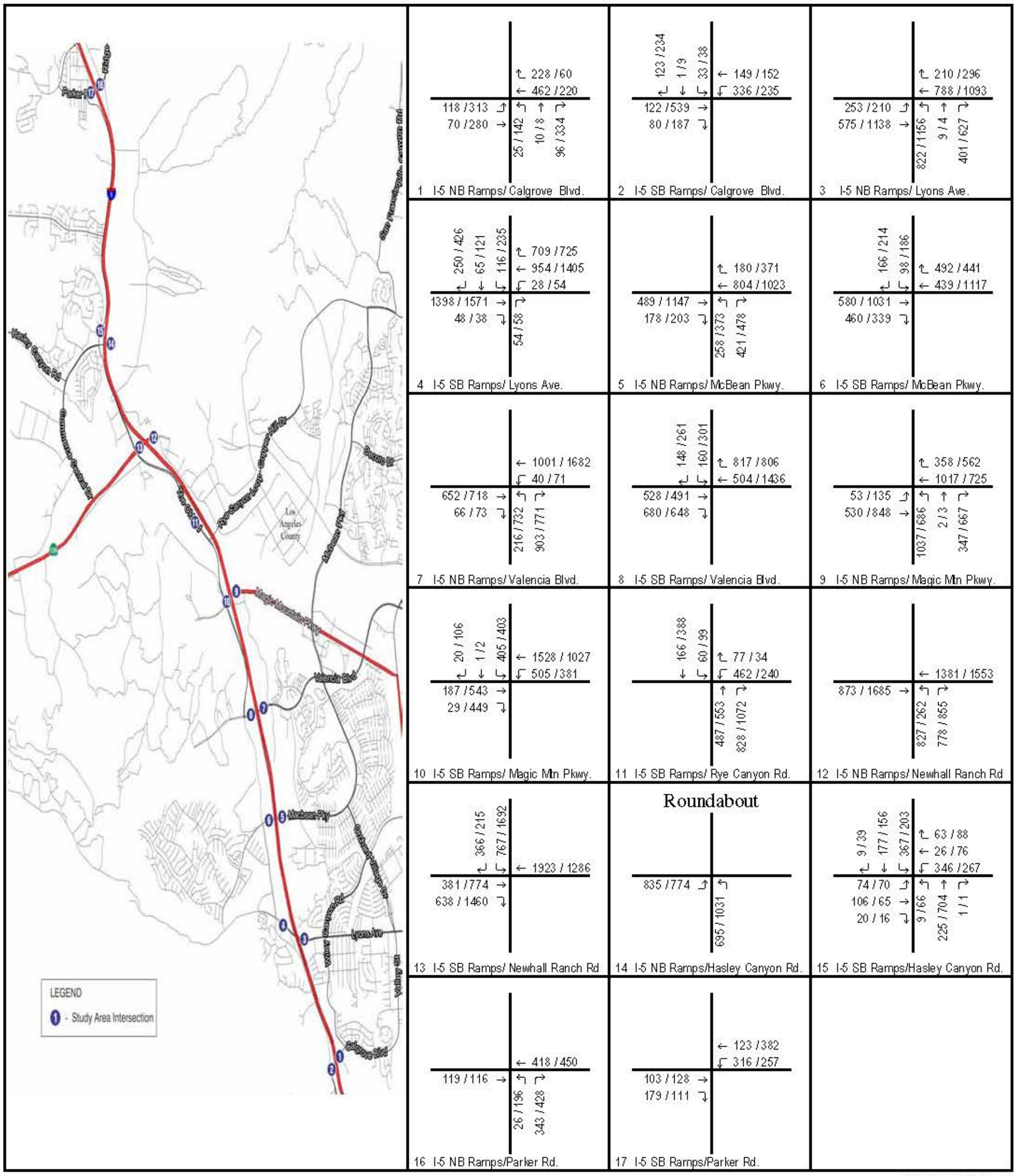


FIGURE 5

I-5/HOT Lanes Traffic Study

Year 2018 HOV/HOT Ramp Intersections Peak Hour Volumes

123 / 456 AM / PM Peak Hour Volume

07-LA-5 PM 45.4/59.0

EA#2332E Phase 1E1

0700000391

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Table 3.1.J Year 2018 No Build and 2018 HOT Intersection Peak Hour Level of Service Summary Comparison

	Intersection	2018 No Build				2018 HOT			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	I-5 NB Ramps/ Calgrove Blvd.[1]	12.3	B	140.0	F	13.9	B	99.3	F
2	I-5 SB Ramps/ Calgrove Blvd.[1]	28.9	D	22.2	C	16.0	C	25.7	D
3	I-5 NB Ramps/ Pico Canyon Rd. & Lyons Ave	17.4	B	39.9	D	18.9	B	37.5	D
4	I-5 SB Ramps/ Pico Canyon Rd. & Lyons Ave	6.7	A	13.9	B	6.8	A	13.1	B
5	I-5 NB Ramps/ McBean Pkwy.	6.4	A	9.1	A	6.5	A	8.8	A
6	I-5 SB Ramps/ McBean Pkwy.	4.8	A	7.6	A	4.7	A	6.9	A
7	I-5 NB Ramps/ Valencia Blvd.	10.6	B	11.0	B	10.9	B	12.1	B
8	I-5 SB Ramps/ Valencia Blvd.	10.6	B	22.0	C	10.5	B	22.4	C
9	I-5 NB Ramps/ Magic Mtn Pkwy.	15.5	B	14.8	B	15.4	B	13.1	B
10	I-5 SB Ramps/ Magic Mtn Pkwy.	11.3	B	12.4	B	9.8	A	11.9	B
11	I-5 SB Ramps/ Rye Canyon Rd.	21.9	C	22.7	C	17.7	B	19.1	B
12	I-5 NB Ramps/ Newhall Ranch Rd (SR-126)	23.4	C	29.6	C	23.4	C	44.5	D
13	I-5 SB Ramps/ Newhall Ranch Rd (SR-126)	10.9	B	20.5	C	12.2	B	22.1	C
14	I-5 NB Ramps/Hasley Canyon Rd.[2]	12.3	B	140.8	F	12.9	B	148.1	F
15	I-5 SB Ramps/Hasley Canyon Rd.	39.6	D	27.4	C	38.7	D	27.4	C
16	I-5 NB Ramps/Parker Rd.[1]	11.7	B	15	B	11.7	B	15.0	B
17	I-5 SB Ramps/Parker Rd.[1]	31.8	D	41.1	E	31.8	D	41.1	E

Source: LSA Associates, Inc.
1 Unsignalized Intersections
2 Roundabout Intersection
Delay: seconds per vehicle
[shaded box] - LOS E or F

3.1.3 Design Year (2035) Conditions

Caltrans has identified 2035 as the 20-year design year of the HOT lane. This year corresponds to the regional traffic modeling buildout year developed by SCAG. As such, the following analysis for the No Build condition and HOT lane alternative corresponds to this design year condition.

3.1.3.1 Basic Freeway Segments

2035 No Build. The 2035 daily, a.m., and p.m. peak-hour traffic volumes and truck percentages along the I-5 mainline for the No Build condition are presented in Table 3.1.K. It should be noted that locations that indicate 0 percent trucks are those that include a separate truck bypass lane. Table 3.1.L presents the results of the I-5 mainline LOS analysis. As Table 3.1.L indicates, 15 segments in the a.m. peak hour and 16 segments in the p.m. peak hour are forecast to operate at LOS E or F in the 2035 No Build condition.

2035 HOT Lane Alternative. The 2035 daily, a.m., and p.m. peak-hour traffic volumes and truck percentages along the I-5 mainline for the HOT lane alternative are presented in Table 3.1.M. Table 3.1.N presents the results of the I-5 mainline LOS analysis. As Table 3.1.N indicates, 10 segments in the a.m. peak hour and 8 segments in the p.m. peak hour are forecast to operate at LOS E or F in the 2035 HOT Lane Alternative. As shown in the table, this presents an improvement as compared to the No Build condition.

Table 3.1.K Year 2035 No Build Freeway Mainline Volumes

I-5 Basic Segment	AM Peak Hour				PM Peak Hour				ADT	
	Southbound		Northbound		Southbound		Northbound			
	Volume	Truck %	Volume	Truck %	Volume	Truck %	Volume	Truck %	SB	NB
North of Parker Road	8,544	17%	5,510	25%	5,246	21%	8,263	14%	76,255	81,762
Between Parker Road and Hasley Canyon Road	9,134	17%	5,864	25%	5,703	21%	8,910	14%	84,441	90,263
Between Hasley Canyon Road and SR -126	8,817	17%	5,677	24%	5,658	20%	8,695	14%	84,079	88,997
Between SR -126 and Rye Canyon Road	8,503	17%	5,863	22%	6,113	19%	8,271	13%	85,680	92,088
Between Rye Canyon Road and Magic Mountain Parkway	8,455	17%	5,863	21%	6,771	17%	8,271	13%	91,397	92,088
Between Magic Mountain Parkway and Valencia Boulevard	8,273	18%	6,862	21%	7,095	17%	8,407	14%	95,540	98,998
Between Valencia Boulevard and McBean Parkway	9,244	16%	7,642	18%	7,842	14%	9,420	12%	105,715	110,003
Between McBean Parkway and Lyons Ave./Pico Canyon Road	9,984	14%	7,710	16%	8,035	13%	9,694	11%	108,199	110,770
Between Lyons Ave./Pico Canyon Road and Calgrove Boulevard	10,393	0%	8,263	15%	7,965	0%	11,102	10%	123,550	125,426
Between Truck Bypass and Calgrove Boulevard	11,331	0%	7,038	0%	8,155	0%	10,404	0%	127,435	123,852
Between SR-14 and Truck Bypass	11,331	0%	7,038	0%	8,155	0%	10,404	0%	127,435	123,852

Source: LSA Associates, Inc.
SB-Southbound
NB-Northbound

Table 3.1.L Year 2035 No Build Freeway Mainline Peak Hour Level of Service Summary

Direction	Basic Segment	2035 No Build					
		AM			PM		
		Speed (mph)	Density	LOS	Speed (mph)	Density	LOS
Northbound	SR-14 to Truck Bypass	<52.2	>45	F	<52.2	>45	F
	Truck Bypass to Calgrove Boulevard	65.8	29.7	D	<52.2	>45	F
	Calgrove Boulevard to Pico Canyon Road/Lyons Avenue	<52.2	>45	F	<52.2	>45	F
	Pico Canyon Road/Lyon Avenue to McBean Parkway	<52.2	>45	F	<52.2	>45	F
	McBean Parkway to Valencia Boulevard	56.8	40.6	E	<52.2	>45	F
	Valencia Boulevard to Magic Mountain Parkway	62.7	33.5	D	<52.2	>45	F
	Magic Mountain Parkway to Newhall Ranch Road (SR-126)	67.8	26.6	D	<52.2	>45	F
	Newhall Ranch Road (SR-126) to Hasley Canyon Road	68.3	25.8	C	<52.2	>45	F
	Hasley Canyon Road to Parker Road	67.5	27.1	D	<52.2	>45	F
	Parker Road to Lake Hughes	68.7	25.0	C	<52.2	>45	F
Southbound	Lake Hughes to Parker Road	<52.2	>45	F	69.4	23.1	C
	Parker Road to Hasley Canyon Road	<52.2	>45	F	68.4	25.5	C
	Hasley Canyon Road to Newhall Ranch Road (SR-126)	<52.2	>45	F	68.6	25.1	C
	Newhall Ranch Road (SR-126) to Rye Canyon Road	<52.2	>45	F	67.2	27.6	D
	Rye Canyon Road to Magic Mountain Parkway	<52.2	>45	F	64.2	31.7	D
	Magic Mountain Parkway to Valencia Boulevard	<52.2	>45	F	57.0	40.3	E
	Valencia Boulevard to McBean Parkway	<52.2	>45	F	<52.2	>45	F
	McBean Parkway to Pico Canyon Road/Lyon Avenue	<52.2	>45	F	54.5	43.5	E
	Pico Canyon Road/Lyon Avenue to Calgrove Boulevard	<52.2	>45	F	59.9	36.8	E
	Calgrove Boulevard to Truck Bypass Route	<52.2	>45	F	58.3	38.7	E
	Truck Bypass Route to SR-14	<52.2	>45	F	<52.2	>45	F

Source: LSA Associates, Inc.
Mph: miles-per-hour
Density: pc/mi/ln = passenger cars per mile per lane
▢ - LOS E or F

Table 3.1.M Year 2035 HOT Freeway Mainline Volumes

I-5 Basic Segment	AM Peak Hour				PM Peak Hour				ADT	
	Southbound		Northbound		Southbound		Northbound			
	Volume	Truck %	Volume	Truck %	Volume	Truck %	Volume	Truck %	SB	NB
North of Parker Road	8,548	23%	5,511	27%	5,247	24%	8,318	20%	76,267	82,015
Between Parker Road and Hasley Canyon Road	7,433	23%	5,514	27%	5,345	24%	7,272	20%	84,562	90,653
Between Hasley Canyon Road and SR -126	7,225	23%	5,326	26%	5,348	23%	7,040	19%	84,702	89,314
Between SR -126 and Rye Canyon Road	7,003	22%	4,757	25%	5,784	21%	6,676	19%	86,440	92,744
Between Rye Canyon Road and Magic Mountain Parkway	7,012	24%	4,757	23%	5,613	20%	6,676	18%	92,602	92,744
Between Magic Mountain Parkway and Valencia Boulevard	6,945	21%	5,764	23%	5,945	19%	7,211	19%	97,053	101,220
Between Valencia Boulevard and McBean Parkway	8,266	17%	6,618	19%	6,831	16%	8,516	16%	108,606	113,552
Between McBean Parkway and Lyons Ave./Pico Canyon Road	9,244	15%	6,695	17%	6,903	15%	8,865	14%	111,723	114,564
Between Lyons Ave./Pico Canyon Road and Calgrove Boulevard	9,312	0%	7,002	16%	6,919	0%	10,299	12%	126,833	129,352
Between Truck Bypass and Calgrove Boulevard	9,938	0%	5,873	0%	7,059	0%	9,424	0%	129,432	127,585
Between SR-14 and Truck Bypass	9,938	0%	5,873	0%	7,059	0%	9,424	0%	129,432	127,585

Source: LSA Associates, Inc.
SB-Southbound
NB-Northbound

Table 3.1.N Year 2035 No Build and 2035 HOT Freeway Mainline Peak Hour Level of Service Summary Comparison

Direction	Basic Segment	2035 No Build						2035 HOT					
		AM			PM			AM			PM		
		Speed (mph)	Density	LOS	Speed (mph)	Density	LOS	Speed (mph)	Density	LOS	Speed (mph)	Density	LOS
Northbound	SR-14 to Truck Bypass	<52.2	>45	F	<52.2	>45	F	69.3	23.5	C	<52.2	>45	F
	Truck Bypass to Calgrove Boulevard	65.8	29.7	D	<52.2	>45	F	69.3	23.5	C	<52.2	>45	F
	Calgrove Boulevard to Pico Canyon Road/Lyons Avenue	<52.2	>45	F	<52.2	>45	F	69.0	24.3	C	<52.2	>45	F
	Pico Canyon Road/Lyon Avenue to McBean Parkway	<52.2	>45	F	<52.2	>45	F	60.9	35.6	E	<52.2	>45	F
	McBean Parkway to Valencia Boulevard	56.8	40.6	E	<52.2	>45	F	64.7	31.0	D	<52.2	>45	F
	Valencia Boulevard to Magic Mountain Parkway	62.7	33.5	D	<52.2	>45	F	69.9	20.4	C	68.4	25.6	C
	Magic Mountain Parkway to Newhall Ranch Road (SR-126)	67.8	26.6	D	<52.2	>45	F	69.8	21.2	C	64.4	31.5	D
	Newhall Ranch Road (SR-126) to Hasley Canyon Road	68.3	25.8	C	<52.2	>45	F	69.1	24.0	C	61.9	34.5	D
	Hasley Canyon Road to Parker Road	67.5	27.1	D	<52.2	>45	F	68.7	25.0	C	59.6	37.2	E
	Parker Road to Lake Hughes	68.7	25.0	C	<52.2	>45	F	68.7	25.0	C	<52.2	>45	F
Southbound	Lake Hughes to Parker Road	<52.2	>45	F	69.4	23.1	C	<52.2	>45	F	69.3	23.5	C
	Parker Road to Hasley Canyon Road	<52.2	>45	F	68.4	25.5	C	57.1	40.2	E	69.1	24.0	C
	Hasley Canyon Road to Newhall Ranch Road (SR-126)	<52.2	>45	F	68.6	25.1	C	59.2	37.7	E	69.1	23.9	C
	Newhall Ranch Road (SR-126) to Rye Canyon Road	<52.2	>45	F	67.2	27.6	D	68.6	25.1	C	70.0	20.2	C
	Rye Canyon Road to Magic Mountain Parkway	<52.2	>45	F	64.2	31.7	D	68.8	25.1	C	70.0	19.5	C
	Magic Mountain Parkway to Valencia Boulevard	<52.2	>45	F	57.0	40.3	E	53.9	44.3	E	65.6	29.9	D
	Valencia Boulevard to McBean Parkway	<52.2	>45	F	<52.2	>45	F	59.6	37.2	E	68.3	25.7	C
	McBean Parkway to Pico Canyon Road/Lyon Avenue	<52.2	>45	F	54.5	43.5	E	<52.2	>45	F	63.7	32.3	D
	Pico Canyon Road/Lyon Avenue to Calgrove Boulevard	<52.2	>45	F	59.9	36.8	E	<52.2	>45	F	66.4	28.8	D
	Calgrove Boulevard to Truck Bypass Route	<52.2	>45	F	58.3	38.7	E	<52.2	>45	F	65.7	29.8	D
	Truck Bypass Route to SR-14	<52.2	>45	F	<52.2	>45	F	<52.2	>45	F	<52.2	>45	F

Source: LSA Associates, Inc.
Mph: miles-per-hour
Density: pc/mi/ln = passenger cars per mile per lane
▭ - LOS E or F

3.1.3.2 Intersections

2035 No Build. The 2035 a.m. and p.m. peak-hour traffic volumes for the ramp intersection locations are illustrated in Figure 3.1.6. Table 3.1.O presents the results of the intersection LOS analysis. As Table 3.1.O indicates, two intersections in the a.m. peak hour and three intersections in the p.m. peak hour are forecast to operate at LOS E or F in the 2035 No Build condition.

2035 HOT Lane Alternative. The 2035 a.m. and p.m. peak-hour traffic volumes for the ramp intersection locations in the HOT lane alternative are illustrated in Figure 3.1.7. Table 3.1.P presents the results of the intersection LOS analysis. As Table 3.1.P indicates, one intersection in the a.m. peak hour and three intersections in the p.m. peak hour are forecast to operate at LOS E or F in the 2035 HOT Lane Alternative. As shown in the table, this presents an improvement as compared to the No Build alternative. It should be noted that the traffic volume at the intersection of the I-5 southbound ramps/Calgrove Boulevard (at the southern end of the project) is reduced with implementation of the HOT lane. This is due to a shift in southbound vehicles that access the freeway on the northern end of the project rather than the southern end.

