SR 65 Capacity and Operational Improvements Project

Air Quality Study Report

State Route 65, Cities of Roseville, Rocklin, and Lincoln, Placer County
03-PLA-65 PM R6.2 to R12.8

EA 03-1F170

September 2016

CALIFORNIA DEPARTMENT OF TRANSPORTATION

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STATE OF CALIFORNIA
Department of Transportation
District 3

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Acronyms and Abbreviations

$\mu g/m^3$	micrograms per cubic meter
AADT	annual average daily traffic
air toxics	toxic air contaminants
ARB	California Air Resources Board
CAAQS	California Ambient Air Quality Standards
California CAA	California Clean Air Act
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CEQA Handbook	California Environmental Quality Act Air Quality Handbook
CFR	Code of Federal Regulations
CH_4	methane
Clean Air Plan	air quality attainment plan
CO	carbon monoxide
CO Protocol	Transportation Project-Level Carbon Monoxide Protocol
CO_2	carbon dioxide
DOT	U.S. Department of Transportation
DPM	diesel particulate matter
EPA	U.S. Environmental Protection Agency
F	Fahrenheit
FCAA	Federal Clean Air Act
FHWA	Federal Highway Administration
FTIP	Federal Transportation Improvement Program
GHG	greenhouse gas
HOV	high-occupancy vehicle
I-80	Interstate 80
LOS	level of service
MOVES	Motor Vehicle Emissions Simulator
mph	miles per hour
MPO	Metropolitan Planning Organization
MSAT	Mobile source air toxics
MTIP	Metropolitan Transportation Improvement Program
MTP	Metropolitan Transportation Plan

N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO_2	nitrogen dioxide
NOA	naturally occurring asbestos
NO_X	nitrogen oxides
O_3	ozone
PCAPCD	Placer County Air Pollution Control District
PLCG	Project Level Conformity Group
PM10	particulate matter of 10 micrometers or smaller
PM2.5	particulate matter of 2.5 micrometers and smaller
POAQC	project of air quality concern
POM	polycyclic organic matter
ppm	parts per million
RCEM	Road Construction Emissions Model
ROG	reactive organic gases
RTP	Regional Transportation Plan
SACOG	Sacramento Area Council of Governments
SCS	Sustainable Communities Strategy
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SR	State Route
SVAB	Sacramento Valley Air Basin
TAC	toxic air contaminant
VMT	vehicle miles travelled

Chapter 1 Introduction

1.1 Purpose of the Air Quality Study Report

This report was prepared for the State Route (SR) 65 Capacity and Operational Improvements Project (proposed project). The California Department of Transportation (Caltrans), in cooperation with the Placer County Transportation Planning Agency (PCTPA), Placer County, and the Cities of Roseville, Rocklin, and Lincoln, proposes to add carpool lanes or general purpose lanes and auxiliary lanes on SR 65 from north of Galleria Boulevard/Stanford Ranch Road to Blue Oaks Boulevard, and would add auxiliary lanes from Blue Oaks Boulevard to Lincoln Boulevard (6.6 miles, from post miles [PM] 6.2 to 12.8). The proposed project is located in Placer County in the cities of Roseville, Rocklin, and Lincoln on SR 65 (Figure 1, Project Location).

This report is intended to support the preparation of National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) documentation for Caltrans. Caltrans is the NEPA lead agency as delegated by the Federal Highway Administration (FHWA) and the CEQA lead agency. This report also supports efforts to obtain agreements, permits, and concurrence needed to construct the proposed project. This report evaluates the effects of the proposed project on air quality resources and climate change, based on system-wide measures of effectiveness and intersection traffic volumes under existing (2012), construction year (2020), and design year (2040) conditions as reported in the traffic analysis report for this project (Fehr & Peers 2015).

Three alternatives, including the No Build Alternative, are analyzed in this document. Two Build Alternatives are proposed, both alternatives would accommodate the Interstate 80 (I-80)/SR 65 Interchange Improvements project and take into consideration the carpool/high-occupancy vehicle (HOV) lane restrictions and weaving volumes from the carpool/HOV lanes proposed by the I-80/SR 65 project. The proposed project would add carpool lanes or general purpose lanes and auxiliary lanes on SR 65 from north of Galleria Boulevard/Stanford Ranch Road to Blue Oaks Boulevard, and would add auxiliary lanes from Blue Oaks Boulevard to Lincoln Boulevard to relieve existing mainline congestion and accommodate planned and anticipated growth along the corridor by adding to mainline capacity. The proposed project is included in the Sacramento Area Council of Governments' (SACOG) *Draft 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy* (MTP/SCS) (Sacramento Area Council of Governments 2015), expected to be finalized and adopted by early spring of 2016. Engineering for the project is programmed in the SACOG *2015/2018 Metropolitan Transportation Improvement Program* (MTIP) (Sacramento Area Council of Governments 2014).

1.2 Scope and Content of the Report

This report describes the proposed project's regulatory and environmental setting, the environmental consequences of the project, and measures to avoid, minimize, or mitigate adverse impacts of the project on air quality resources. This report is organized as described here.

- Chapter 1, *Introduction*, introduces the report and describes the purpose, scope, and content of the report, as well as provides a summary of the project impacts; avoidance, minimization and/or mitigation measures; and significance conclusions that are discussed later in the report.
- Chapter 2, *Project Description*, describes the project's characteristics, including location, purpose, need, and the alternatives associated with the project.
- Chapter 3, *Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures*, describes the regulatory and physical setting, discloses the environmental effects of the alternatives and the methods used to evaluate them, and identifies measures to avoid, minimize, or mitigate adverse effects associated with the alternatives.
- Chapter 4, *References Cited*, describes the printed references and personal communications used to prepare this report.

1.3 Summary

Table 1 provides a summary of the impacts, significance conclusions, and avoidance, minimization, or mitigation measures discussed in this report.

Table 1. Summary of Impacts, Conclusions, and Avoidance, Minimization, or Mitigation Measures Associated with the Project

Impact	Conclusions	Avoidance, Minimization, or Mitigation Measures
AQ-1: Conformity of the Regional Transportation Plan with the State Implementation Plan	The complete project is included in the regional emissions and conformity analysis for the 2036 MTP/SCS and 2015-2018 MTIP planned for approval in Spring 2016.	None Required
AQ-2: Potential Violations of Carbon Monoxide NAAQS or CAAQS	The Build Alternatives are not anticipated to exceed 1- or 8-hour CO NAAQS or CAAQS.	None Required
AQ-3: Potential Violations of PM2.5 NAAQS or CAAQS	Placer County is currently classified as a nonattainment area with regards to the federal PM2.5 NAAQS. However, due to minimal change in AADT between the No Build and Build Alternatives, the project is determined not be a Project of Air Quality Concern. SACOG's PLCG issued concurrence that the project is not a Project of Air Quality Concern on August 9, 2016.	None Required

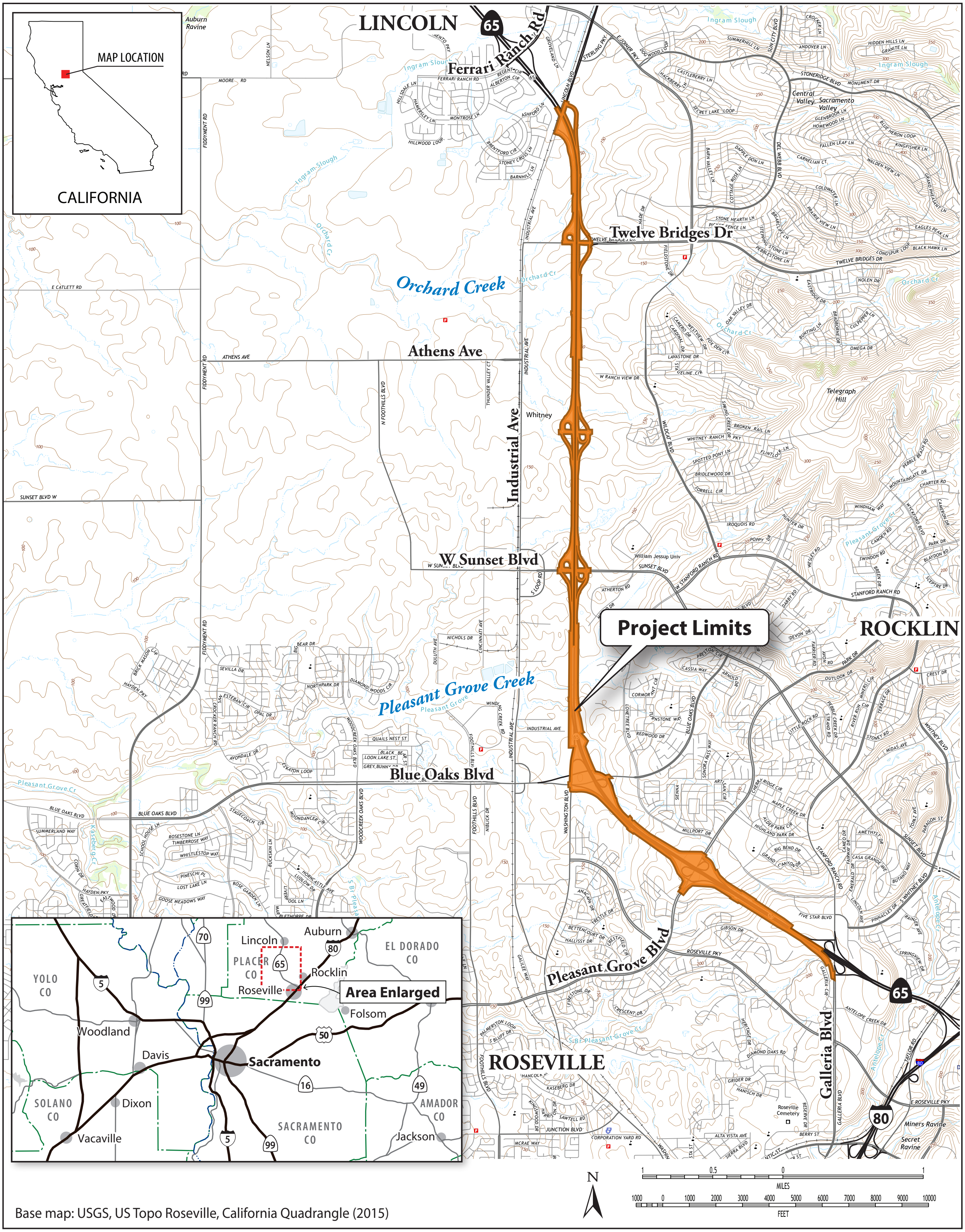

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Figure 1- Project Vicinity

State Route 65 Capacity and Operational Improvements

03-PLA-65-PM 6.2/12.8 (EA-03-1F170/EFIS 0300001103)

Impact	Conclusions	Avoidance, Minimization, or Mitigation Measures
AQ-4: Potential for Generation of Mobile Source Air Toxics (MSAT) Emissions	The project is not anticipated to have meaningful impacts on traffic volumes, thus based on FHWA's 2012 MSAT guidance, this project is considered to have No Meaningful Potential MSAT Effects, and a quantitative analysis of MSAT emissions is not required.	None Required
AQ-5: Generation of Operation-Related Emissions of O3 Precursors, Carbon Monoxide, and Particulate Matter	The project would result in decreases in ROG, NOX, and CO but minor increases in PM10 and PM2.5 between existing (2012) and design (2040) year conditions. The project would also result in increases in ROG, NOX, CO, PM10, and PM2.5 emissions between the No Build and Build Alternatives.	None Required
AQ-6: Potential Temporary Increase in O3 Precursors (ROG and NOX), CO, and Particulate Matter Emissions during Grading and Construction Activities	The project would result in temporary increases in O3 precursors, CO, PM10, and PM2.5 during construction.	Addressed by construction-related PM10 emission minimization measures in Caltrans Standard Specifications Section 14
AQ-7: Potential for Generation of Greenhouse Gas Contaminant Emissions	The project would result in minor increases in GHG emissions during construction and long-term operation. Operational emissions increases are a result of background growth in VMT between the existing (2012) and design (2040) years, as well as increased VMT between the No Build and Build Alternatives.	Please review the section Greenhouse Gas Reduction Strategies in Chapter 3

