Air Quality Conformity Analysis

ORANGE COUNTY TRANSPORTATION AUTHORITY (OCTA)
INTERSTATE 5 HOV LANE IMPROVEMENT PROJECT
ORANGE COUNTY, CALIFORNIA

12-ORA-5-31.3/34.2
EA 0C8900
RTIP ID: 2H0703
Caltrans EFIS ID: 12-0000-0085

December 2014

Prepared By: _____ Date: 12/30/14
Jason Paukovits, Air Quality Analyst
AECOM

Caltrans

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Section 1. Introduction and Project Description

This Air Quality Conformity Analysis contains the information that is required to make a project-level air quality conformity determination for the Interstate 5 HOV Lane Improvement Project. This analysis has been prepared to be consistent with information published by FHWA related to Project-Level Conformity Analysis, the Standard Environmental Reference (SER) Air Quality Conformity Findings Checklist (included in Appendix F), applicable U.S. EPA project-level analysis guidance, the Transportation Conformity Regulations at 40 CFR 93 Subpart A, and Section 176(c) of the Federal Clean Air Act (42 USC 7506(c)).

This analysis only addresses the conformity requirements of the Federal Clean Air Act. It does not address general air quality analysis or studies conducted for the National Environmental Policy Act (NEPA) or the California Environmental Quality Act (CEQA), and only addresses pollutants for which the project area is designated nonattainment, or attainment with an approved Maintenance SIP, by the U.S. EPA.

This report is intended to provide all information needed by FHWA to make a project-level conformity determination for a project that falls under 23 USC 327 NEPA Assignment to Caltrans; or to support a full project-level conformity determination by Caltrans under 23 CFR 326 NEPA Assignment for projects that require a project-level conformity determination (including regionally significant projects as defined in 40 CFR 93.101), and are categorically excluded from NEPA analysis under 23 CFR 771.117(c)(22) or 23 CFR 771.117(c)(23).

1.1. Project Description

The section of I-5 located between State Route SR-55 and SR-57 within the cities of Tustin, Santa Ana, and Orange in Orange County, features one HOV lane each in the northbound and southbound directions. The regional location of the project is shown in Figures 1 and 2. These existing HOV lanes currently experience heavy traffic and failing LOS during peak periods. The primary purpose of the proposed project is to reduce existing and projected traffic congestion in the existing I-5 HOV lanes in this section of I-5 through the construction of a second HOV lane in each direction, reducing travel delay for users of these HOV lanes and enhancing the efficient movement of people and goods. Figure 3 shows the project limits, including the footprint and staging areas, of the Proposed Build Alternative. Construction of the proposed project would occur over approximately two years. The proposed project is anticipated to be open to traffic by 2018.

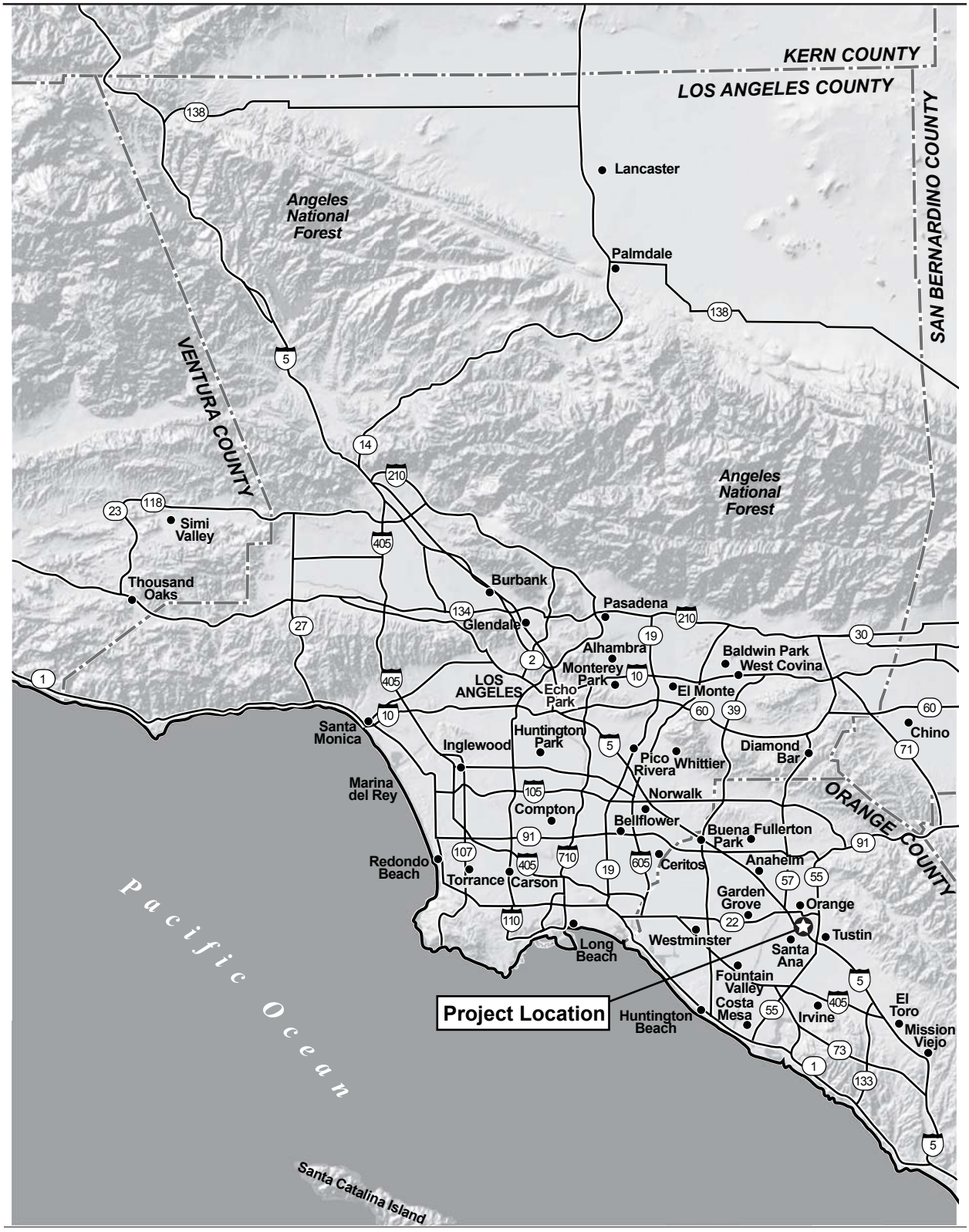


Figure 1
Regional Map

Source: ESRI 2013

25,000 12,500 0 25,000 Feet

Scale: 1:300,000; 1 inch = 25,000 feet

Figure 2
Project Vicinity Map

Path: P:\2011\60220190\06GIS\6.3_Layout\ND_EA\Fig_1_2_ProjectVicinity.mxd, 3/31/2014, sorensenj

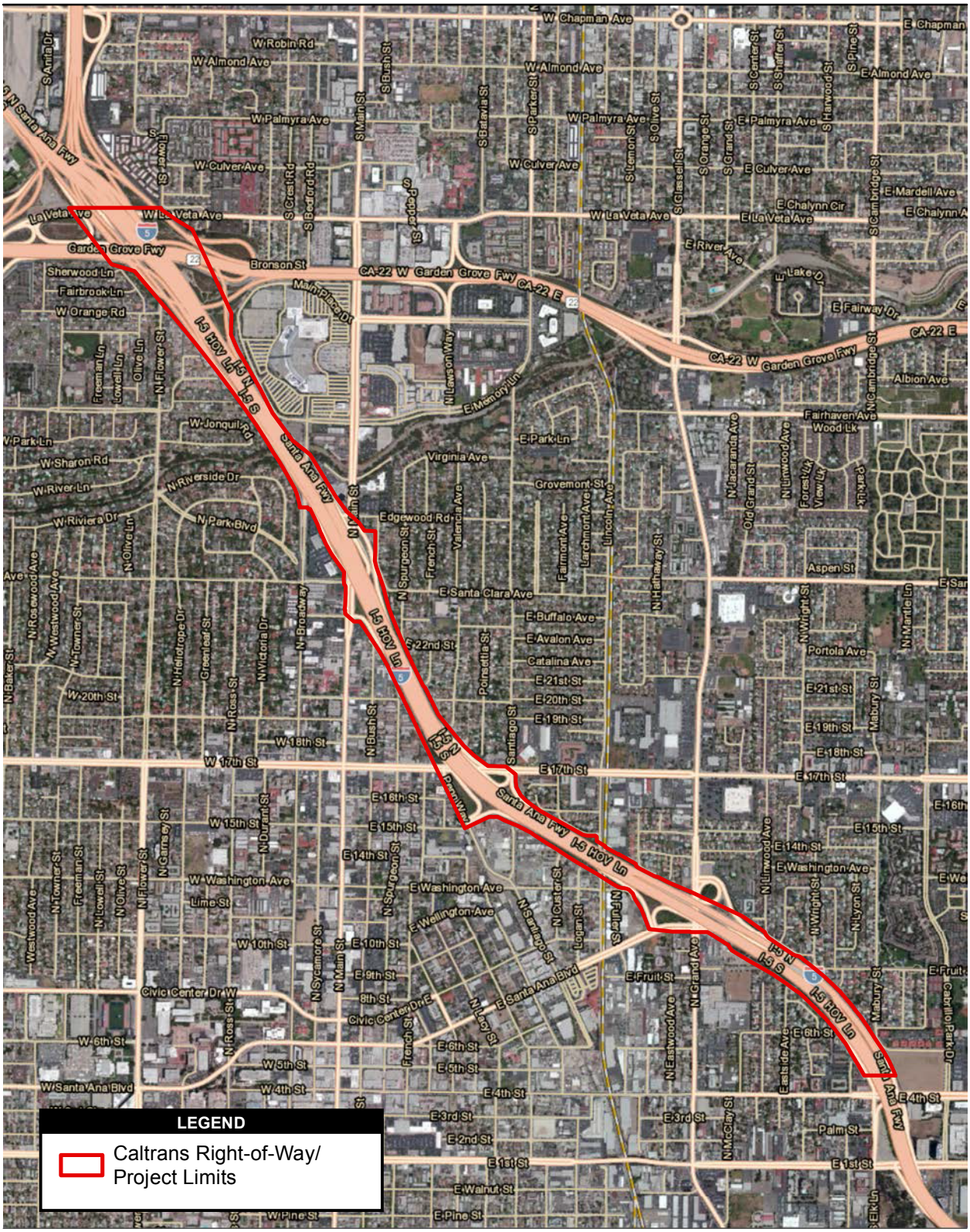


Figure 3
Proposed Limits

Path: P:\2011\60220190\06GIS\6.3_Layout\ND_EA\July\Fig_1_3_ProposedLimits.mxd, 7/15/2014, sorensenj

The Proposed Build Alternative (referred to as Alternative 5B in project planning documents) would add one new HOV lane (HOV-2) adjacent to the existing HOV lane (HOV-1) in both directions of I-5, generally between SR-55 and SR-57. The concrete barriers that currently separate the HOV-1 lane from the general purpose (GP) lanes in this span of I-5 would be removed. Continuous ingress/egress striping would be provided between the HOV-2 lane and the GP lanes throughout the project limits, except at locations where existing bridge columns are located between the HOV lanes and the GP lanes, including the Lincoln Avenue overcrossing, the North Broadway overcrossing, and the SR-22 separation. All improvements would occur within the existing freeway/roadway right-of-way boundaries, and the addition of the lanes would not require acquisition of any land.

To accommodate the addition of the HOV-2 lanes, each HOV-1 lane would be moved slightly toward the freeway centerline and a modified left shoulder would be constructed. The existing center median concrete barrier would be relocated at various locations and existing drainage inlets located along the concrete barriers would be relocated, as necessary. The GP lanes would be shifted slightly toward the outside, with a modified right shoulder to accommodate this shift. Shifting the GP lanes to the outside would be accomplished within the paved or landscaped Caltrans right-of-way. In the vicinity of the Lincoln Avenue overcrossing, moving the GP lanes toward the outside would require construction of a new tie-back retaining wall on the northbound and southbound sides of the freeway. Widening in the vicinity of the Lincoln Avenue overcrossing would entail approximately 10 feet of additional pavement width on each side. The retaining wall on the northbound side would be approximately 14 feet high and 1,700 feet long. The retaining wall on the southbound side would be approximately 12 feet high and 1,440 feet long. A portion of the replacement wall on the southbound side of the freeway would be built adjacent to the Santa Ana Boulevard/Grand Avenue exit ramp to accommodate modified ramp lanes.

Another feature of the Proposed Build Alternative would be removal of the Main Street HOV drop structure located west of the intersection of Main Street and East Edgewood Road, in the northern portion of the project. Under existing conditions, a concrete structure that crosses over the northbound side of I-5 provides a direct entrance to the northbound HOV lanes and a direct exit from the southbound HOV lanes, with access to and from North Main Street and East Edgewood Road in the city of Santa Ana. This overcrossing would be demolished and removed, and the access to and from the HOV lanes would be eliminated. A new concrete barrier would be installed on the west side of the affected portion of North Main Street, which in turn would be restriped to remove the right turn pocket lane that currently accesses this ramp. This also would require restriping, a reconfiguration of the signal at the intersection of North Main Street and East Edgewood Road and the potential extension of the southbound left turn pocket to the north

bound ramps. Below the structure, existing concrete barriers and retaining walls that currently separate the ramp lanes from the HOV lanes would be removed, and a new retaining wall would be constructed to account for the southbound HOV lanes' higher elevation than the northbound HOV lanes. The wall would be approximately 4 feet high and 1,400 feet long. All improvements would be constructed within the existing Caltrans and local road rights-of-way.

1.2. Air Quality Regulatory Framework

Table 1 shows that the proposed project is located in an area that is nonattainment for ozone and particulate matter ($PM_{2.5}$) and attainment-maintenance for nitrogen dioxide, carbon monoxide, and particulate matter (PM_{10}). This analysis focuses on these criteria pollutants. The conformity process does not address pollutants for which the area is attainment/unclassified, mobile source air toxics, other toxic air contaminants or hazardous air pollutants, or greenhouse gases.

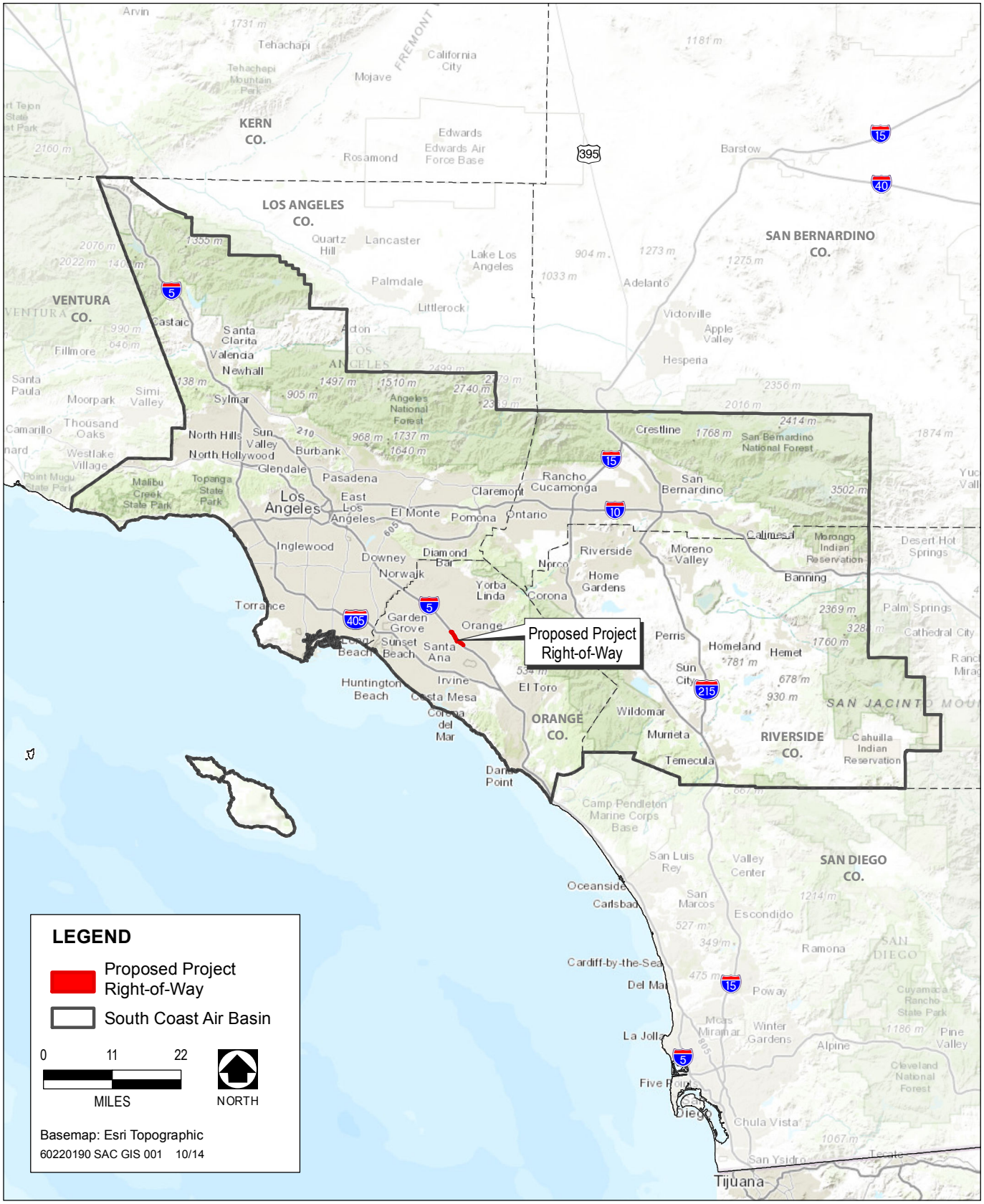
Table 1. Project Area Attainment Status

Criteria Pollutant	Federal Attainment Status
Ozone (O_3)	Nonattainment
Nitrogen Dioxide (NO_2)	Attainment/Maintenance
Carbon Monoxide (CO)	Attainment/Maintenance
Particulate Matter (PM_{10})	Attainment/Maintenance
Particulate Matter ($PM_{2.5}$)	Nonattainment

The proposed project lies within the South Coast Air Basin (SCAB), a 6,600-square-mile coastal plain bounded by the Pacific Ocean to the southwest and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The SCAB includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties. Figure 4 shows the relationship of the proposed project to the SCAB boundaries.

1.3. Public Review Comments Related to Air Quality Conformity

Comments related to air quality were received on the Initial Study/Environmental Assessment (IS/EA) prepared for the proposed project; however, no comments were received related specifically to air quality conformity. General air quality comments and responses are summarized in Appendix A. Public comment regarding the conformity analysis was requested as part of the circulation of the IS/EA which was circulated on August 11, 2014.



Source: California Air Resources Board, 2014

Figure 4: Relationship of Project to South Coast Air Basin

Section 2. Regional Conformity

The Interstate 5 HOV Improvement Project was included in the regional emissions analysis conducted by the Southern California Association of Governments (SCAG) for the conforming *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy: Toward a Sustainable Future* (RTP/SCS) Amendment No. 2. The project's design concept and scope have not changed significantly from what was analyzed in the regional emission analysis. This analysis found that the plan, which takes into account regionally significant projects and financial constraint, will conform to the state implementation plan(s) (SIP(s)) for attaining and/or maintaining the National Ambient Air Quality Standards (NAAQS) as provided in Section 176(c) of the Clean Air Act. FHWA determined that the RTP/SCS Amendment No. 2 conforms to the SIP on December 15, 2014. Additional documentation related to the regional emissions analysis is contained in Appendix B.