Figure 3.1.6 Year 2035 No Build Ramp Intersections Peak Hour Volumes

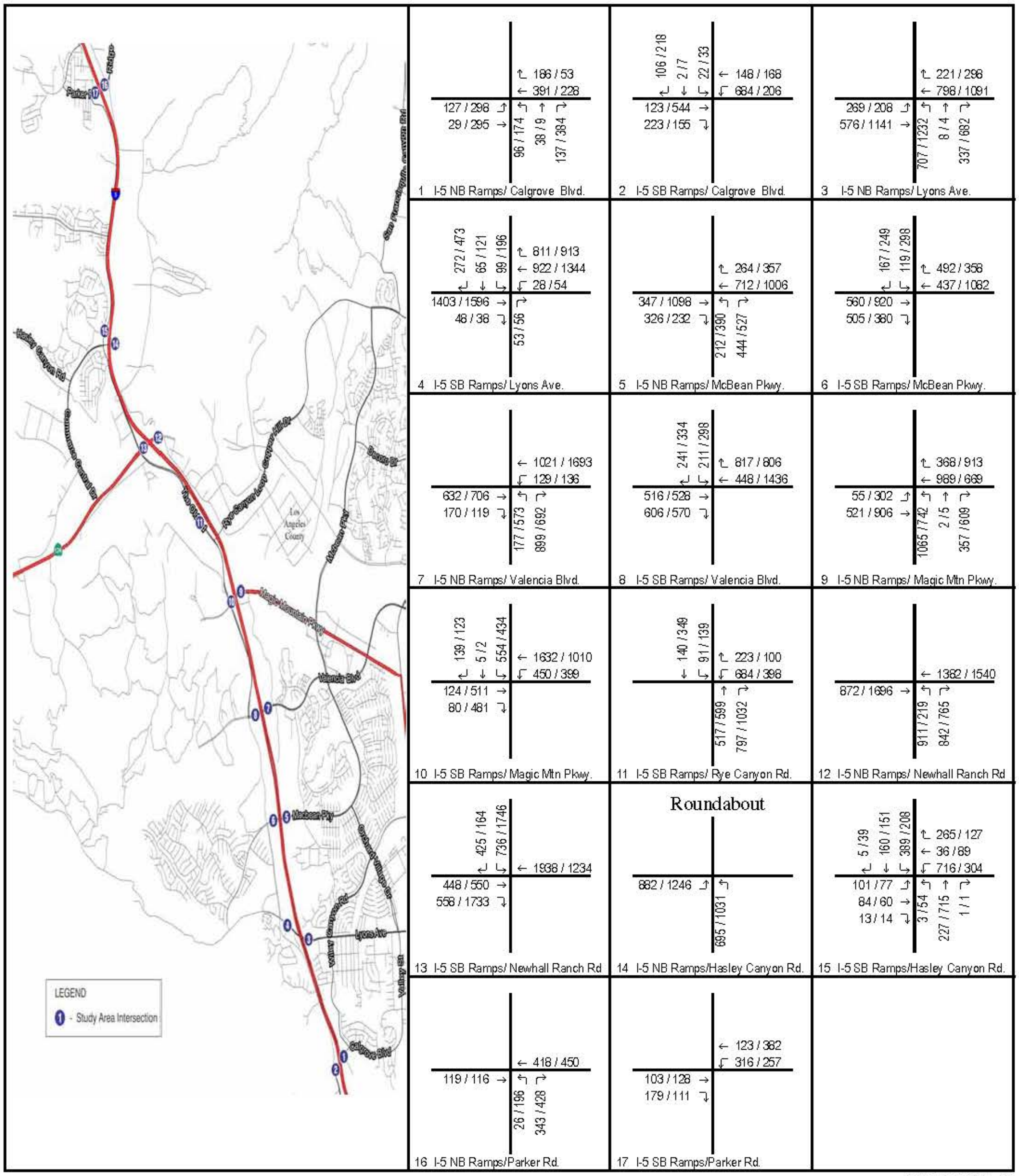

FIGURE 6

I-5/HOT Lanes Traffic Study

Year 2035 No Build Ramp Intersections Peak Hour Volumes

123 / 456 AM / PM Peak Hour Volume

07-LA-5 PM 45.4/59.0

EA#2332E Phase 1E1

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Table 3.1.O Year 2035 No Build Intersection Peak Hour Level of Service Summary

	Intersection	2035 No Build			
		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1	I-5 NB Ramps/ Calgrove Blvd.[1]	23.6	C	136.4	F
2	I-5 SB Ramps/ Calgrove Blvd.[1]	109.8	F	19.6	C
3	I-5 NB Ramps/ Pico Canyon Rd. & Lyons Ave	17.8	B	43.8	D
4	I-5 SB Ramps/ Pico Canyon Rd. & Lyons Ave	7.6	A	14.9	B
5	I-5 NB Ramps/ McBean Pkwy.	6.2	A	9.7	A
6	I-5 SB Ramps/ McBean Pkwy.	4.9	A	8.8	A
7	I-5 NB Ramps/ Valencia Blvd.	11.7	B	11.3	B
8	I-5 SB Ramps/ Valencia Blvd.	10.5	B	22.5	C
9	I-5 NB Ramps/ Magic Mtn Pkwy.	15.6	B	16.0	B
10	I-5 SB Ramps/ Magic Mtn Pkwy.	11.5	B	12.9	B
11	I-5 SB Ramps/ Rye Canyon Rd.	24.9	C	24.3	C
12	I-5 NB Ramps/ Newhall Ranch Rd (SR-126)	27.9	C	29.6	C
13	I-5 SB Ramps/ Newhall Ranch Rd (SR-126)	11.7	B	23.6	C
14	I-5 NB Ramps/Hasley Canyon Rd.[2]	15.5	C	313.5	F
15	I-5 SB Ramps/Hasley Canyon Rd.	66.5	E	29.8	C
16	I-5 NB Ramps/Parker Rd.[1]	11.7	B	15.0	B
17	I-5 SB Ramps/Parker Rd.[1]	31.8	D	41.1	E

Source: LSA Associates, Inc.
1 Unsignalized Intersections
2 Roundabout Intersection
Delay: seconds per vehicle
(shaded) - LOS E or F

Figure 3.1.7 Year 2035 HOT Ramp Intersections Peak Hour Volumes

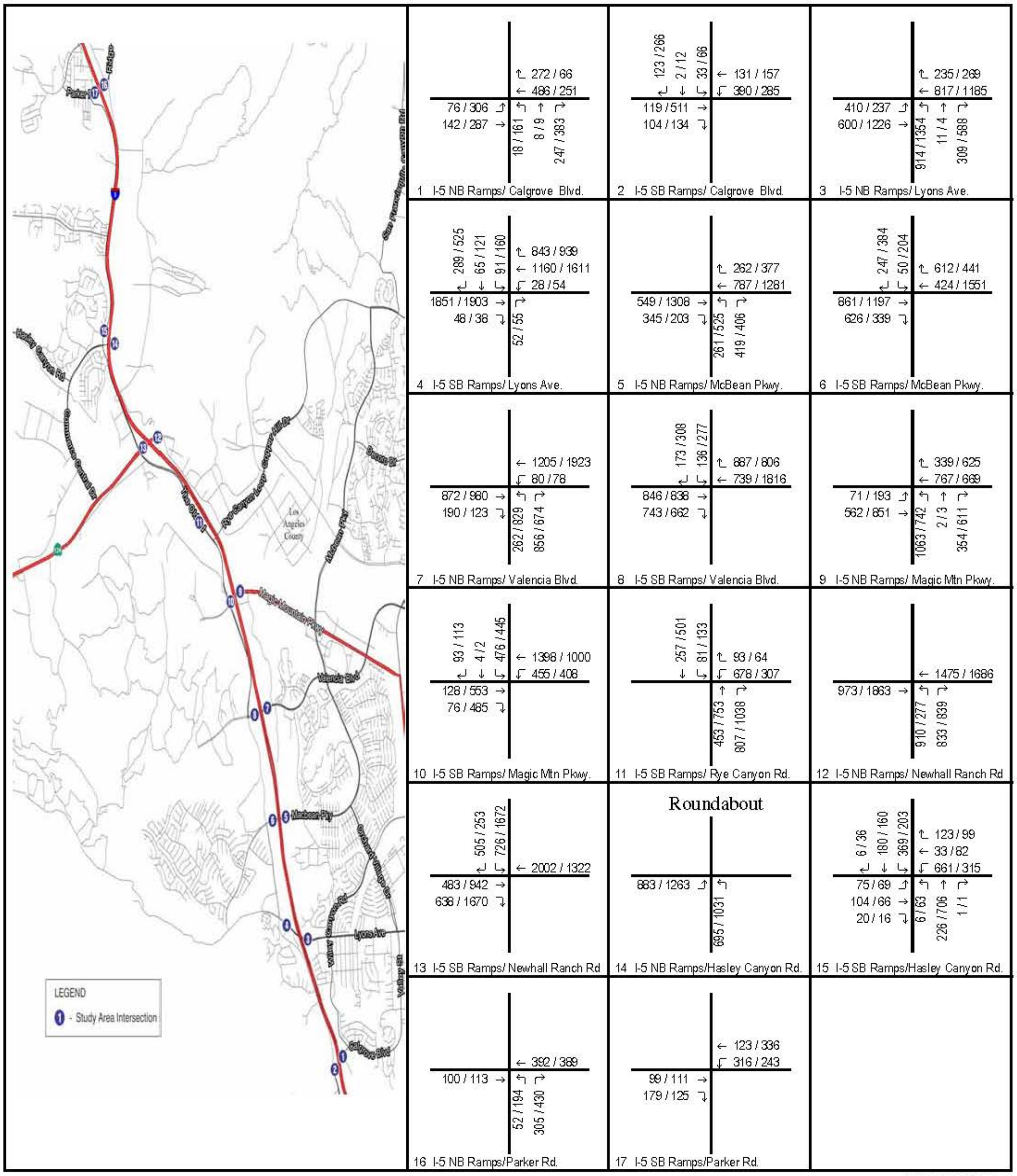

FIGURE 7

I-5/HOT Lanes Traffic Study

Year 2035 HOV/HOT Ramp Intersections Peak Hour Volumes

123 / 456 AM / PM Peak Hour Volume

07-LA-5 PM 45.4/59.0

EA#2332E Phase 1E1

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Table 3.1.P Year 2035 No Build and 2035 HOT Intersection Peak-Hour Level of Service Summary Comparison

	Intersection	2035 No Build				2035 HOT			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	I-5 NB Ramps/ Calgrove Blvd.[1]	23.6	C	136.4	F	12.2	B	134.1	F
2	I-5 SB Ramps/ Calgrove Blvd.[1]	109.8	F	19.6	C	19.1	C	67.5	F
3	I-5 NB Ramps/ Pico Canyon Rd. & Lyons Ave	17.8	B	43.8	D	32.5	C	51.5	D
4	I-5 SB Ramps/ Pico Canyon Rd. & Lyons Ave	7.6	A	14.9	B	9.3	A	22.4	C
5	I-5 NB Ramps/ McBean Pkwy.	6.2	A	9.7	A	6.5	A	10.6	B
6	I-5 SB Ramps/ McBean Pkwy.	4.9	A	8.8	A	4.9	A	13.2	B
7	I-5 NB Ramps/ Valencia Blvd.	11.7	B	11.3	B	11.7	B	13.1	B
8	I-5 SB Ramps/ Valencia Blvd.	10.5	B	22.5	C	12.7	B	38.2	D
9	I-5 NB Ramps/ Magic Mtn Pkwy.	15.6	B	16.0	B	14.8	B	14.5	B
10	I-5 SB Ramps/ Magic Mtn Pkwy.	11.5	B	12.9	B	10.2	B	13.8	B
11	I-5 SB Ramps/ Rye Canyon Rd.	24.9	C	24.3	C	23.9	C	20.4	C
12	I-5 NB Ramps/ Newhall Ranch Rd (SR-126)	27.9	C	29.6	C	29.3	C	43.7	D
13	I-5 SB Ramps/ Newhall Ranch Rd (SR-126)	11.7	B	23.6	C	12.2	B	22.0	C
14	I-5 NB Ramps/Hasley Canyon Rd.[2]	15.5	C	313.5	F	15.5	C	319.4	F
15	I-5 SB Ramps/Hasley Canyon Rd.	66.5	E	29.8	C	67.9	E	29.5	C
16	I-5 NB Ramps/Parker Rd.[1]	11.7	B	15	B	11.2	B	14.2	B
17	I-5 SB Ramps/Parker Rd.[1]	31.8	D	41.1	E	31.2	D	30.7	D

Source: LSA Associates, Inc.
1 Unsignalized Intersections
2 Roundabout Intersection
Delay: seconds per vehicle
▢ - LOS E or F

3.1.4 Environmental Consequences

The proposed HOT lanes would not generate traffic. It is intended to facilitate the redistribution of existing and future traffic demand based on full build-out of land uses allowed by the City of Santa Clarita and County of Los Angeles.

The implementation of the HOT lanes would improve the mainline LOS along I-5 between SR-14 and Parker Road compared to the No Build condition. There would be fewer intersections that operate at LOS E or F with the HOT lanes as compared to the No Build in 2035. The HOT Lane project would reduce congestion and delay and provide a beneficial impact to travel time in the project corridor by removing vehicles from the mixed-flow lanes into the HOT lane and reducing the interaction of trucks and passenger vehicles.

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3.2 Air Quality

The analysis of impacts of the proposed HOT lane project to air quality is based on the *Hot Spot Analysis for PM2.5 and PM10* (Caltrans, November 2012), *CO Analysis* (Caltrans, January 2013), *MSAT Analysis* (Caltrans, January 2013) and *Analysis for Greenhouse Gas and Other Pollutants* (Caltrans, January 2013). These reports update the findings of the *Air Quality Analysis* (LSA Associates, Inc., September 2008), which was completed for the Final EIR/FONSI.

3.2.1 Regulatory Setting

The Federal Clean Air Act (FCAA), as amended in 1990, is the federal law that governs air quality while the California Clean Air Act of 1988 is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB), set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns. The criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), broken down for regulatory purposes into particles of 10 micrometers or smaller—(PM_{10}) and particles of 2.5 micrometers and smaller—($PM_{2.5}$), lead (Pb), and sulfur dioxide (SO_2). In addition, state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at a level that protects public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics). Some criteria pollutants are also air toxics or may include certain air toxics within their general definition.

Federal and state air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). In addition to this type of environmental analysis, a parallel "Conformity" requirement under the FCAA also applies.

The Federal Clean Air Act Section 176(c) prohibits the U.S. Department of Transportation (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs or projects that are not first found to conform to State Implementation Plan (SIP) for achieving the goals of Clean Air Act requirements related to the NAAQS. “Transportation Conformity” takes place on two levels: the regional—or, planning and programming level—and the project level. The proposed project must conform at both levels to be approved. Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the standards set for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and in some areas sulfur dioxide (SO_2). California has attainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO_2, and also has a nonattainment area for lead (Pb). However, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (TIPs) that include all of the transportation projects planned for a region over a period of at least 20 years (for the RTP), and 4 years (for the TIP). RTP and TIP conformity is based on use of travel demand and air quality models to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA), make the determinations that the RTP and TIP are in conformity with the SIP for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP and/or TIP must be modified until conformity is attained. If the design concept, scope, and “open-to-traffic” schedule of a proposed transportation project are the same as described in the RTP and the TIP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires “hot spot” analysis if an area is “nonattainment” or “maintenance” for carbon monoxide (CO) and/or particulate matter (PM_{10} or $PM_{2.5}$). A region is “nonattainment” if one or more of the monitoring stations in the region measures violation of the relevant standard, and U.S. EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by U.S. EPA, and are then called "maintenance" areas. "Hot spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a "hot spot" analysis. In general, projects must not cause the "hot spot" related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

3.2.2 Affected Environment

The project area is located in the Santa Clarita region of Los Angeles County, an area within the South Coast Air Basin (Basin) that includes Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties. Air quality regulation in the Basin is administered by the South Coast Air Quality Management District (SCAQMD), a regional agency created for the Basin.

3.2.2.1 Climatic Conditions

The climatic and meteorological conditions in the study area remain the same as were described in Chapter 2.14 of the Final EIR/FONSI for the I-5 HOV and Truck Lanes project.

3.2.2.2 Criteria Pollutants

The NAAQS have been established for six major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health. In California, the State has implemented air quality standards or criteria for the six pollutants known as the California Ambient Air Quality Standards (CAAQS). Table 3.2.A delineates the NAAQS and CAAQS for the criteria pollutants and summarizes their health effects and sources.

Table 3.2.A: Ambient Air Quality Standards

STATE AND FEDERAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES						
Pollutant	**Averaging Time**	**State [9] Standard**	**Federal [9] Standard**	**Principal Health and Atmospheric Effects**	**Typical Sources**	**Attainment Status**
Ozone (O_3) [2]	1 hour 8 hours 8 hours (conformity process [5])	0.09 ppm 0.070 ppm ---	--- [4] 0.075 ppm [6] 0.08 ppm (4th highest in 3 years)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes.	Federal: Nonattainment-Extreme State: Nonattainment
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 ppm 9.0 ppm [1] 6 ppm	35 ppm 9 ppm ---	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Federal: Attainment-Maintenance State: Attainment
Respirable Particulate Matter (PM_{10}) [2]	24 hours Annual	50 µg/m³ 20 µg/m³	150 µg/m³ --- [2]	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources (wind-blown dust, ocean spray).	Federal: Nonattainment-Serious State: Nonattainment
Fine Particulate Matter ($PM_{2.5}$) [2]	24 hours Annual 24 hours (conformity process [5])	--- 12 µg/m³ ---	35 µg/m³ 15.0 µg/m³ 65 µg/m³ (4th highest in 3 years)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.	Federal: Nonattainment State: Nonattainment
Nitrogen Dioxide (NO_2)	1 hour Annual	0.18 ppm 0.030 ppm	0.100 ppm [7] (98th percentile over 3 years) 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile sources; refineries; industrial operations.	Federal: Attainment-Unclassified State: Nonattainment
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	0.075 ppm [8] (98th percentile over 3	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural	Federal: Attainment State: Attainment

STATE AND FEDERAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES						
Pollutant	**Averaging Time**	**State [9] Standard**	**Federal [9] Standard**	**Principal Health and Atmospheric Effects**	**Typical Sources**	**Attainment Status**
	3 hours 24 hours Annual	--- 0.04 ppm ---	years) 0.5 ppm 0.14 ppm 0.030 ppm	rain. Limits visibility.	sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	
Lead (Pb)[3]	Monthly Quarterly Rolling 3-month average	1.5 μg/m³ --- ---	--- 1.5 μg/m³ 0.15 μg/m³	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from gasoline may exist in soils along major roads.	Federal: Nonattainment State: Nonattainment
Sulfate	24 hours	25 μg/m³	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	State Only: Attainment
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.	State Only: Unclassified
Visibility Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70%	---	Reduces visibility. Produces haze. NOTE: not related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other “Class I” areas.	See particulate matter above.	State Only: Unclassified
Vinyl Chloride[3]	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes	State Only: Unclassified

Source: California Air Resources Board (June 7, 2012). http://www.arb.ca.gov/research/aaqs/aaqs2.pdf

Notes: ppm = parts per million; μg/m³ = micrograms per cubic meter; ppb=parts per billion (thousand million)

See footnotes on next page.

Footnotes:

1 Rounding to an integer value is not allowed for the State 8-hour CO standard. Violation occurs at or above 9.05 ppm. Violation of the Federal standard occurs at 9.5 ppm due to integer rounding.

2 Annual PM_{10} NAAQS revoked October 2006; was 50 µg/m³. 24-hr. $PM_{2.5}$ NAAQS tightened October 2006; was 65 µg/m³. In 9/09 EPA began reconsidering the $PM_{2.5}$ NAAQS; the 2006 action was partially vacated by a court decision.

3 The ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM_{10} and, in larger proportion, $PM_{2.5}$. Both the ARB and U.S. EPA have identified lead and various organic compounds that are precursors to ozone and $PM_{2.5}$ as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong. Lead NAAQS are not required to be considered in Transportation Conformity analysis.

4 Prior to 6/2005, the 1-hour NAAQS was 0.12 ppm. The 1-hour NAAQS is still used only in 8-hour ozone early action compact areas, of which there are none in California. However, emission budgets for 1-hour ozone may still be in use in some areas where 8-hour ozone emission budgets have not been developed.

5 The 65 µg/m³ $PM_{2.5}$ (24-hr) NAAQS was not revoked when the 35 µg/m³ NAAQS was promulgated in 2006. Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for the newer NAAQS are found adequate or SIP amendments for the newer NAAQS are completed.

6 As of 9/16/09, U.S. EPA is reconsidering the 2008 8-hour ozone NAAQS (0.075 ppm); U.S. EPA is expected to tighten the primary NAAQS to somewhere in the range of 60-70 ppb and to add a secondary NAAQS. U.S. EPA plans to finalize reconsideration and promulgate a revised standard by August 2010.

7 Final 1-hour NO_2 NAAQS published in the Federal Register on 2/9/2010, effective 3/9/2010. Initial nonattainment area designations should occur in 2012 with conformity requirements effective in 2013. Project-level hot spot analysis requirements, while not yet required for conformity purposes, are expected.

8 U.S. EPA finalized a 1-hour SO_2 standard of 75 ppb in June 2010.

9 State standards are "not to exceed" unless stated otherwise. Federal standards are "not to exceed more than once a year" or as noted above.

3.2.3 Environmental Consequences

Caltrans has developed Protocols for assessing air pollutant emissions for transportation projects and the conformity requirements that apply to the proposed project within a basin that has a "nonattainment" or an "attainment/maintenance" status. These procedures and guidelines comply with the 1990 CAA Amendments, federal conformity rules, state and local adoptions of federal conformity rules, and NEPA and CEQA requirements.

Conformity with the Clean Air Act takes place on two levels: first, at the regional level and second, at the project level. The proposed project must conform at both levels to satisfy the conformity requirements.