AADT = annual average daily traffic
CAAQS = California's ambient air quality standards
Caltrans = California Department of Transportation
CO = carbon monoxide
GHG = Greenhouse Gas
MTIP = Metropolitan Transportation Improvement Program
MTP = Metropolitan Transportation Plan
NAAQS = National Ambient Air Quality Standards
NO_X = nitrogen oxides
O_3 = Ozone
PCTPA = Placer County Transportation Planning Agency
PLCG = Project Level Conformity Group
PM10 = particles of 10 micrometers or smaller
PM2.5 = particles of 2.5 micrometers and smaller
ROG = reactive organic gases
SACOG = Sacramento Area Council of Governments
SCS = Sustainable Communities Strategy
VMT = vehicle miles travelled

Chapter 2 Project Description

Caltrans, in cooperation with the PCTPA, Placer County, and the Cities of Roseville, Rocklin, and Lincoln, proposes the SR 65 Capacity and Operational Improvements Project (6.6 miles, from post miles 6.2 to 12.8). The proposed project would add carpool lanes or general purpose lanes and auxiliary lanes on SR 65 from north of Galleria Boulevard/Stanford Ranch Road to Blue Oaks Boulevard, and would add auxiliary lanes from Blue Oaks Boulevard to Lincoln Boulevard to relieve existing mainline congestion and accommodate planned and anticipated growth along the corridor by adding to mainline capacity. This proposed project has been assigned the Project Development Processing Category 4A for widening the existing freeway without requiring a revised freeway agreement. The project is subject to both federal and state environmental review requirements. Caltrans is the lead agency under both NEPA and CEQA. The proposed project is included in SACOG's Draft 2016 MTP/SCS (Sacramento Area Council of Governments 2015), expected to be finalized and adopted by early spring of 2016. Engineering for the project is programmed in the SACOG 2015/2018 MTIP (Sacramento Area Council of Governments 2014).

2.1 Project Location

The project is located in Placer County in the cities of Roseville, Rocklin, and Lincoln (Figure 1). The project limits consist of SR 65 north of Galleria Boulevard/Stanford Ranch Road to Lincoln Boulevard (PM R6.2 to R12.8). The total length of the project is 6.6 miles.

2.2 Project Background

SR 65 begins at its junction with Interstate 80 (I-80) and is an important interregional route serving both local and regional traffic. SR 65 generally runs north/south and is a major connector for both automobile and truck traffic originating from the I-80 corridor in the Roseville/Rocklin area to the SR 70/99 corridor in the Marysville/Yuba City area. SR 65 is a vital economic link from residential areas to shopping and employment centers in southern Placer County. It is also an important route for transporting aggregate, lumber, and other commodities. SR 65 is characterized by significant growth in the industrial, commercial, and residential sectors. The southern Placer County region is one of the fastest growing areas in California, both in terms of housing and economic development.

SR 65 was constructed as a two-lane expressway in 1971. The Roseville Bypass from I-80 to Blue Oaks Boulevard was constructed in 1985. SR 65 from Blue Oaks Boulevard to Twelve Bridges Drive was widened to a four-lane facility in 1999. In 2009, the Caltrans Corridor System

Management Plan for SR 65 identified major mobility challenges, including highway and roadway traffic congestion, lack of roadway capacity, and inadequate transit funding. A Supplemental Traffic Report was completed in June 2012 by Caltrans District 3 Office of Freeway Operations. The report indicated that the segment of SR 65 from Galleria Boulevard/Stanford Ranch Road to Lincoln Boulevard was experiencing operational problems caused by high peak-period traffic volumes, vehicles hours of delay, average speeds, travel time, and other traffic performance measures that were deteriorating as a result of increasing growth in the surrounding areas. In 2013, a Project Study Report-Project Development Support for Capital Support was approved for adding one vehicle lane in each direction in the median of SR 65 from 0.5 mile north of Galleria Boulevard/Stanford Ranch Road to Lincoln Boulevard.

PCTPA has identified the proposed project as a high-priority regional network project in its 2035 Regional Transportation Plan. This project is included in the South Placer Regional Transportation Authority Regional Traffic Congestion and Air Quality Mitigation Fee Program.

2.3 Related Projects

Related projects in the project area that require coordination with the proposed project include the following.

I-80/SR 65 Interchange Improvements Project. This proposed project consists of various modifications to I-80, SR 65, and the interchange at their junction. This project will terminate north of the Galleria Boulevard/Stanford Ranch Road interchange on SR 65, tying into the southern limits of the proposed SR 65 Capacity and Operational Improvements project. The proposed improvements to the I-80/SR 65 interchange include adding a high-occupancy vehicle (HOV) direct connector from I-80 eastbound to SR 65 northbound and SR 65 southbound to I-80 westbound, replacing eastbound I-80 to northbound SR 65 loop connector with a flyover connector, widening the East Roseville Viaduct, replacing the Taylor Road overcrossing, and widening southbound SR 65 to westbound I-80, westbound I-80 to northbound SR 65, and southbound SR 65 to eastbound I-80 connectors with associated auxiliary lanes and ramp realignments. The interchange project will be constructed in phases and coordination with SR 65 Capacity and Operational Improvements Project is required.

Whitney Ranch Parkway Interim Phase Project. This project is located in the City of Rocklin and Placer County along SR 65 between Sunset Boulevard and Twelve Bridges Drive. The project will provide a direct connection to Whitney Ranch Parkway from SR 65 to serve the City of Rocklin. The interim phase will construct the SR 65/Whitney Ranch Parkway interchange and will include a three-lane SR 65 overcrossing, two-lane connection to the Whitney Ranch Parkway/University Avenue intersection, northbound SR 65 on and off-ramps, and a southbound

SR 65 loop on-ramp. The project also would construct additional improvements along SR 65 including an auxiliary lane south of the new interchange to conform to the auxiliary lanes constructed with the SR 65/Sunset Boulevard interchange and provisions for ramp metering and an HOV preferential lane for each SR 65 on-ramp. The construction contract for this project was recently awarded and construction is underway. The project is estimated to be completed by 2016.

Placer Parkway Phase I Project. This project is Phase I of the Placer Parkway project. Phase I proposes to extend freeway access at SR 65 by building a new roadway connection west to Foothills Boulevard North. The Phase I project will modify the Whitney Ranch Interchange into an L-9 partial cloverleaf interchange by adding a diagonal southbound off-ramp and on-ramp as well as an eastbound Placer Parkway to northbound SR 65 loop on-ramp. The project will also widen the SR 65 overcrossing from a three-lane structure to a six-lane facility and extend Placer Parkway to the west as a four-lane facility. Ultimately, the Placer Parkway project would construct a new transportation facility connecting SR 65 in the Lincoln/Roseville/Rocklin area to SR 99 in Sutter County.

Northbound SR 65 Carpool Lane. A new lane on SR 65 northbound from the Galleria Boulevard/Stanford Ranch Road interchange to the Blue Oaks Boulevard interchange is planned as a future project and will be included in the next MTP update. For the purposes of this project, the new lane was assumed as a carpool/HOV lane and would connect to the carpool/HOV lanes proposed in the I-80/SR 65 interchange project.

2.4 Purpose and Need

2.4.1 Need

Recurring morning and evening peak-period demand exceeds the current design capacity along SR 65, creating traffic operations and safety issues. These issues result in high delays and wasted fuel, all of which will be exacerbated by anticipated increases in traffic from future population and employment growth.

Projected growth along the SR 65 corridor in Roseville, Lincoln, Rocklin, and south Placer County will result in additional mainline congestion. SR 65 connects major regional routes and must operate efficiently in order to serve commuter traffic, goods movement, and regional traffic in south Placer County.

2.4.2 Purpose

The primary purpose of the proposed project is to relieve existing mainline congestion by adding to mainline capacity. Additional capacity will also address planned and anticipated growth along the corridor and takes the regional mobility and economic development goals of the PCTPA into consideration. The project is expected to improve traffic operations and safety in this segment of the highway.

2.5 Project Alternatives

Two build alternatives and a No Build alternative are being considered for this project. The assessment of alternatives is based on 2040 design-year conditions. No decision on a preferred alternative will be made until all alternatives have been fully evaluated.

2.5.1 No-Build Alternative

SR 65 within the project limits would maintain the existing lane configuration and no SR 65 mainline widening would be constructed. However, several related transportation capacity expansion projects are planned in the study area under construction year (2020) and design year (2040) conditions.

2.5.2 Build Alternatives

Both build alternatives described in this section would allow for inside highway widening as future projects along SR 65 from north of the Blue Oaks Boulevard interchange to Lincoln Boulevard. Both alternatives would accommodate the I-80/SR 65 project and take into consideration the carpool/HOV lane restrictions and weaving volumes from the carpool/HOV lanes proposed by the I-80/SR 65 project.

Carpool Lane Alternative

This alternative adds a 12-foot carpool/HOV lane on southbound SR 65 in the median from north of Galleria Boulevard/Stanford Ranch Road interchange to Blue Oaks Boulevard interchange. The carpool/HOV lane would connect to the carpool/HOV lanes proposed as part of the I-80/SR 65 interchange project.

This alternative would also add one 12-foot general purpose lane in each direction of SR 65 from the Galleria Boulevard interchange to the Pleasant Grove Boulevard interchange; and an auxiliary lane in each direction of SR 65 from the Galleria Boulevard interchange to the Pleasant Grove Boulevard interchange, from the Blue Oaks Boulevard interchange to the Sunset

Boulevard interchange, and from the Placer Parkway interchange to the Twelve Bridges Drive interchange.

Following the recommendation from the value analysis (VA) study, this alternative would also include ramp metering modifications for the slip on-ramps to a 2+1 configuration (2 metered lanes plus 1 carpool preferential lane) and a 1+1 (1 metered lane plus 1 carpool preferential lane) for loop on-ramps along SR 65 from the Galleria Boulevard interchange to Lincoln Boulevard. The southbound Pleasant Grove Boulevard slip and loop on-ramps, Blue Oaks Boulevard slip and loop on-ramps, and Lincoln Boulevard slip on-ramp would be modified to include these ramp metering changes.

General Purpose Lane Alternative

This alternative would add a 12-foot general purpose lane on SR 65 southbound from north of the Galleria Boulevard/Stanford Ranch Road interchange to the Blue Oaks Boulevard interchange, and another lane northbound from the Galleria Boulevard interchange to the Pleasant Grove Boulevard interchange. For added capacity on southbound SR 65, as recommended by the VA study, this alternative also includes an additional general purpose lane from the Galleria Boulevard interchange to the Pleasant Grove Boulevard interchange. This alternative also includes extending or adding auxiliary lanes and modifying slip and loop on-ramps for ramp metering as described in the Carpool Lane Alternative.

2.5.3 Alternatives Considered and Rejected

Mix Flow to Bus/Carpool Conversion (“Take-a-lane”) Alternative

This alternative converts an existing lane for carpool/HOV use within the project limits. This alternative is reviewed and rejected for not being in line with the primary purpose of relieving congestion and for its infeasibility on an existing four-lane highway (two lanes in each direction).