The Interstate 5 HOV Improvement Project is also included in the federal 2014/2015 to 2019/2020 Federal Transportation Improvement Program (2015 FTIP) and Amendment 15-01, which were adopted by SCAG on September 11, 2014 (SCAG 2014). The project's open-to-traffic year is consistent with (within the same regional emission analysis period as) the construction completion date identified in the federal TIP and/or RTP. The federal TIP gives priority to eligible Transportation Control Measures (TCMs) identified in the SIP and provides sufficient funds to provide for their implementation. FHWA determined that the TIP conforms to the SIP on December 15, 2014. Documentation related to the public and interagency consultation process conducted to develop the TIP is contained in Appendix B.

Section 3. Localized Impact (Hot-Spot) Conformity

3.1. Carbon Monoxide Hot-Spot Analysis

The California Project-Level Carbon Monoxide Protocol (CO Protocol) was used to analyze CO impacts for the Interstate 5 HOV Improvement Project. The hot-spot analysis covered the most congested intersections affected by the project in 2018 (opening year) and 2040 (design year).

The ambient air quality effects of traffic emissions were evaluated using the modeling procedures described in Appendix B of the CO Protocol and Appendix C of this document. The assumptions used in the hot-spot analysis are consistent with those used in the regional emissions analysis.

The modeling results shown in Appendix C indicate that project-related CO emissions would not cause or contribute to any new or worsened localized violations of the federal 1-hour or 8-hour CO ambient standards.

The NEPA document for this project does not identify specific avoidance, minimization, and/or mitigation measures for CO. A written commitment to implement such control measures is therefore not required.

The approved RTP and TIP for the project area has no CO mitigation or control measures that relate to the project's construction or operation. Therefore, a written commitment to implement CO control measures is not required.

3.2. PM2.5/PM10 Hot-Spot Analysis

The proposed project is not considered a project of air quality concern for PM10 and/or PM2.5 (POAQC) because it does not meet the definition of a POAQC as defined in U.S. EPA's Transportation Conformity Guidance.

The Guidance defines the following types of projects as POAQCs:

- New or expanded highway projects that have a significant number of or significant increase in diesel vehicles.
- Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.

- New bus and rail terminals, and transfer points, that have a significant number of diesel vehicles congregating at a single location.
- Expanded bus and rail terminals, and transfer points, that significantly increase the number of diesel vehicles congregating at a single location.
- Projects in, or affecting, locations, areas, or categories of sites that are identified in the $PM_{2.5}$ applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

A significant volume for a new highway is defined as an AADT volume of 125,000 vehicles or more, and a significant number of diesel vehicles is defined as 8% or more of that total AADT, or more than 10,000 truck AADT. A significant increase in diesel truck traffic is normally considered to be approximately 10%.

The proposed project is not a POAQC based on a review of USEPA criteria in Section 93.123(b)(1). Although the proposed project would add HOV capacity along the proposed segments of I-5, as determined in the traffic study, the project would not generate additional passenger vehicle or diesel vehicle traffic in the region. The proposed segments of I-5 currently experience approximately 5.5% to 7% of diesel vehicles, which is less than the 10% described above (Caltrans 2010b). According to the Transportation Analysis Report, truck percentages within the study area were approximately 6.0% in the weekday AM and PM peak hours (AECOM 2013). The proposed additional HOV lanes would not be available for heavy-duty diesel trucks to travel within; therefore, the increased capacity would not accommodate additional heavy-duty diesel trucks.

Implementation of the proposed project would not degrade intersections to LOS D, E, or F with a significant number of diesel vehicles. In addition, the proposed project does not include the construction of a new bus or rail terminal, nor expand an existing bus or rail terminal. Lastly, the proposed project is not located within and would not affect sites that are identified as sites of possible $PM_{2.5}$ violations pursuant to the $PM_{2.5}$ applicable implementation plan. The proposed project would increase the HOV capacity of certain segments of I-5, which would reduce current congestion and improve operation of the HOV lanes.

Considering the above, the proposed project would not exceed any of the criteria used to identify a POAQC; therefore, the proposed project is not considered a POAQC. PM hot-spot analysis is not required.

The project has undergone Interagency Consultation (IAC) regarding POAQC determination. IAC participants concurred that the project is not a POAQC (see Appendix D).

The approved PM10 and/or PM2.5 SIP has no control measures applicable to the proposed project. Therefore, a written commitment to implement control measures is not required.

3.3. Construction-Related Hot-Spot Emissions

40 CFR 93.123(c)(5) states that: "CO, PM10, and PM2.5 hot-spot analyses are not required to consider construction-related activities which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established 'Guideline' methods. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site."

Because construction of the project is expected to last less than five years, construction-related emissions related to it are not considered in the project-level or regional conformity analysis.

Appendix A. Public Review Comments and Responses Related to Air Quality Conformity

Comments related to air quality were received on the Initial Study/Environmental Assessment (IS/EA) prepared for the proposed project; however, no comments were received related specifically to air quality conformity. General air quality comments and responses are summarized in Appendix A. Public comment regarding the conformity analysis was requested as part of the circulation of the IS/EA on August 11, 2014.

Commenter	Comment #	Summary of Comment	Response
South Coast Air Quality Management District (SCAQMD)	Cover Letter	SCAQMD is concerned that the Draft ND provides an air quality analysis for the proposed project that is inadequate to determine potential air quality impacts pursuant to SCAQMD Guidance and CEQA Guidelines.	Thank you for your comment letter. We have addressed your detailed comments which follow.
	Detailed Comment 1	Air quality impacts many be understated in the ND and potentially significant impacts may not have been disclosed to the public. SCAQMD staff is concerned that the proposed project could increase health risk impacts to residents in close proximity to the Interstate-5 (I-5) Freeway. Specifically, the project will result in widening of the I-5 Freeway thereby placing general purpose lanes closer to residences; potentially resulting in elevated localized air quality impacts to adjacent residents.	Section 2.3.5 of the IS/EA did include project-level and localized air quality impact analyses. Tables 2-13 and 2-14 show that for all criteria pollutants, the Build scenario lessens emissions in both the opening year (2018) and future year (2040) scenarios. Thus, the proposed project would not contribute to any exceedances of applicable air quality standards. Table 2-15 shows the results of the localized CO hot-spot analysis which shows that the CO concentrations would be well under both state and federal CO standards. Table 2-12 contains information about the potential health effects of the criteria pollutants; however, as previously stated the proposed project would not increase emissions of these pollutants. This is also why a Health Risk Assessment is not warranted for the proposed project. Schulyer Heim Bridge Project and the I-710 Corridor Expansion Projects are both projects that involved large numbers of heavy-duty trucks and freight movement in the a very localized port area which would result in large amounts of diesel particulates; the proposed project does not present the same scenario. Lastly, the proposed project was determined in October 2012 not to be a Project of Air Quality Concern by the SCAG Transportation Conformity Working Group.

Commenter	Comment #	Summary of Comment	Response
	Detailed Comment 2	Construction emissions model input and congestion	Although Caltrans has not adopted South Coast Air Quality Management District's (SCAQMD) thresholds of significance, a quantitative analysis of construction emissions which did take into account applicable truck emissions was conducted. The results presented the Air Quality Analysis technical report (October 2013) showed that the proposed project would be less than SCAQMD thresholds for construction emissions. Caltrans and OCTA are committed to working with local jurisdictions to develop and implement a Transportation Management Plan that would seek to lessen traffic impacts during construction. We acknowledge your recommendation to do further analysis; however, we conclude that additional analysis is not warranted.
	Detailed Comment 3	Bottleneck at North and South End of Project Site	The proposed project would not result in bottlenecks at the north and south end of the proposed project; the proposed project is designed to help alleviate the already existing bottlenecks at State Route 55 and State Route 57. Please see Section 1.2.2 Project Need, *Logical Termini and Independent Utility*, for additional information.
	Detailed Comment 4	Climate change significance determination	Table 2-22 contains our assessment of the extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting. As shown in that table, both the Build and No-Build scenarios would have an increase in CO2 emissions in the opening year (2018) and future design year (2040) when compared to existing conditions. However, the Build scenario would result in lower CO2 emissions in the opening year and future design year than the No Build Scenario. Thus, the proposed project itself would not result in any increase operational greenhouse gas emissions.

Commenter	Comment #	Summary of Comment	Response
	Detailed Comment 5	CEQA Baseline	The significance of the proposed project's potential impacts was determined by comparison back to existing conditions. This is precisely what is required by Section 15125 of the CEQA Guidelines. Information regarding future No Build conditions was also included in the IS/EA to illustrate the project's incremental effects and to comply with the mandate of both CEQA and NEPA for analysis for a no build alternative.

Appendix B. Documentation Related to Regional Conformity

Regional Emissions Analysis Conducted for Conforming RTP

The regional emissions analysis found that regional emissions will not exceed the SIP's emission budgets for mobile sources in the build year, a horizon year at least 20 years from when conformity analysis started, and additional years meeting conformity regulation requirements for periodic analysis. The regional emissions analysis was based on the latest population and employment projections for Orange County that were adopted by the Southern California Associations of Governments (SCAG) at the time the conformity analysis was started in 2013. These assumptions are less than five years old. The modeling was conducted using current and future population, employment, traffic, and congestion estimates. The traffic data, including the fleet mix data, were based on the most recently available vehicle registration data included in the EMFAC model. EMFAC2011 was used, which was the most recent version of the model developed by the California Air Resources Board and approved for use in California by the U.S. EPA at the time of the analysis. Appendix B includes the project list for the RTP/SCS Amendment No.2.

Public and Interagency Consultation Process for TIP

The federal TIP was developed in accordance with SCAG's policies for community input and interagency consultation procedures. These procedures ensure that the public has adequate opportunity to be informed of the federal TIP development process and encourages public participation and comment. SCAG's public and interagency consultation process is discussed in detail in SCAG's public participation plan, which can be found at: http://www.ca-ilg.org/sites/main/files/file-attachments/adoptedpppamend3_010512.pdf. Responses to comments on the 2015 FTIP can be found at: http://ftip.scag.ca.gov/Pages/2015/final.aspx. Appendix B includes the project list for Amendment 15-01 to the 2015 FTIP.

U.S. Department of Transportation
Federal Highway Administration

California Division

650 Capitol Mall, Suite 4-100
Sacramento, CA 95814
(916) 498-5001
(916) 498-5008

December 15, 2014

In Reply Refer To:
HAD-CA

Ms. Rachel Falsetti
Chief, Division of Transportation Programming
California Department of Transportation
1120 N Street
Sacramento, CA 95814

SUBJECT: Approval of the 2015 Federal Statewide Transportation Improvement Program

Dear Ms. Falsetti:

We have completed our review of California's proposed 2014/15 - 2018/19 Federal Statewide Transportation Improvement Program (2015 FSTIP) and Statewide and Metropolitan Planning Certifications and related supporting documentation submitted by the California Department of Transportation (Caltrans) on November 15, 2014. The Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) approve the 2015 FSTIP and and this approval supersedes California's 2013 FSTIP and all subsequent amendments to the 2013 FSTIP that were approved by the FHWA and FTA on or after December 14, 2012.

Section 450.218 of Title 23, Code of Federal Regulations, requires the State to submit the updated FSTIP concurrently to the FTA and the FHWA at least every four years for joint approval. California's proposed 2015 FSTIP includes the project and project phase listings for proposed transportation projects located outside the planning area boundaries of the the State's designated Metropolitan Planning Organizations (MPOs). California's proposed 2015 FSTIP also incorporates, by reference, those projects included in 2015 Federal Transportation Improvements Programs (FTIPs) that were adopted in 2014 by the eighteen designated MPOs in California. This approval includes the eight MPO 2015 FTIP Amendments adopted prior to the FSTIP public review period.

The FHWA and the FTA have completed the air quality conformity determinations required by 23 CFR 450.216(b) for the MPO FTIPs in areas of the State designated as nonattainment or maintenance for national ambient air quality standards (NAAQS).

Based on our review of the information submitted with the State's proposed 2015 FSTIP, including revenue and proposed project funding information required to demonstrate financial constraint, and documentation for statewide and metropolitan planning process in support of California's Statewide Planning Certification, we are approving the 2015 FSTIP as proposed.

Any project or project phase listed in a MPO FTIP that is not included in the MPO's Regional Transportation Plan, is not approved for inclusion in the FSTIP pursuant to 23 CFR §§450.216(k) and 450.324(g).

Our FSTIP approval action includes project listings that indicate no funds are proposed for obligation during the four-year program period from 2014/15 to 2018/19. These projects and project phases cannot be advanced to implementation without an action by the FHWA and the FTA on the FSTIP pursuant to 23 CFR 450.216(l) and 450.328(e). Further, project or project phase funding included in the 2015 FSTIP that is listed/proposed for obligation outside the four year program cycle is accepted by the FHWA and the FTA as 'informational' in accord with 23 CFR §§450.216(a) and 450.324(a).

We are approving the 2015 FSTIP with the understanding that the eligibility of individual projects for funding is subject to the applicant's satisfaction of all FHWA and FTA funding requirements. This joint FHWA and FTA approval of the FSTIP does not constitute an eligibility determination for the federal funds proposed for obligation on the listed projects. If you have questions or need additional information concerning our approval of the 2015 FSTIP, please contact Wade Hobbs in the FHWA California Division office at (916) 498-5027, or by email at Wade.Hobbs@dot.gov; or Ted Matley in the FTA Region IX office at (415) 744-2590, or by email at Ted.Matley@dot.gov.

Sincerely,

Leslie T. Rogers
Regional Administrator
Federal Transit Administration

For
Vincent P. Mammano
Division Administrator
Federal Highway Administration

cc: (email)
Ray Sukys, FTA Region IX
Ted Matley, FTA Region IX
Karina O'Connor, EPA Region IX (OConnor.Karina@epa.gov)
Cari Anderson, CARB (Cari.Anderson@arb.ca.gov)
Muhaned Aljabiry, Caltrans OFTMP (Muhaned.Aljabiry@dot.ca.gov)
Fardad Falakfarsa, Federal Resources Office (Fardad.Falakfarsa@dot.ca.gov)
Garth Hopkins, Caltrans ORIP (Garth.Hopkins@dot.ca.gov)
Bureau of Indian Affairs, Pacific Region Roads Engineer
All California MPOs (18)
Jack Lord, FHWA
Jermaine Hannon, FHWA CADO
Christina Leach, FHWA NVDO

cc:
2015 FSTIP Binder

WEH/

U.S. Department of Transportation
Federal Highway Administration

California Division

650 Capitol Mall, Suite 4-100
Sacramento, CA 95814
(916) 498-5001
(916) 498-5008 (FAX)

December 15, 2014

In Reply Refer To:
HDA-CA

Mr. Hasan Ikhrata
Executive Director
Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017

Attention: Ms. Maria Lopez

SUBJECT: Conformity Determination for the Southern California Association of Governments (SCAG) 2015 FTIP and 2015 FTIP Amendment No. 15-01

Dear Mr. Ikhrata:

The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) have completed our reviews of the conformity determination for the Southern California Association of Governments (SCAG) 2015 Federal Transportation Improvement Program (FTIP) and 2015 FTIP Amendment No. 1. A FHWA/FTA air quality conformity determination is required for SCAG's new FTIP and FTIP Amendment No. 1 pursuant the Environmental Protection Agency's (EPA) *Transportation Conformity Rule*, 40 CFR Parts 51 and 93, and the United States Department of Transportation's *Final Rule on Statewide and Metropolitan Planning*, 23 CFR Part 450.

On September 11, 2014, SCAG adopted the 2015 FTIP and made the corresponding conformity determination via Resolution No. 14-562-3. The conformity analysis submitted indicates that all air quality conformity requirements have been met. Based on our review, and after consultation with the EPA Region 9 office, we find that SCAG's 2015 FTIP and 2015 FTIP Amendment No. 1 conforms to the applicable State Implementation Plan in accordance with the provisions of 40 Code of Federal Regulations (CFR) Parts 51 and 93. In accordance with the July 15, 2004 *Memorandum of Understanding (MOU) between the Federal Highway Administration, California Division, and the Federal Transit Administration, Region IX*, FTA has concurred with this conformity determination.

In accordance with the above MOU, the FHWA's single signature constitutes FHWA and FTA's joint air quality conformity determination for the SCAG 2015 FTIP and 2015 FTIP Amendment No. 1. If you have any questions pertaining to this conformity finding, please contact Jack Lord of the FHWA at (916) 498-5888, or by email at jack.lord@dot.gov.