3.2.3.1 Regional Air Quality Conformity

The project is identified in the latest conforming 2012 Regional Transportation Plan (RTP) and in the 2011 Federal Transportation Improvement Program (FTIP) with Amendments as LA0G440 with the following description:

Route 005: PHASE 2,CONSTRUCT HOV/HOT, TRUCK & AUX LANES (EA 2332C, PPNO 3189A & EA 2332E PPNO 3189B), SAFTETEA-LU#465. PE & RW$ ARE PROGRAMMED FOR EA 2332E ONLY.

The 2012 RTP was adopted by Southern California Association of Governments (SCAG) on April 4, 2012; and was found to conform by the FHWA on June 4, 2012. The 2013 FTIP was adopted by SCAG on September 19, 2012; and approved by the FTA/FHWA on December 14, 2012. The project is in the process of being amended in the latest RTP to revise the scope from HOV to HOT.

The proposed project (addition of high occupancy lanes) is identified as a Transportation Control Measure (TCM) and its timely implementation is a crucial element in reducing air pollutant emissions from roadway transportation sources.

3.2.3.2 Project Level Air Quality Conformity

Effective July 1, 2007 FHWA has assigned, and the Department has assumed, all the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA, also known as NEPA Delegation (6004 MOU and 6005). Air quality conformity determinations are excluded from the Pilot Program by statute 23 USC 327(a)(2)(b). As such, conformity determinations, both regional conformity and project-level conformity, will remain the responsibility of FHWA California Division for all projects assumed under the assignment.

Under NEPA Assignment, public involvement is required regarding the project-level conformity analysis for projects with an environmental document. This will be done as part of the environmental document public circulation process. Response to public comments addressing the conformity analysis will be documented in the submittal to FHWA after the circulation period.

3.2.3.3 Temporary Impacts

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and various other activities related to construction. Emissions from construction equipment also are anticipated and would include carbon monoxide (CO), nitrogen oxides (NOx), volatile organic compounds (VOCs), directly-emitted particulate matter (PM_{10} and $PM_{2.5}$), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NOx and VOCs in the presence of sunlight and heat.

Site preparation and roadway construction typically involves clearing, cut-and-fill activities, grading, removing or improving existing roadways, building bridges, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. These activities could temporarily generate enough PM_{10}, $PM_{2.5}$, and small amounts of CO, SO_2, NOx, and VOCs to be of concern. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site could deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the U.S. EPA to add 1.2 tons of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. Caltrans' Standard Specifications (Section 14-9.02) pertaining to dust minimization requirements requires use of water or dust palliative compounds and will reduce potential fugitive dust emissions during construction.

In addition to dust-related PM_{10} emissions, heavy-duty trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NOx, VOCs and some soot particulate (PM_{10} and $PM_{2.5}$) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

SO_2 is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting federal standards can contain up to 5,000 parts per million (ppm) or more of sulfur, whereas on-road diesel is restricted to less than 15 ppm of sulfur. However, under California law and ARB regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel (not more than 15 ppm), so SO_2-related issues due to diesel exhaust will be minimal. Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site(s). Such odors would be quickly dispersed below detectable thresholds as distance from the site(s) increases.

According to the project schedules, the construction will not last more than 5 years. Construction-related emissions due to this project are considered temporary as defined in 40 CFR 93.123(c)(5). This project will comply with the SCAQMD Fugitive Dust Rules (Rule 403) for any fugitive dusts emitted during the construction. Excavation, transportation, placement, and handling of excavated soils shall result in no visible dust migration. A water truck or tank will be available within the project limits at all times to suppress and control the migration of fugitive dusts from earthwork operations. The project is required to comply with any state, federal, and/or local rules and regulations developed as a result of implementing control and mitigation measures proposed as part of their respective SIPs.

Implementation of the following measures, some of which may also be required for other purposes such as storm water pollution control will reduce any air quality impacts resulting from construction activities:

- The construction contractor shall comply with Caltrans' Standard Specifications in Section 14 (2010).
- Section 14-9-01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
- Section 14-9.02 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18.
- Apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion either at the point of emission or at the right-of-way line depending on local regulations.
- Spread soil binder on any unpaved roads used for construction purposes, and all project construction parking areas.

- Wash off trucks as they leave the right-of-way as necessary to control fugitive dust emissions.
- Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in CA Code of Regulations Title 17, Section 93114.
- Develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- Locate equipment and materials storage sites as far away from residential and park uses as practical. Keep construction areas clean and orderly.
- Near sensitive air receptors, establish Environmentally Sensitive Areas (ESAs) or their equivalent within which construction activities involving the extended idling of diesel equipment would be prohibited, to the extent feasible.
- Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.
- Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to minimize emission of dust (particulate matter) during transportation.
- Promptly and regularly remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter.
- Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads.
- Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area. Be aware that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues and may need to use controls such as dampened straw.

Naturally Occurring Asbestos (NOA)

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by state, federal, and international agencies and was identified as a toxic air contaminant by the CARB in

1986. All types of asbestos are hazardous and may cause lung disease and cancer. Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed.

The California Department of Conservation, Division of Mines and Geology have developed a map of the state showing the general location of ultramafic rock in the state. Los Angeles County is one of the Counties identified as one of the Counties containing serpentinite and ultramafic rock. However, only the Catalina Island portion of Los Angeles County has been found to contain such rock; hence, it is not found in the project area. Therefore, no potential impacts from naturally occurring asbestos during project construction would occur.

3.2.3.4 Permanent Impacts

The following sections discuss the updated air quality analysis completed for this Supplemental due to the change in project scope.

Carbon Monoxide

Carbon Monoxide is emitted directly from vehicles and is a major issue at the project level. Analysis for CO is based on the Caltrans/University of California Davis (UCD) CO Protocol, which includes both a screening procedure and a quantitative analysis method. A screening analysis was conducted to determine whether the project would result in any CO hot spots. Based on the screening analysis the proposed project is anticipated to increase delays at a number of intersections.

Section 4.7.2 of the CO Protocol recommends selecting one of the worst-case locations in the region where attainment has been demonstrated and comparing it to the “build” scenario of the project with a similar configuration. Among the 17 intersections that were analyzed, the I-5 Southbound Ramps and Lyons Avenue intersection was selected for its configuration similar to the intersection in the attainment plan. The I-5 Southbound Ramps and Lyons Avenue intersection was evaluated to likely worsen air quality based on Section 4.7.1 of the CO Protocol; and resulted in increase in its peak-hourly volumes when compared to those for the no-build conditions. The intersection of Wilshire Boulevard and Veteran Avenue from the 2003 Air Quality Management Plan (AQMP) was selected for comparison with the intersection of I-5 Southbound Ramps and Lyons Avenue to evaluate whether the project would be suspected of resulting in higher CO concentrations, based on criteria set forth in the CO Protocol.

As the result of the comparison analysis, all of the criteria were satisfied for the I-5 Southbound Ramps and Lyons Avenue intersection under the HOT lane conditions. According to the CO Protocol, when all the criteria are satisfied, there is no reason to expect higher concentrations at the project intersection than at the Wilshire Boulevard and Veteran Avenue intersection where attainment has been demonstrated. The evaluation of CO hot-spot for the project is thus satisfactory and no further analysis, such as modeling, is deemed necessary.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate Matter (PM_{10} and $PM_{2.5}$) refers to airborne particles that are less than 10 microns in diameter (PM_{10}) and less than 2.5 microns in diameter ($PM_{2.5}$). Particulate matter is both a regional and project-level issue. Particulate matter is both directly emitted and, especially for $PM_{2.5}$, a result of secondary formation based on nitrogen oxides (NOx), volatile organic compounds (VOC), sulfates (SOx), and ammonia (NH3). As with ozone, secondary pollution forms some distance away from the precursor emission sources, and up to several hours later. Regional PM is primarily a winter nighttime product, since cool, damp, stable weather is needed to support the chemical reactions that produce it. Directly-emitted PM_{10} and $PM_{2.5}$ has been determined to be a conformity issue in California.

A Qualitative $PM_{2.5}$ and PM_{10} hot-spot analysis (Caltrans, November 2012) was conducted based on the *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* jointly published by EPA and FHWA. The $PM_{2.5}$ and PM_{10} hot-spot analysis was submitted at the Transportation Conformity Working Group (TCWG) on November 27, 2012. It was concurred by the TCWG that the hot-spot analysis was acceptable for NEPA circulation.

An ambient air monitoring station (Santa Clarita – Placerita station) within the SCAQMD network is located approximately 2 mile northeast of the I-5 and approximately 1.8 mile northwest from SR-14. Although the Santa Clarita – Placerita station is located relatively close to the proposed project, it does not monitor $PM_{2.5}$. Ambient $PM_{2.5}$ data were therefore obtained from the Burbank monitoring station, and were reviewed to establish the current ambient background level within the project limits and to help evaluate future localized pollutant concentrations as affected by the proposed projects. Figure 3.2.1 illustrates the proximity of this monitoring station to the freeway and to the proposed project.

Table 3.2.B summarizes ambient $PM_{2.5}$ and PM_{10} data monitored at the Burbank and Santa Clarita – Placerita monitoring stations; and provides a comparison between the levels of ambient PM_{10} concentrations at both monitoring stations. As noted in the table, ambient PM_{10} concentrations were measured higher at the Burbank monitoring station than at the Santa Clarita – Placerita station for most of the last 6-year period. Based on the comparison of the traffic volumes, land uses, and the proximity to the freeway, the ambient concentration data measured at the Burbank monitoring station are thus deemed representative for comparison to the proposed project.

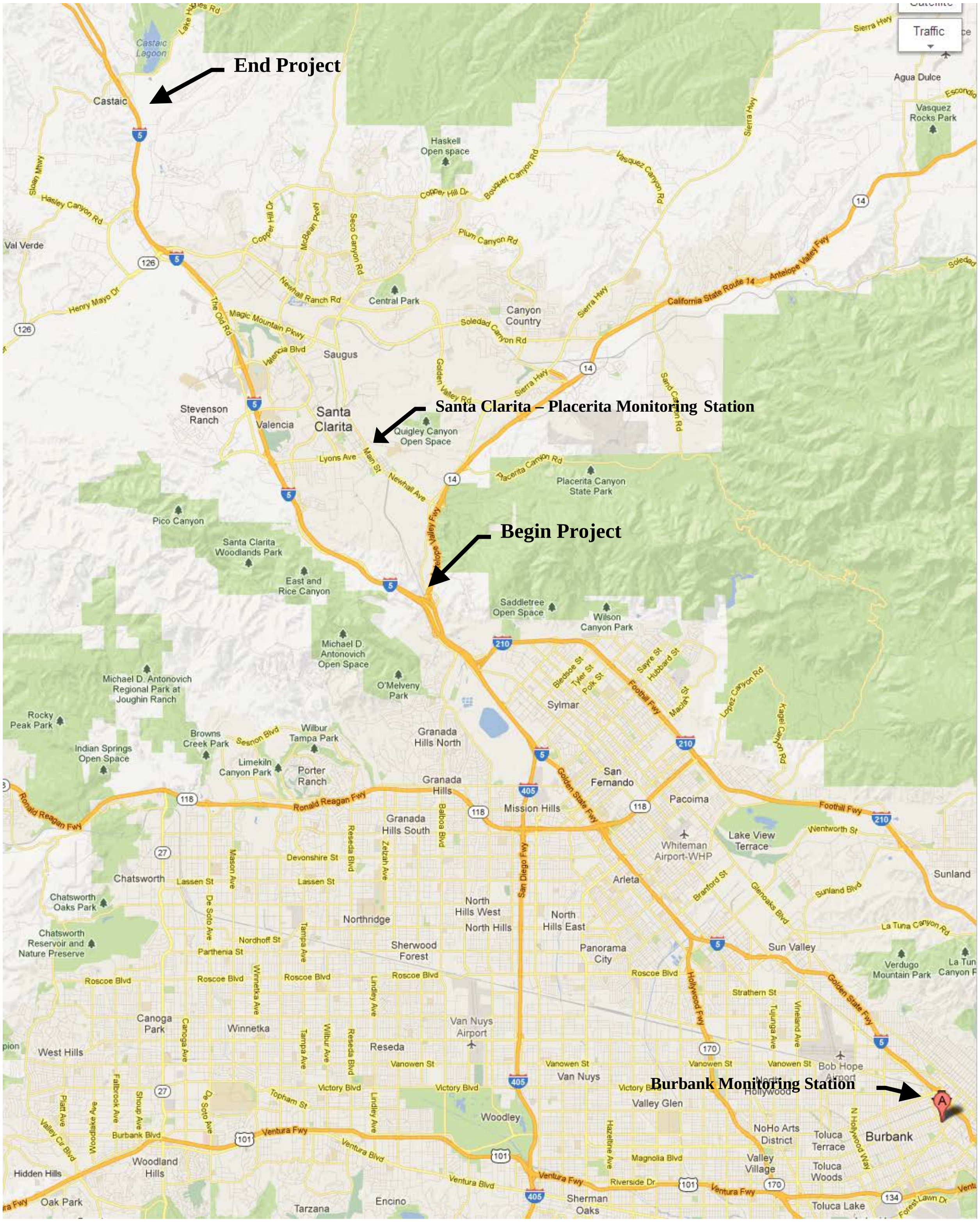
Table 3.2.B Ambient $PM_{2.5}$ and PM_{10} Monitoring Data at Santa Clarita – Placerita and Burbank Stations

(Measurements in $\mu g/m^3$)	2006	2007	2008	2009	2010	2011
$PM_{2.5}$ 24-hour average[a]	43	50	35	34	32	34
$PM_{2.5}$ annual average[a]	16.5	16.9	13.9	14.3	12.4	13.2
PM_{10} 24-hour average (First Max)[a]	71	109	66	80	51	61
PM_{10} 24-hour average (First Max)[b]	53	131	91	56	40	45

Source: Qualitative $PM_{2.5}$ and PM_{10} Hot-Spot Analysis (Caltrans, November 2012)
Note: [a] measured at the Burbank monitoring station
[b] measured at the Santa Clarita – Placerita station

In accordance with the March 2006 Guidance, the hot-spot analysis was based on directly emitted $PM_{2.5}$ and PM_{10} emissions and has considered tailpipe, brake wear, and tire wear $PM_{2.5}$ and PM_{10} emissions. Precursors of particulate matter and secondary particles were not considered, but they are considered as part of the regional emission analysis prepared for the conforming RTP and TIP. Vehicles cause dust from paved and unpaved roads to be re-entrained, or re-suspended, in the atmosphere. The re-entrained $PM_{2.5}$ road dust has also been considered in the analysis.

Figure 3.2.1 Location of Air Monitoring Stations and Project Limits



Source: Qualitative $PM_{2.5}$ and PM_{10} Hot-Spot Analysis (Caltrans, November 2012)

Direct and re-entrained $PM_{2.5}$ and PM_{10} emissions are estimated using the current and future traffic data obtained for 9 individual segments along the I-5 corridor within the project limits. Another set of direct and re-entrained $PM_{2.5}$ and PM_{10} emissions are estimated based on the current and future traffic data obtained for the surrounding area illustrated in Figure 3.2.2. A summary of direct and re-entrained $PM_{2.5}$ and PM_{10} emissions data along the I-5 corridor as well as for within the surrounding area is presented in Table 3.2.C.

Table 3.2.C Summary of the current and future PM10 and PM2.5 emissions estimate

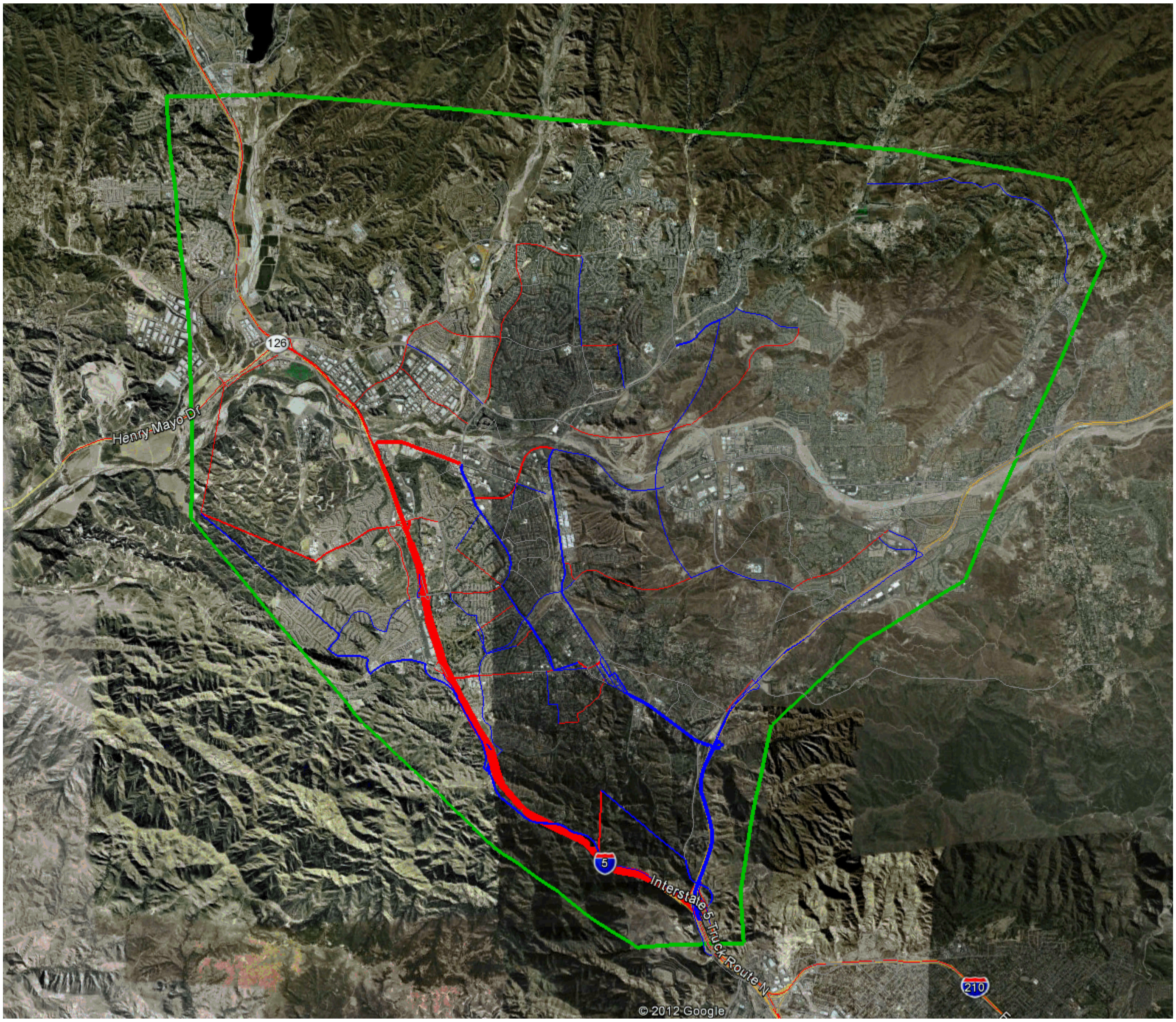
Emissions in lb/day		Project Corridor				Surrounding Area			
		PM_{10}		$PM_{2.5}$		PM_{10}		$PM_{2.5}$	
		Direct	Re-ent	Direct	Re-ent	Direct	Re-ent	Direct	Re-ent
2010	**Current**	241.6	325.1	167.1	81.3	726.1	2,331.3	481.4	582.8
2018	**No-Build**	233.7	376.4	153.8	94.1	687.6	2,650.2	434.6	662.6
	HOT	240.0	383.6	158.3	95.9	696.3	2,636.3	438.7	659.1
2035	**No-Build**	271.7	434.1	176.4	108.5	737.2	2,982.8	447.9	745.7
	HOT	265.3	441.4	168.6	110.3	733.2	2,961.9	446.8	740.5

Source: Qualitative $PM_{2.5}$ and PM_{10} Hot-Spot Analysis (Caltrans, November 2012)

A summary of $PM_{2.5}$ and PM_{10} emissions in Table 3.2.C indicates that the implementation of the project alternatives would result in increase in $PM_{2.5}$ and PM_{10} emissions along the proposed I-5 corridor when compared to the No-Build scenario. Traffic volumes are projected to increase by about 2% when the HOT lanes are added. It should be noted also that the project proposes to improve speeds along the I-5 corridor and to increase person-carrying efficiency with the proposed high occupancy lanes.