2.6 Common Design Details of the Build Alternatives

The two Build Alternatives include the following components.

2.6.1 Highway Widening

Median widening for additional general purpose or carpool lanes consists of removing existing inside shoulders and paving the median and giving it a standard cross slope. From Galleria Boulevard to Blue Oaks Boulevard, median widening includes removing the existing thrie beam barrier, paving the entire median, and installing concrete barrier at the center divide. The existing drainage systems, which currently collect the runoff within the median and carry it into the existing cross culverts, would be abandoned, removed, or modified.

The paved median would generate new impervious area for the runoff to sheet flow across the travel way to the outside shoulder. On areas with fill material, runoff would be collected by the toe ditch or gutter and carried to the existing channel or waterway. On cut material, runoff would be channelized by the asphalt concrete dike on the edge of the roadway shoulder and discharged to the ditch or toe gutter through an overside drain. At shoulder cut locations, the water spread would be checked to see if drainage inlets are needed to avoid water spread encroaching into the freeway edge of travel way. The new roadway drainage system would connect the inlets and pipe down the ditch or toe gutter. Most of the existing ditch or toe gutter would remain to collect runoff, except for segments affected by outside widening for auxiliary lanes; those segments would be replaced or reconstructed. To minimize downstream effects, the proposed project would maintain the existing drainage pattern, which ultimately drains toward two waterways—Pleasant Grove Creek and Orchard Creek.

The median widening along southbound SR 65 would provide standard 10-foot inside shoulders. Along northbound SR 65, the inside paving is limited to a hot mix asphalt overlay for roadway cross-slope correction. The inside shoulder on northbound SR 65 would retain its nonstandard width of 5 feet. Justification for the nonstandard inside shoulder width would be documented in the exceptions to Caltrans’ mandatory design standards.

Auxiliary lanes would be constructed by widening the existing pavement to the outside, including the replacement of existing outside shoulder with standard cross slope and side slopes of 4:1 or flatter for the fill for most of the corridor, to meet the minimum requirements specified in the Caltrans *Highway Design Manual* (Caltrans 2015). Segments along the corridor between Stanford Ranch Road and Pleasant Grove Boulevard and between the Whitney Ranch Parkway and Twelve Bridges Drive interchanges would require side slope of 3:1 or steeper, with a 30-foot clear recovery zone to avoid encroaching beyond existing right of way and wetlands or overfilling existing drainage ways. These areas along the corridor would require exceptions to Caltrans advisory design standards.

A tie-back wall would be needed at the Pleasant Grove Boulevard interchange to accommodate the highway and ramp widening. A segment on southbound SR 65 between the Whitney Ranch Parkway and Twelve Bridges Drive interchanges would require a cut slope of 3:1 to avoid encroaching into existing right of way; slopes at 3:1 or flatter are considered traversable, but would need approval from Caltrans Landscape Architecture.

2.6.2 Pleasant Grove Creek Bridge Widening

Both the northbound and southbound bridges over Pleasant Grove Creek would be widened to accommodate the auxiliary lanes. The widened bridge structures would be similar structure types to the existing bridges, which are reinforced concrete slab bridges with piles. Pile driving within the creek is anticipated.

2.6.3 Utility Relocation

Overhead electric facilities run parallel along northbound SR 65 outside of State right of way. At Pleasant Grove Creek, the overhead line turns east-west and crosses over SR 65. The overhead electric hangs over both the Pleasant Grove Creek bridges that are proposed for widening. The proximity of the overhead line may conflict with bridge foundation activities during construction. The overhead line may therefore need to be temporarily relocated outside of the creek area to accommodate widening the Pleasant Grove Creek bridges.

2.6.4 Cross Culvert Extension

A number of culverts cross the SR 65 corridor. Most of the cross culverts would not be affected by the proposed project because they are of adequate length. A few of the culverts are short and would need to be extended to accommodate the proposed auxiliary lanes along the corridor. The following culverts would be extended.

- Double 72-inch reinforced concrete pipe between Galleria Boulevard and Pleasant Grove Boulevard.
- Double 10-foot x 5-foot reinforced concrete box culvert between Blue Oaks Boulevard and Sunset Boulevard.
- 7-foot x 5-foot reinforced concrete box culvert between Placer Parkway and Twelve Bridges Drive.

2.6.5 Staging/Laydown Areas

No specific staging/laydown areas have been identified. However, the contractor may utilize areas within the existing median and areas between the main line and interchange on- and off-ramps for staging or laydown.

2.6.6 Construction Equipment and Techniques

Equipment that would be used for construction includes graders, excavators, drilling rigs, cranes, pavers, compactors, and various types of construction vehicles. Project design and construction would incorporate the following standard construction measures.

- A preliminary site-specific geotechnical report and initial site assessment will be prepared and will be incorporated into the project's final design. If contaminated soil or groundwater, or suspected contamination, is encountered during construction, work will be halted in the area and the type and extent of the contamination identified. A qualified professional, in consultation with Caltrans, will then develop an appropriate method to remediate the contamination.
- A site-specific storm water pollution prevention plan will be prepared for the construction.
- Fugitive dust emissions during construction will be minimized by applying water frequently from water trucks. Fugitive dust emissions from wind erosion of inactive areas disturbed by construction activities will also be controlled by applying water. Chemical dust suppressants will not be used unless approved for direct application to surface waters.
- The contractor will be required to implement temporary Best Management Practices (BMPs) to control any runoff or erosion from the project site, into the surrounding waterways. These temporary BMPs will be installed prior to any construction operations and will be in place for the duration of the contract. Removing these BMPs will be the final operation, along with the project site cleanup.

2.6.7 Construction Access

Temporary construction easements may be required for the contractor to access construction areas. Access to construction areas would be from the interchanges at Pleasant Grove Boulevard, Blue Oaks Boulevard, Sunset Boulevard, Placer Parkway/Whitney Ranch Parkway, Twelve Bridges Drive, and Lincoln Boulevard. Two lanes in each direction on SR 65 are anticipated to remain open to traffic for the majority of project's duration.

Chapter 3 Affected Environment; Environmental Consequences; and Avoidance, Minimization, and/or Mitigation Measures

This chapter describes the environmental setting (regulatory setting and physical setting/existing conditions) for air quality and climate change as it relates to the proposed project; the impacts on air quality that would result from the proposed project; and avoidance, minimization, and/or mitigation measures that would reduce these impacts, if applicable.

3.1 Affected Environment

3.1.1 Regulatory Setting

Air Quality

The air quality management agencies of direct importance in Placer County include the United States Environmental Protection Agency (EPA), California Air Resources Board (ARB), and Placer County Air Pollution Control District (PCAPCD). The EPA has established federal standards for which the ARB and PCAPCD have primary implementation responsibility. The ARB and PCAPCD are also responsible for ensuring that state standards are met. Federal, state, and local regulations applicable to the proposed project are described below.

Federal Air Quality Standards

The Federal Clean Air Act (FCAA) as amended in 1990 is the federal law that governs air quality. The California Clean Air Act (California CAA) of 1988 is its companion state law, which is described further below. These laws and related regulations by the EPA and ARB set standards for the quantity of pollutants that can be in the air. At the federal level, the standards are called National Ambient Air Quality Standards (NAAQS). NAAQS have been established for six transportation-related criteria pollutants that have been linked to potential health concerns. The criteria pollutants are carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM, broken down for regulatory purposes into particles of 10 micrometers or smaller—PM10, and particles of 2.5 micrometers and smaller—PM2.5), lead, and sulfur dioxide (SO_2). In addition, state standards exist for visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride.

The NAAQS and California Ambient Air Quality Standards (CAAQS) are set at a level that protects public health with a margin of safety and are subject to periodic review and revision. The NAAQS and CAAQS are listed together in Table 2. Both state and federal regulations also cover toxic air contaminants (air toxics). Note that some criteria pollutants are air toxics or may include certain air toxics within their general definition. The federal and state air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA and CEQA. In addition to this type of environmental analysis, a parallel “conformity” requirement under the FCAA also applies, as described below.

Federal Clean Air Act Conformity Requirements for Transportation

FCAA Section 176(c) prohibits the United States Department of Transportation (DOT) and other federal agencies from funding, authorizing, or approving plans, programs, or projects that are not first found to conform to State Implementation Plan (SIP) for achieving the goals of FCAA requirements related to the NAAQS. The “Transportation Conformity” Act applies on two levels: the regional, or planning and programming level, and the project level. The proposed project must conform at both levels to be approved. Conformity requirements apply only in nonattainment and maintenance (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. A region is *nonattainment* if one or more monitoring stations in the region measures violation of the relevant standard, and the EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to *attainment* by the EPA, and are then called *maintenance* areas. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the standards set for CO, NO_2, O_3, PM10, and PM2.5, and in some areas SO_2. California is nonattainment or maintenance for all of these transportation-related criteria pollutants except SO_2, and also has a nonattainment area for lead. However, lead is not currently required by the FCAA to be covered in a transportation conformity analysis. Regional conformity is based on RTPs and Federal Transportation Improvement Programs (FTIPs) that include all of the transportation projects planned for a region over a period of at least 20 years for the RTP and 4 years for the FTIP. RTP and FTIP conformity is based on use of travel demand and air quality models to determine whether or not implementation of those projects would conform to emission budgets or other tests showing that requirements of the FCAA and the SIP are met. The Metropolitan Planning Organization (MPO) and FHWA determine whether the RTP and FTIP conform to SIP goals for achieving the FCAA requirements. If the RTP and FTIP do not conform to the SIP, the projects in the RTP and/or the FTIP must be modified until conformity is attained. If the design, concept, scope, and open to traffic schedule of a proposed transportation project are the same as described in the RTP and the FTIP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis. Note the SACOG's RTP is known as the MTP/SCS and its Transportation Improvement Program is known as the MTIP.

Table 2. National and California Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard (ppm)		Standard (μg/m^3)		Violation Criteria	
			California	National	California	National	California	National
Ozone	O_3	1 hour	0.09	NA	180	NA	If exceeded	NA
		8 hours	0.070	0.070	137	147	If exceeded	If fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA
Nitrogen dioxide	NO_2	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.18	0.100	339	188	If exceeded	NA
Sulfur dioxide	SO_2	Annual arithmetic mean	NA	0.030	NA	NA	NA	If exceeded
		24 hours	0.04	0.14	105	NA	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	75	655	196	If exceeded	NA
Hydrogen sulfide	H_2S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride	C_2H_3Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA
Inhalable PM	PM10	Annual arithmetic mean	NA	NA	20	NA	If exceeded	If exceeded at each monitor within area
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year
	PM2.5	Annual arithmetic mean	NA	NA	12	12.0	If exceeded	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	NA	NA	NA	35	NA	If 3-year average of 98th percentile at each population-oriented monitor within an area is exceeded
Sulfate particles	SO_4	24 hours	NA	NA	25	NA	If equaled or exceeded	NA

Pollutant	Symbol	Average Time	Standard (ppm)		Standard (μg/m^3)		Violation Criteria	
			California	National	California	National	California	National
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded on more than 1 day per year
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA
		Rolling 3-month average	NA	NA	NA	0.15	If equaled or exceeded	Averaged over a rolling 3-month period

Source: California Air Resources Board 2015a

Notes: All standards are based on measurements at 25ºC and 1 atmosphere pressure; national standards shown are the primary (health effects) standards; ppm = parts per million; μg/m^3 = micrograms per cubic meter; NA = not applicable.