Sincerely,

For: Vincent P. Mammano
Division Administrator

County	System	Lead Agency	RTP ID	FTIP ID	Begin PM	End PM	Route #	Route Name	From	To	Description	Baseline	Completion Year	Model Segment	Roadway Segment: Route Name	Roadway Segment: Length	Roadway Segment: From	Roadway Segment: To	Roadway Segment: Description	Roadway Segment: Existing Lanes	Roadway Segment: Proposed Lanes	Transit Segment: Route	Additional Details
Orange	Local Highway	ORANGE COUNTY TRANSPORTATION AUTHORITY (OCTA)	2A0705				0	Signal Synchronization Program	Countywide		Synchronize signals across jurisdictions and smart streets		2035	1									We have a map of the Signal Synch Network that we can provide to you.
Orange	Local Highway	IRVINE	ORA120514	ORA120514	0	0	0	Trabuco Road	Trabuco Rd & SR-133	Trabuco Rd & SR-133	IRVINE - TRABUCO RD @ SR-133 (ADD NEW ON-RAMPS AND OFF RAMPS AT TRABUCO & SR-133) (Preliminary Engineering/Pre-Design only)	X	2020		Trabuco Road	0	Trabuco Rd & SR-133	Trabuco Rd & SR-133	add off ramp	0	2		
Orange	Local Highway	TUSTIN	ORA55244	ORA55244	0	0	0	Tustin Ranch Road	Walnut Avenue	Warner Avenue	Tustin Ranch Road extension from Walnut Avenue to Warner Avenue including construction of a bridge over the OCTA/SCRRA railway line and Edinger Avenue. 3 new lanes in each direction for a total of 6.	X	2014		Tustin Ranch Road	1.5	Walnut Avenue	Warner Avenue	New facility: construction of new roadway extension	0	6		
Orange	Local Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	2A0705	ORA131108	0	0	0	Various	Various	Various	2011 CTFP REGIONAL TRAFFIC SIGNAL SYNCHRONIZATION PROGRAM. 102 MILES AND 355 SIGNALIZED INTERSECTIONS ALONG 10 HIGH VOLUME REGIONAL TRAFFIC CORRIDORS.		2035		Various	0.1	Various	Various	Traffic Signal Synch	0	0		
Orange	Local Highway	TUSTIN	2A0704	ORA150002	0	0	0	Warner Avenue	Redhill Avenue	Tustin Ranch Rd	Warner Avenue extension (new construction) from Redhill Avenue to Tustin Ranch Road. 3 new lanes in each direction for a total of 6 lanes.		2016		Warner Avenue	0.7	Redhill Avenue	Tustin Ranch Rd	New facility: construction of new roadway extension	0	6		Warner Avenue from Redhill Ave to Tustin Ranch Road. New facility 3 lanes in each direction.
Orange	State Highway	ORANGE COUNTY TRANSPORTATION AUTHORITY (OCTA)	2120010				0	Continuous Access HOV			Complete continuous access conversion of the Orange County HOV system where feasible.		2014	1									
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	2H01143	ORA111001	6.2	8.7	5				Interstate 5 Add 1 HOV in each direction from South of Pacific Coast Highway to San Juan Creek Road. PPNO:2531F		2016		5	2.5	Pacific Coast Highway	San Juan Creek Road	Add 1 HOV lane in each direction	4	5		
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	2H01143	ORA111002	3.7	6.2	5				Interstate 5 Add 1 HOV in each direction from South of Avenida Vista Hermosa to South of Pacific Coast Highway. PPNO 2531E		2016		5	2.5	Avenida Vista Hermosa	Pacific Coast Highway	Add 1 HOV lane in each direction	4	5		
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	2H01143	ORA990929	3	3.7	5				Interstate 5 Add 1 HOV in each direction from South of Avenida Pico to South of Avenida Vista Hermosa and Reconfigure Avenida Pico Interchange. PPNO:2531D. (Utilize $917,600 for FY 12/13 CMAQ, $334,600 for FY 14/15 IMD, $6.194M for FY 14/15 STIP, and $2.7		2017		5	0.7	Avenida Pico	Avenida Vista Hermosa	Add 1 HOV lane in each direction	4	5		
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	2H0703	ORA111210	29.1	34	5				I-5 FROM SR 55 TO SR 57 - ADD 1 HOV LANE EACH DIRECTION		2018		5	4.9	SR-55	SR-57	ADD 1 HOV LANE EACH DIRECTION	6	7		
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	2M0717	ORA131105	17.95	18.91	5				I-5 / Los Alisos. Add Ramps at Los Alisos or El Toro (utilize $344,100 toll credit match for FY13/14) PA&ED.		2023		5	0.96	Los Alisos/El Toro	Los Alisos/El Toro	Add new exit on I-5 at Los Alisos/El Toro Road	0	0		
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	2M0730	ORA111801	17.1	18.9	5				I-5 (Alicia Parkway to El Toro Road) Segment 3 - The project will add one general purpose lane on the I-5 in each direction between Alicia Parkway and El Toro Road (approximately 1.7 miles), Extend the 2nd HOV lane in both directions and add auxiliary lan		2023		5	1.8	Alicia Parkway	El Toro ROad	Add 1 GP lane each direction	4	5		
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	2M0730	ORA150020	12.4	14.5	5				I-5 (SR-73 to Oso Parkway) Segment 1 - The project will add one general purpose lane on the I-5 in each direction between SR-73 and Oso Creek (approximately 2.2 miles), reconstruct Avery Parkway interchanges and add auxiliary lanes where needed. Project i		2023		5	2.1	Sr-73	Oso Creek	Add 1 GP lane each direction	4	5		
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	2M0730	ORA150021	14.5	17.1	5				I-5 (Oso Creek to Alicia Parkway) Segment 2 - The project will add one general purpose lane on the I-5 in each direction between Oso Creek and Alicia Parkway (approximately 2.6 miles), reconstruct La Paz Road interchange and add auxiliary lanes where need		2023		5	2.6	Oso Creek	Alicia Parkway	Add 1 GP lane each direction	4	5		
Orange	State Highway	SAN JUAN CAPISTRANO	ORA120326	ORA120326	0.01	1.6	5				RECONSTRUCT I-5/SR-74 INTERCHANGE (IN SAN JUAN CAPISTRANO, ON ROUTE 74 FROM ROUTE 5 TO EAST OF THE CITY LIMIT. RECONSTRUCT THE ROUTE 74 AND ROUTE 5 INTERCHANGE) PPNO 4102 DUAL LEAD SJC CALTRANS. Split with ORA112601	X	2014		5	1.59	San Juan Capistrano Rte 74	Rte 5	RECONSTRUCT I-5/SR-74 INTERCHANGE	4	4		
Orange	State Highway	CALTRANS	2H01143				5	I-5	Avenida Pico	San Juan Creek Road	Add 1 HOV lane each direction from Avenida Pico to San Juan Creek Road and reconfigure Avenida Pico interchange		2017	1									Existing Configuration: No HOV Lanes

Co.	Sys	RTPID	Project ID	Amd	Ver	Program	Rt	PMB	PMA	Total Project Cost
ORA	S	2M0717	ORA131105	0	4	CAR63	5	17.95	18.91	57,954

Description: I-5 / Los Alisos. Add Ramps at Los Alisos or El Toro (utilize $344,100 toll credit match for FY13/14) PA&ED.

Fund	Fiscal Year	ENG	ROW	CON	Fund Total
	Prior	3,000			3,000
STPL-R		3,000			3,000

Agency: ORANGE COUNTY TRANS AUTHORITY (OCTA)

	ProjTotal	Prior	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	FY19/20
Fund Totals:	3,000	3,000						

Co.	Sys	RTPID	Project ID	Amd	Ver	Program	Rt	PMB	PMA	Total Project Cost
ORA	S	2M0717	ORA131105	1	2	CAR63	5	17.95	18.91	57,954

Description: I-5 / Los Alisos. Add Ramps at Los Alisos or El Toro (utilize $344,100 toll credit match for FY16/17) PA&ED.

Fund	Fiscal Year	ENG	ROW	CON	Fund Total
	16/17	3,000			3,000
STPL-R		3,000			3,000

Agency: ORANGE COUNTY TRANS AUTHORITY (OCTA)

	ProjTotal	Prior	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	FY19/20
Fund Totals:	3,000				3,000			

Co.	Sys	RTPID	Project ID	Amd	Ver	Program	Rt	PMB	PMA	Total Project Cost
ORA	S	2H0703	ORA111210	0	2	CAX69	5	29.1	34.	45,110

Description: I-5 FROM SR 55 TO SR 57 - ADD 1 HOV LANE EACH DIRECTION

Fund	Fiscal Year	ENG	ROW	CON	Fund Total
	Prior	3,185			3,185
	14/15		514		514
ORAFWY2		3,185	514		3,699
	Prior	2,800			2,800
STPL-R		2,800			2,800
	16/17			38,611	38,611
STIPACRP				38,611	38,611

Agency: ORANGE COUNTY TRANS AUTHORITY (OCTA)

	ProjTotal	Prior	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	FY19/20
Fund Totals:	45,110	5,985	514		38,611			

Co.	Sys	RTPID	Project ID	Amd	Ver	Program	Rt	PMB	PMA	Total Project Cost
ORA	S	2H0703	ORA111210	1	2	CAX69	5	31.3	34.2	42,471

Description: I-5 FROM SR 55 TO SR 57 - ADD 1 HOV LANE EACH DIRECTION

Fund	Fiscal Year	ENG	ROW	CON	Fund Total
	Prior	1,685			1,685
	14/15	1,492			1,492
	15/16		232		232
ORAFWY2		3,177	232		3,409
	14/15	2,800			2,800
CMAQ		2,800			2,800
	16/17			36,262	36,262
STIPACRP				36,262	36,262

Agency: ORANGE COUNTY TRANS AUTHORITY (OCTA)

	ProjTotal	Prior	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	FY19/20
Fund Totals:	42,471	1,685	4,292	232	36,262			

Co.	Sys	RTPID	Project ID	Amd	Ver	Program	Rt	PMB	PMA	Total Project Cost
ORA	S	ORA000193	ORA000193	0	2	CAR62	22	.01	.65	119,295

Description: HOV connectors from SR-22 to I-405, between Seal Beach Blvd. (I-405 PM 022.558) and Valley View St. (SR-22 PM R000.917), with a second HOV lane in each direction on I-405 between the two direct connectors. Toll Credit Match FY 12/13 for $619,380, FY 13/14 for $11, and FY 14/15 for $183.

Fund	Fiscal Year	ENG	ROW	CON	Fund Total
	Prior			49,624	49,624
AR-RSTP				49,624	49,624
	Prior	12,100	6,800	49,171	68,071
	14/15			1,600	1,600

Appendix C. Carbon Monoxide Hot-Spot Analysis Modeling Procedures

The ambient air quality effects of project-related traffic emissions were evaluated using the CALINE4 dispersion model (Benson 1989) and the modeling procedures described below. These procedures are based on Appendix B of the Caltrans/UCD CO Protocol.

Roadway and Traffic Conditions

Traffic volumes and operating conditions used in the modeling were obtained from the traffic analysis prepared for this project. Carbon monoxide modeling was conducted using both a.m. and p.m. peak-hour traffic volumes. The peak hour used was chosen to represent the one with the most stable meteorological conditions.

Carbon monoxide modeling was performed for the following scenarios:

- 20-year horizon year (2040) with project.

CO concentrations at the affected intersections were modeled for the future (2040) conditions. These conditions represent the maximum traffic volumes at the affected intersections. All other operational years would be anticipated to result in lower traffic volumes and fewer CO impacts than the 2040 future conditions.

Vehicle Emission Rates

Vehicle emission rates were determined using the California Air Resources Board's EMFAC2011 emission rate program. The analysis uses emission rates for the year 2018 (most conservative emission factor).

Receptor Locations

CO concentrations were estimated at four receptor locations located near the most congested intersections affected by the project. Those intersections included the following:

- Grand Avenue/1st Street
- I-5 SB Ramps/Santa Ana Boulevard
- SR-55 NB Ramps/4th Street

Receptors were chosen based on Caltrans' CO Protocol. Figure 5 shows the modeled intersections and surrounding receptors used for the proposed interchange analysis. Receptor heights were set at 5.9 feet (1.8 meters). U.S. EPA modeling guidance suggests that receptors normally be chosen to be around breathing height (1.8 meters).

Meteorological Conditions

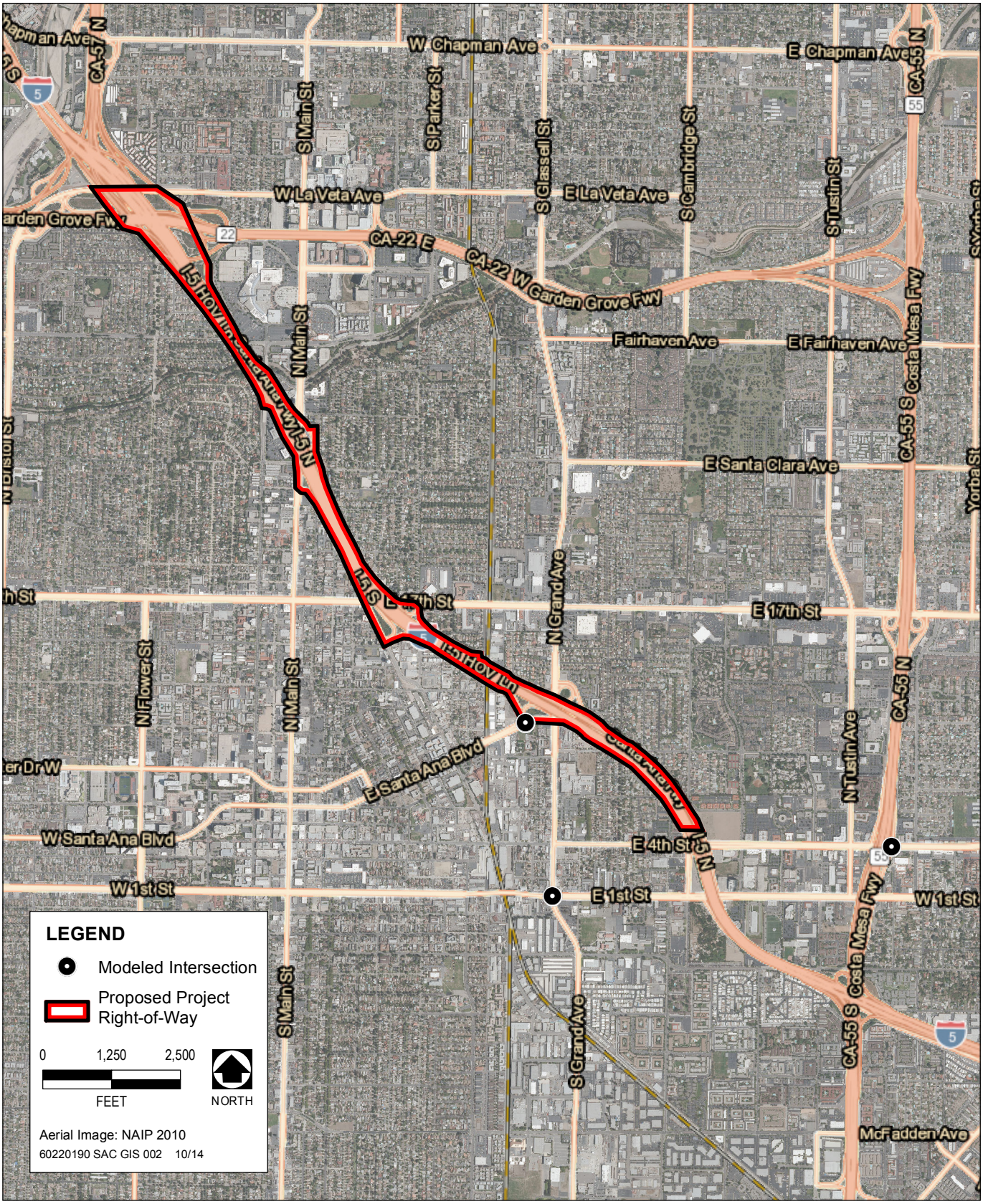
Meteorological inputs to the CALINE4 model were determined using the methodology recommended in the CO protocol (Garza et al. 1997). The meteorological conditions used in the modeling represent a calm winter period. The worst-case wind angles option was used to determine a worst-case concentration for each receptor. The meteorological inputs include:

- 0.5 feet per second wind speed,
- G stability class ground-level temperature inversion,
- 5 degree wind direction standard deviation, and
- 300 feet mixing height.

Background Concentrations and Eight-Hour Values

A background concentration of 3.0 parts per million (ppm) was added to the modeled 1-hour values to account for sources of CO not included in the modeling. Eight-hour modeled values were calculated from the 1-hour values using a persistence factor of 0.78. A background concentration of 3.0 ppm was added to the modeled 8-hour values. All background concentration data were taken from the monitoring data provided by the Air Resources Board (California Air Resources Board, 2007) for the 1630 Pampas Lane monitoring station in Anaheim, California.

The CO air quality modeling results are shown in Table 2.



Source: Caltrans 2014

Figure 5: Modeled Intersections and Surrounding Receptors

Table 2. Horizon Year 2040 Carbon Monoxide Concentrations

Intersection	Period	1-Hour CO Concentrations (ppm)	8-Hour CO Concentrations (ppm)
		Build	Build
Grand Avenue/1st Street	AM	3.9	3.0
	PM	4.1	3.2
I-5 SB Ramps/Santa Ana Boulevard	AM	3.9	3.0
	PM	3.7	2.9
SR-55 NB Ramps/4th Street	AM	3.7	2.9
	PM	3.7	2.9
Federal CO standards		35	9
State CO standards		20	9
Exceed Federal/State Standards		No	No

ppm = parts per million
Source: AECOM 2013

Appendix D. PM Interagency Consultation

A PM Conformity Hot-spot Analysis and Project Summary Form for Interagency Consultation was prepared and submitted to the SCAG TCWG for discussion and review during their monthly meeting on October 23, 2012. The purpose of this form is to provide sufficient information to allow the TCWG to determine if a project requires a project-level PM hot-spot analysis pursuant to Federal Conformity Regulations. The project was reviewed and approved by Interagency Consultation and a determination was made that the project is not a POAQC. The form and supporting determination are provided below.

TCWG Project-Level PM Hot Spot Analysis Project Lists

Review of PM Hot Spot Interagency Review Forms

October 2012	Determination
ORA052 ORA052 - Technical Addendum	Not a POAQC – Hot Spot analysis not required.
SBD355560 SBD355560 - Layout SBD355560 - RTP Modeling	Not a POAQC – Hot Spot analysis not required.
2H0703 Revised	Not a POAQC – Hot Spot analysis not required.

RTIP ID# *(required)* 2H0703

TCWG Consideration Date September 25, 2012

Project Description *(clearly describe project)*

The Orange County Transportation Authority (OCTA), in cooperation with the California Department of Transportation - District 12 (Caltrans), is proposing improvements to the Interstate 5 Freeway (1-5) between State Route 55 (SR-55) (post mile 29.1) and State Route 57 (SR-57) (post mile 34.0), approximately 3.9 miles within the cities of Tustin, Santa Ana and Orange in Orange County. Figures 1 and 2 show the project location and vicinity, respectively. The proposed project is primarily funded by OCTA with Renewed Measure M2 local sales tax. The proposed improvements include the addition of one High Occupancy Vehicle (HOV) lane in each direction on I-5 to provide additional HOV capacity and reduce congestion in the HOV lanes. Proposed improvements to the First Street entrance ramp to southbound I-5 are to improve operations in the general purpose lanes. All proposed improvements would be constructed within Caltrans' existing ROW limits. In addition, temporary construction related activities (staging areas) would also be located within Caltrans' ROW limits. The following proposed project related improvements would be consistent across both of the proposed build alternatives in the EIS (Alternatives 2A/2B and Alternatives 5A/5B):

- The following entrance/exit ramp gore areas would be slightly adjusted to accommodate the HOV widening:
  - Southbound (SB) I-5 Grand Avenue HOV entrance ramp
  - SB I-5 to Santa Ana Boulevard exit ramp
  - 17th Street to SB I-5 entrance ramp
  - SB I-5 to 17th Street exit ramp
  - Northbound (NB) I-5 to 17th Street exit ramp
  - SB I-5 to Main Street/Broadway exit ramp
  - Santa Clara Avenue to NB I-5 entrance ramp
  - Westbound (WB) SR-22 to NB I-5 entrance ramp
  - Eastbound (EB) SR-22 to SB I-5 connector
  - SB I-5 to EB SR-22 connector
  - NB I-5 to NB SR-57 connector
  - Main Street to SB I-5 Entrance ramp.
- Reconstruction or the new construction of retaining walls, within the State ROW limits and along the proposed edge of shoulder at select locations.
- Closure of the HOV barrier gap (between Lincoln Avenue and north of 17th Street) and relocation of the existing HOV concrete barriers on the northbound (NB) side of I-5 between Lincoln Avenue and the Santa Clara Avenue over-crossing entrance ramp.
- Relocation of the existing center median concrete barrier at various locations.
- Relocation of the existing drainage inlets along the existing concrete barriers.
- Design options involve existing structures that may be removed, including Main Street HOV drop exit and entrance ramps and the SB I-5 First Street "horseshoe" exit ramp.
- Relocate overhead sign structures to allow freeway widening and install new overhead sign structures that tailor the two HOV build alternatives.
- Construct Storm Water Treatment BMPs where feasible within the existing ROW.

Type of Project *(use Table 1 on instruction sheet)*

Roadway realignment, and
Reconfigure existing interchanges

County	**Narrative Location/Route & Postmiles**
Orange	1-5 between SR-55 (post mile 29.1) and SR-57 (post mile 34.0). **Caltrans Projects – EA#** 12-ORA-5-30.26/34.00

Lead Agency: OCTA, in cooperation with Caltrans-District 12

Contact Person	**Phone#**	**Fax#**	**Email: dmak @octa.net**
Dennis Mak, P.E.	(714) 560-5826		

Hot Spot Pollutant of Concern *(check one or both)* **PM2.5 X** **PM10 X**

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

Categorical Exclusion (NEPA)		**EA or Draft EIS**	**FONSI or Final EIS**	**PS&E or Construction**	**Other**
	X				

Scheduled Date of Federal Action: Jan 2014

NEPA Delegation – Project Type *(check appropriate box)*

Exempt	**Section 6004 – Categorical Exemption**		**Section 6005 – Non-Categorical Exemption**
		X	

Current Programming Dates *(as appropriate)*

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	Jan 2011	Jan 2014	n/a (all Caltrans ROW)	2016
End	Jan 2014	Dec 2014	n/a (all Caltrans ROW)	2018

Project Purpose and Need (Summary): *(attach additional sheets as necessary)*

The primary purpose of the proposed project is to improve traffic operations and reduce congestion on the I-5 from north of the SR-55 to south of the SR-57 to improve the safe and efficient local and regional movement of people and goods, while minimizing environmental and community impacts. The project is needed to address the following issues:

- Congestion and travel delay in the HOV lanes within the project limits.
- Congestion in the SB general purpose lanes between Fourth Street and SR-55.