The effect of implementing the project is better captured in the emissions estimate from within the surrounding, but localized, areas illustrated in Figure 3.2.2. Overall average traffic volumes along the I-5 project corridor are projected to increase with the implementation of the proposed project. In addition, implementation of the project would result in slight increase in the overall Vehicle Miles Traveled (VMT) within the surrounding area. VMT is the number of miles traveled nationally by vehicles for a period of 1 year. Despite the increase in the overall VMTs,

Figure 3.2.2 Limits of surrounding area



implementation of the project would result in lowering emissions of combined $PM_{2.5}$ and PM_{10} in the surrounding area when compared to the No-Build. This decrease in the PM emissions in the surrounding area is anticipated because the HOT lane project proposes to improve operations to facilitate the movement of people, freight, and goods, reduce congestion along the I-5 corridor and affect traffic distribution in the surrounding area.

Historical meteorology and climate data support that the regional and local meteorological and climatic conditions have been relatively consistent within the last 30 years and likely consistency is anticipated through the horizon year of 2035. In addition, no significant changes are anticipated in the current general terrain and geographic locations of the projects in relation to the coastal SCAB areas.

Based on the traffic data presented, the current average daily traffic and truck volumes along the I-5 near the Burbank monitoring station are comparable to those forecast along the proposed I-5 corridor within the project limits. Based on the recent data at the Burbank monitoring station, there is a generally declining and stabilizing trend of ambient $PM_{2.5}$ concentrations. In addition, PM_{10} concentrations monitored at the Burbank and Santa Clarita – Placerita stations have all been well below the federal standard. Based on the Final 2007 AQMP and in the Draft 2012 AQMP, further decrease in $PM_{2.5}$ and PM_{10} emissions is expected to continue in future years so that attainment of the federal 24-hour $PM_{2.5}$ standard is anticipated by 2014 with feasible control programs.

Federal regulations and the State’s Diesel Risk Reduction Plan require future diesel vehicles to have substantially cleaner engines and to use fuels with lower sulfur contents. Many federal and state regulations, such as CARB’s Truck and Bus Regulations, require that emissions from heavy duty trucks be reduced in future years. These federal and state requirements would help further reduce $PM_{2.5}$ and PM_{10} emissions in the future by essentially lowering per-vehicle emissions for each of the diesel vehicles.

In conclusion, the historical meteorology and climate data, ambient concentrations and their declining trends, and the Federal regulations and the State’s Plan and Regulations, support the assertion that the projects will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS. Activities of the HOT lane project should, therefore, be considered consistent with the purpose of the SIP and concurrence from FHWA that the project conforms to the requirements of the CAA is expected.

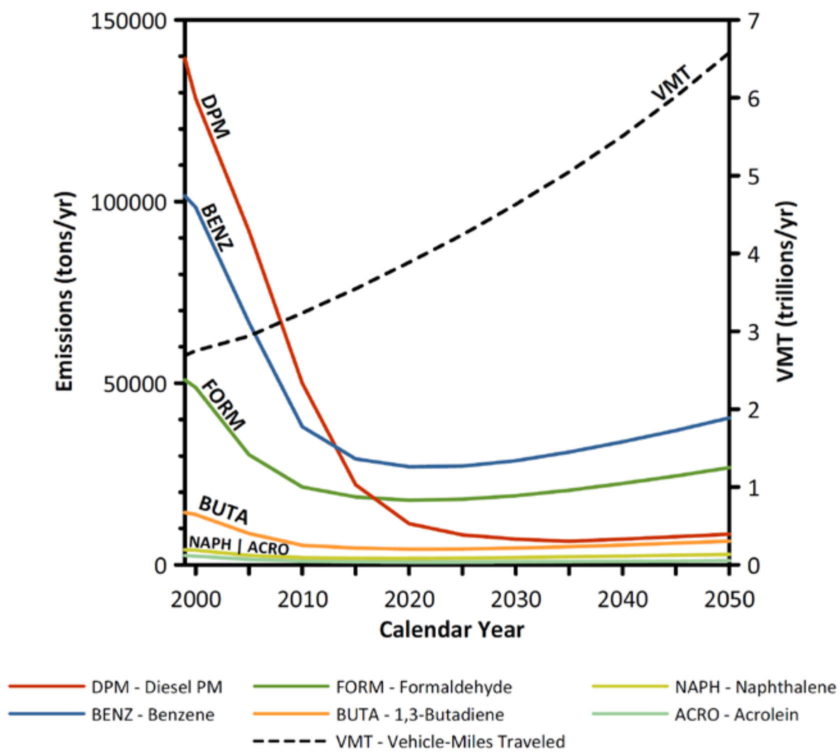
Mobile Source Air Toxics

Pollutants are generated by a wide variety of sources and enter the air, water, and soil through different media. Toxic air pollutants are those that are known to cause or suspected of causing cancer or other serious health ailments.

The Clean Air Act (CAA) Amendments of 1990 listed 188 air toxics and addressed the need to control toxic emissions from transportation. In 2001, EPA issued its first Mobile Source Air Toxics Rule, which identified 21 mobile source air toxic (MSAT) compounds as being hazardous air pollutants that required regulation. EPA issued a second MSAT Rule in February 2007, which identified seven compounds with significant contributions from mobile sources. These are acrolein, benzene, 1,3-butidiene, Diesel Particulate Matters (DPM) plus Diesel Exhaust Organic Gases (DEOG), formaldehyde, naphthalene, and polycyclic organic matter (POM). While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2 model, even if vehicle activity or VMT increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050, as shown in Figure 3.2.3.

Figure 3.2.3 National MSAT Emission Trends 1999 – 2050 For Vehicles Operating On Roadways Using EPA's Mobile6.2 Model



Note: (1) Annual emissions of polycyclic organic matter are projected to be 561 tons/yr for 1999, decreasing to 373 tons/yr for 2050.
(2) Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors

Source: FHWA Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents

Unlike the criteria pollutants, toxics do not have National Ambient Air Quality Standards (NAAQS) making evaluation of their impacts more subjective. Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. Because of these limitations, a reliable quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. Therefore, it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

Incomplete or Unavailable Information for Project Specific MSAT Impacts Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The U.S. Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, https://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (http://www.epa.gov/risk/basicinformation.htm#g) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA’s approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Relevance of Unavailable Or Incomplete Information To Evaluating Reasonably Foreseeable Significant Adverse Impacts On The Environment, And Evaluation Of Impacts Based Upon Theoretical Approaches Or Research Methods Generally Accepted In The Scientific Community

Because of the uncertainties outlined above, a reliable quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects. Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

MSAT Emissions Analysis

Based on a review of the traffic data, proposed scope, and settings, this project is anticipated to have meaningful differences in MSAT emissions among project alternatives. In accordance with the FHWA Interim Guidance published on September 30, 2009, the project therefore requires a quantitative analysis in an effort to: 1) evaluate the levels of emissions for the priority MSATs for the project alternatives for the current, opening, and horizon years; and 2) utilize its result as a basis for comparison and differentiate among the project alternatives.

Although an emissions analysis cannot identify and measure health impacts from MSATs, it can provide a basis for identifying and comparing the potential differences in MSAT emissions from various alternatives as well as difference in various project milestone years.

For the purposes of the emissions analysis, the total project length was divided into 9 segments along the I-5 corridor within the project limits. The travel activity data required in estimating MSAT emissions include truck percentages, speeds, and vehicle miles traveled (VMT) along each of the segments during peak and off-peak periods. The MSAT analyses are performed for the current year conditions as well as for the No-Build and Build Alternative (proposed HOT lane) in the future years of 2018 (opening year) and 2035 (horizon year). Results of the No-Build Alternative are compared to those of the Build Alternative in the future years of 2018 and 2035. Results of the MSAT emissions for the future years are compared to those for the baseline year as well.

In general, the proposed project was estimated to result in higher emissions when compared to the No-Build Alternative in 2018 and 2035. Emissions of certain priority MSATs such as DEOG, Benzene, and Formaldehyde, show a decrease with the project in certain segments in the opening and horizon years. It should be noted though that most emissions of MSAT priority pollutants under the proposed project in 2018 or 2035 would be less than the existing conditions.

In summary, while the proposed project would result in a small increase in localized MSAT emissions in 2018 and 2035 compared to the No Build scenario, the EPA’s vehicle and fuel regulations, coupled with fleet turnover, would cause substantial reductions over time that would cause regionwide MSAT levels to be substantially lower than they are today.

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3.3 Noise

The analysis of noise impacts of the proposed HOT Lane Project (project) is based on the Noise Study Report (LSA Associates, Inc., January 2013). This Noise Study Report (NSR) was prepared in order to update the August 2008 Noise Impact Analysis for the I-5 HOV/Truck Lanes-SR-14 to Parker Road Project and the June 2009 I-5 HOV/Truck Lanes Project – Noise Study Report Addendum.

The previous noise analysis and addendum for the I-5 HOV/Truck Lanes project were prepared according to the 2006 Traffic Noise Analysis Protocol, which has been updated since the completion of the environmental document. If a project is modified such that a NEPA reevaluation and new noise study are required, the Protocol and regulation in place at that time must be used. As such, the NSR for the HOT Lane Project was conducted according to the 2001 Protocol.

3.3.1 Regulatory Setting

The National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. The rest of this section will focus on the NEPA-23 Code of Federal Regulations (CFR) 772 noise analysis; please see Chapter 4 of this document for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with the Federal Highway Administration (FHWA) (and Caltrans, as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 Code of Federal Regulations [CFR] 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 3.3.A lists the noise abatement criteria for use in the NEPA-23 CFR 772 analysis.

Table 3.3.A Activity Categories and Noise Abatement Criteria

Activity Category	NAC, Hourly A- Weighted Noise Level, Leq(h)	Description of activity category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[1]	67 (Exterior)	Residential.
C[1]	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.

[1] Includes undeveloped lands permitted for this activity category.

Table 3.3.B lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.

Table 3.3.B Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft) Commercial Area	70	Vacuum Cleaner at 3 m (10 ft) Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	60	Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime Quiet Suburban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Rural Nighttime	30	Library Bedroom at Night, Concert Hall (Background)
	20	Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

In accordance with the Department's *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, May 2011*, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

The Caltrans *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 7 dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents acceptance and the cost per benefited residence.

3.3.2 Existing Noise Levels

Existing land uses in the vicinity of the project site include single- and multifamily residences, a mobile home park, two schools, a childcare/learning center, a church, a sports park, a trail, hotels, golf courses, vacant land, office, industrial, commercial, and recreational uses. In addition, two planned residential developments and one planned commercial development are located within the project area.

A total of 7 long-term and 101 short-term noise level measurements were conducted at representative locations to document the existing noise environment. The 101 short-term measurements include those that were conducted under the 2008 Noise Impact Analysis and the 2009 Noise Study Report Addendum, and were used to calibrate the noise model because the existing conditions remain the same. To predict the noise levels at all 352 modeled receptors in the project area, 68 of the short-term noise level measurements were used to calibrate the noise prediction model with concurrent traffic counts. The remaining 33 short-term locations were not calibrated because those locations were conducted for reporting purposes.

In addition to short-term noise level measurements, seven long-term noise measurements and 16 background noise level measurements were conducted. A total of six locations representing schools and places of worship located within the project area were evaluated for interior noise impacts.

Of the 352 receptor locations, 75 receptors currently approach or exceed the 67 dBA L_{eq} NAC under Activity Categories B or C land uses. The existing worst-hour noise levels are shown in Table A-1 in Appendix A.

3.3.3 Future Noise Levels

The future traffic noise levels were modeled using either the peak-hour traffic volumes provided in the traffic study prepared by LSA Associates, Inc. (LSA) (October 2012) or the worst-case traffic operations, whichever is lower. The worst-case traffic condition is assumed to be Level of Service (LOS) C/D, which corresponds to 1,950 vehicles per lane per hour (vplph) on the highway mainline and HOT lanes, 1,000 vplph on ramps, and 1,020 vplph on truck-climbing lanes. The worst-case volume for the truck-climbing lanes was determined based on the maximum capacity of 1,200 vehicles per hour (vph) at LOS C/D. The volume to capacity ratio for a highway that corresponds to LOS C/D is approximately 85 percent of the roadway capacity.

The future noise levels for the No Build and the HOT Lane conditions are shown in Table A-1 in Appendix A.

3.3.4 Noise Impacts

The modeled future traffic noise levels for the project were compared to the modeled existing noise levels (after calibration) to determine whether a substantial noise increase would occur. Also, the modeled future noise levels for the project were compared to the NAC under Activity Categories B, C, D, and E to determine whether a traffic noise impact would occur. Traffic noise impacts result from one or more of the following occurrences: (1) an increase of 12 A-weighted decibels (dBA) or more over existing noise levels, or (2) predicted noise levels that approach or exceed the Noise Abatement Criteria (NAC).

No substantial noise level increase of 12 dBA or more from the corresponding existing noise level would result from operation of the completed HOT Lane project. Of the 352 receptor locations that were modeled in the project area, 90 receptors would be or would continue to approach or exceed the NAC under the HOT lane conditions.

Six locations were evaluated for potential long-term interior noise impacts associated with project operations. The predicted future interior noise levels at all six locations would not approach or exceed the 52 dBA L_{eq}(h) NAC under Activity Category D(52) for the project. Therefore, no noise abatement measures are required for schools and places of worship located within the project area.

3.3.5 Noise Abatement Analysis

In accordance with 23 CFR 772, noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. Potential noise abatement measures identified in the Protocol include the following:

- Avoiding the impact by using design alternatives, such as altering the horizontal and vertical alignment of the project
- Constructing sound barriers
- Acquiring property to serve as a buffer zone
- Using traffic management measures to regulate types of vehicles and speeds
- Noise insulation of Activity Category D land use facilities listed in Table 3.3.A

All of these abatement options have been considered. However, because of the configuration and location of the project, abatement in the form of sound barriers is the only abatement that is considered to be feasible.

Feasibility

A minimum noise reduction of 5 dBA must be achieved at the impacted receivers in order for the proposed noise abatement measure to be considered feasible. The feasibility criterion is not necessarily a noise abatement design goal. Greater noise reductions are encouraged if they can be reasonably achieved. The following elements may restrict feasibility:

- Topography
- Access requirements for driveways, ramps, etc.
- Presence of local streets and underground utilities
- Other noise sources in the area
- Safety considerations

Sound barriers were considered to shield receptors along I-5 from SR-14 to Parker Road, where receptors would continue to be exposed to traffic noise levels approaching or exceeding the noise abatement criteria (NAC). At each location sound barrier heights were evaluated from 6 ft to 16 ft at 2 ft increments. If the barriers are capable of reducing noise level by 5dBA or more at 16 ft height, sound barrier were analyzed up to 22 ft to meet the 7dBA reduction goal. Appendix B maps L-1 to L-15 show the locations of the acoustically feasible sound barriers. Table A-2 in Appendix A summarizes the locations of the acoustically feasible sound barriers along with their heights, approximate lengths, highest noise reduction and and estimated number of benefited residences.

Reasonableness

The overall reasonableness of the noise abatement is determined by the following factors:

- The noise reduction design goal
- The cost of noise abatement
- The viewpoints of benefited receptors (including property owners and residents of the benefited receptors)

Title 23, Part 722 of the Federal regulation Code (23CFR722) requires that an acoustical design goal be applied to all noise abatement. Caltrans' acoustical design goal is that a barrier must be predicted to provide at least 7 dB of noise reduction at one or more benefited receptors. This design goal applies to any receptor and is not limited to impacted receptors.

Cost considerations for determining noise abatement reasonableness are evaluated by comparing reasonableness allowances and projected abatement costs. Cost considerations in the reasonableness determination of noise abatement are based on a 2011 allowance per benefited receptor of $55,000. A benefited receptor is a dwelling unit that is predicted to receive a noise reduction of at least 5 dBA from the proposed noise abatement measure. A receptor can be a benefited receptor even if it is not subject to a traffic noise impact. The cost calculations of the noise abatement measure must include all items appropriate and necessary for the construction of the noise abatement measure. Examples of cost items that should be included in estimating the construction cost of a noise abatement measure are traffic control, drainage modification, retaining walls, landscaping for graffiti abatement, and right-of-way costs. Only those costs directly related to the construction of the noise abatement should be included in the noise abatement construction estimate.

Noise barriers that are determined to be reasonable based on the noise reduction goal and cost will be subject to the approval of benefited receptors to meet the requirements of the three reasonableness factors listed above.

3.3.6 Recommended Sound Barriers

The Noise Abatement Decision Report (NADR) evaluates noise abatement measures in the form of sound barriers when traffic noise impacts are identified. Noise abatement will only be considered if constructing the abatement is feasible and reasonable.

According to the NADR (Caltrans, February 2013), the following sound barriers have been recommended for construction pending approval by the benefited receptors:

Sound Barrier No.	Station Limits	R/W	Recommended Height (ft)
2-2	2782+35 to 2787+68	Private	8
2-3	2778+50 to 2782+10	Private	10
2-4	2770+90 to 2775+20	Private	10
2-5	2675+70 to 2691+09	State	16
2-8	2766+65 to 2812+10	State	20
3-6	3012+00 to 3014+25	Private	6
3-10a	3010+25 to 3036+70	State	16

The results of the reasonableness analysis for all feasible sound barriers are shown in Appendix A, Table A-3. The recommended sound barriers are shown in Appendix B, Maps K-1 to K-4.

The preliminary noise abatement decision presented in this report is based on preliminary project alignments and profiles, which may be subject to change. As such, the physical characteristics of noise abatement described herein also may be subject to change. If pertinent parameters change substantially during the final project design, the preliminary noise abatement decision may be changed or eliminated from the final project design. A final decision to construct noise abatement will be made upon completion of the project design.

For proposed barrier locations outside of Caltrans right of way, all (100 percent) of the affected property owners must be supportive of the proposed barrier, the location, and the material to be used for construction. Additionally, a permanent easement must be secured for all (100 percent) of the affected properties to construct and maintain the barrier. During the final project design, soundwall survey letters will be sent to all the affected property owners to determine and document whether or not they want the proposed sound barriers.

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Chapter 4 California Environmental Quality Act Evaluation

4.1 Determining Significance Under CEQA

The proposed project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA's responsibility for environmental review, consultation, and any other action required in accordance with NEPA and other applicable federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 United States Code (USC) 327. Caltrans is the lead agency under CEQA and NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or some lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) *as a whole* has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of mandatory findings of significance, which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

4.2 Discussion of Significance of Impacts

In Chapter 3 of the Final EIR/FONSI for the I-5 HOV/Truck Lanes Project, the significance of the potential impacts of the project based on the requirements of CEQA was discussed. The proposed scope change from HOV to HOT lanes does not change the findings of significance under CEQA. The unavoidable significant impacts of the project remain the same. Mandatory findings under CEQA are still the same as were discussed in Chapter 3 of the Final EIR/FONSI.

4.3 Mitigation Measures for Significant Impacts Under CEQA

No additional measures have been identified for the proposed HOT Lane project.

4.4 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988, has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles make up the largest source (second to electricity generation) of GHG emitting sources. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. “Adaptation," refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)[1].

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing the growth of vehicle miles traveled (VMT), 3) transitioning to lower GHG emitting fuels, and 4) improving vehicle technologies. To be most effective all four strategies should be pursued cooperatively. The following Regulatory Setting section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

4.4.1 Regulatory Setting

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and pro-active approach to dealing with GHG emissions and climate change.

Assembly Bill 1493 (AB 1493), Pavley. Vehicular Emissions: Greenhouse Gases, 2002: requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the United States Environmental Protection Agency (U.S. EPA) Administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own GHG emission standards for motor vehicles beginning with model year 2009. California agencies will be working with federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger cars model years 2017-2025.

Executive Order S-3-05 (EO): (signed on June 1, 2005, by former Governor Arnold Schwarzenegger) the goal of this EO is to reduce California's GHG emissions to: 1) year 2000 levels by 2010, 2) year 1990 levels by the 2020, and 3) 80 percent below the year 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

[1] http://climatechange.transportation.org/ghg_mitigation/

AB 32, the Global Warming Solutions Act of 2006 Núñez and Pavley: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan, (which includes market mechanisms) and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.”

Executive Order S-20-06 (signed on October 18, 2006 by former Governor Arnold Schwarzenegger) further directs state agencies to begin implementing AB 32, including the recommendations made by California’s Climate Action Team.

Executive Order S-01-07: (signed on January 18, 2007 by former Arnold Governor Schwarzenegger) set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California’s transportation fuels is to be reduced by at least ten percent by the year 2020.

Senate Bill 97 (SB 97) Chapter 185, 2007: required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Caltrans Director’s Policy 30 (DP-30) Climate Change (approved June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. This policy contributes to Caltrans’s stewardship goal to preserve and enhance California’s resources and assets.