Conformity at the project level also requires a “hot-spot” analysis if an area is nonattainment or maintenance for CO or particulate matter (PM10 and PM2.5). A hot-spot analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot-spot analysis. In general, projects must not cause the hot-spot-related CO standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

The concept of transportation conformity was introduced in the FCAA 1977 amendments. Transportation conformity requires that no federal dollars be used to fund a transportation project unless it can be clearly demonstrated that the project would not cause or contribute to violations of the NAAQS. Conformity requirements were made substantially more rigorous in the FCAA 1990 amendments, and the transportation conformity regulation that details implementation of the new requirements was issued in November 1993.

The DOT and EPA developed guidance for determining conformity of transportation plans, programs, and projects in November 1993 in the Transportation Conformity Rule (40 CFR 51 and 40 CFR 93). The demonstration of conformity to the SIP is the responsibility of the local MPO, which is also responsible for preparing RTPs and associated demonstration of SIP conformity. Section 93.114 of the Transportation Conformity Rule states that “there must be a currently conforming RTP and transportation improvement plan at the time of project approval.”

State Air Quality Standards

Responsibility for achieving the CAAQS (see Table 2), which, for certain pollutants and averaging periods, are more stringent than federal standards, is placed on the ARB and local air pollution control districts. State standards are achieved through district-level air quality management plans that are incorporated into the SIP.

ARB traditionally has established state air quality standards, maintained oversight authority in air quality planning, developed programs for reducing emissions from motor vehicles, developed air emission inventories, collected air quality and meteorological data, and approved SIPs. Air district responsibilities include overseeing stationary source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required under CEQA. It should be noted, however, that Caltrans considers the use of locally adopted CEQA thresholds of significance for construction emissions as being not mandatory, but to help serve as guidance for scoping air quality studies. However, Caltrans Standard Specification Section 14-9.02, which includes specifications relating to air pollution control, requires that projects comply with air pollution control rules, regulations, ordinances, and statutes, including those provided in Government Code Section 11017 (Public Contract Code § 10231). In addition, Caltrans does not have the authority to require use of specific equipment or to apply other direct restrictions on contractor equipment fleet emissions in excess of EPA, ARB, and possibly local air district regulations.

The California CAA of 1988 substantially added to the authority and responsibilities of air districts. The California CAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures.

The California CAA focuses on attainment of the CAAQS and requires designation of attainment and nonattainment areas with respect to these standards. The California CAA also requires that local and regional air districts expeditiously adopt and prepare an air quality attainment plan (Clean Air Plan) if the district violates state air quality standards for O_3, CO, SO_2, or NO_2. These plans are specifically designed to attain state standards and must be designed to achieve an annual 5% reduction in district-wide emissions of each nonattainment pollutant or its precursors. No locally prepared attainment plans are required for areas that violate the state PM10 standards; ARB is responsible for developing plans and projects that achieve compliance with the state PM10 standards.

The California CAA requires that the state air quality standards be met as expeditiously as practicable, but, unlike the FCAA, does not set precise attainment deadlines. Instead, the California CAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards.

The California CAA emphasizes the control of “indirect and area-wide sources” of air pollutant emissions. The act gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish transportation control measures. The California CAA does not define the terms *indirect sources* and *area-wide sources*. However, Section 110(a)(5)(C)) of the FCAA defines an indirect source as

> a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution. Such term includes parking lots, parking garages, and other facilities subject to any measure for management of parking supply….

The ARB defines area-wide sources as sources of pollution where the emissions are spread over a wide area, such as consumer products, fireplaces, road dust and farming operations. Area-wide sources do not include mobile sources or stationary sources (California Air Resources Board n.d.). Transportation control measures are defined in the California CAA as "any strategy to reduce trips, vehicle use, vehicle miles travelled, vehicle idling, or traffic congestion for the purpose of reducing vehicle emissions."

Local and Regional Implementation of Federal and State Requirements

At the local level, air quality is managed through land use and development planning practices, which are implemented in Placer County through the general planning process. PCAPCD is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws. The air district is also responsible for implementing strategies for air quality improvement and recommending mitigation measures for new growth and development.

PCAPCD (2012) has specified significance thresholds in its *CEQA Air Quality Handbook* (CEQA Handbook) to assist lead agencies in determining air quality impacts for projects located in Placer County. Although not used to determine impacts associated with the proposed project, PCAPCD's thresholds of significance, as indicated in their CEQA Handbook, are summarized in Table 3 for informational purposes. Thresholds for pollutants other than reactive organic gases (ROG), nitrogen oxides (NO_X), and PM10 are not specified in PCAPCD's CEQA Handbook.

Table 3. Placer County Air Pollution Control District Thresholds of Significance (pounds per day)

	O_3 Precursor Emissions		
	ROG	**NO_X**	**PM10**
Construction (short-term)	82	82	82
Operational (long-term)	82	82	82

Source: Placer County Air Pollution Control District 2012

3.1.2 Physical Setting

Ambient air quality is affected by climatological conditions, topography, and the types and amounts of pollutants emitted. The following discussion describes relevant characteristics of the air basin within which the project is located and offers an overview of conditions affecting pollutant ambient air concentrations in the basin.

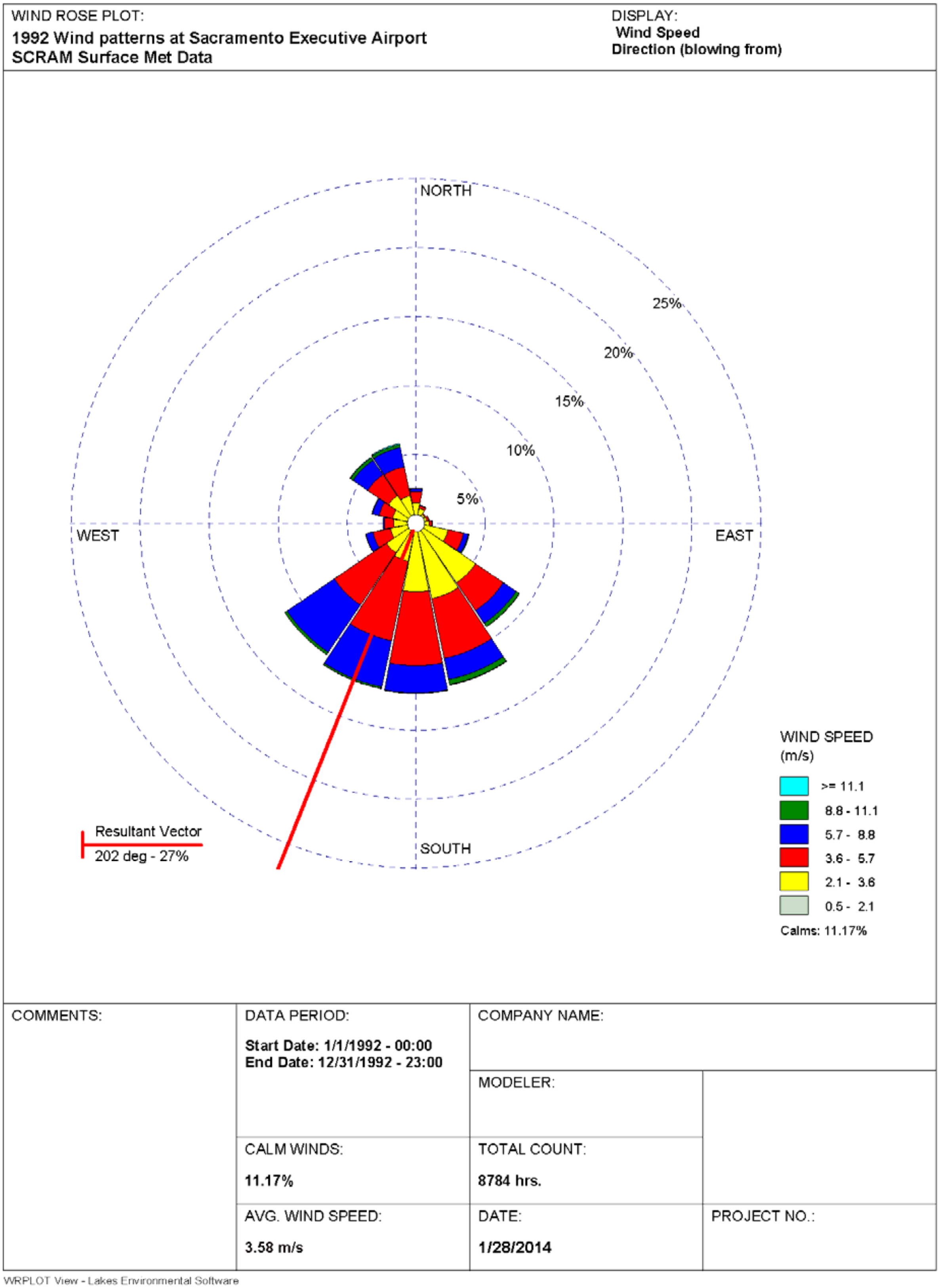
Climate and Topography

The project is located in Placer County, California, which spans three air basins; however, the project is located entirely in the Sacramento Valley Air Basin (SVAB). The SVAB includes Sacramento, Shasta, Tehama, Butte, Glenn, Colusa, Sutter, Yuba, and Yolo Counties, as well as parts of Solano and Placer Counties. The SVAB is bounded on the west by the Coast Ranges and on the north and east by the Cascade Range and Sierra Nevada Range. The San Joaquin Valley Air Basin lies to the south.

The SVAB has a Mediterranean climate characterized by hot, dry summers and cool, rainy winters. During the winter, the North Pacific storm track intermittently dominates valley weather, and fair weather alternates with periods of extensive clouds and precipitation. Also characteristic of winter weather in the SVAB are periods of dense and persistent low-level fog that is most prevalent between storms. The frequency and persistence of heavy fog in the SVAB diminishes with the approach of spring. The average yearly temperature range for the Sacramento Valley is between 20 and 115° Fahrenheit (F), with summer high temperatures often exceeding 90°F and winter low temperatures occasionally dropping below freezing.

Prevailing wind in the Sacramento Valley is generally from the southwest due to marine breezes flowing through the Carquinez Strait. The Carquinez Strait is the major corridor for air moving into the Sacramento Valley from the west. Incoming airflow strength varies daily with a pronounced diurnal cycle. Figure 2 indicates the predominant wind direction in the region based on meteorological data from Sacramento Executive Airport (Webmet.com 2015). Influx strength is weakest in the morning and increases in the evening hours. Associated with the influx of air through the Carquinez Strait is the Schultz Eddy. The Schultz Eddy is an eddy formed when mountains on the valley’s western side divert incoming marine air. The eddy contributes to the formation of a low-level southerly jet between 500 and 1,000 feet above the surface that is capable of speeds in excess of 35 miles per hour (mph). This jet is important for air quality in the Sacramento Valley because of its ability to transport air pollutants over large distances.

Figure 2. Wind Rose Plot—Sacramento Executive Airport



WIND ROSE PLOT:
1992 Wind patterns at Sacramento Executive Airport
SCRAM Surface Met Data

DISPLAY:
Wind Speed
Direction (blowing from)

COMMENTS:

DATA PERIOD:
Start Date: 1/1/1992 - 00:00
End Date: 12/31/1992 - 23:00

COMPANY NAME:

MODELER:

CALM WINDS:
11.17%

TOTAL COUNT:
8784 hrs.