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*

The land uses adjacent to the 3.9 mile improvement area consist of the following:

City of Tustin

- High Density Residential
- Medium Density Residential
- Mobile Home Park
- Professional Office
- Public/Institutional

City of Santa Ana

- Medium Density Residential
- Low Density Residential
- Urban Neighborhood
- Professional & Admin. Office
- District Center
- Open Space
- General Commercial
- Industrial

City of Orange

- Medium Density Residential
- Low Density Residential
- Low Medium Residential
- General Commercial Max.

Opening Year (2018): HOV Build and No Build:

LOS, AADT, % and # trucks, truck AADT of proposed facility
LOS = (see Table 4-2 No Build; Tables 4-8, 4-9, 4-16, 4-17 Build)

AADT = 183,000 to 190,000 (SB); 160,000 to 175,000 (NB)

Truck AADT = 9,500 to 10,500 (SB); 9,000 (NB)

Truck % = 5.4 % (SB and NB)

RTP Horizon Year / Design Year(2040): HOV Build and No Build:

LOS, AADT, % and # trucks, truck AADT of proposed facility
LOS = (see Table 4-23 No Build; Tables 4-29, 4-30, 4-37, 4-38 Build)

AADT = 191,000 to 216,000 (SB); 181,000 to 199,000 (NB)

Truck AADT = 10,500 to 12,000 (SB); 10,500 to 11,000 (NB)

Truck % = 5.7 % (SB); 5.3 % (NB)

Opening Year(2018): If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

See Tables 1, 2, 3, and 4

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

See Tables 1, 2, 3, and 4

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)*

Provision of any of the HOV Lane Alternatives, 2A, 2B, 5A, and 5B, eliminates capacity constraints, thereby attracting additional HOV users to the study segment. The additional HOV users would increase density of the HOV lanes, but would cause only one location to fail. Several HOV locations would have demand for more than 1,600 vehicles per lane, which exceeds Caltrans' preferences. Since the mainline volumes are not substantially affected by the project, there would be only minor changes in queues and weaving along the I-5. In addition, there would be minor changes to local intersection volumes due to increases in HOV volumes. Overall, HOV Lane Alternatives 2A/2B and 5A/5B would be almost identical operationally. HOV Lane Alternatives 2B and 5B would result in additional rerouting of vehicles on local streets and slight worsening in mainline operations and localized intersections due to the elimination of the Main Street direct HOV ramps. However, these changes would not impact any of the study area intersections, as evidenced by the intersection level of service analysis.
Ramp Alternatives A and B would improve the weave density with Ramp Alternative A performing slightly better due to the longer weaving distance available with this alternative. However, the magnitude of improvements is limited due to the overall over capacity conditions on the I-5 mainline. Reconfiguring and relocating the First Street southbound on-ramp (and the associated changes to the Fourth Street northbound off-ramp) would cause changes in the local circulation patterns, both on the mainline and surface streets. As such, both alternatives would cause a minor diversion of vehicles to SR-55; however, these would not be substantial enough to affect roadway and freeway conditions. In addition to the diversion of vehicles to the SR-55, the local streets circulation patterns would further be disrupted by the redistribution required for the ramp reconfigurations. As shown in the intersection level of service analysis under Ramp Alternative A and B, none of the key ramp locations would be impacted due to the rerouting of vehicles due to the closure of the I-5 southbound on-ramp at First Street or any other configuration changes. Evaluation of queuing at ramp locations also identified that adequate storage is provided to accommodate anticipated queues (AECOM Project Traffic Report 2012)

Comments/Explanation/Details *(attach additional sheets as necessary)*

The proposed project is within a nonattainment area for federal PM2.5 and PM10 standards. Therefore, per 40 CFR Part 93 analyses are required for conformity purposes. However, the EPA does not require hotspot analyses, qualitative or quantitative, for projects that are not listed in Section 93.123(b)(1) as an air quality concern.

This project fits the example of projects that are not an air quality concern in in Appendix A of the 2006 EPA guidance (Transportation Conformity Guidance for Qualitative Hot-spot Analysis in PM Nonattainment and Maintenance Areas):

> Any new or expanded highway project that primarily services gasoline vehicle traffic (i.e., does not involve a significant number or increase in the number of diesel vehicles), including such projects involving congested intersections operating at Level-of-Service D, E, or F;

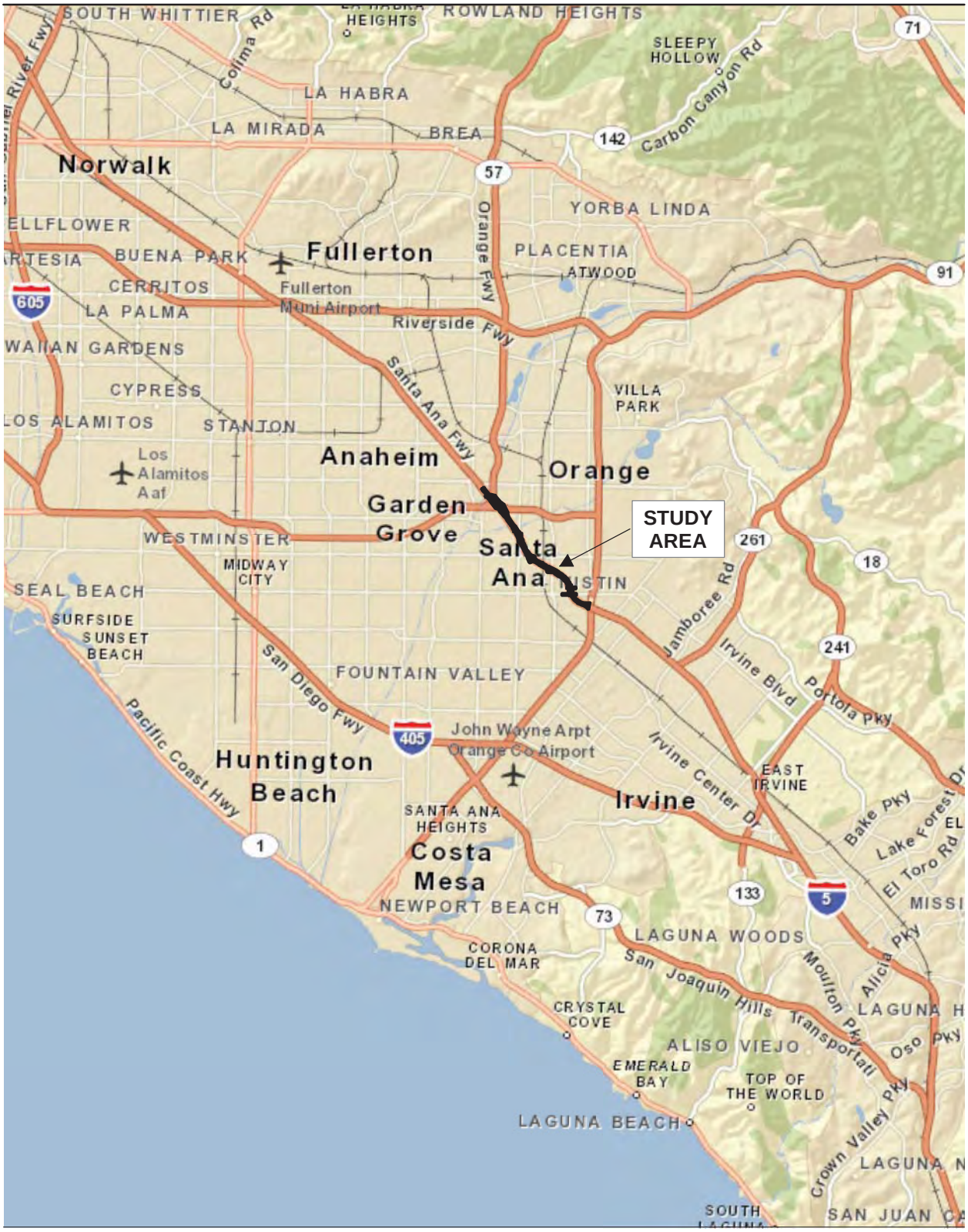
This project proposes additional HOV Lanes which primarily services gasoline vehicle traffic. The truck volume for no build and all alternatives for existing conditions, year 2018 and year 2040, and LOS is provided in the table on the following page.

Therefore, the proposed project is not a project of air quality concern (POAQC) and meets the Clean Air Act requirements and 40 CFR 93.116 without any explicit hot-spot analysis. The proposed project would not create a new, or worsen an existing, PM10 or PM2.5 violation.

OCTA I-5 TCWG Form
Supplemental Traffic Data

Location		ADT				
		Existing	2018 No Build	2018 Build	2040 No Build	2040 Build
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	117,628	120,206	121,640	128,316	134,240
I-5 n/o 17th/Penn off-ramp	SB	183,147	187,571	190,530	202,967	213,740
I-5 n/o Santa Ana off-ramp	SB	176,136	180,202	183,570	195,774	206,940
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	182,509	187,250	190,600	202,272	216,020
I-5 s/o SR-55 HOV exit	SB	165,428	169,525	171,720	185,791	191,500
I-5 s/o SR-55 HOV ramp merge (south of Grand HOV off)	NB	197,588	204,769	206,400	227,476	234,130
I-5 s/o 17th off-ramp	NB	162,157	168,983	170,580	189,775	197,070
I-5 s/o Main/Broadway off-ramp	NB	166,695	171,985	174,460	188,148	198,870
I-5 s/o SR-57 HOV exit (North of Main HOV on)	NB	153,630	160,551	162,820	177,211	191,710

Location		Truck ADT			
		HV %	Existing	2018	2040
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	5.50%	6,470	6,690	7,380
I-5 n/o 17th/Penn off-ramp	SB	5.50%	10,073	10,480	11,760
I-5 n/o Santa Ana off-ramp	SB	5.50%	9,687	10,100	11,380
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	5.50%	10,038	10,480	11,880
I-5 s/o SR-55 HOV exit	SB	5.50%	9,099	9,440	10,530
I-5 s/o SR-55 HOV ramp merge (south of Grand HOV off)	NB	5.50%	10,867	11,350	12,880
I-5 s/o 17th off-ramp	NB	5.50%	8,919	9,380	10,840
I-5 s/o Main/Broadway off-ramp	NB	5.50%	9,168	9,600	10,940
I-5 s/o SR-57 HOV exit (North of Main HOV on)	NB	5.50%	8,450	8,960	10,540



Source: ESRI 2011

4 2 0 4 Miles

Scale: 1:250,000; 1 inch = 4 miles

Figure 1
Regional Map

Path: P:\2011\60220190\06GIS\6.3_Layout\OCTA_I-5\regional_map.mxd, 5/23/2012, augellop

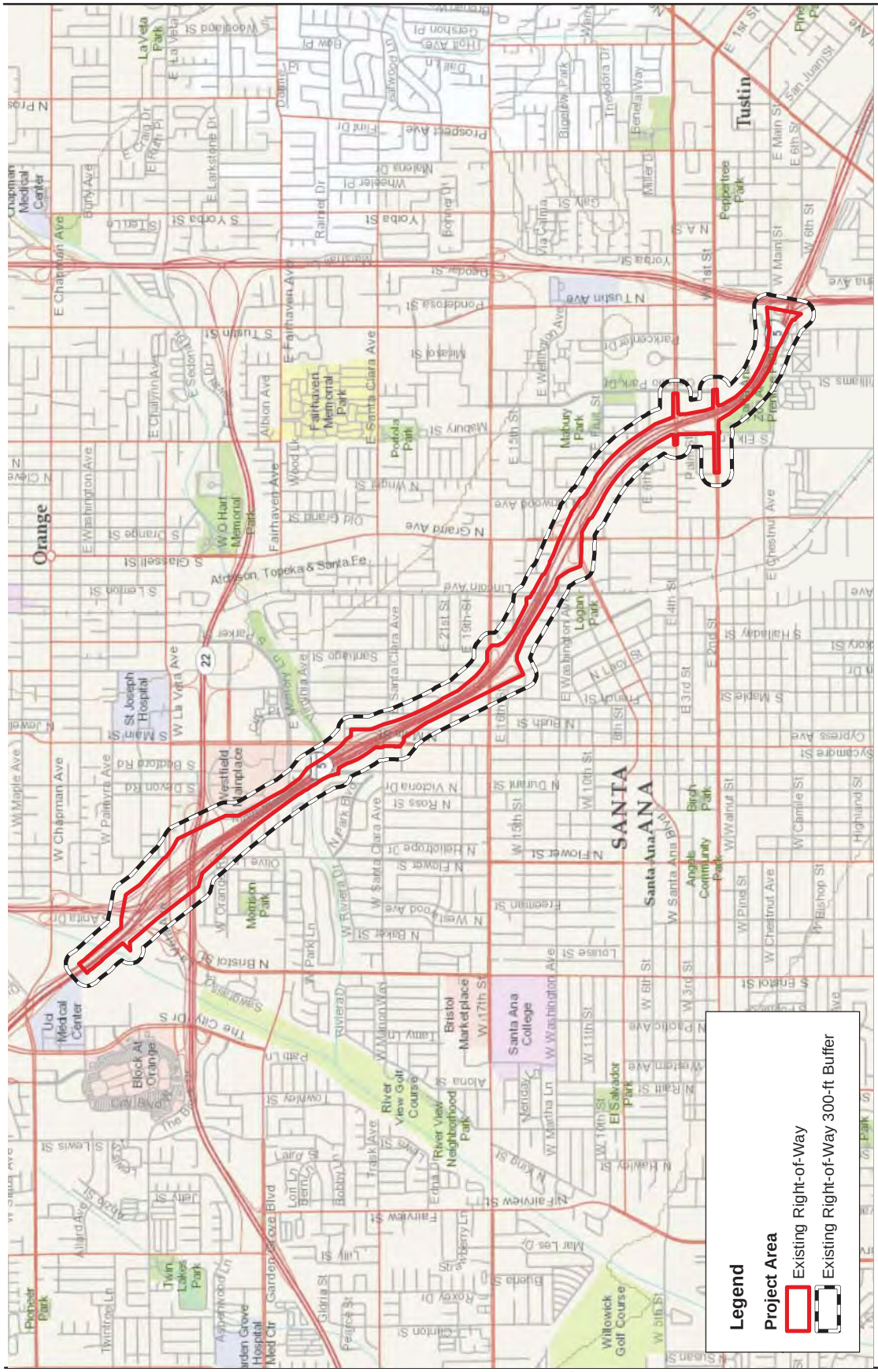


Figure 2
Vicinity Map

Path: P:\2011\60220190\06GIS\6.3_Layout\OCTA_I-5\vicinity_map.mxd, 5/23/2012, augellop

ORANGE COUNTY RTP PROJECTS

ORANGE COUNTY RTP PROJECTS								
CATEGORY	RTP ID	ROUTE #	ROUTE NAME	FROM	TO	DESCRIPTION	PROJECT COMPLE-TION BY*	PROJECT COST ($1,000'S)
ARTERIAL	2A0703	0	M1 ROADWAY PROJ-ECTS	COUNTYWIDE		COMPLETION OF MEASURE M ROADWAY PROJECTS	ONGOING	$37,118
ARTERIAL	2A0704	0	REGIONAL CAPACITY PROGRAM	COUNTYWIDE		COMPLETE MPAH, IMPROVE ARTERIAL CAPACITY	ONGOING	$1,124,497
ARTERIAL	2A0705	0	SIGNAL SYNCHRONI-ZATION PROGRAM	COUNTYWIDE		SYNCHRONIZE SIGNALS ACROSS JURISDICTIONS AND SMART STREETS	ONGOING	$823,265
ARTERIAL	2A0706	0	IRVINE CENTER DRIVE	AT I-405		WIDEN OVERCROSSING	2025	$11,176
AUXILIARY	2M01108	5	I-5 SB	LA PAZ ROAD	OSO PARKWAY	EXTEND AUXILIARY LANE THROUGH INTERCHANGE	2030	$5,322
AUXILIARY	2M01110	5	I-5 SB	ALICIA PARKWAY	LA PAZ ROAD	EXTEND AUXILIARY LANE THROUGH INTERCHANGE	2030	$19,510
AUXILIARY	2M0704	55	SR-55 NB	DYER	EDINGER	ADD AUXILIARY LANE	2030	$146,633
AUXILIARY	2M01125	91	SR-91 WB	NB SR-55	WB SR-91 AT TUSTIN	ADD 1 AUX LANE WESTBOUND	2014	$115,394
AUXILIARY	2M04130	405	I-405 SB	SR-133	IRVINE CENTER DRIVE	ADD 2ND AUXILIARY LANE	2020	$10,892
AUXILIARY	2M04131	405	I-405 NB	JEFFREY	CULVER	ADD AUXILIARY LANE	2020	$13,927
GRADE SEPA-RATION	2GL04	0	GRADE SEPARATION	LOSSAN/BNSF		CONSTRUCT GRADE SEPARATIONS AT SELECT LOCATIONS ALONG THE LOSSAN AND BNSF CORRIDORS	ONGOING	$718,976
HOV	2H01143	5	I-5	COAST HIGHWAY	PICO	ADD 1 HOV LANE EACH DIRECTION	2018	$202,680
HOV	2H0702	5	I-5	BARRANCA PARKWAY		BARRANCA PARKWAY HOV INTERCHANGE IMPROVEMENT - ADD SB HOV ON-RAMP AND NB HOV OFF-RAMP	2021	$24,966
HOV	2H0703	5	I-5	SR-55	SR-57	ADD 1 HOV LANE EACH DIRECTION	2035	$600,929
HOV	2H0705	57	SR-57	CERRITOS		HOV DROP RAMP	2035	$277,056
HOV	2H0706	73	SR-73	I-405		HOV CONNECTOR	2035	$664,935
HOV	2H0707	73	SR-73	I-405	MACARTHUR	ADD 1 HOV LANE EACH DIRECTION	2035	$236,421
HOV	2H01148	405	I-405	AT VON KARMAN		HOV DROP RAMP	2020	$139,275
HOV	2H0701	405	I-405	BEAR		HOV DROP RAMP	2020	$133,918
IC/RAMPS	2M01107	5	I-5	SR-55		RECONFIGURE INTERCHANGE TO REDUCE WEAVING - INTERIM PROJECT	2035	$811,254