Federal

Although climate change and GHG reduction is a concern at the federal level; currently there are no regulations or legislation that have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has promulgated explicit guidance or methodology to conduct project-level GHG analysis. As stated on FHWA’s climate change website (http://www.fhwa.dot.gov/hep/climate/index.htm), climate change considerations should be integrated throughout the transportation decision-making process–from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in the growth of vehicle hours travelled.

Climate change and its associated effects are being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514 - *Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new

motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009[2]. On May 7, 2010 the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* was published in the Federal Register.

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a Presidential Memorandum on May 21, 2010.[3]

The final combined USEPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile (the equivalent to 35.5 miles per gallon [MPG)] if the automobile industry were to meet this CO_2 level solely through fuel economy improvements). Together, these standards will cut GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On November 16, 2011, U.S. EPA and NHTSA issued their joint proposal to extend this national program of coordinated greenhouse gas and fuel economy standards to model years 2017 through 2025 passenger vehicles.

4.4.2 Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative

[2] http://www.epa.gov/oms/climate/regulations.htm#1-1
[3] http://epa.gov/otaq/climate/regulations.htm

impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.[4] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 contains the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California (forecast last updated: October 28, 2010). As seen in Figure 4.1, the forecast is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.[5]

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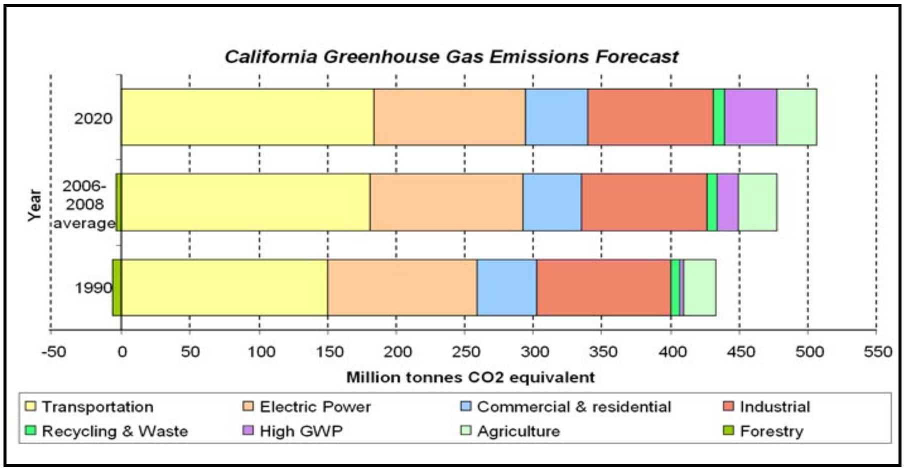
[4] This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

[5] Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate Action_Program.pdf

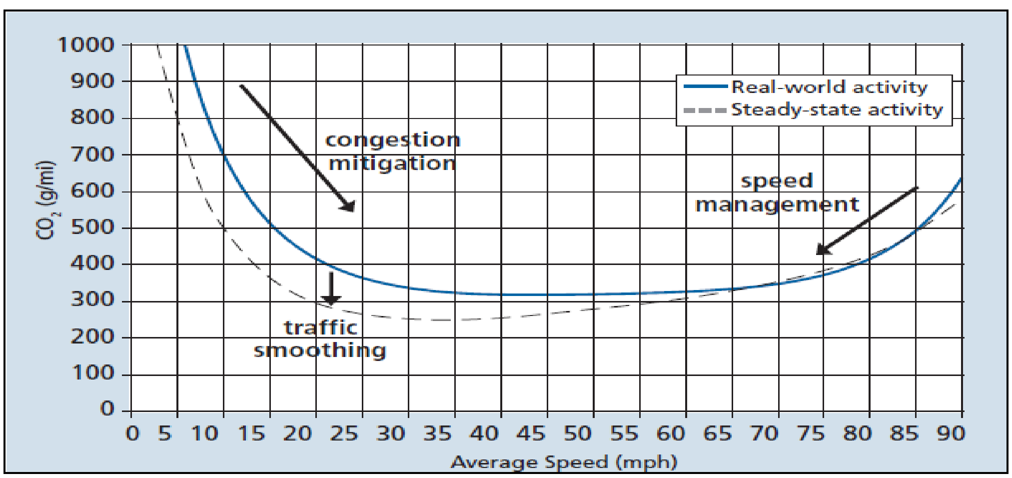
Figure 4.1 California Greenhouse Gas Forecast



Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

One of the main strategies in Caltrans's Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide (CO_2) from mobile sources such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 mph; the most severe emissions occur from 0-25 miles per hour (see Figure 4.2 below). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors GHG emissions, particularly CO_2, may be reduced.

Figure 4.2 Possible Effect of Traffic Operation Strategies in Reducing On-Road CO2 Emission[6]



[6] **Traffic Congestion and Greenhouse Gases:** Matthew Barth and Kanok Boriboonsomsin(TR News 268 May-June 2010)<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>

4.4.2.1 GHG Emissions Analysis

The analysis of impacts of the proposed HOT Lane project to air quality is based on the *Analysis for Greenhouse Gas and Other Pollutants* (Caltrans, January 2013).

Sources of operational GHG emissions are the same as those analyzed for criteria pollutant emissions and include GHG emissions from vehicles traveling along the project corridor. Project-related GHG emissions (No-Build and Build Alternative) were estimated using the emission factors for on-road mobile sources and VMTs along the project corridor. The following GHG emissions estimate is presented for the purpose of disclosing project-related emissions.

The project GHG emissions are evaluated for the following:

- The changes in the future GHG emissions along the project corridor compared to the CEQA baseline, i.e., emissions in 2010.
- The changes in GHG emissions for the Build Alternative along the project corridor compared with the No-Build scenario.

These comparisons provide disclosure of estimated changes in project emissions of GHG based on forecast traffic data. Note that GHG emissions are only useful for a comparison between Alternatives or between years. The numbers are not necessarily an accurate reflection of what the true GHG emissions will be because GHG emissions are dependent on other factors that are not part of the model such as the fuel mix and consumption, rate of acceleration, and the aerodynamics and efficiency of the vehicles. ARB’s EMFAC model emission rates are only for direct engine-out CO_2 emissions and do not account for a full fuel cycle. Fuel cycle emission rates can vary dramatically depending on the amount of additives like ethanol and the source of the fuel components.

Table 4.A and 4.B below summarizes daily operational GHG emissions that would occur from vehicular traffic within the project limits in existing, 2018, and 2035. The latest available emissions inventory, EMFAC2011, reflects the emissions benefits of the Air Resources Board’s (ARB) recent rulemakings including Pavley Clean Car Standards; and provides two different sets of emission factors with and without the Pavley Clean Car Standards. The emissions analyses for the GHG have thus been evaluated accordingly. The EMFAC2011 does not provide emission factors for methane or CH_4; and this analysis therefore does not provide conversion of methane emissions based on the global warming potential.

Table 4.A Existing and Future Estimated GHG Emissions by Project Alternatives, without Pavley Clean Car Standards (in metric tons/day)

Segment No.		1	2	3	4	5	6	7	8	9
Existing		273.9	108.9	78.8	60.6	69.0	66.2	51.5	48.4	92.1
2018	No-Build	313.7	126.0	94.8	76.1	81.2	79.7	63.6	62.4	124.9
	HOT	304.7	126.3	95.1	76.2	86.9	84.5	67.0	65.2	132.0
2035	No-Build	402.2	169.3	126.5	95.6	104.9	102.0	81.5	84.1	188.2
	HOT	370.9	164.7	120.4	94.1	108.2	105.6	85.1	83.3	176.7

Source: *Analysis for Greenhouse Gas and Other Pollutants* (Caltrans, January 2013)

Table 4.B Existing and Future Estimated GHG Emissions by Project Alternatives, with Pavley Clean Car Standards (in metric tons/day)

Segment No.		1	2	3	4	5	6	7	8	9
Existing		273.0	108.6	78.6	60.4	68.8	66.0	51.3	48.3	91.8
2018	No-Build	253.3	102.2	77.1	62.0	66.5	65.2	52.1	51.0	102.4
	HOT	246.6	102.5	77.4	62.2	71.3	69.2	55.0	53.5	108.7
2035	No-Build	276.7	117.8	88.6	67.7	75.3	72.9	58.5	60.2	134.6
	HOT	256.3	114.7	84.5	66.6	77.4	75.3	60.9	59.7	127.3

Source: *Analysis for Greenhouse Gas and Other Pollutants* (Caltrans, January 2013)

4.4.2.2 Comparison with CEQA Baseline (Year 2010 Emissions)

Results in red indicate increase compared to the respective years while those in yellow indicate decrease in future No-Build conditions when compared to the existing year. The data in Tables 4.A and 4.B indicate that the future daily operational CO_2 emissions for the Build Alternative (except for Segment 1 and other Segments in 2035) are in general anticipated to increase when compared to the existing level. The daily operational CO_2 emissions for future No-Build alternative, in the mean time, are anticipated to decrease in only a few Segments in 2018 with the Pavley Clean Car Standards. However, the CO_2 emissions for the No-Build Alternative are expected to increase, even with the Pavley Standards, for all Segments along the I-5 in 2035.

4.4.2.3 Comparison with the No-Build Alternative (NEPA Baseline)

The data in Tables 4.A and 4.B indicate that all Segments except for Segment 1under HOT Lanes Alternative are anticipated to result in increase in CO_2 emissions when compared to the No-Build Alternative in 2018. However, several Segments under the HOT Lanes Alternative are anticipated to decrease in CO_2 emissions in 2035 when compared to the No-Build, with or without the Pavley standards.

4.4.3 Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

4.4.4 Greenhouse Gas Reduction Strategies

Caltrans continues to be actively involved on the Governor's Climate Action Team as ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Former Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a $222 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including $100.7 billion in transportation funding during the next decade. The Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in GHG emissions.

The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attain CO2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements, as depicted in Figure 4.3.

Figure 4.3 The Mobility Pyramid

Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. Caltrans works closely with local jurisdictions on planning activities but does not have local land use planning authority. Caltrans also assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by U.S. EPA and ARB.

Table 4.C summarizes Caltrans and statewide efforts that Caltrans is implementing in order to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Table 4.C Climate Change/CO_2 Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	.0045	.0065 .045 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 .36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

4.4.5 Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency report on October 14, 2010 outlining recommendations to President Obama for how federal agency policies and programs can better prepare the U.S. to respond to the impacts of climate change. The Progress Report of the Interagency Climate Change Adaptation Task Force recommends that the federal government implement actions to expand and strengthen the nation's capacity to better understand, prepare for, and respond to climate change.

Climate change adaption must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, former Governor Arnold Schwarzenegger signed EO S-13-08 which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

The California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state, and federal public and private entities to develop. The California Climate Adaptation Strategy (Dec 2009)[7], which summarizes the best known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The Resources Agency was also directed to request the National Academy of Science to prepare a Sea Level Rise Assessment Report by December 2010[8] to advise how California should plan for future sea level rise. The report is to include:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

Prior to the release of the final Sea Level Rise Assessment Report, all state agencies that are planning to construct projects in areas vulnerable to future sea level rise were directed to consider a range of sea level rise scenarios for the years 2050 and 2100 in

[7] http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF

[8] Pre-publication copies of the report, *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*, were made available from the National Academies Press on June 22, 2012. For more information, please see http://www.nap.edu/catalog.php?record_id=13389.

order to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information regarding local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data

Interim guidance has been released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise.

All projects that have filed a Notice of Preparation (NOP) as of the date of the EO S-13-08, and/or are programmed for construction funding through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The proposed I-5 HOT Lane project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will be able review its current design standards to determine what changes, if any, may be warranted in order to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

Chapter 5 List of Preparers

5.1 California Department of Transportation, District 7

Ron Kosinski, Deputy District Director, Division of Environmental Planning

Carlos Montez, Senior Environmental Planner

Mine Struhl, Associate Environmental Planner

Amir Elsharief, Design Manager

Andrew Yoon, Senior Transportation Engineer, Air Quality Branch

Arnold Parmar, T.E., Transportation Engineer, Noise & Vibration Branch

5.2 LSA Associates, Inc.

Deborah Pracilio, Principal

Jason Lui, Noise Specialist

Ken Wilhelm, Traffic Specialist

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Appendix A – Noise Impact and Abatement Tables

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Table A-1 Existing and Predicted Future Noise Levels

Receptor No.	Land Use	No. of Units/ Receptors	Location	Existing Noise Level, dBA $L_{eq}(h)$	2035 Noise Level				Activity Category (NAC)	Impact Type
					Without Project	With Project	With Project Minus No Project Conditions	With Project Minus Existing Conditions		
R-1/M-1	Recreation	1	Castaic Road	**70**	**72**	**72**	0	2	C(67)	A/E
R-2	Residential	1	Planned Residential	53	55	55	0	2	B(67)	--
R-3	Residential	1	Planned Residential	55	58	58	0	3	B(67)	--
R-4	Residential	1	Planned Residential	61	62	63	1	2	B(67)	--
R-5	Residential	1	Planned Residential	62	63	64	1	2	B(67)	--
R-6	Residential	1	Planned Residential	62	63	64	1	2	B(67)	--
R-7	Residential	1	Planned Residential	59	60	60	0	1	B(67)	--
R-8	Residential	1	Planned Residential	60	61	62	1	2	B(67)	--
R-9	Residential	1	Planned Residential	58	60	61	1	3	B(67)	--
R-10	Residential	1	Planned Residential	60	62	63	1	3	B(67)	--
R-11	Residential	2	Planned Residential	60	62	63	1	3	B(67)	--
R-12	Residential	2	Planned Residential	59	62	62	0	3	B(67)	--
R-13	Residential	1	Planned Residential	62	65	65	0	3	B(67)	--
R-14	Residential	1	Romeo Canyon Road	**68**	**71**	**71**	0	3	B(67)	A/E
R-15	Residential	3	Daisy Court	**70**	**74**	**75**	1	5	B(67)	A/E
R-16	Residential	5	Daisy Court	**68**	**73**	**73**	0	5	B(67)	A/E
R-17	Residential	2	Daisy Court	**67**	**72**	**72**	0	5	B(67)	A/E
R-18	Residential	1	Iris Place	**67**	**71**	**72**	1	5	B(67)	A/E
R-19	Residential	3	Primrose Lane	63	**68**	**68**	0	5	B(67)	A/E
R-20	Residential	2	Iris Place	63	**67**	**68**	1	5	B(67)	A/E
R-21	Residential	1	Iris Place	**66**	**70**	**71**	1	5	B(67)	A/E
R-22	Residential	3	Primrose Lane	62	**66**	**66**	0	4	B(67)	A/E
R-23	Residential	3	North Spring Meadow Ct.	**70**	**74**	**75**	1	5	B(67)	A/E
R-24	Residential	6	Marigold Circle	**69**	**73**	**74**	1	5	B(67)	A/E
R-25	Residential	3	Marigold Circle	**69**	**73**	**74**	1	5	B(67)	A/E
R-26	Residential	2	Morning Glory Place	**68**	**72**	**73**	1	5	B(67)	A/E
R-27	Residential	2	Morning Glory Place	63	**67**	**68**	1	5	B(67)	A/E
R-28	Residential	3	Marigold Circle	64	**68**	**69**	1	5	B(67)	A/E
R-29	Residential	3	Marigold Circle	62	**67**	**67**	0	5	B(67)	A/E
R-30	Residential	3	Cedar Oak Lane	**67**	**71**	**71**	0	4	B(67)	A/E

Receptor No.	Land Use	No. of Units/ Receptors	Location	Existing Noise Level, dBA $L_{eq}(h)$	2035 Noise Level				Activity Category (NAC)	Impact Type
					Without Project	With Project	With Project Minus No Project Conditions	With Project Minus Existing Conditions		
R-31	Residential	6	Cedar Oak Lane	**67**	**71**	**71**	0	4	B(67)	A/E
R-32	Residential	3	Cedar Oak Lane	**67**	**70**	**71**	1	4	B(67)	A/E
R-33/M-5	Residential	2	Cedar Oak Lane	63	**67**	**67**	0	4	B(67)	A/E
R-34	Residential	2	Wedgewood Court	61	65	65	0	4	B(67)	--
R-35	Residential	2	Wedgewood Court	**68**	**68**	**73**	5	5	B(67)	A/E
R-36	Residential	2	Cedar Oak Lane	**66**	**70**	**70**	0	4	B(67)	A/E
R-37	Residential	2	Cedar Oak Lane	**68**	**71**	**72**	1	4	B(67)	A/E
R-38	Residential	2	Cedar Oak Lane	64	**67**	**69**	2	5	B(67)	A/E
R-39	Residential	2	Cedar Oak Lane	**67**	**72**	**72**	0	5	B(67)	A/E
R-40/M-6	Residential	1	The Old Road	64	**69**	**69**	0	5	B(67)	A/E
R-41	Residential	5	Holmby Court	64	**67**	**67**	0	3	B(67)	A/E
R-42	Residential	4	London Court	57	60	60	0	3	B(67)	--
R-43	Residential	5	Desert Rose Drive	**67**	**71**	**71**	0	4	B(67)	A/E
R-44/M-9	Residential	9	Desert Rose Drive	**74**	**77**	**78**	1	4	B(67)	A/E
R-45	Residential	3	Saguaro Street	59	63	63	0	4	B(67)	--
R-46	Residential	4	Desert Rose Drive	55	58	58	0	3	B(67)	--
R-47/M-10	Residential	4	Desert Rose Drive	55	58	59	1	4	B(67)	--
R-48	Residential	1	Saguaro Street	56	59	60	1	4	B(67)	--
R-49	Residential	3	Saguaro Street	63	**67**	**67**	0	4	B(67)	A/E
R-50/M-11	Residential	7	Saguaro Street	64	**68**	**68**	0	4	B(67)	A/E
R-51	Residential	7	Saguaro Street	**68**	**72**	**72**	0	4	B(67)	A/E
R-52	Residential	7	Saguaro Street	**70**	**74**	**75**	1	5	B(67)	A/E
R-53/M-13	Residential	7	Saguaro Street	**71**	**76**	**76**	0	5	B(67)	A/E
R-54	Residential	3	Saguaro Street	**66**	**71**	**71**	0	5	B(67)	A/E
R-55	Residential	1	Saguaro Street	59	63	63	0	4	B(67)	--
R-56	Residential	3	Saguaro Street	61	65	65	0	4	B(67)	--
R-57	Residential	6	Saguaro Street	64	**69**	**69**	0	5	B(67)	A/E
R-58/M-14	Residential	2	Saguaro Street	59	63	64	1	5	B(67)	--
R-59	Residential	2	Saguaro Street	56	61	61	0	5	B(67)	--
R-60	Residential	2	Firebrand Drive	61	65	65	0	4	B(67)	--
R-61	Residential	2	Firebrand Drive	61	64	64	0	3	B(67)	--
R-62	Residential	1	Sedona Way	55	59	60	1	5	B(67)	--

Receptor No.	Land Use	No. of Units/ Receptors	Location	Existing Noise Level, dBA L_{eq}(h)	2035 Noise Level				Activity Category (NAC)	Impact Type
					Without Project	With Project	With Project Minus No Project Conditions	With Project Minus Existing Conditions		
R-63	Residential	1	Ashby Court	56	58	58	0	2	B(67)	--
R-64	Residential	2	Salem Court	57	59	59	0	2	B(67)	--
R-65	Residential	1	Salem Court	58	61	61	0	3	B(67)	--
R-66	Residential	2	Hartford Avenue	59	61	62	1	3	B(67)	--
R-67	Residential	2	Quincy Street	57	60	60	0	3	B(67)	--
R-68	Residential	2	Fenway Court	58	61	61	0	3	B(67)	--
R-69	Residential	2	Fenway Court	55	57	58	1	3	B(67)	--
R-70/M-17	Residential	3	Buckskin Drive	56	59	59	0	3	B(67)	--
R-71	Residential	1	Ashby Court	56	61	61	0	5	B(67)	--
R-72	Residential	3	Salem Court	60	64	64	0	4	B(67)	--
R-73	Residential	2	Quincy Street	59	62	62	0	3	B(67)	--
R-74	Residential	1	Quincy Street	54	56	56	0	2	B(67)	--
R-75	Residential	3	Fenway Court	52	54	54	0	2	B(67)	--
R-76	Residential	2	Buckskin Drive	52	53	54	1	2	B(67)	--
R-77	Residential	1	Ashby Court	55	59	59	0	4	B(67)	--
R-78	Residential	4	Ashby Court	56	58	58	0	2	B(67)	--
R-79	Residential	5	Salem Court	59	62	63	1	4	B(67)	--
R-80	Residential	2	Quincy Street	59	61	62	1	3	B(67)	--
R-81	Classroom	1	The Old Road	61	64	64	0	3	C(67)/ D(52)	--
R-82/M-19	Hotel	1	The Old Road	66	66	66	0	0	E(72)	--
R-83	Hotel	1	Wayne Mills Place	57	57	58	1	1	E(72)	--
R-84/M-20	Hotel	1	Wayne Mills Place	66	66	66	0	0	E(72)	--
R-85	Residential	2	Playa Serena Drive	**70**	**70**	**70**	0	0	B(67)	A/E
R-86	Residential	3	Playa Serena Drive	**71**	**71**	**71**	0	0	B(67)	A/E
R-87/M-21	Residential	2	Los Arqueros Drive	**70**	**70**	**71**	1	1	B(67)	A/E
R-88	Residential	1	Playa Serena Drive	64	63	64	1	0	B(67)	--
R-89/M-22	Residential	1	Playa Serena Drive	61	61	61	0	0	B(67)	--
R-90	Residential	3	Baviera Way	**67**	**66**	**67**	1	0	B(67)	A/E
R-91	Residential	3	Baviera Way	**70**	**67**	**68**	1	-2	B(67)	A/E
R-92	Residential	2	Baviera Way	**70**	**68**	**69**	1	-1	B(67)	A/E
R-93	Residential	6	Baviera Way	55	54	55	1	0	B(67)	--
R-94	Residential	6	Baviera Way	55	54	55	1	0	B(67)	--