AVG. WIND SPEED:
3.58 m/s

DATE:
1/28/2014

PROJECT NO.:

The SVAB's climate and topography contribute to the formation and transport of photochemical pollutants throughout the region. The region experiences temperature inversions that limit atmospheric mixing and trap pollutants; high pollutant concentrations result near the ground surface. Generally, the lower the inversion base height from the ground and the greater the temperature increase from base to top, the more pronounced the inhibiting effect of the inversion will be on pollutant dispersion. Consequently, the highest concentrations of photochemical pollutants occur from late spring to early fall when photochemical reactions are greatest because of intensifying sunlight and lowering altitude of daytime inversion layers. Surface inversions (those at altitudes of 0 to 500 feet above sea level) are most frequent during winter, and subsidence inversions (those at 1,000 to 2,000 feet above sea level) are most common in the summer.

Description of Pollutants

The primary pollutants of concern in the project area are O_3 and its precursors, ROG and NO_X, as well as CO, PM10, and PM2.5. O_3, PM10, and PM2.5 are considered to be regional pollutants because they affect air quality on a regional scale. NO_2 reacts photochemically with ROG to form O_3, while PM10 and PM2.5 can form from chemical reaction of atmospheric chemicals, including NO_X, sulfates, nitrates, and ammonia. These processes can occur at some distance downwind of the source of pollutants. Pollutants, such as CO, are considered to be local pollutants because they tend to disperse rapidly with distance from the source. Although PM10 and PM2.5 are regional pollutants, they can also be localized pollutants, as direct emissions of PM10 from automobile exhaust can accumulate in the air locally near the emission source.

The following is a brief overview of O_3, CO, PM10, and PM2.5. Carbon dioxide (CO_2), mobile source air toxics (MSAT), and asbestos are also discussed, even though there are currently no adopted standards to control these pollutants.

Ozone

O_3 is a respiratory irritant that increases susceptibility to respiratory infections. It is also an oxidant that can cause substantial damage to vegetation and other materials. O_3 is not emitted directly into the air but is formed by a photochemical reaction in the atmosphere. The O_3 precursors ROG and NO_X react in the atmosphere in the presence of sunlight to form O_3. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, O_3 pollution is primarily a problem in the summer.

Carbon Monoxide

CO is a public health concern because it combines readily with hemoglobin and reduces the amount of oxygen transported in the bloodstream. CO can cause health problems such as fatigue, headache, confusion, dizziness, and even death. Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Inhalable Particulate Matter

Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter also forms when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. Particulate matter less than 10 microns in diameter, about 1/7th the diameter of a human hair, is referred to as PM10. Particulate matter 2.5 microns or less in diameter, roughly 1/28th the diameter of a human hair, is referred to as PM2.5. Major sources of PM10 include motor vehicles; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush or waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. PM2.5 results from fuel combustion (from motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. In addition, PM10 and PM2.5 can be formed in the atmosphere from gases such as SO_2, NO_X, and ROG.

PM10 and PM2.5 pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system’s natural defenses and damage the respiratory tract. PM10 and PM2.5 can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body’s ability to fight infections. Very small particles of certain substances, such as lead, sulfates, and nitrates, can cause lung damage directly. These substances can be absorbed into the blood stream and cause damage elsewhere in the body; they can also transport absorbed gases such as chlorides or ammonium into the lungs and cause injury. Whereas particles 2.5 to 10 microns in diameter tend to collect in the upper portion of the respiratory system, particles 2.5 microns in diameter or smaller can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, contribute to haze, and reduce regional visibility.

Carbon Dioxide

CO_2 is the most important anthropogenic greenhouse gas (GHG) and accounts for more than 75% of all anthropogenic GHG emissions. Its long atmospheric lifetime (decades to centuries) ensures that atmospheric concentrations of CO_2 will remain elevated for decades after mitigation efforts to reduce GHG concentrations are instituted (Intergovernmental Panel on Climate Change 2007).

Increasing concentrations of CO_2 in the atmosphere are primarily a result of emissions from the burning of fossil fuels, gas flaring, cement production, and land use changes. Three quarters of anthropogenic CO_2 emissions are the result of fossil fuel burning (and to a very small extent, cement production), and approximately one quarter of emissions are the result of land use change (Intergovernmental Panel on Climate Change 2007).

Anthropogenic emissions of CO_2 have increased concentrations in the atmosphere, most notably since the industrial revolution; the concentration of CO_2 has increased from about 280 parts per million (ppm) to 390 ppm from 1750 to 2011 (Intergovernmental Panel on Climate Change 2013:161). The Intergovernmental Panel on Climate Change estimates that the present atmospheric concentration of CO_2 has not been exceeded in the last nearly 1 million years (Intergovernmental Panel on Climate Change 2007:100).

Toxic Air Contaminants/Mobile Source Air Toxics

Toxic air contaminants (TACs) are pollutants that may result in an increase in mortality or serious illness or that may pose a present or potential hazard to human health. Health effects of TACs include cancer, birth defects, neurological damage, damage to the body’s natural defense system, and diseases that lead to death. In 1998, following a 10-year scientific assessment process, ARB identified particulate matter from diesel-fueled engines as a TAC. Compared to other air toxics that ARB has identified and controlled, diesel particulate matter (DPM) emissions are estimated to be responsible for about 70% of the total ambient air toxics risk (California Air Resources Board 2000).

The FCAA made controlling air toxic emissions a national priority, by which Congress mandated that EPA regulate 188 air toxics. These substances are also known as hazardous air pollutants. In EPA’s latest rule, *Control of Emissions of Hazardous Air Pollutants from Mobile Sources* (Federal Register, Vol. 72, No. 37, page 8430, February 2007), it identified a group of 93 compounds emitted from mobile sources that are listed in its Integrated Risk Information System. The Integrated Risk Information System is a comprehensive database of specific substances known to cause human health effects. In addition, EPA identified the following seven compounds as priority MSATs.

- Acrolein
- Benzene
- 1,3-Butadiene
- DPM/diesel exhaust organic gases
- Formaldehyde
- Naphthalene
- Polycyclic organic matter (POM)

While FHWA considers these compounds the priority MSATs, the list is subject to change and may be adjusted in consideration of future rules. To address emissions of MSATs, EPA has issued a number of regulations, including the 2007 rule mentioned above, that will dramatically decrease MSATs through cleaner fuels and cleaner engines.

The issue of air toxics is an emerging area of analysis and continuing research. Although much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques available for assessing project-specific health impacts from MSATs are currently limited. Given the emerging state of the science and of project-level analysis techniques, there are no established criteria for determining when MSAT emissions should be considered a significant issue in the context of NEPA.

FHWA released guidance for factoring mobile source health risks into project-level decisionmaking under NEPA in December 2012 (U.S. Federal Highway Administration 2012). However, EPA has not established regulatory concentration targets for the seven relevant MSAT pollutants appropriate for use in the project development process. The FHWA recommends MSAT analyses be conducted using EPA's latest version of the Motor Vehicle Emissions Simulator (MOVES) model, released on October 30, 2012, which estimates on- and off-road MSAT emissions from motor vehicles. FHWA's guidance advises the assessment of MSATs in NEPA documents (U.S. Federal Highway Administration 2012).

Asbestos

Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (proper rock name serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include: unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present. Naturally occurring asbestos (NOA) is present in approximately 44 of California's 58 counties.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos-bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed.

Asbestos can result in a human health hazard when airborne. The inhalation of asbestos fibers into the lungs can result in a variety of adverse health effects, including inflammation of the lungs, respiratory ailments (such as asbestosis, which is scarring of lung tissue that results in constricted breathing), and cancer (such as lung cancer and mesothelioma, which is cancer of the linings of the lungs and abdomen).

Existing Air Quality Conditions

Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards that federal and state governments have established for various pollutants (Table 4) and by monitoring data collected in the region. Monitoring data concentrations are typically expressed in terms of ppm or micrograms per cubic meter (μg/m^3).

Table 4. Ambient Air Quality Monitoring Data Measured at the Roseville- North Sunrise Boulevard and North Highlands-Blackfoot Way Sacramento Monitoring Stations

Pollutant Standards	2012	2013	2014
O_3 (Roseville-North Sunrise Boulevard)			
Maximum 1-hour concentration (ppm)	0.108	0.111	0.097
Maximum 8-hour concentration (ppm)	0.092	0.083	0.086
Number of days standard exceeded[a]			
CAAQS 1-hour (>0.09 ppm)	9	2	4
CAAQS 8-hour (>0.070 ppm)	28	8	21
Nitrogen Dioxide (NO_2) (Roseville-North Sunrise Boulevard)			
State maximum 1-hour concentration (ppm)	0.055	0.056	0.054
State second-highest 1-hour concentration (ppm)	0.054	0.054	0.048
Annual average concentration (ppm)	0.010	0.010	0.008

Pollutant Standards	**2012**	**2013**	**2014**
Number of days standard exceeded[a]			
CAAQS 1-hour (0.18 ppm)	0	0	0
Carbon Monoxide (CO) (North Highlands-Blackfoot Way)			
Maximum 8-hour concentration (ppm)	1.54	1.4	1.4
Maximum 1-hour concentration (ppm)	2.1	1.9	1.8
Number of days standard exceeded[a]			
NAAQS 8-hour (≥9 ppm)	0	0	0
CAAQS 8-hour (≥9.0 ppm)	0	0	0
NAAQS 1-hour (≥35 ppm)	0	0	0
Particulate Matter (PM10) (Roseville-North Sunrise Boulevard)			
National[b] maximum 24-hour concentration (µg/m^3)	43.2	55.5	30.2
National[b] second-highest 24-hour concentration (µg/m^3)	28.0	36.4	29.5
State[c] maximum 24-hour concentration (µg/m^3)	44.8	54.1	31.8
State[c] second-highest 24-hour concentration (µg/m^3)	27.5	36.5	29.5
National annual average concentration (µg/m^3)	15.1	18.4	17.9
State annual average concentration (µg/m^3)[d]	15.3	*	18.0
Number of days standard exceeded[a]			
NAAQS 24-hour (>150 µg/m^3)[e]	0.0	0.0	0.0
CAAQS 24-hour (>50 µg/m^3)[e]	0.0	*	0.0
Particulate Matter (PM2.5) (Roseville-North Sunrise Boulevard)			
National[b] maximum 24-hour concentration (µg/m^3)	16.1	23.7	22.2
National[b] second-highest 24-hour concentration (µg/m^3)	14.9	18.9	20.6
State[c] maximum 24-hour concentration (µg/m^3)	28.0	57.0	30.7
State[c] second-highest 24-hour concentration (µg/m^3)	27.5	35.2	24.8
National annual average concentration (µg/m^3)	6.4	7.5	7.8
State annual average concentration (µg/m^3)[d]	9.5	7.5	10.5
Number of days standard exceeded[a]			
NAAQS 24-hour (>35 µg/m^3)	0.0	0.0	0.0

Notes: CAAQS = California Ambient Air Quality Standards.
NAAQS = National Ambient Air Quality Standards.
* = insufficient data available to determine the value.
ppm = parts per million.
µg/m^3 = micrograms per cubic meter.

[a] An exceedance is not necessarily a violation.

[b] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[c] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, State statistics are based on California approved samplers.

[d] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[e] Mathematical estimate of how many days' concentrations would have been measured as higher than the level of the standard had each day been monitored.

Source: California Air Resources Board 2015b; U.S. Environmental Protection Agency 2015

The nearest air quality monitoring station in the vicinity of the project area that reported pollutant concentrations between 2012 and 2014 is the North Sunrise Boulevard monitoring station, located at 151 North Sunrise Avenue in Roseville, which is approximately 2 miles south of the project. The North Sunrise Boulevard station monitors for O$_3$, NO$_2$, PM10, and PM2.5.