COUNTY - COMPREHENSIVE MODELING LISTING

CO	SYS	LEAD AGENCY	RTIP/RTP ID	RTE	BEG PM	END PM	PROJECT / ROUTE NAME	FROM	TO	PROJECT DESCRIPTION	ADDITIONAL PROJECT DETAILS, IF AVAILABLE	2008 RTIP	NO BUILD	NETWORK YEAR (PROJECT COMPLETION BY) 2008	2009	2010	2012	2014	2016	2020	2023	2030	2035
OR	S	ORANGE COUNTY TRANS AUTHORITY (OCTA)	ORA020112	5	15.1	16.3	I-5	AT OSO PARKWAY EXIT LANE AND NORTHBOUND ON RAMP		I-5 SOUTHBOUND AT OSO PARKWAY EXIT LANE AND INTERCHANGE IMPROVEMENTS. WIDEN FROM 1 TO 2 LANES AND ADD AN EXIT/STORAGE LANE. PLUS SIGHT DISTANCE IMPROV. TO N/B OFF RAMP.	WIDEN FROM 1 TO 2 LANES AND ADD AN EXIT/STORAGE LANE PLUS SIGHT DISTANCE IMPROVEMENT TO NORTHBOUND ON RAMP	√	√		√							
OR	S	CALTRANS	2M01108	5	15.2	16.5	I-5 SB	La Paz Road	Oso Parkway	EXTEND AUXILIARY LANE THROUGH INTERCHANGE	Existing Configuration: aux drops at La Paz, and resumes south of La Paz											√	
OR	S	LAGUNA HILLS	ORA000122	5	16.5	16.5	I-5	LA PAZ INTERCHANGE		I-5 @ LA PAZ INTERCHANGE IMPROVEMENTS. EXPAND LA PAZ RD. FROM 4 TO 6 LANES TOTAL. (99-LHILL-GMA-1125)	ON RAMP EXTENTION LANES	√	√			√							
OR	S	CALTRANS	2M01109	5	16.5	0.0	I-5	La Paz Road		RE-CONSTRUCT INTERCHANGE TO INCREASE STORAGE CAPACITY OF RAMPS	Existing Configuration: 1 to 2 lane on-ramps, 1 to 3 lane SB off-ramp, 1 to 4 lane NB off-ramp										√		
OR	S	CALTRANS	2M01110	5	16.5	17.5	I-5 SB	Alicia Parkway	La Paz Road	EXTEND AUXILIARY LANE THROUGH INTERCHANGE	Existing Config: aux drops at Alicia, and resumes south of Alicia											√	
OR	S	ORANGE COUNTY TRANS AUTHORITY (OCTA)	2M0718	5	17.0	0.0	I-5	Marguerite Parkway		ADD NEW INTERCHANGE AT MARGUERITE PARKWAY (SADDLEBACK CC CONNECTION)	Existing Config: No interchange									√			
OR	S	CALTRANS	2M0717	5	18.0	0.0	I-5	El Toro Road (Los Alisos)		ADD RAMPS AT LOS ALISOS OR AVE. DE LA CARLOTA	Existing Config: No ramps between El Toro & Alicia										√		
OR	S	CALTRANS	2H0702	5	22.7	0.0	I-5	Barranca Parkway		I-5 @ BARRANCA, ADD SB HOV ON-RAMP AND NB HOV OFF-RAMP	Existing Config: NB HOV on-ramp and SB HOV off-ramp										√		
OR	S	CALTRANS	2M0731	5	23.1	30.3	I-5	SR-133	SR-55	ADD 1 MF LANE EACH DIRECTION	Existing Config: 5 lanes each direction											√	
OR	S	ORANGE COUNTY TRANS AUTHORITY (OCTA)	ORA020108	5	26.9	26.9	I-5	CULVER DRIVE	SOUTH SOUND OFF RAMP	I-5 AT CULVER DRIVE S/B OFFRAMP WIDENING FROM ONE TO TWO LANES	WIDENING FROM 1 TO 2 LANES	√	√		√								
OR	S	CALTRANS	ORA120359	5	27.5	28.1	I-5	JAMBOREE INTERCHANGE		I-5 @ JAMBOREE - CONSTRUCT AUX LN ON I-5 SB; WIDEN SB OFF-RAMP FROM 1 TO 2 LANES; AND WIDENING JAMBOREE RD EB UNDERCROSSING TO CREATE A TURN LANE TO NB ON-RAMP	CONSTRUCT AUXILIARY LANE AND WIDEN OFF-RAMP FROM 1 TO 2 LANES	√	√				√						
OR	S	CALTRANS	2M01107	5	30.3	0.0	I-5	SR-55		RECONFIGURE INTERCHANGE TO REDUCE WEAVING - INTERIM PROJECT	Existing Configuration: 2 lanes on all MF connectors; 1 lane HOV for NB 55/5 & SB 5/55												√
OR	S	CALTRANS	2H0703	5	30.3	34.0	I-5	SR-55	SR-57	ADD 1 HOV LANE EACH DIRECTION	1 to 2 HOV Lanes												√
OR	S	ANAHEIM	ORA000100	5	34.0	43.5	I-5	GENE AUTRY WAY WEST @1-5 HOV TRANSITWAY		GENE AUTRY WAY WEST @ I-5 (I-5 HOV TRANSITWAY TO HASTER) ADD OVERCROSSING ON I-5 (S)/MANCHESTER AND EXTEND GENE AUTRY WAY WEST FROM I-5 TO HASTER (3 LANES IN EA DIR.)	ADD OVERCROSSING ON I-5 SOUTH MANCHESTER ` EXTEND GENE AUTRY WAY WEST FROM I-5 TO HASTER.	√	√		√								
OR	S	CALTRANS	2M0732	5	34.0	42.1	I-5	SR-57	SR-91	ADD 1 LANE EACH DIRECTION	Existing Config: 4 to 6 lanes each direction											√	

4.1.2 HOV LANE PERFORMANCE

Freeway HOV volumes are shown in Figure 9, and the HOV analysis results are summarized in Table 4-2. Forecast weekday AM and PM peak-hour HOV volumes by direction and measures of effectiveness are included in Table 4-2. As shown, all HOV lane segments are projected to operate at satisfactory LOS during both peak hours in Opening Year (2018) No Build conditions. However, there are 2 HOV lane segments during the weekday AM peak hour and 6 HOV lane segments during the weekday PM peak hour that operate over the Caltrans' desire of 1,600 vph (note that 1 of the 2 weekday AM peak hour locations and 2 of the 6 weekday PM peak hour locations are outside the project limits).

As noted previously, there is a severe bottleneck where the HOV lane from I-5 southbound connects with the HOV lane from SR-57 southbound, with a capacity limit of 1,550 vph. North of this bottleneck, there is substantial congestion on both the I-5 southbound and SR-57 SB HOV lanes, which would be worsened under Opening Year (2018) Conditions. During both weekday AM and PM peak hours, there would be an unmet demand of about 800 and 910 vehicles, respectively. However, since this bottleneck restricts downstream volumes, analysis locations to the south tend to operate under capacity.

Similarly, there is a bottleneck where the HOV lane from I-5 northbound merges with the HOV lane from SR-55 northbound, with a capacity limit of 1,900 vph (also identified through a review of Caltrans PeMS data) – note that this merge is located to the north of the Grand Avenue HOV direct exit ramp. At this location, there would be an unmet demand of about 40 vehicles in the weekday PM peak hour, resulting in minor delays to traffic flows along the I-5 HOV lane. However, since this bottleneck restricts downstream volumes, analysis locations to the north tend to operate under capacity. HOV lane calculations can be seen in Appendix D.

Table 4-2: Freeway HOV LOS Summary – Opening Year (2018) Conditions – No Build

Location		# of Lanes	AM Peak Hour			PM Peak Hour		
			Vol.	Density[1]	LOS	Vol.	Density[1]	LOS
SR-57 s/o Chapman on-ramp	SB	1	1,594	24.5	C	**1,842**	28.3	D
I-5 s/o Chapman on-ramp	SB	1	1,096	16.9	B	938	14.4	B
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	1	1,550	23.8	C	1,550	23.8	C
I-5 n/o 17th/Penn off-ramp	SB	1	1,406	21.6	C	1,485	22.8	C
I-5 n/o Santa Ana off-ramp	SB	1	**1,746**	26.9	D	**1,765**	27.2	D
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	2	2,026	15.6	B	2,005	15.4	B
I-5 s/o SR-55 HOV exit	SB	1	1,257	19.3	C	1,387	21.3	C
SR-55 s/o HOV exit	SB	1	**1,790**	27.5	D	1,365	21.0	C
SR-55 s/o HOV entrance	NB	1	952	14.6	B	**1,649**	25.4	C
I-5 s/o SR-55 HOV ramp merge (south	NB	2	1,665	12.8	B	2,205	17.0	B

Location		# of Lanes	AM Peak Hour			PM Peak Hour		
			Vol.	Density[1]	LOS	Vol.	Density[1]	LOS
of Grand HOV off)								
I-5 s/o 17th off-ramp	NB	1	1,350	20.8	C	**1,900**	29.2	D
I-5 s/o Main/Broadway off-ramp	NB	1	965	14.8	B	**1,649**	25.4	C
I-5 s/o SR-57 HOV exit (north of Main HOV on)	NB	1	1,020	15.7	B	**1,964**	30.2	D
I-5 s/o Chapman off-ramp	NB	1	200	3.1	A	1,029	15.8	B
SR-57 south of Chapman off-ramp	NB	1	485	7.5	A	735	11.3	B

Source: AECOM, 2012.
Notes: **Bolding** indicates HOV segment operating at unacceptable LOS. ***Bold italics*** indicate locations where the HOV lane has greater than 1,600 vpl.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

4.1.3 WEAVING PERFORMANCE

Under Opening Year (2018) conditions, the weaving section on the I-5 Freeway northbound between the Main Street on-ramp and the SR-22 exit would operate at LOS F during both the weekday AM and PM peak hours, as shown in Table 4-3, with an increase in density over Existing conditions due to the general increase in volumes in the area. Weaving calculations can be seen in Appendix E.

Table 4-3: Weaving LOS Summary – Opening Year (2018) Conditions – No Build

Location		Weave Distance	AM Peak Hour		PM Peak Hour	
			Density[1]	LOS	Density[1]	LOS
Main On to SR 57 Off	NB	1,650	47.0	**F**	48.7	**F**

Source: AECOM, 2012.
Notes: **Bolding** indicates weaving segment operating at unacceptable LOS.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

4.1.4 INTERSECTION OPERATIONS

A level of service analysis was conducted to evaluate Opening Year (2018) No Build intersection operating conditions during the weekday AM and PM peak hours. Table 4-4 summarizes the Opening Year (2018) No Build level of service at the study area intersections. Traffic volumes for Opening Year (2018) are included in Appendix B. Level of service calculation worksheets are included in Appendix F.

As shown in Table 4-4, all study area intersections would operate acceptably (LOS D or better) under Opening Year (2018) No Build conditions, with the exception of the following locations:

- Grand Avenue/First Street: LOS E in the AM and PM peak hour
- I-5 SB Ramps/Santa Ana Boulevard: LOS E in the PM peak hour
- SR-55 SB Ramps/Fourth Street: LOS F in the AM peak hour

Table 4-8: HOV LOS Summary – Opening Year (2018) Conditions - HOV Lane Alternative 2A

Location		# of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density[1]	LOS	Volume	Density[1]	LOS
SR-57 s/o Chapman on-ramp	SB	1	***1,765***	27.2	D	***1,905***	29.3	D
I-5 s/o Chapman on-ramp	SB	1	1,195	18.4	C	990	15.2	B
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	2	2,620	20.2	C	2,575	19.8	C
I-5 n/o 17th/Penn off-ramp	SB	2	2,440	18.8	C	2,495	19.2	C
I-5 n/o Santa Ana off-ramp	SB	2	2,780	21.4	C	2,775	21.3	C
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	2	3,060	23.5	C	3,015	23.2	C
I-5 s/o SR-55 HOV exit	SB	1	***2,075***	31.9	D	***2,320***	35.7	**E**
SR-55 s/o HOV exit	SB	1	***1,790***	27.5	D	1,365	21.0	C
SR-55 s/o HOV entrance	NB	1	995	15.3	B	***1,750***	26.9	D
I-5 s/o SR-55 HOV ramp merge (south of Grand HOV off)	NB	2	1,795	13.8	B	2,475	19.0	C
I-5 s/o 17th off-ramp	NB	2	1,480	11.4	B	2,210	17.0	B
I-5 s/o Main/Broadway off-ramp	NB	2	1,095	8.4	A	1,925	14.8	B
I-5 s/o SR-57 HOV exit (North of Main HOV on)	NB	2	1,160	8.9	A	2,280	17.5	B
I-5 s/o Chapman off-ramp	NB	1	340	5.2	A	1,250	19.2	C
SR-57 south of Chapman off-ramp	NB	1	485	7.5	A	735	11.3	B

Source: AECOM, 2012.
Notes: **Bolding** indicates HOV segment operating at unacceptable LOS. ***Bold italics*** indicate locations where the HOV lane has greater than 1,600 vpl.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

Table 4-9: HOV LOS Summary – Opening Year (2018) Conditions - HOV Lane Alternative 2B

Location		# of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density[1]	LOS	Volume	Density[1]	LOS
SR-57 s/o Chapman on-ramp	SB	1	***1,675***	25.8	C	***1,865***	28.7	D
I-5 s/o Chapman on-ramp	SB	1	1,015	15.6	B	910	14.0	B
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	2	2,440	18.8	C	2,495	19.2	C
I-5 n/o 17th/Penn off-ramp	SB	2	2,440	18.8	C	2,495	19.2	C
I-5 n/o Santa Ana off-ramp	SB	2	2,780	21.4	C	2,775	21.3	C
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	2	3,060	23.5	C	3,015	23.2	C
I-5 s/o SR-55 HOV exit	SB	1	***2,075***	31.9	D	**2,320**	35.7	**E**
SR-55 s/o HOV exit	SB	1	***1,790***	27.5	D	1,365	21.0	C
SR-55 s/o HOV entrance	NB	1	995	15.3	B	**1,750**	26.9	D

Location		# of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density[1]	LOS	Volume	Density[1]	LOS
I-5 s/o SR-55 HOV ramp merge (south of Grand HOV off)	NB	2	1,795	13.8	B	2,475	19.0	C
I-5 s/o 17th off-ramp	NB	2	1,480	11.4	B	2,210	17.0	B
I-5 s/o Main/Broadway off-ramp	NB	2	1,095	8.4	A	1,925	14.8	B
I-5 s/o SR-57 HOV exit (North of Main HOV on)	NB	2	1,150	8.8	A	2,240	17.2	B
I-5 s/o Chapman off-ramp	NB	1	351	5.4	A	1,302	20.0	C
SR-57 south of Chapman off-ramp	NB	1	485	7.5	A	735	11.3	B

Source: AECOM, 2012.
Notes: **Bolding** indicates HOV segment operating at unacceptable LOS. ***Bold italics*** indicate locations where the HOV lane has greater than 1,600 vpl.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

4.2.3 WEAVING PERFORMANCE

With HOV Lane Alternative 2A, conditions at the I-5 Freeway weaving segment would be the same as with No Build, as there would be no change to freeway mainline or Main Street on-ramp volumes with Alternative 2A, as illustrated in Table 4-10. Weaving calculations can be seen in Appendix E.

Table 4-10: Weaving LOS Summary – Opening Year (2018) Conditions – HOV Lane Alternative 2A

Location		Weave Distance	AM Peak Hour		PM Peak Hour	
			Density[1]	LOS	Density[1]	LOS
Main On to SR 57 Off	NB	1,650	47.0	**F**	48.7	**F**

Source: AECOM, 2012.
Notes: **Bolding** indicates weaving segment operating at unacceptable LOS.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

However, since Alternative 2B would eliminate the Main Street direct HOV on-ramp, there would be an increase in volumes along both the freeway mainline and at the Main Street general-purpose on-ramp. As a result, weaving conditions under Alternative 2B would be slightly worse during both the weekday AM and PM peak hours, as shown in Table 4-11.

Table 4-11: Weaving LOS Summary – Opening Year (2018) Conditions – HOV Lane Alternative 2B

Location		Weave Distance	AM Peak Hour		PM Peak Hour	
			Density[1]	LOS	Density[1]	LOS
Main On to SR 57 Off	NB	1,650	47.2	**F**	49.7	**F**

Source: AECOM, 2012.
Notes: **Bolding** indicates weaving segment operating at unacceptable LOS.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

4.3.2 HOV LANE PERFORMANCE

HOV lane analysis results for the HOV Lane Alternatives 5A and 5B are summarized in Table 4-16 and Table 4-17. With the addition of the second HOV lane between SR-55 and SR-57, the number of vehicles able to use the HOV lanes would increase due to the elimination of the northbound and southbound bottleneck locations (the lane reductions at the I-5 southbound / SR-57 southbound connection and at the I-5 northbound / SR-55 northbound connection would be eliminated). For both alternatives, operating conditions improve above No Build at locations where the second lane was added. All other locations generally experience an increase in density and worse LOS due to the general increase HOV lane volumes. For both HOV Lane Alternatives, one location is forecast to operate unsatisfactorily at LOS E during the weekday PM peak hour in Opening Year (2018) conditions: southbound I-5 south of the SR-55 HOV exit. However, this location is outside the project limits. In addition, there would be 3 HOV lane segment during the weekday AM peak hour and 3 HOV lane segments during the weekday PM peak hour that operate over the Caltrans' desire of 1,600 vph (note all 4 locations are outside the project limits). HOV lane calculations can be seen in Appendix D.

Table 4-16: HOV LOS Summary – Opening Year (2018) Conditions - HOV Lane Alternative 5A

Location		# of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density[1]	LOS	Volume	Density[1]	LOS
SR-57 s/o Chapman on-ramp	SB	1	***1,765***	27.2	D	***1,905***	29.3	D
I-5 s/o Chapman on-ramp	SB	1	1,195	18.4	C	990	15.2	B
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	2	2,620	20.2	C	2,575	19.8	C
I-5 n/o 17th/Penn off-ramp	SB	2	2,440	18.8	C	2,495	19.2	C
I-5 n/o Santa Ana off-ramp	SB	2	2,780	21.4	C	2,775	21.3	C
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	2	3,060	23.5	C	3,015	23.2	C
I-5 s/o SR-55 HOV exit	SB	1	***2,075***	31.9	D	***2,320***	35.7	**E**
SR-55 s/o HOV exit	SB	1	***1,790***	27.5	D	1,365	21.0	C
SR-55 s/o HOV entrance	NB	1	995	15.3	B	***1,750***	26.9	D
I-5 s/o SR-55 HOV ramp merge (south of Grand HOV off)	NB	2	1,795	13.8	B	2,475	19.0	C
I-5 s/o 17th off-ramp	NB	2	1,480	11.4	B	2,210	17.0	B
I-5 s/o Main/Broadway off-ramp	NB	2	1,095	8.4	A	1,925	14.8	B
I-5 s/o SR-57 HOV exit (North of Main HOV on)	NB	2	1,160	8.9	A	2,280	17.5	B
I-5 s/o Chapman off-ramp	NB	1	340	5.2	A	1,250	19.2	C
SR-57 south of Chapman off-ramp	NB	1	485	7.5	A	735	11.3	B

Source: AECOM, 2012.
Notes: **Bolding** indicates HOV segment operating at unacceptable LOS. ***Bold italics*** indicate locations where the HOV lane has greater than 1,600 vpl.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

Table 4-17: HOV LOS Summary – Opening Year (2018) Conditions - HOV Lane Alternative 5B

Location		# of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density[1]	LOS	Volume	Density[1]	LOS
SR-57 s/o Chapman on-ramp	SB	1	***1,675***	25.8	C	***1,865***	28.7	D
I-5 s/o Chapman on-ramp	SB	1	1,015	15.6	B	910	14.0	B
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	2	2,440	18.8	C	2,495	19.2	C
I-5 n/o 17th/Penn off-ramp	SB	2	2,440	18.8	C	2,495	19.2	C
I-5 n/o Santa Ana off-ramp	SB	2	2,780	21.4	C	2,775	21.3	C
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	2	3,060	23.5	C	3,015	23.2	C
I-5 s/o SR-55 HOV exit	SB	1	***2,075***	31.9	D	**2,320**	35.7	**E**
SR-55 s/o HOV exit	SB	1	***1,790***	27.5	D	1,365	21.0	C
SR-55 s/o HOV entrance	NB	1	995	15.3	B	**1,750**	26.9	D
I-5 s/o SR-55 HOV ramp merge (south of Grand HOV off)	NB	2	1,795	13.8	B	2,475	19.0	C
I-5 s/o 17th off-ramp	NB	2	1,480	11.4	B	2,210	17.0	B
I-5 s/o Main/Broadway off-ramp	NB	2	1,095	8.4	A	1,925	14.8	B
I-5 s/o SR-57 HOV exit (North of Main HOV on)	NB	2	1,150	8.8	A	2,240	17.2	B
I-5 s/o Chapman off-ramp	NB	1	351	5.4	A	1,302	20.0	C
SR-57 south of Chapman off-ramp	NB	1	485	7.5	A	735	11.3	B

Source: AECOM, 2012.
Notes: **Bolding** indicates HOV segment operating at unacceptable LOS. ***Bold italics*** indicate locations where the HOV lane has greater than 1,600 vpl.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

4.3.3 WEAVING PERFORMANCE

With HOV Lane Alternative 5A, conditions at the I-5 Freeway weaving segment would be the same as with No Build, as there would be no change to freeway mainline or Main Street on-ramp volumes with Alternative 2A, as shown in Table 4-18. Weaving calculations can be seen in Appendix E.