Receptor No.	Land Use	No. of Units/ Receptors	Location	Existing Noise Level, dBA L_{eq}(h)	2035 Noise Level				Activity Category (NAC)	Impact Type
					Without Project	With Project	With Project Minus No Project Conditions	With Project Minus Existing Conditions		
R-95	Residential	6	Baviera Way	57	55	56	1	-1	B(67)	--
R-96/M-23	Residential	6	Sycamore Meadow Drive	**69**	**69**	**70**	1	1	B(67)	A/E
R-97	Residential	12	Sycamore Meadow Drive	**66**	65	**66**	1	0	B(67)	A/E
R-98	Residential	6	Eagle Lane	64	63	64	1	0	B(67)	--
R-99	Residential	8	Sycamore Meadow Drive	57	56	57	1	0	B(67)	--
R-100/M-25	Residential	1	Silver Aspen Way	**74**	**75**	**75**	0	1	B(67)	A/E
R-101	Residential	4	Silver Aspen Way	**71**	**72**	**72**	0	1	B(67)	A/E
R-102	Residential	12	Silver Aspen Way	**71**	**72**	**72**	0	1	B(67)	A/E
R-103	Residential	12	Silver Aspen Way	44	44	45	1	1	B(67)	--
R-104	Residential	12	Silver Aspen Way	64	64	65	1	1	B(67)	--
R-105	Residential	12	Silver Aspen Way	65	63	64	1	-1	B(67)	--
R-106	Residential	2	Silver Aspen Way	64	59	60	1	-4	B(67)	--
R-107	Residential	1	Silver Aspen Way	63	58	59	1	-4	B(67)	--
R-108	Residential	3	Silver Aspen Way	**67**	58	59	1	-8	B(67)	--
R-109/M-29	Residential	1	Twin Oaks Place	65	64	65	1	0	B(67)	--
R-110	Commercial	1	The Old Road	61	59	60	1	-1	F	--
R-111/M-30	Residential	1	Twin Oaks Place	60	60	61	1	1	B(67)	--
R-112	Residential	1	Twin Oaks Place	61	62	63	1	2	B(67)	--
R-113/M-31	School	1	Rockwell Canyon Road	60	60	61	1	1	C(67)/ D(52)	--
R-114	Commercial	1	The Old Road	58	59	60	1	2	F	--
R-115/M-32	School	1	Tournament Road	59	61	62	1	3	C(67)	--
R-116	School	1	Tournament Road	65	**67**	**68**	1	3	C(67)	A/E
R-117	School	1	Tournament Road	62	63	65	2	3	C(67)	--
R-118	Residential	3	Sand Wedge Lane	**67**	**66**	**67**	1	0	B(67)	A/E
R-119	Residential	3	Sand Wedge Lane	**68**	**67**	**68**	1	0	B(67)	A/E
R-120	Residential	5	Masters Cup Way	**68**	**67**	**68**	1	0	B(67)	A/E
R-121	Residential	5	Masters Cup Way	**67**	**67**	**67**	0	0	B(67)	A/E
R-122	Residential	4	Sand Wedge Lane	64	63	64	1	0	B(67)	--
R-123	Residential	5	Sand Wedge Lane	64	64	65	1	1	B(67)	--
R-124	Residential	5	Masters Cup Way	63	62	63	1	0	B(67)	--
R-125	Residential	5	Masters Cup Way	**66**	65	**66**	1	0	B(67)	A/E
R-126	Golf Course	1	Vista Fairways Drive	59	58	59	1	0	C(67)	--

Receptor No.	Land Use	No. of Units/ Receptors	Location	Existing Noise Level, dBA $L_{eq}(h)$	2035 Noise Level				Activity Category (NAC)	Impact Type
					Without Project	With Project	With Project Minus No Project Conditions	With Project Minus Existing Conditions		
R-127	Residential	1	Altos Drive	**67**	**67**	**69**	2	2	B(67)	A/E
R-128	Residential	1	Altos Drive	58	59	60	1	2	B(67)	--
R-129	Residential	1	Farrow Drive	**68**	**69**	**69**	0	1	B(67)	A/E
R-130	Residential	1	Farrow Drive	62	63	64	1	2	B(67)	--
R-131	Residential	1	Farrow Drive	59	60	61	1	2	B(67)	--
R-132	Residential	1	Farrow Drive	59	60	62	2	3	B(67)	--
R-133	Residential	2	Sagecrest Circle	65	60	60	0	-5	B(67)	--
R-134	Residential	2	Sagecrest Circle	62	60	61	1	-1	B(67)	--
R-135	Residential	2	Sagecrest Circle	59	58	58	0	-1	B(67)	--
R-136	Residential	2	Hazelcrest Lane	57	56	56	0	-1	B(67)	--
R-137	Residential	3	Hazelcrest Lane	57	56	57	1	0	B(67)	--
R-138	Residential	3	Hazelcrest Lane	59	58	58	0	-1	B(67)	--
R-139/M-35	Residential	4	Hazelcrest Lane	58	57	57	0	-1	B(67)	--
R-140	Residential	2	Laurelcrest Lane	**67**	**66**	**66**	0	-1	B(67)	A/E
R-141	Residential	1	Sagecrest Circle	53	52	52	0	-1	B(67)	--
R-142/M-36	Residential	1	Bracken Lane	59	58	58	0	-1	B(67)	--
R-143	Residential	2	Laurelcrest Lane	57	56	56	0	-1	B(67)	--
R-144	Residential	2	Laurelcrest Lane	58	58	58	0	0	B(67)	--
R-145	Residential	2	Foxtail Court	**73**	**73**	**73**	0	0	B(67)	A/E
R-146/M-37	Residential	2	Foxtail Court	**74**	**74**	**73**	-1	-1	B(67)	A/E
R-147/M-38	Residential	2	Foxtail Court	**73**	**73**	**73**	0	0	B(67)	A/E
R-148	Residential	2	Foxtail Court	**69**	**70**	**70**	0	1	B(67)	A/E
R-149	Residential	2	Foxtail Court	**70**	**69**	**69**	0	-1	B(67)	A/E
R-150	Residential	3	Foxtail Court	65	64	64	0	-1	B(67)	--
R-151	Residential	1	Foxtail Court	61	61	62	1	1	B(67)	--
R-152	Residential	1	Sargasso Court	**70**	**71**	**71**	0	1	B(67)	A/E
R-153	Residential	2	Sargasso Court	**67**	**67**	**67**	0	0	B(67)	A/E
R-154	Residential	2	Sargasso Court	65	65	65	0	0	B(67)	--
R-155	Residential	1	Sargasso Court	**68**	**67**	**67**	0	-1	B(67)	A/E
R-156	Residential	2	Sargasso Court	62	62	62	0	0	B(67)	--
R-157	Residential	2	Sargasso Court	61	60	60	0	-1	B(67)	--
R-158	Residential	2	Sargasso Court	60	61	61	0	1	B(67)	--
R-159	Residential	2	Wintergreen Court	64	64	65	1	1	B(67)	--

Receptor No.	Land Use	No. of Units/ Receptors	Location	Existing Noise Level, dBA $L_{eq}(h)$	2035 Noise Level				Activity Category (NAC)	Impact Type
					Without Project	With Project	With Project Minus No Project Conditions	With Project Minus Existing Conditions		
R-160	Residential	2	Wintergreen Court	64	64	64	0	0	B(67)	--
R-161	Residential	2	Wintergreen Court	64	64	64	0	0	B(67)	--
R-162	Residential	2	Wintergreen Court	63	63	63	0	0	B(67)	--
R-163	Residential	2	Wintergreen Court	59	60	61	1	2	B(67)	--
R-164	Residential	2	Wintergreen Court	56	58	58	0	2	B(67)	--
R-165	Residential	1	Wintergreen Court	60	59	60	1	0	B(67)	--
R-166	Residential	2	Wintergreen Court	55	55	55	0	0	B(67)	--
R-167	Residential	2	Wintergreen Court	54	54	54	0	0	B(67)	--
R-168	Residential	2	Wintergreen Court	53	53	54	1	1	B(67)	--
R-169	Residential	2	Wintergreen Court	52	53	53	0	1	B(67)	--
R-170	Residential	2	Wintergreen Court	53	54	54	0	1	B(67)	--
R-171	Residential	2	Sagecrest Circle	64	65	65	0	1	B(67)	--
R-172	Residential	2	Sagecrest Circle	62	63	64	1	2	B(67)	--
R-173	Residential	2	Sagecrest Circle	62	63	63	0	1	B(67)	--
R-174	Residential	2	Sagecrest Circle	61	62	63	1	2	B(67)	--
R-175	Residential	2	Sagecrest Circle	60	61	61	0	1	B(67)	--
R-176	Residential	2	Sagecrest Circle	55	56	57	1	2	B(67)	--
R-177	Residential	2	Sagecrest Circle	54	55	56	1	2	B(67)	--
R-178	Residential	2	La Glorita Circle	65	64	64	0	-1	B(67)	--
R-179	Residential	1	La Glorita Circle	63	62	63	1	0	B(67)	--
R-180	Residential	2	La Glorita Circle	62	61	61	0	-1	B(67)	--
R-181	Residential	2	La Glorita Circle	62	60	60	0	-2	B(67)	--
R-182	Residential	2	Markel Drive	61	59	60	1	-1	B(67)	--
R-183	Residential	1	Markel Drive	61	58	58	0	-3	B(67)	--
R-184	Residential	2	Markel Drive	60	59	59	0	-1	B(67)	--
R-185	Residential	1	Markel Drive	61	59	59	0	-2	B(67)	--
R-186	Residential	2	Markel Drive	60	58	59	1	-1	B(67)	--
R-187	Residential	2	Denise Place	**66**	65	65	0	-1	B(67)	--
R-188	Residential	3	Lisa Kelton Place	65	65	65	0	0	B(67)	--
R-189	Residential	2	Cheryl Kelton Place	**68**	**68**	**68**	0	0	B(67)	A/E
R-190	Residential	3	Jennifer Place	**68**	**68**	**68**	0	0	B(67)	A/E
R-191	Residential	2	Wabuska Street	**68**	**68**	**69**	1	1	B(67)	A/E
R-192/M-42	Residential	2	Denise Place	62	61	61	0	-1	B(67)	--

Receptor No.	Land Use	No. of Units/ Receptors	Location	Existing Noise Level, dBA L_{eq}(h)	2035 Noise Level				Activity Category (NAC)	Impact Type
					Without Project	With Project	With Project Minus No Project Conditions	With Project Minus Existing Conditions		
R-193	Residential	2	Lisa Kelton Place	62	61	62	1	0	B(67)	--
R-194	Residential	2	Cheryl Kelton Place	**66**	65	65	0	-1	B(67)	--
R-195/M-44	Residential	2	Cheryl Kelton Place	63	62	63	1	0	B(67)	--
R-196	Residential	2	Wabuska Street	65	65	65	0	0	B(67)	--
R-197	Residential	2	Denise Place	60	59	59	0	-1	B(67)	--
R-198	Residential	2	Lisa Kelton Place	61	60	61	1	0	B(67)	--
R-199	Residential	2	Cheryl Kelton Place	64	63	64	1	0	B(67)	--
R-200	Residential	2	Cheryl Kelton Place	61	60	61	1	0	B(67)	--
R-201	Residential	2	Wabuska Street	64	64	65	1	1	B(67)	--
R-202/M-45	Residential	1	Hawkbryn Avenue	**66**	**67**	**67**	0	1	B(67)	A/E
R-203	Residential	1	Hawkbryn Avenue	61	61	62	1	1	B(67)	--
R-204	Residential	1	Hawkbryn Avenue	60	61	61	0	1	B(67)	--
R-205	Residential	1	Hawkbryn Avenue	60	61	61	0	1	B(67)	--
R-206	Residential	1	Hawkbryn Avenue	59	59	60	1	1	B(67)	--
R-207	Residential	1	Hawkbryn Avenue	59	60	60	0	1	B(67)	--
R-208	Residential	2	Hawkbryn Avenue	59	60	60	0	1	B(67)	--
R-209	Residential	2	Hawkbryn Avenue	59	60	60	0	1	B(67)	--
R-210/M-46	Residential	4	Hawkbryn Avenue	61	62	62	0	1	B(67)	--
R-211	Residential	2	Hawkbryn Avenue	59	60	60	0	1	B(67)	--
R-212	Residential	2	Hawkbryn Avenue	58	59	59	0	1	B(67)	--
R-213	Residential	2	Hawkbryn Avenue	58	59	59	0	1	B(67)	--
R-214	Residential	1	Hawkbryn Avenue	60	61	61	0	1	B(67)	--
R-215	Residential	1	Hawkbryn Avenue	60	61	61	0	1	B(67)	--
R-216	Residential	1	Hawkbryn Avenue	59	60	60	0	1	B(67)	--
R-217	Residential	1	Hawkbryn Avenue	59	59	59	0	0	B(67)	--
R-218	Residential	1	Hawkbryn Avenue	61	61	61	0	0	B(67)	--
R-219	Residential	1	Hawkbryn Avenue	61	62	62	0	1	B(67)	--
R-220	Residential	1	Hawkbryn Avenue	61	62	62	0	1	B(67)	--
R-221	Residential	1	Hawkbryn Avenue	61	61	62	1	1	B(67)	--
R-222	Residential	3	Approved Residential	**68**	**70**	**70**	0	2	B(67)	A/E
R-223	Residential	2	Approved Residential	62	63	63	0	1	B(67)	--
R-224	Residential	2	Approved Residential	64	65	65	0	1	B(67)	--
R-225	Residential	2	Approved Residential	**66**	**67**	**68**	1	2	B(67)	A/E

Receptor No.	Land Use	No. of Units/ Receptors	Location	Existing Noise Level, dBA $L_{eq}(h)$	2035 Noise Level				Activity Category (NAC)	Impact Type
					Without Project	With Project	With Project Minus No Project Conditions	With Project Minus Existing Conditions		
R-226	Residential	2	Approved Residential	**66**	**67**	**67**	0	1	B(67)	A/E
R-227	Residential	2	Approved Residential	60	60	60	0	0	B(67)	--
R-228	Residential	2	Approved Residential	58	58	59	1	1	B(67)	--
R-229	Residential	2	Approved Residential	61	61	61	0	0	B(67)	--
R-230	Residential	3	Fourl Road	**66**	**66**	**67**	1	1	B(67)	A/E
R-231	Residential	3	Fourl Road	62	63	63	0	1	B(67)	--
R-232	Residential	4	Fourl Road	**66**	**67**	**68**	1	2	B(67)	A/E
R-233/M-47	Residential	1	Fourl Road	64	65	65	0	1	B(67)	--
R-234	Residential	2	Fourl Road	62	62	63	1	1	B(67)	--
R-235	Residential	1	Carland Drive	58	59	59	0	1	B(67)	--
R-236	Residential	1	Carland Drive	57	59	59	0	2	B(67)	--
R-237/M-48	Residential	2	Fambrough Street	59	60	60	0	1	B(67)	--
R-238	Residential	2	Fourl Road	58	59	59	0	1	B(67)	--
R-239	Residential	1	Fourl Road	58	59	59	0	1	B(67)	--
R-240	Residential	1	Carland Drive	58	59	60	1	2	B(67)	--
R-241	Residential	1	Carland Drive	57	58	58	0	1	B(67)	--
R-242	Residential	2	Fambrough Street	57	58	59	1	2	B(67)	--
R-243	Residential	1	Fambrough Street	61	62	62	0	1	B(67)	--
R-244	Residential	3	Fourl Road	59	59	60	1	1	B(67)	--
R-245	Residential	3	Fourl Road	57	57	57	0	0	B(67)	--
R-246/M-49	Residential	2	Fourl Road	55	55	56	1	1	B(67)	--
R-247	Residential	2	Daisetta Drive	55	55	55	0	0	B(67)	--
R-248	Residential	2	Daisetta Drive	55	55	55	0	0	B(67)	--
R-249	Residential	3	Fourl Road	59	59	60	1	1	B(67)	--
R-250	Residential	3	Fourl Road	56	56	56	0	0	B(67)	--
R-251	Residential	2	Daisetta Drive	56	56	56	0	0	B(67)	--
R-252	Residential	2	Adamsboro Drive	60	61	61	0	1	B(67)	--
R-253	Residential	2	Valley Oak Court	64	64	64	0	0	B(67)	--
R-254	Residential	3	Valley Oak Court	64	65	65	0	1	B(67)	--
R-255	Residential	1	La Salle Canyon Road	62	64	64	0	2	B(67)	--
R-256/M-50	Residential	1	La Salle Canyon Road	62	63	63	0	1	B(67)	--
R-257	Residential	1	La Salle Canyon Road	60	61	61	0	1	B(67)	--
R-258	Residential	1	La Salle Canyon Road	60	61	61	0	1	B(67)	--

Receptor No.	Land Use	No. of Units/ Receptors	Location	Existing Noise Level, dBA $L_{eq}(h)$	2035 Noise Level				Activity Category (NAC)	Impact Type
					Without Project	With Project	With Project Minus No Project Conditions	With Project Minus Existing Conditions		
R-259	Residential	1	La Salle Canyon Road	59	59	59	0	0	B(67)	--
R-260	Residential	1	La Salle Canyon Road	59	59	59	0	0	B(67)	--
R-261/M-52	Residential	1	La Salle Canyon Road	59	59	59	0	0	B(67)	--
R-262	Residential	1	La Salle Canyon Road	59	59	59	0	0	B(67)	--
R-263	Residential	1	La Salle Canyon Road	59	59	59	0	0	B(67)	--
R-264	Residential	1	La Salle Canyon Road	59	59	59	0	0	B(67)	--
R-265/M-51	Residential	1	La Salle Canyon Road	63	64	64	0	1	B(67)	--
R-266	Residential	4	La Salle Canyon Road	59	59	59	0	0	B(67)	--
R-267	Residential	1	La Salle Canyon Road	59	59	59	0	0	B(67)	--
R-268	Residential	1	La Salle Canyon Road	59	59	59	0	0	B(67)	--
R-269/M-53	Residential	1	La Salle Canyon Road	59	59	59	0	0	B(67)	--
R-270	Residential	1	La Salle Canyon Road	59	59	59	0	0	B(67)	--
R-271	Residential	1	La Salle Canyon Road	59	59	59	0	0	B(67)	--
R-272/M-54	Residential	3	La Salle Canyon Road	59	60	60	0	1	B(67)	--
R-273/M-55	Residential	1	The Old Road	**67**	**69**	**69**	0	2	B(67)	A/E
R-274	Church Playground	1	The Old Road	**69**	**72**	**72**	0	3	C(67)	A/E
R-275	Residential	1	The Old Road	63	65	65	0	2	B(67)	--
R-276	Residential	5	The Old Road	63	65	65	0	2	B(67)	--
R-277/M-56	Residential	5	The Old Road	63	65	65	0	2	B(67)	--
R-278	Residential	5	The Old Road	60	62	62	0	2	B(67)	--
R-279	Residential	5	The Old Road	63	65	65	0	2	B(67)	--
R-280	Residential	1	The Old Road	63	65	65	0	2	B(67)	--
R-281	Residential	1	The Old Road	60	61	62	1	2	B(67)	--
R-282	Residential	1	The Old Road	60	62	62	0	2	B(67)	--
R-283/M-57	Residential	5	The Old Road	60	62	62	0	2	B(67)	--
R-284	Residential	2	The Old Road	60	62	62	0	2	B(67)	--
R-285	Residential	1	The Old Road	60	62	62	0	2	B(67)	--
R-286	Residential	3	The Old Road	59	62	62	0	3	B(67)	--
R-287	Residential	6	The Old Road	62	64	65	1	3	B(67)	--