Because there are no monitors for CO located in Placer County, monitoring data for CO was taken from the nearest monitoring station, located at North Highlands-Blackfoot Way in Sacramento County (7 miles southwest of the project).

Air quality monitoring data from the North Sunrise Boulevard and North Highlands-Blackfoot Way monitoring stations are summarized in Table 4. These data represent air quality monitoring data for the last 3 years (2012 through 2014) in which complete data are available.

As shown in Table 4, the Roseville-North Sunrise Boulevard monitoring station has experienced 15 violations of the state 1-hour O_3 standard, 57 violations of the state 8-hour O_3 standard, no violations of the state NO_2 standards, no violations of the federal 24-hour PM10 standard, no violations of the state 24-hour PM10 standard, and no violations of the federal 24-hour PM2.5 standard during the 3-year monitoring period.

Attainment Status

Table 5. Attainment Status of Sacramento Valley Air Basin portion of Placer County

Pollutant	Attainment Status	
	State	Federal
1-hour Ozone	Serious Nonattainment	N/A
8-hour Ozone	Nonattainment	Severe Nonattainment
Carbon Monoxide	Attainment	Moderate Maintenance
PM10	Nonattainment	Attainment
PM2.5	Attainment	Nonattainment

EPA has classified the SVAB portion of Placer County as a severe nonattainment area with regard to the federal 8-hour O_3 standard. For the federal CO and PM2.5[1] standards, EPA has classified the SVAB portion of Placer County as a moderate maintenance (CO) and nonattainment area (PM2.5). EPA has classified all of Placer County as an attainment area for the federal PM10 standard (U.S. Environmental Protection Agency 2013).

ARB has classified the SVAB portion of Placer County as a serious nonattainment area for the state 1-hour O_3 standard. ARB has classified all of Placer County as a nonattainment area for the state 8-hour O_3 and PM10 standards. With regards to the state CO and PM2.5 standards, ARB has classified the SVAB portion of Placer County as an attainment area (California Air Resources Board 2014). Attainment status information is summarized in Table 5.

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[1] The 24-hour PM2.5 standard was lowered from 35 $\mu g/m^3$ to 12.0 $\mu g/m^3$ in 2012, and EPA issued its final attainment status designations for the 12.0 $\mu g/m^3$ standard on January 15, 2013.

Sensitive Receptors

The PCAPCD defines *sensitive receptors* as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of sensitive receptors include schools, hospitals, and residential areas. Primary pollutants of concern to sensitive receptors are CO, DPM, and, to a lesser extent, odors or odorous compounds such as ammonia and SO_2. Sensitive receptors would not be directly affected by emissions of regional pollutants, such as O_3 precursors (ROG and NO_X).

The project area is located within an existing urban environment. Sensitive receptors located within 1,000 feet of the project area are identified in Figure 3 and summarized below. These receptors may be exposed to increased air pollution generated by the proposed project. Note the sensitive receptors indicated in Figure 3 are not representative of the receptors modeled in the CO hot-spot analysis presented in Impact AQ-2. Land use compatibility issues relative to the siting of pollution-emitting sources or the siting of sensitive receptors must be considered. In the case of schools, state law requires that siting decisions consider the potential for toxic or harmful air emissions in the surrounding area.

Residential

- Single-family residences located within 250 feet of the project site on the north end of the project alignment across Lincoln Boulevard/Old Highway 65. These single-family residences are the predominant receptors within the north end of the project alignment.
- Single- and multi-family residences located within 450 feet of the project alignment on the south end of the project alignment. On the south end of the project alignment, residences are located along Fairway Drive, Gibson Drive, and Pleasant Grove Boulevard.

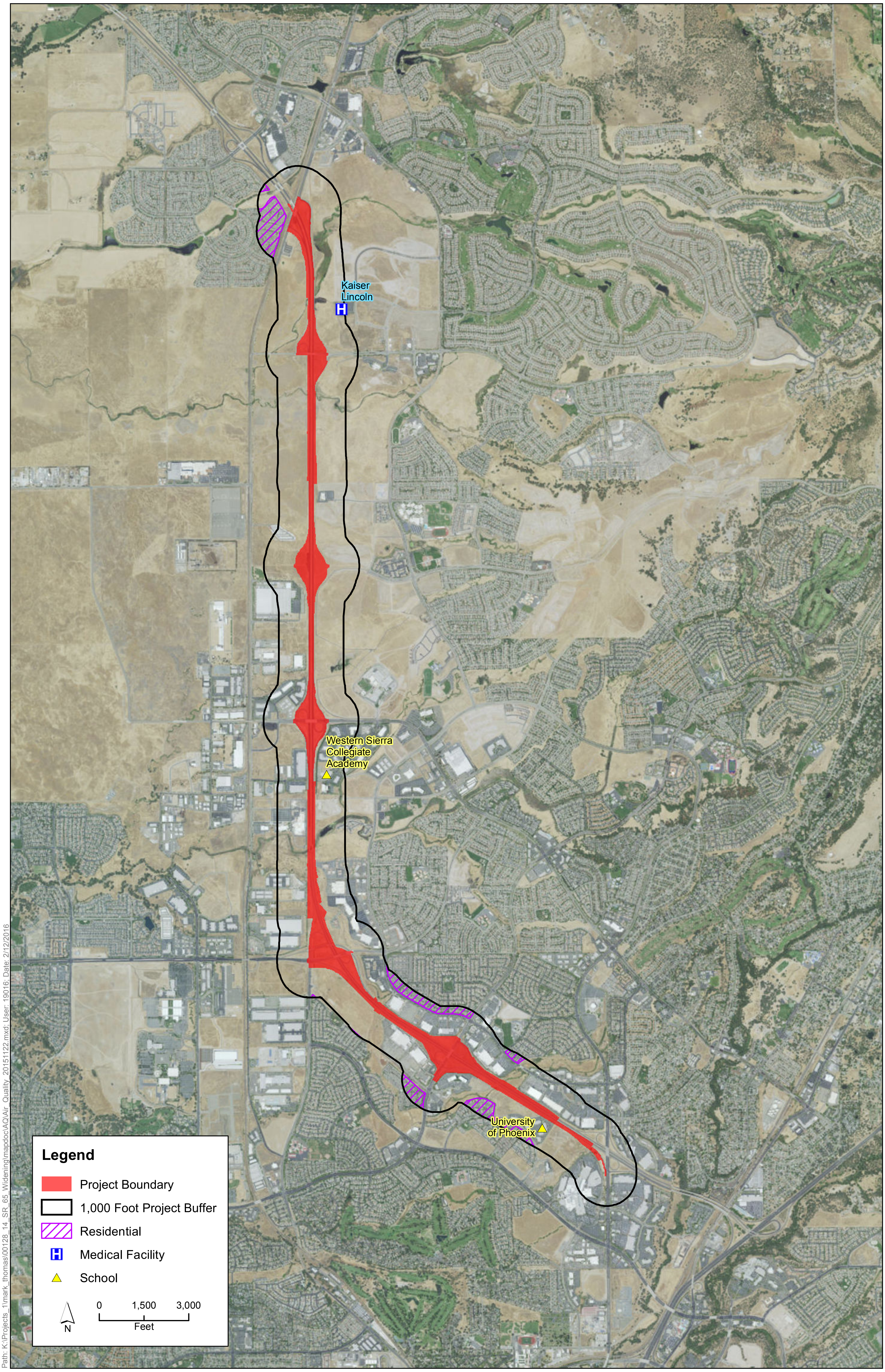
Educational

- Western Sierra Collegiate Academy, approximately 250 feet east of SR 65 on Menlo Drive.
- University of Phoenix Roseville, approximately 150 feet southwest of SR 65 on Gibson Drive.

3.2 Environmental Consequences

3.2.1 Methods

The proposed project would generate construction-related and operational emissions. The methodology used to evaluate construction and operational effects is described below.



Path: K:\Projects_1\mark_thomas\00128_14_SR_65_Widening\mapdoc\AQ\Air_Quality_20151122.mxd; User: 19016; Date: 2/12/2016

Figure 3
Air Quality Sensitive Receptors

Operational Impact Assessment Methodology

The primary operational emissions associated with the project are ROG, NO_X, CO, PM10, PM2.5, and CO_2 emitted as vehicle exhaust. Transportation conformity with regard to criteria pollutants was evaluated by including the project in the most recent MTP and MTIP. In addition, the effects of criteria pollutant and CO_2 emissions were quantified with Caltrans' CT-EMFAC emission modeling program (version 5.0) and traffic data provided by the project traffic engineers, Fehr & Peers (Stanek pers. comm.[a]). The effects of localized CO hot-spot emissions were evaluated through CO dispersion modeling using the *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis (Garza et al. 1997) and traffic data provided by the project traffic engineers, Fehr & Peers (Fehr & Peers 2015).

Transportation Conformity

Regional Conformity

The proposed project is located in a severe nonattainment area for the federal 8-hour O_3 standard. Because O_3 and its precursors are regional pollutants, the project must be evaluated under the transportation conformity requirements described in Section 3.1.1, *Regulatory Setting*. An affirmative regional conformity determination must be made before the project can proceed. Such a determination is not required if the project is described in an approved RTP and/or transportation improvement program and the project has not been altered in design concept or scope.

Project-Level Conformity

Carbon Monoxide

The project is located in a moderate maintenance area for the federal CO standard. Consequently, the evaluation of transportation conformity for CO is required. The CO transportation conformity analysis is based on the CO Protocol (Garza et al. 1997). This CO Protocol details a step-by-step procedure to determine whether project-related CO concentrations have a potential to generate new air quality violations, worsen existing violations, or delay attainment of NAAQS for CO.

CO hot spots were evaluated at roadway intersections within the project area. Existing year (2012), construction year (2020), and design year (2040) conditions were modeled. Modeled traffic volumes and operating conditions were obtained from the traffic data prepared by the project traffic engineers, Fehr & Peers (2015). Ambient CO concentrations near the roadway under future project conditions were modeled using CALINE4 (Benson 1989). Only the PM peak hour traffic was modeled, as the modeled level of service (LOS) and delays are worse in the PM peak hour than in the AM peak hour (Fehr & Peers 2015).

CO intersection modeling was conducted for the following four intersections that were evaluated in the traffic analysis report (Fehr & Peers 2015) prepared for the project.

- Galleria Boulevard/Roseville Parkway
- I-80 eastbound off-ramp/Eureka Road/Taylor Road/Atlantic Street
- Sunrise Avenue/Douglas Boulevard
- Rocklin Road/Granite Drive

These intersections segments were evaluated because they were identified in the traffic analysis prepared by Fehr & Peers as the greatest impacted intersections and segments (i.e., highest traffic volumes and worst levels of congestion/delay) of the intersections analyzed in the vicinity of the project area (Fehr & Peers 2015). Vehicle emission rates were determined using the EMFAC2011 emission rate program. Free flow traffic speeds were adjusted to a speed of 5.0 mph for vehicles entering and exiting intersection segments to represent a worst-case scenario, as 5.0 mph is the lowest speed EMFAC allows. EMFAC2011 modeling procedures followed the guidelines recommended by Caltrans (Garza et al. 1997). The program assumed Placer County regional traffic data, averaged for each subarea, operating during the winter months. An average January temperature of 6.8°Celsius was assumed. Appendix A presents the EMFAC2011 and CALINE4 model output files.

CO concentrations were estimated at four receptor locations located at each of the four intersections analyzed, for a total of 16 receptors. The receptors were placed at the edge of the mixing zone from the corner of each intersection, accounting for the intersection dimensions as determined by the number of lanes in each direction. The mixing zone is defined by a 3-meter buffer from the outer edge of a roadway. Receptors were modeled at the edge of the mixing zone to represent a worst-case scenario as the nearest location in which a receptor could potentially be located adjacent to a travelled roadway. The modeled receptors (Receptors 1–16) are not representative of the actual sensitive receptors indicated in Figure 3 and represent receptors located at the nearest possible location at the intersection of the modeled mixing zones[2].