Table 4-18: Weaving LOS Summary – Opening Year (2018) Conditions – HOV Lane Alternative 5A

Location		Weave Distance	AM Peak Hour		PM Peak Hour	
			Density[1]	LOS	Density[1]	LOS
Main On to SR 57 Off	NB	1,650	47.0	**F**	48.7	**F**

Source: AECOM, 2012.
Notes: **Bolding** indicates weaving segment operating at unacceptable LOS.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

4.4.2 HOV LANE PERFORMANCE

Freeway HOV analysis results are summarized in Table 4-23. Forecast AM and PM peak-hour HOV volumes by direction and measures of effectiveness are included in Table 4-23. As shown, all HOV lane segments are projected to operate at satisfactory LOS during both peak hours in Future Year (2040) No Build conditions. However, there are 3 HOV lane segments during the weekday AM peak hour and 7 HOV lane segments during the weekday PM peak hour that operate over the Caltrans' desire of 1,600 vph (note that 2 of the 3 weekday AM peak hour locations and 2 of the 7 weekday PM peak hour locations are outside the project limits.

As noted previously, there is a severe bottleneck where the HOV lane from I-5 southbound connects with the HOV lane from SR-57 southbound, with a capacity limit of 1,550 vph. North of this bottleneck, there is substantial congestion on both the I-5 southbound and SR-57 SB HOV lanes, which would be worsened under Future Year (2040) Conditions. During the weekday AM and PM peak hours, there would be an unmet demand of about 935 and 1,035 vehicles, respectively. However, since this bottleneck restricts downstream volumes, analysis locations to the south tend to operate under capacity.

Similarly, there is a bottleneck where the HOV lane from I-5 northbound merges with the HOV lane from SR-55 northbound, with a capacity limit of 1,900 vph. At this location, there would be an unmet demand of about 240 vehicles in the weekday PM peak hour, resulting in noticeable delays to traffic flows along the I-5 HOV lane. However, since this bottleneck restricts downstream volumes, analysis locations to the north tend to operate under capacity. HOV lane calculations can be seen in Appendix D.

Table 4-23: HOV LOS Summary – Future Year (2040) Conditions – No Build

Location		# of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density[1]	LOS	Volume	Density[1]	LOS
SR-57 s/o Chapman on-ramp	SB	1	***1,616***	24.9	C	***1,917***	29.5	D
I-5 s/o Chapman on-ramp	SB	1	1,209	18.6	C	1,048	16.1	B
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	1	1,550	23.8	C	1,550	23.8	C
I-5 n/o 17th/Penn off-ramp	SB	1	1,406	21.6	C	1,485	22.8	C
I-5 n/o Santa Ana off-ramp	SB	1	***1,746***	26.9	D	***1,765***	27.2	D
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	2	2,061	15.9	B	2,020	15.5	B
I-5 s/o SR-55 HOV exit	SB	1	1,292	19.9	C	1,402	21.6	C
SR-55 s/o HOV exit	SB	1	***2,115***	32.5	D	***1,715***	26.4	D
SR-55 s/o HOV entrance	NB	1	1,125	17.3	B	***1,738***	26.7	D
I-5 s/o SR-55 HOV ramp merge (south of Grand HOV off)	NB	2	1,835	14.1	B	2,465	19.0	C
I-5 s/o 17th off-ramp	NB	1	1,500	23.1	C	***1,900***	29.2	D
I-5 s/o Main/Broadway off-ramp	NB	1	1,050	16.2	B	***1,649***	25.4	C
I-5 s/o SR-57 HOV exit (north of Main HOV on)	NB	1	1,105	17.0	B	***1,964***	30.2	D

Table 4-29: HOV LOS Summary – Future Year (2040) Conditions - HOV Lane Alternative 2A

Location		# of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density[1]	LOS	Volume	Density[1]	LOS
SR-57 s/o Chapman on-ramp	SB	1	***2,315***	35.6	E	***2,160***	33.2	D
I-5 s/o Chapman on-ramp	SB	1	***1,610***	24.8	C	1,255	19.3	C
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	2	***3,585***	27.6	D	3,095	23.8	C
I-5 n/o 17th/Penn off-ramp	SB	2	***3,295***	25.3	C	2,960	22.8	C
I-5 n/o Santa Ana off-ramp	SB	2	***3,635***	28.0	D	***3,240***	24.9	C
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	2	***3,950***	30.4	D	***3,495***	26.9	D
I-5 s/o SR-55 HOV exit	SB	1	***2,295***	35.3	E	2,570	39.5	E
SR-55 s/o HOV exit	SB	1	***2,115***	32.5	D	***1,715***	26.4	D
SR-55 s/o HOV entrance	NB	1	1,290	19.8	C	***2,145***	33.0	D
I-5 s/o SR-55 HOV ramp merge (south of Grand HOV off)	NB	2	2,335	18.0	B	***3,565***	27.4	D
I-5 s/o 17th off-ramp	NB	2	2,000	15.4	B	***3,240***	24.9	C
I-5 s/o Main/Broadway off-ramp	NB	2	1,550	11.9	B	2,860	22.0	C
I-5 s/o SR-57 HOV exit (north of Main HOV on)	NB	2	1,655	12.7	B	***3,345***	25.7	C
I-5 s/o Chapman off-ramp	NB	1	575	8.8	A	***1,990***	30.6	D
SR-57 south of Chapman off-ramp	NB	1	745	11.5	B	1,025	15.8	B

Source: AECOM, 2012.
Notes: **Bolding** indicates HOV segment operating at unacceptable LOS. ***Bold italics*** indicate locations where the HOV lane has greater than 1,600 vpl.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

Table 4-30: HOV LOS Summary – Future Year (2040) Conditions - HOV Lane Alternative 2B

Location		# of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density[1]	LOS	Volume	Density[1]	LOS
SR-57 s/o Chapman on-ramp	SB	1	***2,170***	33.4	D	***2,092***	32.2	D
I-5 s/o Chapman on-ramp	SB	1	1,320	20.3	C	1,120	17.2	B
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	2	***3,295***	25.3	C	2,960	22.8	C
I-5 n/o 17th/Penn off-ramp	SB	2	***3,295***	25.3	C	2,960	22.8	C
I-5 n/o Santa Ana off-ramp	SB	2	***3,635***	28.0	D	***3,240***	24.9	C
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	2	***3,950***	30.4	D	***3,495***	26.9	D
I-5 s/o SR-55 HOV exit	SB	1	***2,295***	35.3	E	***2,570***	39.5	E
SR-55 s/o HOV exit	SB	1	***2,115***	32.5	D	***1,715***	26.4	D
SR-55 s/o HOV entrance	NB	1	1,290	19.8	C	***2,145***	33.0	D
I-5 s/o SR-55 HOV ramp merge (south of Grand HOV off)	NB	2	2,335	18.0	B	***3,565***	27.4	D
I-5 s/o 17th off-ramp	NB	2	2,000	15.4	B	***3,240***	24.9	C
I-5 s/o Main/Broadway off-ramp	NB	2	1,550	11.9	B	2,860	22.0	C
I-5 s/o SR-57 HOV exit (North of Main HOV on)	NB	2	1,550	11.9	B	2,860	22.0	C
I-5 s/o Chapman off-ramp	NB	1	506	7.8	A	***1,633***	25.1	C
SR-57 south of Chapman off-ramp	NB	1	745	11.5	B	1,025	15.8	B

Source: AECOM, 2012.
Notes: **Bolding** indicates HOV segment operating at unacceptable LOS. ***Bold italics*** indicate locations where the HOV lane has greater than 1,600 vpl.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

4.5.3 WEAVING PERFORMANCE

With HOV Lane Alternative 2A, conditions at the I-5 Freeway weaving segment would be the same as with No Build, as there would be no change to freeway mainline or Main Street on-ramp volumes with Alternative 2A, as shown in Table 4-31. Weaving calculations can be seen in Appendix E.

Table 4-31: Weaving LOS Summary – Future Year (2040) Conditions – HOV Lane Alternative 2A

Location		Weave Distance	AM Peak Hour		PM Peak Hour	
			Density[1]	LOS	Density[1]	LOS
Main On to SR 57 Off	NB	1,650	51.0	**F**	54.6	**F**

Source: AECOM, 2012.
Notes: **Bolding** indicates weaving segment operating at unacceptable LOS.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

However, since Alternative 2B would eliminate the Main Street direct HOV on-ramp, there would be an increase in volumes along both the freeway mainline and at the Main Street general-purpose on-ramp, as shown in Table 4-32. As a result, weaving conditions under Alternative 2B would be slightly worse during both the weekday AM and PM peak hours.

Table 4-37: HOV LOS Summary – Future Year (2040) Conditions - HOV Lane Alternative 5A

Location		# of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density[1]	LOS	Volume	Density[1]	LOS
SR-57 s/o Chapman on-ramp	SB	1	***2,315***	35.6	E	***2,160***	33.2	D
I-5 s/o Chapman on-ramp	SB	1	***1,610***	24.8	C	1,255	19.3	C
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	2	***3,585***	27.6	D	3,095	23.8	C
I-5 n/o 17th/Penn off-ramp	SB	2	***3,295***	25.3	C	2,960	22.8	C
I-5 n/o Santa Ana off-ramp	SB	2	***3,635***	28.0	D	***3,240***	24.9	C
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	2	***3,950***	30.4	D	***3,495***	26.9	D
I-5 s/o SR-55 HOV exit	SB	1	***2,295***	35.3	E	2,570	39.5	E
SR-55 s/o HOV exit	SB	1	***2,115***	32.5	D	***1,715***	26.4	D
SR-55 s/o HOV entrance	NB	1	1,290	19.8	C	***2,145***	33.0	D
I-5 s/o SR-55 HOV ramp merge (south of Grand HOV off)	NB	2	2,335	18.0	B	***3,565***	27.4	D
I-5 s/o 17th off-ramp	NB	2	2,000	15.4	B	***3,240***	24.9	C
I-5 s/o Main/Broadway off-ramp	NB	2	1,550	11.9	B	2,860	22.0	C
I-5 s/o SR-57 HOV exit (north of Main HOV on)	NB	2	1,655	12.7	B	***3,345***	25.7	C
I-5 s/o Chapman off-ramp	NB	1	575	8.8	A	***1,990***	30.6	D
SR-57 south of Chapman off-ramp	NB	1	745	11.5	B	1,025	15.8	B

Source: AECOM, 2012.
Notes: **Bolding** indicates HOV segment operating at unacceptable LOS. ***Bold italics*** indicate locations where the HOV lane has greater than 1,600 vpl.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

Table 4-38: HOV LOS Summary – Future Year (2040) Conditions - HOV Lane Alternative 5B

Location		# of Lanes	AM Peak Hour			PM Peak Hour		
			Volume	Density[1]	LOS	Volume	Density[1]	LOS
SR-57 s/o Chapman on-ramp	SB	1	***2,170***	33.4	D	***2,092***	32.2	D
I-5 s/o Chapman on-ramp	SB	1	1,320	20.3	C	1,120	17.2	B
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	2	***3,295***	25.3	C	2,960	22.8	C
I-5 n/o 17th/Penn off-ramp	SB	2	***3,295***	25.3	C	2,960	22.8	C
I-5 n/o Santa Ana off-ramp	SB	2	***3,635***	28.0	D	***3,240***	24.9	C
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	2	***3,950***	30.4	D	***3,495***	26.9	D
I-5 s/o SR-55 HOV exit	SB	1	***2,295***	35.3	E	***2,570***	39.5	E
SR-55 s/o HOV exit	SB	1	***2,115***	32.5	D	***1,715***	26.4	D
SR-55 s/o HOV entrance	NB	1	1,290	19.8	C	***2,145***	33.0	D
I-5 s/o SR-55 HOV ramp merge (south of Grand HOV off)	NB	2	2,335	18.0	B	***3,565***	27.4	D
I-5 s/o 17th off-ramp	NB	2	2,000	15.4	B	***3,240***	24.9	C
I-5 s/o Main/Broadway off-ramp	NB	2	1,550	11.9	B	2,860	22.0	C
I-5 s/o SR-57 HOV exit (North of Main HOV on)	NB	2	1,550	11.9	B	2,860	22.0	C
I-5 s/o Chapman off-ramp	NB	1	506	7.8	A	***1,633***	25.1	C
SR-57 south of Chapman off-ramp	NB	1	745	11.5	B	1,025	15.8	B

Source: AECOM, 2012.
Notes: **Bolding** indicates HOV segment operating at unacceptable LOS. ***Bold italics*** indicate locations where the HOV lane has greater than 1,600 vpl.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

4.6.3 WEAVING PERFORMANCE

With HOV Lane Alternative 5A, conditions at the I-5 Freeway weaving segment would be the same as with No Build, as there would be no change to freeway mainline or Main Street on-ramp volumes with Alternative 5A, as illustrated in Table 3-39. Weaving calculations can be seen in Appendix E.

Table 4-39: Weaving LOS Summary – Future Year (2040) Conditions – HOV Lane Alternative 5A

Location		Weave Distance	AM Peak Hour		PM Peak Hour	
			Density[1]	LOS	Density[1]	LOS
Main On to SR 57 Off	NB	1,650	51.0	F	54.6	F

Source: AECOM, 2012.
Notes: **Bolding** indicates weaving segment operating at unacceptable LOS.
(1) Density is shown in passenger cars / miles / lane (pc/mi/ln)

However, since Alternative 5B would eliminate the Main Street direct HOV on-ramp, there would be an increase in volumes along both the freeway mainline and at the Main Street general-purpose on-ramp. As a result, weaving conditions under Alternative 5B would be slightly worse during both the weekday AM and PM peak hours, as shown in Table 4-40.

Table 1: I-5 from SR-55 and SR-57 HOV Improvements Level of Service Summary

ID	Intersection	Control	Existing Conditions				2018 No Build Conditions				2040 No Build Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS
1	Main / La Veta	SIGNAL	20.1	C	27.1	C	20.0	B	26.4	C	19.8	B	25.5	C
2	Main / Memory	SIGNAL	17.1	B	21.7	C	17.1	B	21.4	C	16.9	B	21.1	C
3	Main / Edgewood / I-5	SIGNAL	42.6	D	49.0	D	40.3	D	48.5	D	36.9	D	45.9	D
4	Broadway / Santa Clara	SIGNAL	32.7	C	27.2	C	30.6	C	28.2	C	28.8	C	32.6	C
5	Main / Santa Clara / I-5	SIGNAL	45.3	D	52.3	D	42.8	D	51.6	D	39.8	D	53.0	D
6	Main / 17th	SIGNAL	43.8	D	52.4	D	42.6	D	49.5	D	44.6	D	49.8	D
7	Penn / 17th	SIGNAL	20.7	C	33.3	C	23.3	C	37.0	D	26.0	C	40.6	D
8	Santiago / 17th	SIGNAL	32.8	C	36.3	D	32.6	C	35.5	D	33.0	C	36.4	D
9	Penn / I-5 SB Ramp	SIGNAL	24.3	C	23.1	C	24.4	C	23.1	C	25.1	C	23.1	C
10	Main / 4th	SIGNAL	11.3	B	12.0	B	11.3	B	12.0	B	11.3	B	12.0	B
11	Grand / 4th	SIGNAL	33.6	C	42.2	D	33.4	C	42.2	D	34.0	C	43.7	D
12	I-5 SB Ramp / 4th	SIGNAL	11.6	B	15.2	B	11.4	B	15.1	B	11.2	B	15.1	B
13	I-5 NB Ramp / 4th	SIGNAL	8.9	A	18.2	B	8.9	A	18.1	B	9.0	A	18.5	B
14	Cabrillo / 4th	SIGNAL	27.7	C	31.7	C	28.2	C	32.4	C	29.4	C	35.4	D
15	Tustin / 4th	SIGNAL	29.9	C	38.2	D	31.5	C	41.5	D	42.0	D	44.5	D
16	Main / 1st	SIGNAL	40.9	D	37.0	D	41.0	D	36.9	D	45.0	D	40.7	D
17	Grand / 1st	SIGNAL	36.1	D	40.7	D	36.0	D	40.9	D	37.2	D	47.6	D
18	I-5 SB Ramp / 1st	SIGNAL	8.3	A	10.4	B	8.2	A	10.2	B	8.4	A	10.4	B
19	Cabrillo / 1st	SIGNAL	25.7	C	25.8	C	25.8	C	26.1	C	26.6	C	27.7	C
20	Tustin / 1st	SIGNAL	15.5	B	16.5	B	15.9	B	16.7	B	17.8	B	17.3	B
21	I-5 Ramp / Santa Ana	SIGNAL	19.9	B	51.4	D	19.7	B	57.7	E	20.6	C	62.1	E
22	Grand / Santa Ana	SIGNAL	27.6	C	35.1	D	27.6	C	35.2	D	27.4	C	36.5	D
23	Mabury / Palm	UNSIGNAL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
24	Mabury / Elk / 1st	SIGNAL	28.6	C	39.5	D	27.8	C	39.4	D	28.8	C	43.3	D
25	Lyon / 1st	SIGNAL	19.2	B	17.5	B	19.3	B	18.0	B	19.6	B	18.8	B
26	Cabrillo / State Fund	SIGNAL	4.2	A	5.9	A	4.5	A	6.0	A	4.5	A	5.9	A
27	Cabrillo / Xerox Center	SIGNAL	4.4	A	8.1	A	4.4	A	7.1	A	4.3	A	7.0	A
28	Golden Circle / 4th	SIGNAL	7.9	A	10.2	B	8.2	A	10.1	B	8.0	A	10.3	B
29	Golden Circle / 1st	SIGNAL	7.5	A	7.5	A	7.5	A	7.7	A	7.6	A	7.9	A
30	SR-55 SB Ramps / 4th	SIGNAL	82.4	F	19.9	B	118.3	F	20.2	C	150.4	F	24.2	C
31	SR-55 NB Ramps / 4th	SIGNAL	19.1	B	36.8	D	17.8	B	36.6	D	15.9	B	48.4	D

Source: AECOM, 2012

Notes:

Bolding indicates intersection operating at unacceptable LOS.

(1) Delay is shown in seconds per vehicle. For signalized locations, delay reported is average delay of all approaches. For unsignalized, the LOS of the worst approach is reported, per HCM Methodology.