Receptor No.	Land Use	No. of Units/ Receptors	Location	Existing Noise Level, dBA L_{eq}(h)	2035 Noise Level				Activity Category (NAC)	Impact Type
					Without Project	With Project	With Project Minus No Project Conditions	With Project Minus Existing Conditions		
R-288	Residential	5	The Old Road	63	65	65	0	2	B(67)	--
R-289/M-59	Residential	1	The Old Road	49	51	51	0	2	B(67)	--
R-290/M-60	Residential	1	Coltrane Avenue	**73**	**75**	**75**	0	2	B(67)	A/E
R-291	Residential	1	Coltrane Avenue	62	63	64	1	2	B(67)	--
R-292	Residential	1	Farrow Drive	65	**66**	**67**	1	2	B(67)	A/E
R-293	Residential	1	Farrow Drive	64	65	**66**	1	2	B(67)	A/E
R-294	Residential	1	Farrow Drive	63	64	65	1	2	B(67)	--
R-295	Residential	1	Farrow Drive	58	60	62	2	4	B(67)	--
R-296	Residential	1	Altos Drive	64	64	**66**	2	2	B(67)	A/E
R-297	Residential	1	Altos Drive	61	62	64	2	3	B(67)	--
R-298	Residential	1	Altos Drive	60	61	62	1	2	B(67)	--
R-299	Residential	1	Altos Drive	58	59	61	2	3	B(67)	--
R-300/M-61	Residential	1	Altos Drive	**68**	**66**	**68**	2	0	B(67)	A/E
R-301	Residential	1	Altos Drive	65	63	64	1	-1	B(67)	--
R-302	Residential	1	Altos Drive	63	61	63	2	0	B(67)	--
R-303	Residential	1	Altos Drive	63	61	62	1	-1	B(67)	--
R-304	Residential	2	Altos Drive	62	60	61	1	-1	B(67)	--
R-305	Residential	1	Farrow Drive	64	63	64	1	0	B(67)	--
R-306	Residential	1	Farrow Drive	63	62	64	2	1	B(67)	--
R-307	Residential	2	Farrow Drive	62	61	63	2	1	B(67)	--
R-308	Residential	1	Farrow Drive	63	62	64	2	1	B(67)	--
R-309/M-64	Residential	1	Vista Ridge Drive	62	61	63	2	1	B(67)	--
R-310/M-62	Residential	3	Farrow Drive	58	56	57	1	-1	B(67)	--
R-311/M-63	Residential	1	Via Accorde	62	61	62	1	0	B(67)	--
R-312/M-65	Residential	4	Sand Wedge Lane	**69**	**68**	**69**	1	0	B(67)	A/E
R-313/M-66	Commercial	1	The Old Road	70	72	72	0	2	F	--
R-314/M-67	Vacant	1	The Old Road	71	74	74	0	3	G	--
R-315/M-68	Commercial	1	The Old Road	70	75	75	0	5	F	--
R-316/M-69	Agriculture	1	South/Tapia Canyon Rd	73	77	78	1	5	F	--
R-317/M-70	Agriculture	1	North/Hasley Canyon Rd	71	75	75	0	4	F	--
R-318/M-71	Agriculture	1	North/Hasley Canyon Rd	65	69	70	1	5	F	--
R-319/M-72	Commercial	1	The Old Road	65	67	68	1	3	F	--
R-320/M-73	Office/Industrial	1	The Old Road	72	75	75[9]	0	3	E(72)/F	--

Receptor No.	Land Use	No. of Units/ Receptors	Location	Existing Noise Level, dBA $L_{eq}(h)$	2035 Noise Level				Activity Category (NAC)	Impact Type
					Without Project	With Project	With Project Minus No Project Conditions	With Project Minus Existing Conditions		
R-321/M-74	Commercial	1	The Old Road	76	79	80	1	4	F	--
R-322/M-75	Office	1	The Old Road	68	71	72[9]	1	4	E (72)	--
R-323/M-76	Office	1	Westinghouse Place	65	68	69	1	4	E (72)	--
R-324/M-77	Office	1	Avenue Stanford	68	71	72[9]	1	4	E (72)	--
R-325/M-78	Industrial	1	Avenue Stanford	70	70	70	0	0	F	--
R-326/M-79	Commercial	1	The Old Road	75	74	75	1	0	F	--
R-327/M-80	Commercial	1	The Old Road	63	63	63	0	0	F	--
R-328/M-81	Golf Course	1	Heritage View Drive	63	62	63	1	0	C(67)	--
R-329/M-82	Golf Course	1	Tourney Road	**75**	**75**	**75**[9]	0	0	C(67)	--
R-330/M-84	Golf Course	1	Heritage View Drive	59	58	59	1	0	C(67)	--
R-331/M-83	Golf Course	1	Heritage View Drive	58	58	58	0	0	C(67)	--
R-332/M-85	Trail	1	Rockwell Canyon Road	**66**	**66**	**67**[9]	1	1	C(67)	--
R-333/M-86	Golf Course	1	Trevino Drive	65	64	65	1	0	C(67)	--
R-334/M-87	Golf Course	1	Trevino Drive	**66**	**66**	**66**[9]	0	0	C(67)	--
R-335/M-88	Commercial	1	The Old Road	72	71	72	1	0	F	--
R-336/M-89	Golf Course	1	Trevino Drive	65	**66**	**66**[9]	0	1	C(67)	--
R-337/M-90	Commercial	1	Pico Canyon Road	67	67	68	1	1	F	--
R-338/M-91	Commercial	1	The Old Road	67	66	66	0	-1	F	--
R-339/M-92	Office	1	The Old Road	71	70	70	0	-1	E (72)	--
R-340/M-93	Commercial	1	The Old Road	74	74	74	0	0	F	--
R-341	Residential	1	Fourl Road	**67**	**68**	**68**	0	1	B(67)	A/E
R-342	Residential	1	Fourl Road	**68**	**68**	**68**	0	0	B(67)	A/E
R-343/M-94	Residential	1	Darbun Road	58	59	60	1	2	B(67)	--
R-344/M-95	Residential	1	Fourl Road	58	59	59	0	1	B(67)	--
R-345/M-96	Residential	1	Fourl Road	53	57	57	0	4	B(67)	--
R-346/M-97	Commercial	1	Calgrove Boulevard	69	70	71	1	2	F	--
R-347/M-98	Commercial	1	The Old Road	66	68	68	0	2	F	--
R-348	Residential	1	The Old Road	**68**	**71**	**71**	0	3	B(67)	A/E

Receptor No.	Land Use	No. of Units/ Receptors	Location	Existing Noise Level, dBA L_{eq}(h)	2035 Noise Level				Activity Category (NAC)	Impact Type
					Without Project	With Project	With Project Minus No Project Conditions	With Project Minus Existing Conditions		
R-349/M-99	Commercial	1	The Old Road	65	67	68	1	3	F	--
R-350/M-100	Recreation	1	Coltrane Avenue	55	58	58	0	3	C(67)	--
R-351/M-101	Recreation	1	Coltrane Avenue	75	77	77[9]	0	2	C(67)	--
R-352	Hotel	1	Westinghouse Place	59	62	63	1	4	E(72)	--

Source: LSA Associates, Inc., January 2013

A/E = Approach and Exceed
dBA = A-weighted decibels
dBA L_{eq}(h) = equivalent continuous sound level measured in A-weighted decibels
NAC = Noise Abatement Criteria

Table A-2 Acoustically Feasible Sound Barriers

Sound Barrier No.	Sound Barrier Location	Height (ft)	Approximate length (ft)	Highest Noise Reduction (dBA)	Number of Benefited Residences
1-2	Residential Property Line	6	315	5	2
		8	315	6	4
		10	315	8	4
		12	315	9	4
		14	315	10	4
		16	315	11	4
1-3	Residential Property Line	6	587	8	2
		8	587	9	4
		10	587	10	4
		12	587	11	4
		14	587	12	4
		16	587	13	4
1-3 Short	Residential Property Line	6	344	7	2
		8	344	8	4
		10	344	9	4
		12	344	9	4
		14	344	10	4
		16	344	10	4
1-4	Residential Property Line	6	768	6	1
		8	768	7	2
		10	768	8	2
		12	768	8	2
		14	768	8	2
		16	768	9	2
1-6	Residential Property Line	8	335	6	3
		10	335	7	3
		12	335	8	3
		14	335	9	3
		16	335	9	3
1-8	Right of Way	6	3154	5	1
		8	3154	5	1
		10	3154	5	1
		12	3154	5	1
		14	3154	5	1
		16	3154	5	1
		18	3154	5	2
		20	3154	6	2
		22	3154	6	3
1-9	Residential Property Line	6	234	8	1
		8	234	9	1
		10	234	10	1
		12	234	10	1
		14	234	10	1
		16	234	10	1
1-12	Right of Way	16	2757	5	2
		20	2757	5	2
		18	2757	6	6

Sound Barrier No.	Sound Barrier Location	Height (ft)	Approximate length (ft)	Highest Noise Reduction (dBA)	Number of Benefited Residences
1-13	Residential Property Line	8	1306	5	7
		10	1306	7	8
		12	1306	8	9
		14	1306	8	9
		16	1306	9	11
2-1	Residential Property Line	6	525	8	7
		8	525	9	7
		10	525	10	7
		12	525	11	7
		14	525	12	7
		16	525	12	7
2-2	Residential Property Line	6	626	6	8
		8	626	7	8
		10	626	8	8
		12	626	9	8
		14	626	9	8
		16	626	9	8
2-3	Residential Property Line	6	485	5	6
		8	485	7	6
		10	485	8	18
		12	485	9	18
		14	485	9	18
		16	485	10	18
2-4	Residential Property Line	6	482	7	17
		8	482	10	17
		10	482	13	17
		12	482	14	17
		14	482	15	17
		16	482	15	17
2-5	Right of Way	10	1539	6	7
		12	1539	6	19
		14	1539	6	29
		16	1539	7	29
2-6	Residential Property Line	6	758	6	3
		8	758	8	4
		10	758	9	4
		12	758	10	4
		14	758	11	5
		16	758	12	5
2-8	Right of Way	16	4469	5	15
		18	4469	6	51
		20	4469	7	65
2-9	Right of Way	10	1308	5	1
		12	1308	6	2
		14	1308	7	4
		16	1308	8	4
3-1	Right of Way	12	1842	5	1
		14	1842	6	1
		16	1842	7	1
3-2	Residential Property Line	8	118	6	1
		10	118	8	1
		12	118	9	1
		14	118	10	1
		16	118	11	1

Sound Barrier No.	Sound Barrier Location	Height (ft)	Approximate length (ft)	Highest Noise Reduction (dBA)	Number of Benefited Residences
3-3	Residential Property Line	8	969	6	3
3-3	Residential Property Line	10	969	9	12
3-3	Residential Property Line	12	969	11	12
3-3	Residential Property Line	14	969	12	12
3-3	Residential Property Line	16	969	13	15
3-4	Residential Property Line	12	1129	5	3
3-4	Residential Property Line	14	1129	6	17
3-4	Residential Property Line	16	1129	7	26
3-5	Residential Property Line	16	233	5	2
3-5	Residential Property Line	18	233	6	4
3-5	Residential Property Line	20	233	7	4
3-6	Residential Property Line	6	350	6	5
3-6	Residential Property Line	8	350	7	5
3-6	Residential Property Line	10	350	7	5
3-6	Residential Property Line	12	350	8	5
3-6	Residential Property Line	14	350	8	5
3-6	Residential Property Line	16	350	8	5
3-7	Residential Property Line	6	1142	6	9
3-7	Residential Property Line	8	1142	8	9
3-7	Residential Property Line	10	1142	10	9
3-7	Residential Property Line	12	1142	11	9
3-7	Residential Property Line	14	1142	12	9
3-7	Residential Property Line	16	1142	16	14
3-8	Residential Property Line	6	2189	7	10
3-8	Residential Property Line	8	2189	10	17
3-8	Residential Property Line	10	2189	12	24
3-8	Residential Property Line	12	2189	14	26
3-8	Residential Property Line	14	2189	15	39
3-8	Residential Property Line	16	2189	15	39
3-10a	Right of Way	12	2700	6	7
3-10a	Right of Way	14	2700	7	17
3-10a	Right of Way	16	2700	8	33
3-10a (Short)	Right of Way	12	1583	6	7
3-10a (Short)	Right of Way	14	1583	7	17
3-10a (Short)	Right of Way	16	1583	8	30
3-10b	Right of Way	14	1048	6	7
3-10b	Right of Way	16	1048	8	7

Source: Supplemental Noise Abatement Decision Report (Caltrans, February 2013)

dBA = A-weighted decibels

Table A-3 Summary of Noise Abatement Information

Sound Barrier No.	Sound Barrier Location	Height (ft)	Approximate length (ft)	Highest Noise Reduction (dBA)	Number of Benefited Residences	Total Reasonable Allowance	Estimated Sound Barrier Easement Cost	Estimated Sound Barrier Construction Cost	Estimated Sound Barrier Total Cost	Reasonable?
1-2	Residential Property Line	8	315	6	4	$220,000				No*
		10	315	8	4	$220,000				No*
		12	315	9	4	$220,000				No*
		14	315	10	4	$220,000				No*
		16	315	11	4	$220,000				No*
1-3	Residential Property Line	6	587	8	2	$110,000	$132,000	$130,811	$262,811	No
		8	587	9	4	$220,000	$132,000	$219,052	$351,052	No**
		10	587	10	4	$220,000	$132,000	$242,727	$374,727	No**
		12	587	11	4	$220,000	$132,000	$267,479	$399,479	No
		14	587	12	4	$220,000	$132,000	$288,644	$420,644	No
		16	587	13	4	$220,000	$132,000	$318,776	$450,776	No
1-3 Short	Residential Property Line	6	344	7	2	$110,000	$132,000	$94,874	$226874	No**
		8	344	8	4	$220,000	$132,000	$173,908	$305,908	No**
		10	344	9	4	$220,000	$132,000	$187,782	$319,782	No**
		12	344	9	4	$220,000	$132,000	$202,288	$334,288	No**
		14	344	10	4	$220,000	$132,000	$216,793	$348,793	No**
		16	344	10	4	$220,000	$132,000	$232,349	$364,349	No**
1-4	Residential Property Line	6	768	6	1	$55,000	$165,000	$207,079	$372079	No
		8	768	7	2	$110,000	$165,000	$236,177	$401,177	No
		10	768	8	2	$110,000	$165,000	$267,153	$432,153	No
		12	768	8	2	$110,000	$165,000	$316,037	$481,037	No
		14	768	9	2	$110,000	$165,000	$348,421	$513,421	No
		16	768	9	2	$110,000	$165,000	$383,152	$548,152	No
1-6	Residential Property Line	8	335	6	3	$165,000				No*
		10	335	7	3	$165,000				No*
		12	335	8	3	$165,000				No*
		14	335	9	3	$165,000				No*
		16	335	9	3	$165,000				No*

Table A-3 Summary of Noise Abatement Information

Sound Barrier No.	Sound Barrier Location	Height (ft)	Approximate length (ft)	Highest Noise Reduction (dBA)	Number of Benefited Residences	Total Reasonable Allowance	Estimated Sound Barrier Easement Cost	Estimated Sound Barrier Construction Cost	Estimated Sound Barrier Total Cost	Reasonable?
1-8	Right of Way	6	3154	5	1	$55,000	NA	$1,540,980	$1,540,980	No
		8	3154	5	1	$55,000	NA	$1,644,963	$1,644,963	No
		10	3154	5	1	$55,000	NA	$1,748,946	$1,748,946	No
		12	3154	5	1	$55,000	NA	$1,852,929	$1,852,929	No
		14	3154	5	1	$55,000	NA	$1,956,912	$1,956,912	No
		16	3154	5	1	$55,000	NA	$2,060,895	$2,060,895	No
		18	3154	5	2	$110,000	NA	$2,164,878	$2,164,878	No
		20	3154	6	2	$110,000	NA	$2,268,861	$2,268,861	No
		22	3154	6	3	$165,000	NA	$2,372,844	$2,372,844	No
1-9	Residential Property Line	6	234	8	1	$55,000	$33,000	$39,500	$72,500	No**
		8	234	9	1	$55,000	$33,000	$54,472	$87,472	No**
		10	234	10	1	$55,000	$33,000	$65,340	$98,340	No
		12	234	10	1	$55,000	$33,000	$75,421	$108,422	No
		14	234	10	1	$55,000	$33,000	$85,503	$118,503	No
		16	234	10	1	$55,000	$33,000	$96,371	$129,371	No
1-12	Right of Way	16	2757	5	6	$330,000	NA	$1,809,065	$1,809,065	No
		20	2757	6	6	$330,000	NA	$1,990,829	$1,990,829	No
		18	2757	5	1	$55,000	NA	$1,899,947	$1,899,947	No
1-13	Residential Property Line	8	1306	6	7	$385,000	$428,000	$463,626	$891,626	No
		10	1306	8	8	$440,000	$428,000	$524,282	$952,282	No
		12	1306	8	9	$495,000	$428,000	$580,549	$1,008,549	No
		14	1306	9	9	$495,000	$428,000	$636,816	$1,064,816	No
		16	1306	9	11	$605,000	$428,000	$697,472	$1,125,472	No
2-1	Residential Property Line	6	525	9	7	$385,000	$231,000	$234,208	$465,208	No**
		8	525	10	7	$385,000	$231,000	$504,533	$735,533	No
		10	525	11	7	$385,000	$231,000	$509,117	$740,117	No
		12	525	12	7	$385,000	$231,000	$551,535	$782,535	No
		14	525	13	7	$385,000	$231,000	$574,154	$805,154	No
		16	525	13	7	$385,000	$231,000	$598,538	$829,538	No

Table A-3 Summary of Noise Abatement Information

Sound Barrier No.	Sound Barrier Location	Height (ft)	Approximate length (ft)	Highest Noise Reduction (dBA)	Number of Benefited Residences	Total Reasonable Allowance	Estimated Sound Barrier Easement Cost	Estimated Sound Barrier Construction Cost	Estimated Sound Barrier Total Cost	Reasonable?
2-2	Residential Property Line	6	626	6	8	$440,000	$352,000	$117,639	$469,639	No**
		8	626	7	8	$440,000	$352,000	$138,297	$490,297	Yes
		10	626	8	8	$440,000	$352,000	$147,571	$499,571	No**
		12	626	9	8	$440,000	$352,000	$194,341	$546,341	No**
		14	626	9	8	$440,000	$352,000	$221,311	$573,311	No**
		16	626	10	8	$440,000	$352,000	$250,386	$602,386	No**
2-3	Residential Property Line	6	485	6	6	$330,000	$264,000	$96,097	$360,097	No
		8	485	8	6	$330,000	$264,000	$112,102	$376,102	No
		10	485	9	18	$990,000	$264,000	$114,828	$378,828	Yes
		12	485	10	18	$990,000	$264,000	$155,523	$419,523	Yes
		14	485	10	18	$990,000	$264,000	$176,419	$440,419	Yes
		16	485	11	18	$990,000	$264,000	$250,386	$514,386	Yes
2-4	Residential Property Line	6	482	7	17	$935,000	$176,000	$151,097	$327,097	Yes
		8	482	10	17	$935,000	$176,000	$167,102	$343,102	Yes
		10	482	13	17	$935,000	$176,000	$169,828	$345,828	Yes
		12	482	14	17	$935,000	$176,000	$210,523	$386,523	Yes
		14	482	15	17	$935,000	$176,000	$231,419	$407,419	Yes
		16	482	15	17	$935,000	$176,000	$305,386	$481,386	Yes
2-5	Right of Way	10	1539	6	10	$550,000	NA	$834,383	$834,383	No
		12	1539	6	19	$1,045,000	NA	$885,071	$885,071	No
		14	1539	7	29	$1,595,000	NA	$935,759	$935,759	Yes
		16	1539	7	29	$1,595,000	NA	$986,447	$986,447	Yes
2-6	Residential Property Line	6	758	6	3	$165,000	$165,000	$137,806	$302,806	No**
		8	758	8	4	$220,000	$165,000	$162,820	$327,820	No**
		10	758	9	4	$220,000	$165,000	$178,224	$343,224	No**
		12	758	10	4	$220,000	$165,000	$230,682	$395,682	No**
		14	758	11	5	$275,000	$165,000	$263,339	$428,339	No**
		16	758	12	5	$275,000	$165,000	$298,544	$463,544	No**
2-8	Right of Way	16	4469	5	20	$1,100,000	NA	$3,409,044	$3,409,044	No
		18	4469	6	53	$2,915,000	NA	$3,556,422	$3,556,422	No
		20	4469	7	65	$3,575,000	NA	$3,703,800	$3,703,800	Yes