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[2] In the parlance of air dispersion modeling, the “mixing zone” represents the region directly over the highway as a zone of uniform emissions and turbulence. This area, known as the mixing zone, is the region over the traveled way (traffic lanes, not including shoulders) plus three meters on either side. The additional three meter width accounts for the initial horizontal dispersion imparted to pollutants by the vehicle wake. Within the mixing zone, the mechanical turbulence created by moving vehicles and the thermal turbulence created by hot vehicle exhaust are assumed to be the dominant dispersive mechanisms (Benson 1989).

Receptors were chosen based on the CO Protocol (Garza et al. 1997). Receptor heights were set at 5.9 feet (or 1.8 meters).

Meteorological inputs to the CALINE4 model were determined using methodology recommended in Appendix B of the CO Protocol (Garza et al. 1997). The meteorological conditions used in the modeling represent a calm winter period. Worst-case wind angles were modeled to determine a worst-case concentration for each receptor. The meteorological inputs included: 0.5 meters per second wind speed, ground-level temperature inversion (atmospheric stability class G), wind direction standard deviation equal to 15 degrees, and a mixing height of 1,000 meters.

To account for sources of CO not included in the modeling, a background concentration of 1.93 ppm was added to the modeled cumulative 1-hour values, and a background concentration of 1.45 ppm was added to the modeled cumulative 8-hour values. Background concentration data for 1- and 8-hour CO values were obtained from EPA (2014). Maximum monitored 1- and 8-hour CO values from the nearest monitoring station (North Highlands-Blackfoot Way) for the years 2012 through 2014 were averaged to obtain a background concentration. Eight-hour modeled values were calculated from the 1-hour values using a persistence factor of 0.7. Background concentrations for existing (2012), construction year (2020), and design year (2040) conditions were assumed to be the same as those for the current year. Actual 1- and 8-hour background concentrations in future years would likely be lower than those used in the CO modeling analysis because the trend in CO emissions and concentrations is decreasing as a result of continuing improvements in engine technology and the retirement of older, higher-emitting vehicles.

PM2.5

The SVAB portion of Placer County, including the project area, was redesignated by EPA as a nonattainment area for the lowered PM2.5 standard on January 15, 2013. Consequently, the evaluation of transportation conformity for PM2.5 is required.

On March 10, 2006, EPA published a final rule that establishes the transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality impacts in PM2.5 and PM10 nonattainment and maintenance areas. For the assessment of particulate matter hot spots, the final rule stipulates that a hot-spot analysis is to be performed only for projects of air quality concern (POAQCs). POAQCs are certain highway and transit projects that involve significant levels of diesel traffic or any other project identified in the PM2.5 or PM10 SIP as a localized air quality concern. Section 93.123(b)(1) of the

Conformity Rule defines the following projects that require a PM2.5 or PM10 hot-spot analysis (Table 6).

Table 6. POAQCs as Defined by Section 93.123(b)(1) of the Conformity Rule

Section 93.123(b)(1) Subsection	Type of Project
i	New highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles.
ii	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.
iii	New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.
iv	Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.
v	Projects in or affecting locations, areas, or categories of sites which are identified in the PM2.5 or PM10 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

Source: 40 CFR 93.123(b)(1)

EPA noted in the March 2006 final rule that the examples below are considered to be the most likely projects that <u>would</u> be considered a POAQC under Section 93.123(b)(1)i and ii listed above.

- A project on a new highway or expressway that serves a significant volume of diesel truck traffic, such as facilities with greater than 125,000 annual average daily traffic (AADT) where 8% (10,000 truck AADT) or more of such AADT is diesel truck traffic.
- New exit ramps and other highway facility improvements to connect a highway or expressway to a major freight, bus, or intermodal terminal.
- Expansion of an existing highway or other facility that affects a congested intersection (operated at LOS D, E, or F) that has a significant increase in the number of diesel trucks.
- Similar highway projects that involve a significant increase in the number of diesel transit buses and/or diesel trucks.

EPA noted in the March 2006 final rule that the examples below are considered to be the most likely projects that <u>would</u> be considered a POAQC under Section 93.123(b)(1)iii and iv listed above.

- A major new bus or intermodal terminal that is considered to be a “regionally significant project.”

- An existing bus or intermodal terminal that has a large vehicle fleet where the number of diesel buses increases by 50% or more, as measured by bus arrivals.

EPA noted in the March 2006 final rule that the examples below are considered to be the most likely projects that would not be considered a POAQC under Section 93.123(b)(1)i and ii listed above.

- Any new or expanded highway project that primarily services gasoline vehicle traffic (i.e., does not involve a significant number or increase in the number of diesel vehicles), including such projects involving congested intersections operating at LOS D, E, or F.
- An intersection channelization project or interchange configuration project that involves either turn lanes or slots, or lanes or movements that are physically separated. These kinds of projects improve freeway operations by smoothing traffic flow and vehicle speeds by improving weave and merge operations, which would not be expected to create or worsen PM2.5 or PM10 violations.
- Intersection channelization projects, traffic circles or roundabouts, intersection signalization projects at individual intersections, and interchange reconfiguration projects that are designed to improve traffic flow and vehicle speeds, and do not involve any increases in idling. Thus, they would be expected to have a neutral or positive influence on PM2.5 or PM10 emissions.

EPA noted in the March 2006 final rule that the examples below are considered to be the most likely projects that would not be considered a POAQC under Section 93.123(b)(1)iii and iv listed above:

- A new or expanded bus terminal that is serviced by non-diesel vehicles (e.g., compressed natural gas) or hybrid-electric vehicles.
- A 50% increase in daily arrivals at a small terminal (e.g., a facility with 10 buses in the peak hour).

For projects identified as not being a POAQC, PM2.5 and PM10 hot-spot analyses are not required. For these types of projects, state and local project sponsors should briefly document in their project-level conformity determinations that FCAA and 40 CFR 93.116 requirements have been met without a hot-spot analysis since such projects have been found not to be of air quality concern under 40 CFR 93.123(b)(1). The proposed project was identified as not being a POAQC (see Appendix B); therefore, no PM2.5 hot-spot analyses were performed.

Mobile Source Air Toxics

FHWA has issued an updated interim guidance using a tiered approach on how MSATs should be addressed in NEPA documents for highway projects (U.S. Federal Highway Administration 2012). Depending on the specific project circumstances, FHWA has identified the following three levels of analysis.

1. No analysis for exempt projects or projects that have no potential for meaningful MSAT effects.
2. Qualitative analysis for projects with low potential MSAT effects.
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Exempt Projects or Projects with No Meaningful Potential Mobile Source Air Toxic Effects

The types of projects that are exempt or have no meaningful potential MSAT effects are listed below.

- Projects qualifying as a categorical exclusion under 23 CFR 771.117(c).
- Projects exempt under the FCAA Conformity Rule under 40 CFR 93.126.
- Other projects with no meaningful impacts on traffic volumes or vehicle mix.

For projects that are categorically excluded under 23 CFR 771.117(c), or are exempt from all conformity requirements under the FCAA pursuant to 40 CFR 93.126, no analysis or discussion of MSATs is necessary. Documentation sufficient to demonstrate that the project qualifies as a categorical exclusion or exempt project will suffice. For other projects with no or negligible traffic impacts, regardless of the class of NEPA environmental document, no MSAT analysis is recommended.[3] However, the project record should document the basis for the determination of “no meaningful potential impacts” with a brief description of the factors considered.

Projects with Low Potential Mobile Source Air Toxic Effects

The types of projects with low potential MSAT effects are those that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a

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[3] The types of projects categorically excluded under 23 CFR 771.117(d) or exempt from project-level conformity requirements under 40 CFR 93.127 do not warrant an automatic exemption from an MSAT analysis, but they usually will have no meaningful impact.

facility that is likely to meaningfully increase MSAT emissions. This category covers a broad range of projects.

FHWA anticipates that most highway projects that need an MSAT assessment will fall into this category. Any projects not meeting the criteria for exempt projects or projects without meaningful potential effects (discussed above) or projects with higher potential MSAT effects (discussed below) should be included in this category. Examples of these types of projects are minor widening projects, new interchanges, replacing a signalized intersection on a surface street, or projects where design year traffic is projected to be less than 140,000 to 150,000 AADT.

For these projects, a qualitative assessment of emissions projections should be conducted. This qualitative assessment would compare, in narrative form, the expected effect of the project on traffic volumes, vehicle mix, or routing of traffic and the associated changes in MSAT for the project alternatives, including the No Build Alternative, based on vehicle miles travelled (VMT), vehicle mix, and speed. It would also discuss national trend data projecting substantial overall reductions in emissions due to stricter engine and fuel regulations issued by EPA. Because the emission effects of these projects typically are low, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives.

Projects with Higher Potential Mobile Source Air Toxic Effects

This category includes projects that have the potential for meaningful differences in MSAT emissions among project alternatives. It is expected a limited number of projects would meet the criteria to fall into this category, which are as follows.

- Projects that create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of DPM in a single location, involving a significant number of diesel vehicles for new projects or accommodating a significant increase in the number of diesel vehicles for expansion projects.
- Projects that create new capacity or add significant capacity to urban highways, such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000[4], or greater, by the design year.

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[4] Using EPA’s MOVES 2010b emissions model, FHWA staff determined that this range of AADT would result in emissions significantly lower than the California CAA definition of a major hazardous air pollutant source, i.e., 25 tons/year for all hazardous air pollutants or 10 tons/year for any single hazardous air pollutant. Variations in conditions such as congestion or vehicle mix could warrant a different range for AADT; if this range does not seem appropriate for a proposed project, project proponents can consult with the contacts from Office of Natural

- Projects that are proposed to be located in proximity to populated areas.

Projects falling within this category should be more rigorously assessed for impacts, including a quantitative analysis to forecast local specific emission trends of the priority MSAT for each alternative. Based on regulations now in effect, an analysis of national trends with EPA's MOVES model, as shown in Figure 4, even if VMT increases by 102% as assumed from 2010 to 2050, a combined reduction of 83% in the total annual emissions for the priority MSAT is projected for the same time period.

Environment and Office of Project Development and Environmental Review identified in the FHWA interim MSAT guidance (U.S. Federal Highway Administration 2012).