Table 2: I-5 from SR-55 and SR-57 HOV Improvements 2018 Level of Service Summary

			2018 No Build Conditions				2018 Option A Conditions				2018 Option B Conditions				2018 Option 2A/5A Conditions				2018 Option 2B/5B Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
ID	Intersection	Control	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS
1	Main / La Veta	SIGNAL	20.0	B	26.4	C	20.0	B	26.4	C	20.0	B	26.4	C	19.8	B	26.4	C	19.8	B	26.4	C
2	Main / Memory	SIGNAL	17.1	B	21.4	C	17.0	B	21.1	C	17.0	B	21.4	C	17.1	B	21.3	C	17.1	B	21.3	C
3	Main / Edgewood / I-5	SIGNAL	40.3	D	48.5	D	32.3	C	30.9	C	32.3	C	48.5	D	40.4	D	52.3	D	36.5	D	40.5	D
4	Broadway / Santa Clara	SIGNAL	30.6	C	28.2	C	32.5	C	28.6	C	32.5	C	28.2	C	30.2	C	28.1	C	30.2	C	28.1	C
5	Main / Santa Clara / I-5	SIGNAL	42.8	D	51.6	D	42.0	D	53.3	D	42.0	D	51.6	D	43.0	D	51.2	D	43.0	D	51.2	D
6	Main / 17th	SIGNAL	42.6	D	49.5	D	42.2	D	49.4	D	42.2	D	49.5	D	42.9	D	49.9	D	42.9	D	49.9	D
7	Penn / 17th	SIGNAL	10.8	B	13.6	B	10.9	B	13.9	B	10.9	B	13.6	B	10.8	B	13.6	B	10.8	B	13.6	B
8	Santiago / 17th	SIGNAL	32.6	C	35.5	D	32.6	C	35.5	D	32.6	C	35.5	D	32.6	C	35.5	D	32.6	C	35.5	D
9	Penn / I-5 SB Ramp	SIGNAL	24.4	C	23.1	C	24.5	C	23.2	C	24.5	C	23.1	C	24.4	C	23.1	C	24.4	C	23.1	C
10	Main / 4th	SIGNAL	11.3	B	12.0	B	12.4	B	12.0	B	11.3	B	12.0	B	11.3	B	12.0	B	11.3	B	12.0	B
11	Grand / 4th	SIGNAL	33.4	C	42.2	D	51.3	D	48.6	D	32.7	C	41.3	D	33.4	C	42.2	D	33.4	C	42.2	D
12	I-5 SB Ramp / 4th	SIGNAL	11.4	B	15.1	B	65.3	E	148.7	F	10.7	B	14.6	B	13.0	B	15.3	B	13.0	B	15.3	B
13	I-5 NB Ramp / 4th	SIGNAL	8.9	A	18.1	B	9.8	A	21.1	C	8.8	A	17.8	B	6.7	A	17.1	B	6.7	A	17.1	B
14	Cabrillo / 4th	SIGNAL	28.2	C	32.4	C	28.0	C	33.2	C	28.3	C	33.8	C	28.2	C	32.4	C	28.2	C	32.4	C
15	Tustin / 4th	SIGNAL	31.5	C	41.5	D	32.1	C	46.1	D	31.5	C	41.5	D	31.5	C	41.5	D	31.5	C	41.5	D
16	Main / 1st	SIGNAL	41.0	D	36.9	D	52.2	D	36.9	D	41.0	D	36.9	D	41.0	D	36.9	D	41.0	D	36.9	D
17	Grand / 1st	SIGNAL	36.0	D	40.9	D	58.8	E	83.6	F	36.9	D	47.1	D	36.0	D	40.9	D	36.0	D	40.9	D
18	I-5 SB Ramp / 1st	SIGNAL	8.2	A	10.2	B	Ramp removed				Ramp removed				6.0	A	6.8	A	6.0	A	6.8	A
19	Cabrillo / 1st	SIGNAL	25.8	C	26.1	C	24.9	C	25.4	C	30.7	C	32.4	C	25.8	C	26.1	C	25.8	C	26.1	C
20	Tustin / 1st	SIGNAL	15.9	B	16.7	B	15.9	B	16.9	B	15.9	B	16.7	B	15.9	B	16.7	B	15.9	B	16.7	B
21	I-5 Ramp / Santa Ana	SIGNAL	19.7	B	57.7	E	19.7	B	57.7	E	19.7	B	57.7	E	19.7	B	57.7	E	19.7	B	57.7	E
22	Grand / Santa Ana	SIGNAL	27.6	C	35.2	D	27.6	C	35.2	D	27.6	C	35.2	D	27.6	C	35.2	D	27.6	C	35.2	D
24	Mabury / Elk / 1st	SIGNAL	27.8	C	39.4	D	33.6	C	24.6	C	41.7	D	30.3	C	29.2	C	39.4	D	29.2	C	39.4	D
25	Lyon / 1st	SIGNAL	19.3	B	18.0	B	33.1	C	18.8	B	21.2	C	33.2	C	19.3	B	18.0	B	19.3	B	18.0	B
26	Cabrillo / State Fund	SIGNAL	4.5	A	6.0	A	4.1	A	6.3	A	4.3	A	6.1	A	4.5	A	6.0	A	4.5	A	6.0	A
27	Cabrillo / Xerox Center	SIGNAL	4.4	A	7.1	A	4.3	A	9.0	A	4.5	A	7.3	A	4.4	A	7.1	A	4.4	A	7.1	A
28	Golden Circle / 4th	SIGNAL	8.2	A	10.1	B	8.1	A	10.1	B	8.3	A	10.1	B	8.2	A	10.1	B	8.2	A	10.1	B
29	Golden Circle / 1st	SIGNAL	7.5	A	7.7	A	7.6	A	8.6	A	7.5	A	7.7	A	7.5	A	7.7	A	7.5	A	7.7	A
30	SR-55 SB Ramps / 4th	SIGNAL	118.3	F	20.2	C	128.1	F	20.7	C	120.6	F	20.4	C	118.3	F	20.2	C	118.3	F	20.2	C
31	SR-55 NB Ramps / 4th	SIGNAL	17.8	B	36.6	D	18.4	B	37.7	D	17.8	B	36.6	D	17.8	B	36.6	D	17.8	B	36.6	D

Source: AECOM, 2012

Notes:

Bolding and shading indicates intersection operating at unacceptable LOS.

(1) Delay is shown in seconds per vehicle. For signalized locations, delay reported is average delay of all approaches. For unsignalized, the LOS of the worst approach is reported, per HCM Methodology.

Table 3: I-5 from SR-55 and SR-57 HOV Improvements 2040 Level of Service Summary

			2040 No build Conditions				2040 Option A Conditions				2040 Option B Conditions				2040 Option 2A/5A Conditions				2040 Option 2B/5B Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
ID	Intersection	Control	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS
1	Main / La Veta	SIGNAL	19.8	B	25.5	C	20.1	C	26.6	C	20.1	C	26.6	C	20.0	C	26.5	C	20.1	C	27.5	C
2	Main / Memory	SIGNAL	16.9	B	21.1	C	17.0	B	21.4	C	17.1	B	21.8	C	17.2	B	21.6	C	17.0	B	21.4	C
3	Main / Edgewood / I-5	SIGNAL	36.9	D	45.9	D	31.9	C	50.7	D	39.7	D	48.9	D	40.3	D	70.1	E	35.9	D	41.0	D
4	Broadway / Santa Clara	SIGNAL	28.8	C	32.6	C	31.1	C	36.2	D	32.0	C	35.6	D	30.2	C	35.2	D	31.3	C	36.2	D
5	Main / Santa Clara / I-5	SIGNAL	39.8	D	53.0	D	42.1	D	63.8	E	43.6	D	62.6	E	41.6	D	60.1	E	50.8	D	76.3	E
6	Main / 17th	SIGNAL	44.6	D	49.8	D	48.8	D	56.4	E	49.5	D	56.5	E	50.8	D	58.2	E	48.8	D	54.5	D
7	Penn / 17th	SIGNAL	10.9	B	13.8	B	11.1	B	14.5	B	11.1	B	14.2	B	11.0	B	14.0	B	11.1	B	14.5	B
8	Santiago / 17th	SIGNAL	33.0	C	36.4	D	34.3	C	39.5	D	34.3	C	39.5	D	34.3	C	39.5	D	34.2	C	39.3	D
9	Penn / I-5 SB Ramp	SIGNAL	25.1	C	23.1	C	25.3	C	23.3	C	25.3	C	23.3	C	25.3	C	23.2	C	25.3	C	23.3	C
10	Main / 4th	SIGNAL	11.3	B	12.0	B	12.6	B	12.1	B	11.5	B	12.1	B	11.5	B	12.1	B	11.5	B	12.1	B
11	Grand / 4th	SIGNAL	34.0	C	43.7	D	59.4	E	52.4	D	34.2	C	45.6	D	34.9	C	46.6	D	34.9	C	46.6	D
12	I-5 SB Ramp / 4th	SIGNAL	11.2	B	15.1	B	80.4	F	159.8	F	10.9	B	14.5	B	13.2	B	15.3	B	13.2	B	15.3	B
13	I-5 NB Ramp / 4th	SIGNAL	9.0	A	18.5	B	10.0	B	22.6	C	8.9	A	18.6	B	8.0	A	17.4	B	8.0	A	17.4	B
14	Cabrillo / 4th	SIGNAL	29.4	C	35.4	D	30.3	C	39.1	D	30.3	C	39.2	D	30.1	C	37.7	D	30.1	C	37.7	D
15	Tustin / 4th	SIGNAL	42.0	D	44.5	D	46.6	D	85.7	F	45.4	D	78.0	E	45.4	D	78.0	E	45.4	D	78.0	E
16	Main / 1st	SIGNAL	45.0	D	40.7	D	59.9	E	44.6	D	49.6	D	44.6	D	49.6	D	44.6	D	49.6	D	44.6	D
17	Grand / 1st	SIGNAL	37.2	D	47.6	D	68.3	E	101.1	F	39.6	D	57.8	E	38.7	D	51.7	D	38.7	D	51.7	D
18	I-5 SB Ramp / 1st	SIGNAL	8.4	A	10.4	B	3.2	A	4.4	A	Ramp removed as part of Opt B				6.3	A	7.4	A	6.3	A	7.4	A
19	Cabrillo / 1st	SIGNAL	26.6	C	27.7	C	25.8	C	27.9	C	35.4	D	34.4	C	27.3	C	28.7	C	27.3	C	28.7	C
20	Tustin / 1st	SIGNAL	17.8	B	17.3	B	18.2	B	17.8	B	18.1	B	17.5	B	18.1	B	17.5	B	18.1	B	17.5	B
21	I-5 Ramp / Santa Ana	SIGNAL	20.6	C	62.1	E	20.9	C	80.6	F	20.9	C	80.6	F	20.9	C	80.6	F	20.9	C	80.6	F
22	Grand / Santa Ana	SIGNAL	27.4	C	36.5	D	27.8	C	37.9	D	27.8	C	37.9	D	27.8	C	37.9	D	27.8	C	37.9	D
23	Mabury / Palm	UNSIGNAL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
24	Mabury / Elk / 1st	SIGNAL	28.8	C	43.3	D	40.4	D	28.8	C	45.7	D	31.2	C	31.1	C	49.5	D	31.1	C	49.5	D
25	Lyon / 1st	SIGNAL	19.6	B	18.8	B	34.6	C	29.7	C	21.4	C	36.1	C	20.3	C	19.5	B	20.3	C	19.5	B
26	Cabrillo / State Fund	SIGNAL	4.5	A	5.9	A	4.1	A	6.4	A	4.2	A	6.1	A	4.1	A	6.0	A	4.1	A	6.0	A
27	Cabrillo / Xerox Center	SIGNAL	4.3	A	7.0	A	4.2	A	8.2	A	4.4	A	7.3	A	4.3	A	7.1	A	4.3	A	7.1	A
28	Golden Circle / 4th	SIGNAL	8.0	A	10.3	B	8.6	A	11.7	B	8.1	A	11.6	B	8.1	A	11.6	B	8.1	A	11.6	B
29	Golden Circle / 1st	SIGNAL	7.6	A	7.9	A	7.7	A	8.2	A	7.7	A	8.8	A	7.7	A	8.8	A	7.7	A	8.8	A
30	SR-55 SB Ramps / 4th	SIGNAL	150.4	F	24.2	C	157.4	F	26.6	C	157.4	F	26.3	C	157.8	F	26.1	C	157.8	F	26.1	C
31	SR-55 NB Ramps / 4th	SIGNAL	15.9	B	48.4	D	17.5	B	59.0	E	16.9	B	58.7	E	16.9	B	58.7	E	16.9	B	58.7	E

Source: AECOM, 2012

Notes:

Bolding and shading indicates intersection operating at unacceptable LOS.

(1) Delay is shown in seconds per vehicle. For signalized locations, delay reported is average delay of all approaches. For unsignalized, the LOS of the worst approach is reported, per HCM Methodology.

Table 4

Intersections		Existing			2018			2040		
		% Trucks	ADT	Trucks	% Trucks	ADT	Trucks	% Trucks	ADT	Trucks
1	Main / La Veta	0.18%	43,370	80	0.18%	43,740	80	0.18%	44,910	80
2	Main / Memory	0.19%	36,650	70	0.19%	37,030	70	0.18%	38,240	70
3	Main / Edgewood / I-5	0.18%	32,980	60	0.18%	33,280	60	0.18%	34,240	60
4	Broadway / Santa Clara	0.72%	27,920	200	0.71%	28,330	200	0.71%	29,600	210
5	Main / Santa Clara / I-5	0.72%	41,810	300	0.71%	42,410	300	0.72%	44,300	320
6	Main / 17th	0.72%	55,800	400	0.72%	56,610	410	0.71%	59,140	420
7	Penn / 17th	0.71%	38,260	270	0.72%	38,900	280	0.71%	40,900	290
8	Santiago / 17th	0.71%	36,450	260	0.73%	37,080	270	0.72%	39,050	280
9	Penn / I-5 SB Ramp	0.73%	13,670	100	0.72%	13,940	100	0.74%	14,770	110
10	Main / 4th	0.16%	24,490	40	0.16%	24,760	40	0.16%	25,610	40
11	Grand / 4th	0.71%	40,800	290	0.70%	41,420	290	0.71%	43,380	310
12	I-5 SB Ramp / 4th	0.39%	20,400	80	0.39%	20,730	80	0.41%	21,770	90
13	I-5 NB Ramp / 4th	0.27%	26,050	70	0.26%	26,530	70	0.29%	28,050	80
14	Cabrillo / 4th	0.19%	31,600	60	0.18%	32,650	60	0.19%	35,960	70
15	Tustin / 4th	0.07%	40,500	30	0.07%	43,240	30	0.08%	51,870	40
16	Main / 1st	0.21%	47,280	100	0.21%	48,330	100	0.21%	51,610	110
17	Grand / 1st	0.57%	45,970	260	0.57%	47,060	270	0.57%	50,490	290
18	I-5 SB Ramp / 1st	0.20%	30,690	60	0.19%	31,380	60	0.21%	33,530	70
19	Cabrillo / 1st	0.48%	24,920	120	0.46%	25,820	120	0.49%	28,660	140
20	Tustin / 1st	0.60%	20,070	120	0.62%	21,030	130	0.58%	24,040	140
21	I-5 Ramp / Santa Ana	0.70%	24,140	170	0.73%	24,780	180	0.71%	26,800	190
22	Grand / Santa Ana	0.71%	39,710	280	0.72%	40,330	290	0.71%	42,280	300
23	Mabury / Palm	0.21%	4,660	10	0.21%	4,730	10	0.20%	4,960	10
24	Mabury / Elk / 1st	0.17%	34,290	60	0.17%	35,180	60	0.18%	37,990	70
25	Lyon / 1st	0.20%	30,020	60	0.19%	30,950	60	0.21%	33,890	70
26	Cabrillo / State Fund	0.18%	11,240	20	0.17%	11,750	20	0.15%	13,340	20
27	Cabrillo / Xerox Center	0.17%	11,600	20	0.17%	12,060	20	0.15%	13,490	20
28	Golden Circle / 4th	0.17%	23,180	40	0.17%	23,730	40	0.20%	25,470	50
29	Golden Circle / 1st	0.16%	18,450	30	0.16%	19,040	30	0.19%	20,880	40
30	SR-55 SB Ramps / 4th	0.39%	33,460	130	0.40%	34,730	140	0.39%	38,710	150
31	SR-55 NB Ramps / 4th	0.25%	35,300	90	0.27%	36,560	100	0.27%	40,530	110

Source: AECOM, 2012

OCTA I-5 TCWG Form
Supplemental Traffic Data

Location		ADT				
		Existing	2018 No Build	2018 Build	2040 No Build	2040 Build
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	117,628	120,206	121,640	128,316	134,240
I-5 n/o 17th/Penn off-ramp	SB	183,147	187,571	190,530	202,967	213,740
I-5 n/o Santa Ana off-ramp	SB	176,136	180,202	183,570	195,774	206,940
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	182,509	187,250	190,600	202,272	216,020
I-5 s/o SR-55 HOV exit	SB	165,428	169,525	171,720	185,791	191,500
I-5 s/o SR-55 HOV ramp merge (south of Grand HOV off)	NB	197,588	204,769	206,400	227,476	234,130
I-5 s/o 17th off-ramp	NB	162,157	168,983	170,580	189,775	197,070
I-5 s/o Main/Broadway off-ramp	NB	166,695	171,985	174,460	188,148	198,870
I-5 s/o SR-57 HOV exit (North of Main HOV on)	NB	153,630	160,551	162,820	177,211	191,710

Location		Truck ADT			
		HV %	Existing	2018	2040
I-5 s/o SR-57 HOV ramp merge (N of Main HOV off)	SB	5.50%	6,470	6,690	7,380
I-5 n/o 17th/Penn off-ramp	SB	5.50%	10,073	10,480	11,760
I-5 n/o Santa Ana off-ramp	SB	5.50%	9,687	10,100	11,380
I-5 n/o SR-55 HOV exit (S of Grand HOV on)	SB	5.50%	10,038	10,480	11,880
I-5 s/o SR-55 HOV exit	SB	5.50%	9,099	9,440	10,530
I-5 s/o SR-55 HOV ramp merge (south of Grand HOV off)	NB	5.50%	10,867	11,350	12,880
I-5 s/o 17th off-ramp	NB	5.50%	8,919	9,380	10,840
I-5 s/o Main/Broadway off-ramp	NB	5.50%	9,168	9,600	10,940
I-5 s/o SR-57 HOV exit (North of Main HOV on)	NB	5.50%	8,450	8,960	10,540

Appendix E. CO Modeling Data and Analysis Graphics

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: C:\Documents and Settings\paukovitsj\My
RUN: CALINE4 RUN (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 300. M AMB= 3.0 PPM
SIGTH= 5. DEGREES TEMP= 20.0 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. WBL1	*	300	2	0	2	* AG	215	2.5	.0	19.3
B. WBT1	*	300	10	0	10	* AG	425	2.5	.0	9.6
C. WBT2-WBR	*	300	13	0	13	* AG	695	2.5	.0	9.6
D. NB1	*	-9	19	-9	319	* AG	1498	2.5	.0	19.3
E. SBL	*	-16	319	-16	19	* AG	65	2.5	.0	9.6
F. SBT1	*	-20	319	-20	19	* AG	387	2.5	.0	9.6
G. SBT2	*	-23	319	-23	19	* AG	387	2.5	.0	9.6
H. SBT3-SBR	*	-27	319	-27	19	* AG	773	2.5	.0	9.6
I. WB1	*	-34	13	-334	13	* AG	1406	2.5	.0	19.3
J. EBL1	*	-334	5	-34	5	* AG	550	2.5	.0	19.3
K. EBT1	*	-334	-2	-34	-2	* AG	243	2.5	.0	9.6
L. EBT2	*	-334	-6	-34	-6	* AG	243	2.5	.0	9.6
M. EBT3-EBR	*	-334	-10	-34	-10	* AG	388	2.5	.0	9.6
N. SB1	*	-27	-19	-27	-319	* AG	1522	2.5	.0	29.0
O. NBL	*	-16	-319	-16	-19	* AG	170	2.5	.0	9.6
P. NBT1	*	-13	-319	-13	-19	* AG	289	2.5	.0	9.6
Q. NBT2	*	-9	-319	-9	-19	* AG	289	2.5	.0	9.6
R. NBR	*	-5	-319	-5	-19	* AG	23	2.5	.0	9.6
S. EB1	*	0	-10	300	-10	* AG	817	2.5	.0	29.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: C:\Documents and Settings\paukovitsj\My
RUN: CALINE4 RUN (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R_1	0	19	1.8
2. R_2	-34	19	1.8
3. R_3	-34	-19	1.8
4. R_4	0	-19	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. R_1	354.	3.9	.0	.0	.0	.7	.0	.0	.0	.0
2. R_2	265.	3.9	.0	.0	.0	.0	.0	.0	.0	.0
3. R_3	6.	3.7	.0	.0	.0	.2	.0	.1	.1	.2
4. R_4	354.	3.7	.0	.0	.0	.4	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S
1. R_1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. R_2	.6	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. R_3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. R_4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