Table A-3 Summary of Noise Abatement Information

Sound Barrier No.	Sound Barrier Location	Height (ft)	Approximate length (ft)	Highest Noise Reduction (dBA)	Number of Benefited Residences	Total Reasonable Allowance	Estimated Sound Barrier Easement Cost	Estimated Sound Barrier Construction Cost	Estimated Sound Barrier Total Cost	Reasonable?
2-9	Right of Way	10	1308	5	1	$55,000	NA	$760,721	$760,721	No
		12	1308	6	2	$110,000	NA	$803,786	$803,786	No
		14	1308	7	4	$220,000	NA	$846,851	$846,851	No
		16	1308	8	4	$220,000	NA	$889,916	$889,916	No
3-1	Right of Way	12	1842	6	1	$55,000	NA	$549,843	$549,843	No
		14	1842	6	1	$55,000	NA	$616,960	$616,960	No
		16	1842	7	1	$55,000	NA	$684,712	$684,712	No
3-2	Residential Property Line	8	118	7	1	$55,000	$55,000	$27,422	$82,422	No**
		10	118	8	1	$55,000	$55,000	$32,902	$87,902	No**
		12	118	9	1	$55,000	$55,000	$37,986	$92,986	No**
		14	118	10	1	$55,000	$55,000	$43,070	$98,070	No**
		16	118	11	1	$55,000	$55,000	$48,550	$103,550	No**
3-3	Residential Property Line	8	969	7	3	$165,000	$660,000	$191,018	$851,018	No
		10	969	9	12	$660,000	$660,000	$236,024	$896,024	No
		12	969	11	12	$660,000	$660,000	$277,771	$937,771	No
		14	969	12	12	$660,000	$660,000	$332,547	$992,457	No
		16	969	13	15	$825,000	$660,000	$364,524	$1,024,524	No
3-4	Residential Property Line	12	1129	5	5	$275,000	$891,000	$321,820	$1,212,820	No
		14	1129	6	17	$935,000	$891,000	$370,461	$1,261,461	No
		16	1129	7	26	$1,430,000	$891,000	$422,897	$1,313,897	Yes
3-5	Residential Property Line	16	233	5	2	$110,000	$132,000	$96,006	$228,006	No**
		18	233	6	4	$220,000	$132,000	$106,828	$238,828	No**
		20	233	7	4	$220,000	$132,000	$117,649	$249,649	No**
3-6	Residential Property Line	6	350	7	5	$275,000	$198,000	$59767	$257,767	Yes
		8	350	7	5	$275,000	$198,000	$76,022	$274,022	Yes
		10	350	8	5	$275,000	$198,000	$92,278	$290,278	Yes
		12	350	8	5	$275,000	$198,000	$107,357	$305,357	Yes
		14	350	8	5	$275,000	$198,000	$122,436	$320,436	No**
		16	350	8	5	$275,000	$198,000	$149,692	$347,692	No**

Table A-3 Summary of Noise Abatement Information

Sound Barrier No.	Sound Barrier Location	Height (ft)	Approximate length (ft)	Highest Noise Reduction (dBA)	Number of Benefited Residences	Total Reasonable Allowance	Estimated Sound Barrier Easement Cost	Estimated Sound Barrier Construction Cost	Estimated Sound Barrier Total Cost	Reasonable?
3-7	Residential Property Line	6	1142	6	9	$495,000	$462,000	$428,619	$890,619	No**
		8	1142	9	9	$495,000	$462,000	$481,658	$943,658	No**
		10	1142	10	9	$495,000	$462,000	$534,698	$996,698	No**
		12	1142	11	9	$495,000	$462,000	$583,899	$1,045,899	No**
		14	1142	12	14	$770,000	$462,000	$633,100	$1,095,100	No**
		16	1142	16	14	$770,000	$462,000	$686,140	$1,148,140	No**
3-8	Residential Property Line	6	2189	7	10	$550,000	$1,496,000	$723,001	$2,219,001	No**
		8	2189	10	17	$935,000	$1,496,000	$824,668	$2,320,668	No**
		10	2189	12	24	$1,320,000	$1,496,000	$926,334	$2,422,334	No**
		12	2189	14	26	$1,430,000	$1,496,000	$1,020,644	$2,516,644	No**
		14	2189	15	39	$2,145,000	$1,496,000	$1,114,953	$2,610,953	No**
		16	2189	15	39	$2,145,000	$1,496,000	$1,216,620	$2,712,620	No**
3-10a	Right of Way	12	2700	6	7	$385,000	NA	$1,213,850	$1,213,850	No
		14	2700	7	17	$935,000	NA	$1,387,807	$1,387,807	No
		16	2700	8	36	$1,980,000	NA	$1,529,127	$1,529,127	Yes
3-10a (Short)	Right of Way	12	1583	6	7	$385,000	NA	$716,227	$716,227	No
		14	1583	7	17	$935,000	NA	$818,217	$818,217	Yes
		16	1583	8	33	$1,815,000	NA	$901,073	$901,073	Yes
3-10b	Right of Way	14	1048	6	7	$385,000	NA	$545,405	$545,405	No
		16	1048	8	7	$385,000	NA	$600,258	$600,258	No

Source: Supplemental Noise Abatement Decision Report (Caltrans, February 2013)

dBA = A-weighted decibels

** Not approved by 100% of property owners during Truck lane Project*
*** Reasonable if property owners donate easement*

Appendix B – Sound Barrier Maps

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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CALCULATED-DESIGNED BY

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DATE REVISED

SOUNDWALL L-1

LAST REVISION 00-00-00
DATE PLOTTED => 13-FEB-2013
TIME PLOTTED => 11:28

BORDER LAST REVISED 7/2/2010

USERNAME => s133481
DGN FILE => 2332E1 - SoundWall_locations_SW1_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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USERNAME => s133481
DGN FILE => 2332E1 - SoundWall_locations_SW2_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

DATE PLOTTED => 13-FEB-2013
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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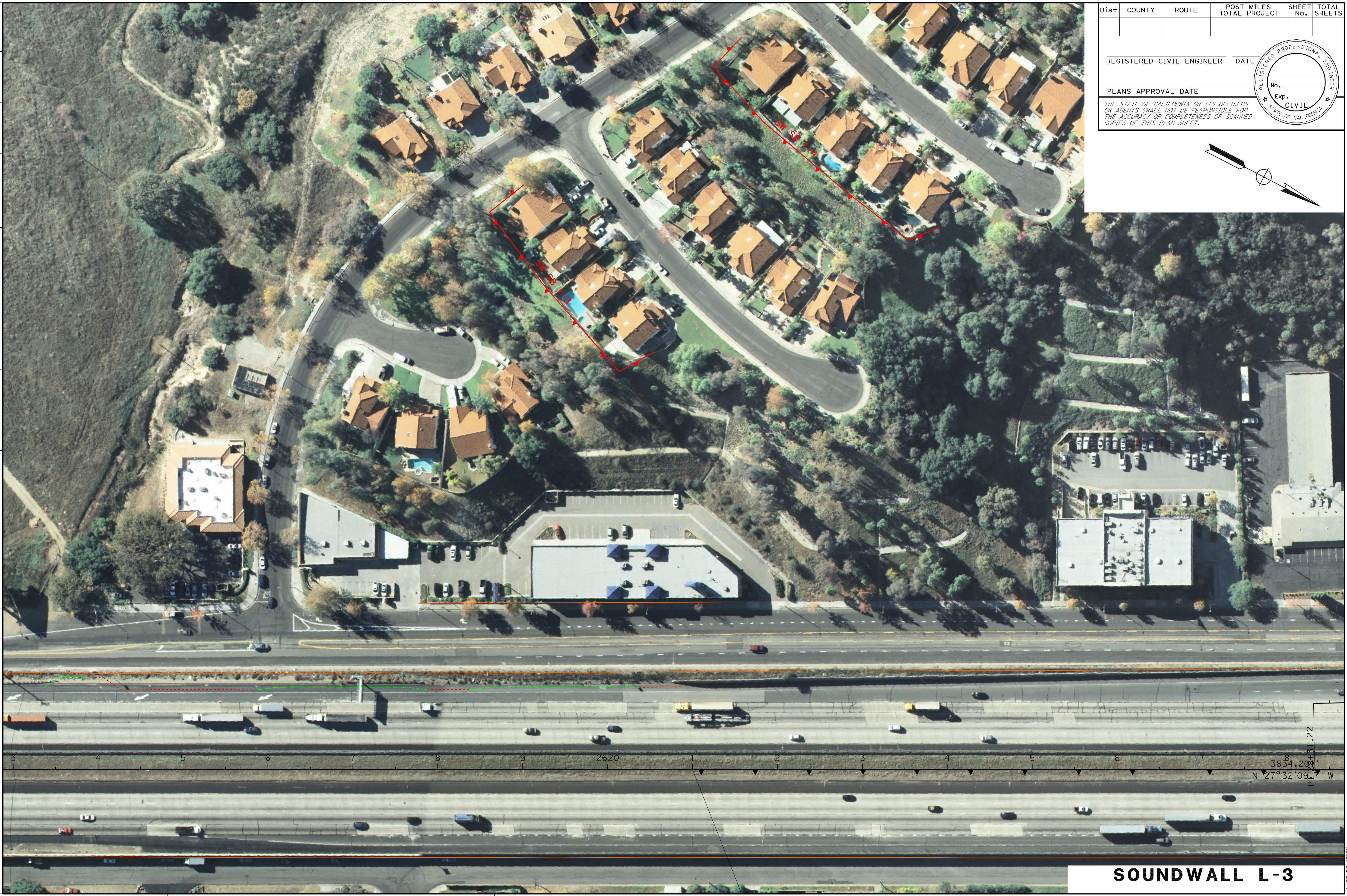

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SOUNDWALL L-3

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DATE PLOTTED => 13-FEB-2013
TIME PLOTTED => 11:29

BORDER LAST REVISED 7/2/2010

USERNAME => s133481
DGN FILE => 2332E1 - SoundWall_locations_SW3_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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SOUNDWALL L-4

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USERNAME => s133481
DGN FILE => 2332E1 - SoundWall_locations_SW4_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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SOUNDWALL L-5

BORDER LAST REVISED 7/2/2010

USERNAME => s133481
DGN FILE => 2332E1 - SoundWall_locations_SW5_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

LAST REVISION 00-00-00

DATE PLOTTED => 13-FEB-2013
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER   DATE

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USERNAME => s133481
DGN FILE => 2332E1 - SoundWall_locations_SW6_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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USERNAME => s133481
DGN FILE => 2332E1 - SoundWall_locations_SW7_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER   DATE

PLANS APPROVAL DATE

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SOUNDWALL L-8

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DATE PLOTTED => 13-FEB-2013
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BORDER LAST REVISED 7/2/2010

USERNAME => s133481
DGN FILE => 2332E1 - SoundWall_locations_SW8_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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USERNAME => s133481
DGN FILE => 2332E1 - SoundWall_locations_SW9_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

LAST REVISION 00-00-00

DATE PLOTTED => 13-FEB-2013
TIME PLOTTED => 11:31

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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USERNAME => s133481
DGN FILE => 2332E1 - SoundWall_locations_SW10_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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USERNAME => s133481
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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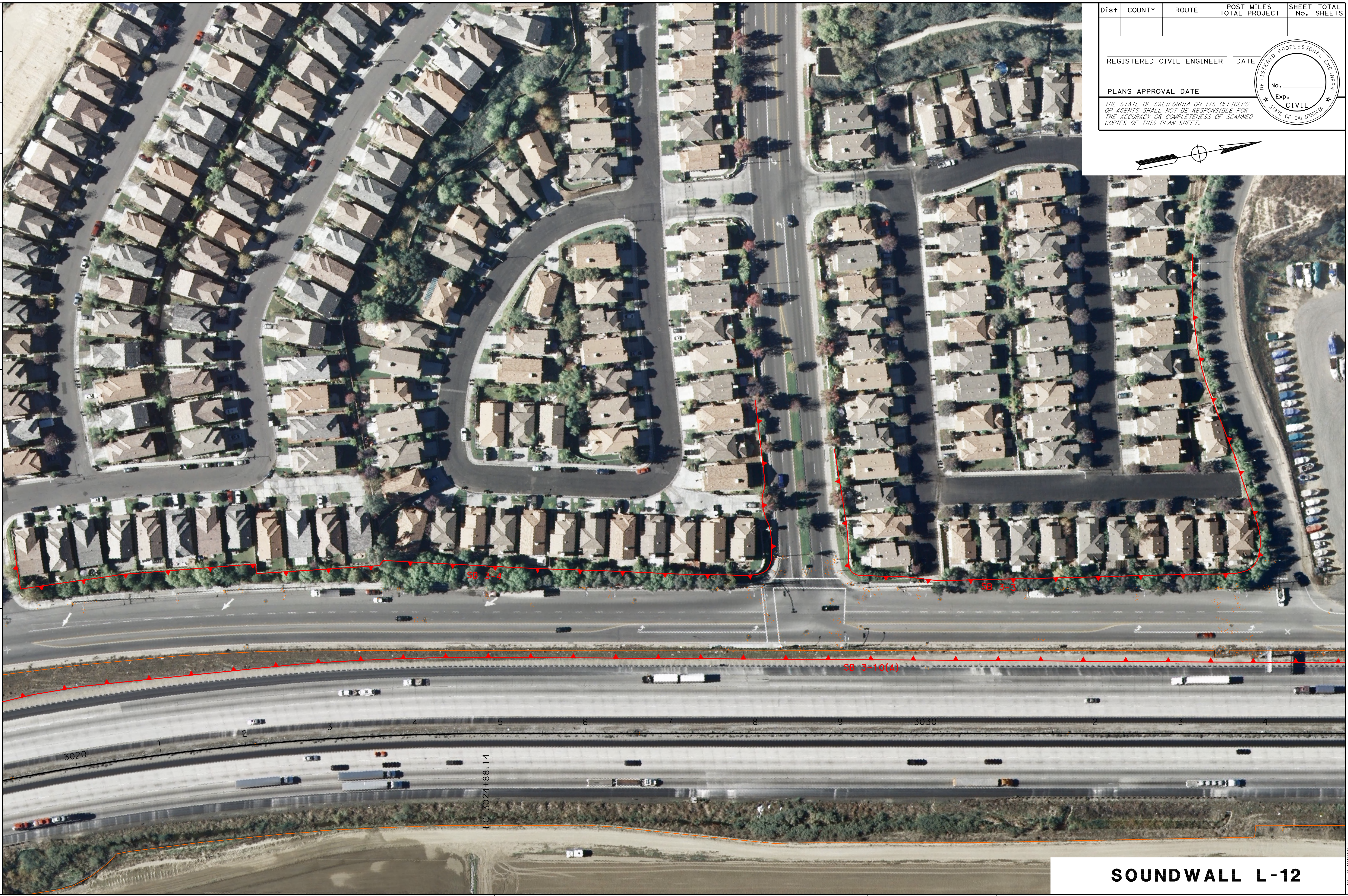

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USERNAME => s133481
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

DATE PLOTTED => 13-FEB-2013
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LAST REVISION 00-00-00

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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USERNAME => s133481
DGN FILE => 2332E1 - SoundWall_locations_SW13_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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USERNAME => s133481
DGN FILE => 2332E1 - SoundWall_locations_SW14_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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USERNAME => s133481
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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DGN FILE => 2332E1 - Reasonable_SW_K-1_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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USERNAME => s133481
DGN FILE => 2332E1 - Reasonable_SW_K-2_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES
0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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USERNAME => s133481
DGN FILE => 2332E1 - Reasonable_SW_K-3_2013-02-26.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

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DATE PLOTTED => 26-FEB-2013
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BORDER LAST REVISED 7/2/2010

USERNAME => s133481
DGN FILE => 2332E1 - Reasonable_SW_K-4_2013-02-26.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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USERNAME => s133481
DGN FILE => 2332E1 - Reasonable_SW_K-5_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

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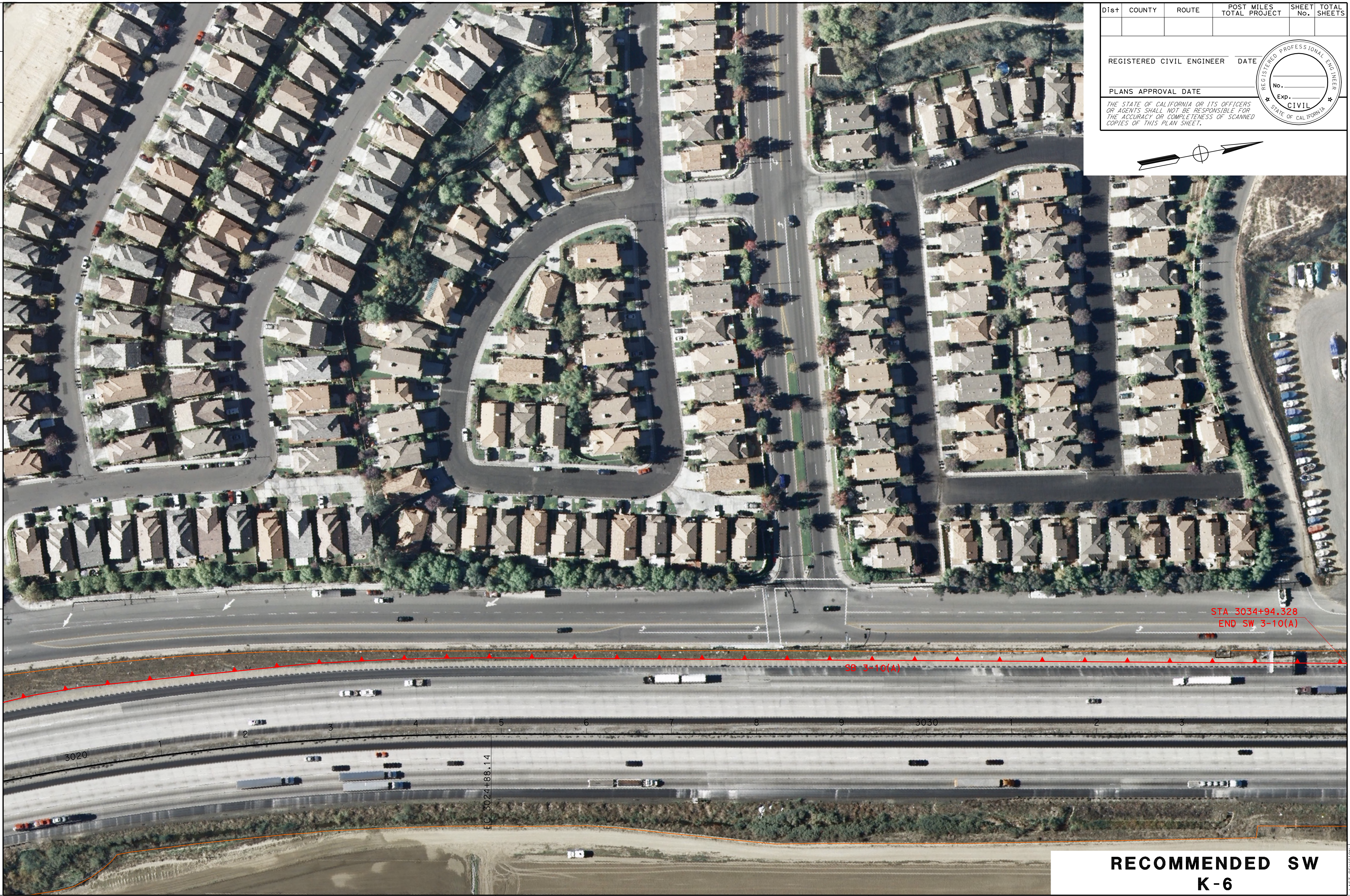

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USERNAME => s133481
DGN FILE => 2332E1 - Reasonable_SW_K-6_2013-02-12.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0000

PROJECT NUMBER & PHASE 07000003911