EXIT

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: C:\Documents and Settings\paukovitsj\My
RUN: CALINE4 RUN (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	0. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	300. M	AMB=	3.0 PPM		
SIGTH=	5. DEGREES	TEMP=	20.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. WBL1	*	300	2	0	2	* AG	110	2.5	.0	19.3
B. WBT1	*	300	10	0	10	* AG	458	2.5	.0	9.6
C. WBT2-WBR	*	300	13	0	13	* AG	608	2.5	.0	9.6
D. NB1	*	-9	19	-9	319	* AG	2168	2.5	.0	19.3
E. SBL	*	-16	319	-16	19	* AG	77	2.5	.0	9.6
F. SBT1	*	-20	319	-20	19	* AG	245	2.5	.0	9.6
G. SBT2	*	-23	319	-23	19	* AG	245	2.5	.0	9.6
H. SBT3-SBR	*	-27	319	-27	19	* AG	640	2.5	.0	9.6
I. WB1	*	-34	13	-334	13	* AG	1481	2.5	.0	19.3
J. EBL1	*	-334	5	-34	5	* AG	758	2.5	.0	19.3
K. EBT1	*	-334	-2	-34	-2	* AG	206	2.5	.0	9.6
L. EBT2	*	-334	-6	-34	-6	* AG	321	2.5	.0	9.6
M. EBT3-EBR	*	-334	-10	-34	-10	* AG	321	2.5	.0	9.6
N. SB1	*	-27	-19	-27	-319	* AG	960	2.5	.0	29.0
O. NBL	*	-16	-319	-16	-19	* AG	170	2.5	.0	9.6
P. NBT1	*	-13	-319	-13	-19	* AG	630	2.5	.0	9.6
Q. NBT2	*	-9	-319	-9	-19	* AG	630	2.5	.0	9.6
R. NBR	*	-5	-319	-5	-19	* AG	76	2.5	.0	9.6
S. EB1	*	0	-10	300	-10	* AG	771	2.5	.0	29.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: C:\Documents and Settings\paukovitsj\My
RUN: CALINE4 RUN (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R_1	0	19	1.8
2. R_2	-34	19	1.8
3. R_3	-34	-19	1.8
4. R_4	0	-19	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. R_1	355.	4.1	.0	.0	.0	1.0	.0	.0	.0	.0
2. R_2	265.	4.0	.0	.0	.0	.0	.0	.0	.0	.0
3. R_3	6.	3.7	.0	.0	.0	.3	.0	.0	.0	.2
4. R_4	187.	3.6	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S
1. R_1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. R_2	.7	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. R_3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. R_4	.0	.0	.0	.0	.0	.1	.0	.2	.2	.0	.0

EXIT

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: C:\Lakes\CALRoads View\Santa Ana Blvd -
RUN: CALINE4 RUN (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	0.5 M/S	Z0=	100. CM	ALT=	0. (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	300. M	AMB=	3.0 PPM		
SIGTH=	5. DEGREES	TEMP=	20.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link_1	*	300	2	0	2	*	AG	212	2.5	0.0	9.6
B. Link_2	*	300	5	0	5	*	AG	212	2.5	0.0	9.6
C. Link_3	*	300	9	0	9	*	AG	432	2.5	0.0	9.6
D. Link_5	*	-11	13	-11	313	*	AG	598	2.5	0.0	9.6
E. Link_4	*	-15	13	-15	313	*	AG	378	2.5	0.0	9.6
F. Link_6	*	-23	313	-23	13	*	AG	158	2.5	0.0	9.6
G. Link_7	*	-27	313	-27	13	*	AG	158	2.5	0.0	9.6
H. Link_8	*	-30	313	-30	13	*	AG	90	2.5	0.0	9.6
I. Link_9	*	-39	9	-339	9	*	AG	302	2.5	0.0	9.6
J. Link_10	*	-39	6	-339	6	*	AG	212	2.5	0.0	9.6
K. Link_11	*	-39	2	-339	2	*	AG	212	2.5	0.0	9.6
L. Link_12	*	-339	-3	-39	-3	*	AG	378	2.5	0.0	9.6
M. Link_13	*	-339	-7	-39	-7	*	AG	378	2.5	0.0	9.6
N. Link_14	*	-339	-10	-39	-10	*	AG	225	2.5	0.0	9.6
O. Link_15	*	-339	-14	-39	-14	*	AG	225	2.5	0.0	9.6
P. Link_16	*	-339	-18	-39	-18	*	AG	225	2.5	0.0	9.6
Q. Link_17	*	0	-17	300	-17	*	AG	330	2.5	0.0	9.6
R. Link_18	*	0	-13	300	-13	*	AG	330	2.5	0.0	9.6
S. Link_19	*	0	-9	300	-9	*	AG	300	2.5	0.0	9.6

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: C:\Lakes\CALRoads View\Santa Ana Blvd -
RUN: CALINE4 RUN (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R_001	0	13	1.8
2. R_002	-39	13	1.8
3. R_003	-39	-19	1.8
4. R_004	0	-19	1.8
5. R_005	-20	-19	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. R_001	96.	3.6	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0
2. R_002	264.	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. R_003	276.	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. R_004	85.	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5. R_005	275.	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RECEPTOR	CONC/LINK I	J	K	L	M	N	O	P	Q	R	S
1. R_001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
2. R_002	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
3. R_003	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
4. R_004	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1
5. R_005	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: C:\Documents and Settings\paukovitsj\My
RUN: CALINE4 RUN (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	0. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	300. M	AMB=	3.0 PPM		
SIGTH=	5. DEGREES	TEMP=	20.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. WBL1	*	300	2	0	2	* AG	700	2.5	.0	9.6
B. WBT1	*	298	6	-2	6	* AG	403	2.5	.0	9.6
C. WBT2	*	298	9	-2	9	* AG	403	2.5	.0	9.6
D. WBT3	*	298	13	-2	13	* AG	403	2.5	.0	9.6
E. SBL1	*	-6	320	-6	20	* AG	75	2.5	.0	9.6
F. SBL-SBT-SBR	*	-9	321	-9	21	* AG	5	2.5	.0	9.6
G. SBR	*	-13	322	-13	22	* AG	100	2.5	.0	9.6
H. WB1	*	-38	11	-338	11	* AG	503	2.5	.0	9.6
I. WB2	*	-38	8	-338	8	* AG	405	2.5	.0	9.6
J. WB3	*	-38	4	-338	4	* AG	403	2.5	.0	9.6
K. EBT1	*	-338	-4	-38	-4	* AG	333	2.5	.0	9.6
L. EBT2	*	-338	-8	-38	-8	* AG	333	2.5	.0	9.6
M. EBT3-EBR	*	-338	-11	-38	-11	* AG	1188	2.5	.0	9.6
N. SB1	*	-28	-21	-28	-321	* AG	857	2.5	.0	9.6
O. SB2	*	-25	-21	-25	-321	* AG	700	2.5	.0	9.6
P. EB1	*	0	-13	300	-13	* AG	333	2.5	.0	9.6
Q. EB2	*	0	-9	300	-9	* AG	333	2.5	.0	9.6
R. EB3	*	0	-6	300	-6	* AG	335	2.5	.0	9.6
S. EB4	*	0	-2	300	-2	* AG	75	2.5	.0	9.6

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: C:\Documents and Settings\paukovitsj\My
RUN: CALINE4 RUN (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R_1	-2	20	1.8
2. R_2	-38	22	1.8
3. R_3	-38	-21	1.8
4. R_4	0	-21	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. R_1	98.	3.7	.1	.1	.1	.2	.0	.0	.0	.0
2. R_2	97.	3.7	.1	.1	.1	.1	.0	.0	.0	.0
3. R_3	278.	3.7	.0	.0	.0	.0	.0	.0	.0	.0
4. R_4	81.	3.6	.1	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S
1. R_1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. R_2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. R_3	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0
4. R_4	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: C:\Documents and Settings\paukovitsj\My
RUN: CALINE4 RUN (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	0. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	300. M	AMB=	3.0 PPM		
SIGTH=	5. DEGREES	TEMP=	20.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. WBL1	*	300	2	0	2	* AG	430	2.5	.0	9.6
B. WBT1	*	298	6	-2	6	* AG	328	2.5	.0	9.6
C. WBT2	*	298	9	-2	9	* AG	328	2.5	.0	9.6
D. WBT3	*	298	13	-2	13	* AG	328	2.5	.0	9.6
E. SBL1	*	-6	320	-6	20	* AG	440	2.5	.0	9.6
F. SBL-SBT-SBR	*	-9	321	-9	21	* AG	0	2.5	.0	9.6
G. SBR	*	-13	322	-13	22	* AG	300	2.5	.0	9.6
H. WB1	*	-38	11	-338	11	* AG	628	2.5	.0	9.6
I. WB2	*	-38	8	-338	8	* AG	328	2.5	.0	9.6
J. WB3	*	-38	4	-338	4	* AG	328	2.5	.0	9.6
K. EBT1	*	-338	-4	-38	-4	* AG	307	2.5	.0	9.6
L. EBT2	*	-338	-8	-38	-8	* AG	307	2.5	.0	9.6
M. EBT3-EBR	*	-338	-11	-38	-11	* AG	982	2.5	.0	9.6
N. SB1	*	-28	-21	-28	-321	* AG	675	2.5	.0	9.6
O. SB2	*	-25	-21	-25	-321	* AG	430	2.5	.0	9.6
P. EB1	*	0	-13	300	-13	* AG	307	2.5	.0	9.6
Q. EB2	*	0	-9	300	-9	* AG	307	2.5	.0	9.6
R. EB3	*	0	-6	300	-6	* AG	307	2.5	.0	9.6
S. EB4	*	0	-2	300	-2	* AG	440	2.5	.0	9.6

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
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PAGE 2

JOB: C:\Documents and Settings\paukovitsj\My
RUN: CALINE4 RUN (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. R_1	-2	20	1.8
2. R_2	-38	22	1.8
3. R_3	-38	-21	1.8
4. R_4	0	-21	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. R_1	98.	3.7	.0	.0	.1	.1	.0	.0	.0	.0
2. R_2	97.	3.6	.0	.0	.0	.1	.0	.0	.0	.0
3. R_3	278.	3.6	.0	.0	.0	.0	.0	.0	.0	.0
4. R_4	82.	3.6	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S
1. R_1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. R_2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. R_3	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0
4. R_4	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0

EXIT

Appendix F. Transportation Air Quality Conformity Findings Checklist

Transportation Air Quality Conformity Findings Checklist

Project Name:	Orange County Transportation Authority Interstate 5 HOV Lane Improvement Project		
Dist-Co-Rte-PM:.	12-ORA-5-31.3/34.20	**EA:**	0C8900
Federal-Aid No.:	12-0000-0085		
Document Type:	☐ **23 USC 326 CE** ☐ **23 USC 327 CE** ☒ **EA** ☐ **EIS**		

Step 1. Is the project located in a nonattainment or maintenance area for ozone, nitrogen dioxide, carbon monoxide (CO), PM2.5, or PM10 per EPA's Green Book listing of non-attainment areas?

☐ If no, go to Step 17. **Transportation conformity does not apply to the project.**

☒ If yes, go to Step 2.

Step 2. Is the project exempt from conformity per 40 CFR 93.126 or 40 CFR 93.128

☐ If yes, go to Step 17. **The project is exempt from all project-level conformity requirements (40 CFR 93.126 or 128)** (check one box below and identify the project type, if applicable).

- ☐ 40 CFR 93.126 Project type: _____
- ☐ 40 CFR 93.128

☒ If no, **go** to Step 3.

Step 3. Is the project exempt from regional conformity per 40 CFR 93.127

☐ If yes, go to Step 8. **The project is exempt from regional conformity requirements (40 CFR 93.127)** (identify the project type). Project type: _____

☒ If no, go to Step 4.

Step 4. Is the project located in a region with a currently conforming RTP and TIP?

☒ If yes, t**he project is included in a currently conforming RTP and TIP per 40 CFR 93.115. The project's design and scope have not changed significantly from what was assumed in RTP conformity analysis (40 CFR 93.115[b])** Go to Step 8.

☐ If no and the project is located in an isolated rural area, go to Step 5.

☐ If no and the project is not located in an isolated rural area, STOP and do not proceed until a conforming RTP and TIP are adopted.

Step 5. For isolated rural areas, is the project regionally significant per 40 CFR 93.101, based on review by Interagency Consultation?

☐ If yes, go to Step 6.

☐ If no, go to Step 8. **The project, located in an isolated rural area, is not regionally significant and does not require a regional emissions analysis (40 CFR 93.101 and 93.109[l]).**

Step 6. Is the project included in another regional conformity analysis that meets the isolated rural area analysis requirements per 40 CFR 93.109, including Interagency Consultation and public involvement?

☐ If yes, go to Step 8. **The project, located in an isolated rural area, has met its regional analysis requirements through inclusion in a previously-approved regional conformity analysis that meets current requirements (40 CFR 93.109[l]).**

☐ If no, go to Step 7.

Step 7. The project, located in an isolated rural area, requires a separate regional emissions analysis.

☐ **Regional emissions analysis for regionally significant project, located in an isolated rural area, is complete. Regional conformity analysis was conducted that includes the project and reasonably foreseeable regionally significant projects for at least 20 years. Interagency Consultation and public participation were conducted. Based on the analysis, the interim or emission budget conformity tests applicable to the area are met (40 CFR 93.109[l] and 95.105).**[1] Go to Step 8.

Step 8. Is the project located in a CO nonattainment or maintenance area?

☐ If no, go to Step 9. **CO conformity analysis is not required.**

☒ If yes, **hot-spot analysis requirements for CO per the** CO Protocol (or per EPA's modeling guidance, CAL3QHCR can be used with EMFAC emission factors[2]) **have been met. Project will not cause or contribute to a new localized CO violation (40 CFR 93.116 and 93.123)**[3]**.** Go to Step 9.

---

[1] The analysis must support this conclusion before going to the next step.

[2] Use of the CO Protocol is strongly recommended due to its use of screening methods to minimize the need for modeling. When modeling is needed, the Protocol simplifies the modeling approach. Use of CAL3QHCR must follow U.S. EPA's latest CO hot spot guidance, using EMFAC instead of MOVES; see: http://www.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm#co-hotspot.

[3] As of October 1, 2007, there are no CO nonattainment areas in California. Therefore, the requirements to not worsen existing violations and to reduce/eliminate existing violations do not apply.

Step 9. Is the project located in a PM10 and/or a PM2.5 nonattainment or maintenance area?

☐ If no, go to Step 13. **PM2.5/PM10 conformity analysis is not required.**

☒ If yes, go to Step 10.

Step 10. Is the project considered to be a Project of Air Quality Concern (POAQC), as described in EPA's Transportation Conformity Guidance for PM 10 and PM 2.5?

☒ If no, **the project is not a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123 and EPA's Hot-Spot Analysis Guidance. Interagency Consultation concurred with this determination on October 23, 2012**. Go to Step 12.

☐ If yes, go to Step 11.

Step 11. The project is a POAQC.

☐ **The project is a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123, and EPA's Hot-Spot Guidance. Interagency Consultation concurred with this determination on _____. Detailed PM hot-spot analysis, consistent with 40 CFR 93.116 and 93.123 and EPA's Hot-Spot Guidance, shows that the project would not cause or contribute to, or worsen, any new localized violation of PM10 and/or PM2.5 standards.** Go to Step 12.

Step 12. Does the approved PM SIP include any PM10 and/or PM2.5 control measures that apply to the project, and has a written commitment been made as part of the air quality analysis to implement the identified SIP control measures? [(Control measures can be found in the applicable Federal Register notice at: http://www.epa.gov/otaq/stateresources/transconf/reg9sips.htm#ca.]

☐ If yes, **a written commitment is made to implement the identified SIP control measures for PM10 and/or PM2.5 through construction or operation of this project (40 CFR 93.117).** Go to Step 14.

☒ If no, go to Step 13.

Step 13a. Have project-level mitigation or control measures for CO, PM10, and/or PM2.5, included as part of the project's design concept and scope, been identified as a condition of the RTP or TIP conformity determination? AND/OR

Step 13b. Are project-level mitigation or control measures for CO, PM10, and/or PM2.5 included in the project's NEPA document?

AND

Step 13c (applies only if Step 13a and/or 13b are answered "yes"). Has a written commitment been made as part of the air quality analysis to implement the identified measures?

☐ If yes to 13a and/or 13b and 13c, **a written commitment is made to implement the identified mitigation or control measures for CO, PM10, and/or PM2.5 through construction or operation of this project. These mitigation or control measures are identified in the project's NEPA document and/or as conditions of the RTP or TIP conformity determination[1] (40 CFR 93.125(a)).** Go to Step 14.

☒ If no, go to Step 14

Step 14. Does the project qualify for a 771.117(c)(22) or 771.117(c)(23) Categorical Exclusion pursuant to 23 USC 326 and is an Air Quality Conformity Analysis required to document any analysis required by Steps 1 through 13 of this form?[4]

☐ If yes, then Caltrans prepares the Air Quality Conformity Analysis and makes the conformity determination. No FHWA involvement is required. See the AQCA Annotated Outline. Go to Step 17.

☒ If no, go to Step 15.

Step 15. Does the project quality for any other Categorical Exclusion pursuant to 23 USC 326 (but NOT 771.117(c)(22) or 771.117(c)(23))?

☐ If yes, then no FHWA involvement is required and Caltrans makes the conformity determination through its signature on the CE form. **An Air Quality Conformity Analysis (AQCA) is not needed.** Go to Step 17.

☒ If no, go to Step 16.

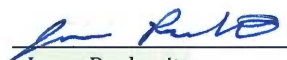
Step 16. Does the project require preparation of a Categorical Exclusion, EA, or EIS pursuant to 23 USC 327?

☒ If yes, then Caltrans submits a conformity determination to FHWA for FHWA's conformity determination. **An AQCA is needed.** See the AQCA Annotated Outline.

Date of FHWA air quality conformity determination: _____

Go to Step 17.

Step 17. STOP as all air quality conformity requirements have been met.

Signature: 

Printed Name: Jason Paukovits **Date:** 12/11/14

Title: Air Quality Analyst

[4] Please note that for ALL projects the project file must include evidence that one of the three following situation applies: 1) Conformity does not apply to the project area; or 2) The project is exempt from all conformity analysis requirements; or 3) The project is subject to project-level conformity analysis (and possibly regional conformity analysis) and meets the criteria for a conformity determination. The project file must include all supporting documentation and this checklist.