Figure 4. Projected National MSAT Emission Trends 2010–2050 For Vehicles Operating On Roadways Using EPA's MOVES 2010b Model

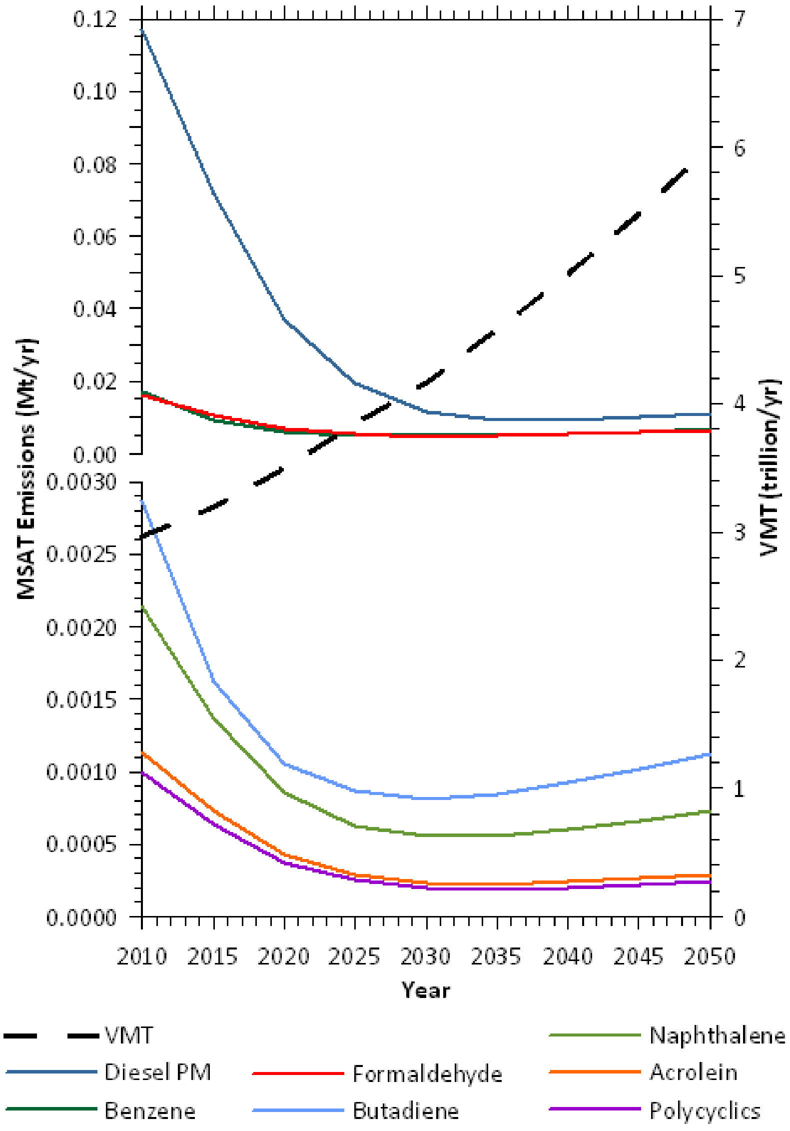

Figure note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors (U.S. Federal Highway Administration 2012).

Mobile Source Air Toxic Category Assessment for the Project

The analysis of applicable MSAT category for the project is based an analysis of design year (2040) AADT volumes for the Carpool Lane Alternative, which represents the year with the greatest traffic volumes developed by Fehr & Peers (2015) based on the SACMET regional travel demand model. The Carpool Lane Alternative was selected for the analysis, as traffic volumes are forecasted to be highest for the Carpool Lane Alternative when compared to the

General Purpose Lane Alternative, while the design year (2040) condition represents the year with maximum traffic volumes (Fehr & Peers 2015).

Table 7 indicates that the AADT on SR 65 for the Carpool Lane Alternative under design year (2040) conditions will vary between 61,400 and 169,000, depending on the location. Based on this information, it is estimated that mainline AADT would be above FHWA’s MSAT AADT threshold of 140,000. Consequently, based on the FHWA’s 2012 MSAT guidance, this project is considered a project with higher potential MSAT effects, and an analysis of MSAT emissions is required (U.S. Federal Highway Administration 2012). Therefore, a quantitative evaluation of MSAT emissions is included in the Impacts section.

Table 7. AADT Volumes and Truck Percentages

Segment	**Existing Year (2009[1]) Conditions**			**Design Year (2040) Conditions**										
				General Purpose Lane Alternative				**Carpool Lane Alternative**				**No Build Alternative**		
	AADT	**Truck AADT**	**% Truck**	**AADT**	**Truck AADT**	**% Truck**	**Δ % Truck from No Build Alternative**	**AADT**	**Truck AADT**	**% Truck**	**Δ % Truck from No Build Alternative**	**AADT**	**Truck AADT**	**% Truck**
Stanford Ranch Rd/ Galleria Blvd to Pleasant Grove Blvd	104,400	3,500	3.4%	169,200	6,600	3.9%	-0.2%	170,900	6,700	3.9%	-0.2%	152,400	6,300	4.1%
Pleasant Grove Blvd to Blue Oaks Blvd	83,400	3,100	3.7%	159,800	6,300	3.9%	-0.4%	162,300	6,400	3.9%	-0.4%	140,800	6,000	4.3%
Blue Oaks Blvd to Sunset Blvd	65,300	2,400	3.7%	134,600	4,900	3.6%	-0.5%	135,700	4,900	3.6%	-0.5%	112,100	4,600	4.1%
Whitney Ranch Pkwy/Placer Pkwy to Twelve Bridges Dr	54,000	1,900	3.5%	126,500	3,500	2.8%	-0.2%	127,000	3,500	2.8%	-0.2%	112,700	3,400	3.0%

Notes:

[1] The existing conditions total volume data is from 2009 as reported in the PeMS database. The existing truck volumes are estimated from the base year SACMET model.

[2] The existing condition total volume data from Twelve Bridges Dr to Lincoln Blvd is estimated based on 2009 PeMS data at Sunset Blvd and the base year SACMET model.

Source: Fehr & Peers 2015

Criteria Pollutants and Greenhouse Gas Emissions

The estimation of criteria pollutant emissions associated with the project was conducted using Caltrans' CT-EMFAC model and vehicle activity data provided by the project traffic engineer, Fehr & Peers (Stanek pers. comm.[a]). CT-EMFAC is a California-specific project-level analysis tool developed for Caltrans by the University of California, Davis to model criteria pollutant, MSAT, and CO_2 emissions from on-road mobile sources. The model uses the latest version of ARB's EMFAC model to quantify running exhaust and running loss emissions using user-input traffic data, including peak-hour and off-peak-hour VMT data allocated into 5-mph speed bins.

Modeled traffic volumes and conditions for the project were obtained from the traffic data prepared by Fehr & Peers (Stanek pers. comm.[a]). Emission of ROG, NO_X, CO, PM10, PM2.5, and CO_2 were modeled for existing year (2012) and design year (2040) conditions using daily VMT and VMT distribution by 5-mph speed bin data (5 mph to 70 mph) provided by Fehr & Peers. VMT data was not provided for construction year (2020) conditions and is, therefore, not evaluated in the analysis of project-related criteria pollutant and GHG emissions. The daily VMT data provided by the traffic engineers for year 2040 traffic conditions was based on 2035 base year conditions from SACOG's SACMET traffic forecasting model with additional land use and roadway network data to estimate year 2040 traffic conditions. The data included vehicle activity for affected roadways in the immediate project region. Yearly GHG emissions were calculated by multiplying daily emissions by 347, consistent with ARB methodology to extrapolate yearly traffic emissions from daily (California Air Resources Board 2008). The daily VMT distribution by speed bin data for all evaluated alternatives is presented in Table 8.

Table 8. Daily VMT Distribution by Speed Bin for Project Alternatives

Speed	AM 3-Hour	Midday	PM 3-Hour	Evening	Daily Total[a]
Existing Condition (2012)					
0–5	0	0	0	0	0
5–10	1,294	0	1,953	0	3,248
10–15	2,681	49	13,180	42	15,951
15–20	145,031	180,089	195,048	156,461	676,630
20–25	34,655	33,038	64,457	25,072	157,222
25–30	134,504	80,796	140,473	66,604	422,377
30–35	183,869	185,478	225,384	152,980	747,712
35–40	227,619	342,059	258,662	315,823	1,144,163
40–45	65,742	102,437	140,221	116,491	424,891
45–50	66,580	21,421	84,058	9,863	181,922
50–55	109,085	118,602	73,575	33,757	335,018
55–60	103,605	261,227	79,751	241,653	686,237
60–65	18,430	102,439	10,964	202,695	334,527
65–70	0	0	0	14,419	14,419
Total	1,093,095	1,427,635	1,287,726	1,335,860	5,144,317
No Build Alternative (Design Year 2040)[b]					
0–5	58	0	0	0	58
5–10	660	0	6,019	0	6,678
10–15	9,954	204	21,922	35	32,115
15–20	199,481	251,497	273,277	214,488	938,742
20–25	77,774	30,528	140,665	25,492	274,459
25–30	171,124	82,500	184,518	66,564	504,706
30–35	251,165	279,725	322,882	183,452	1,037,224
35–40	402,204	570,640	392,341	548,752	1,913,938
40–45	108,098	174,431	154,373	176,421	613,323
45–50	107,884	23,281	152,925	25,466	309,555
50–55	178,799	166,114	160,135	83,384	588,432
55–60	133,703	489,777	115,783	336,226	1,075,490
60–65	22,523	86,318	3,115	308,661	420,617
65–70	2,155	0	2,718	14,126	18,999
Total	1,665,582	2,155,015	1,930,673	1,983,067	7,734,336
General Purpose Lane Alternative (Design Year 2040)[b]					
0–5	0	0	0	0	0
5–10	712	0	5,550	0	6,262
10–15	12,794	206	25,009	35	38,044
15–20	198,200	251,973	284,857	214,711	949,741
20–25	59,002	30,247	109,856	25,297	224,401
25–30	173,995	84,771	191,761	67,504	518,031
30–35	253,209	286,431	316,711	182,728	1,039,080
35–40	382,514	557,110	380,884	546,572	1,867,081
40–45	109,575	173,494	86,175	189,367	558,611
45–50	57,193	8,389	181,832	13,222	260,635
50–55	204,027	152,903	194,257	81,845	633,032
55–60	200,995	331,249	161,796	266,486	960,526
60–65	47,721	308,186	35,041	373,334	764,282
65–70	639	739	1,359	46,264	49,000

Speed	AM 3-Hour	Midday	PM 3-Hour	Evening	Daily Total[a]
Total	1,700,576	2,185,698	1,975,088	2,007,365	7,868,726
Carpool Lane Alternative (Design Year 2040)[b]					
0–5	0	0	598	0	598
5–10	718	0	4,928	0	5,646
10–15	12,768	206	21,263	35	34,272
15–20	198,648	252,123	271,246	214,707	936,724
20–25	62,840	28,032	124,476	25,287	240,635
25–30	164,661	86,936	185,293	67,534	504,424
30–35	264,817	286,071	322,373	182,662	1,055,923
35–40	353,531	557,191	353,925	546,277	1,810,924
40–45	112,592	173,284	131,370	189,194	606,439
45–50	78,609	8,350	160,446	13,225	260,630
50–55	222,675	139,936	191,010	81,780	635,401
55–60	167,716	379,152	150,035	266,485	963,387
60–65	51,829	273,387	41,653	370,455	737,323
65–70	4,772	738	5,405	48,954	59,869
Total	1,696,176	2,185,406	1,964,021	2,006,595	7,852,195

Source: Stanek pers.comm [a].

[a] Values may not add to total due to rounding.

[b] Data based on the SACOG 2035 model, but additional land use data and roadway network have been added to estimate 2040 conditions.

Vehicle emission rates were determined using Caltrans’ CT-EMFAC model. The CT-EMFAC program assumed project operating conditions during average annual conditions for the SVAB portion of Placer County. Vehicle fleet mixes, including truck volumes, were based on traffic data provided by Fehr & Peers (Fehr & Peers 2015 and Stanek pers. comm.[b]). Appendix A presents the CT-EMFAC emission factors and calculation output files.

Construction Impact Assessment Methodology

Construction activity is a source of dust and exhaust emissions that can have substantial temporary impacts on local air quality (i.e., exceeding state air quality standards for O_3, CO, PM10, and PM2.5). Such emissions would result from earthmoving and use of heavy equipment, as well as land clearing, ground excavation, cut-and-fill operations, and roadway construction. Emissions can vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing weather. A major portion of dust emissions for the project would likely be caused by construction traffic on temporary areas.

Construction emissions of ROG, NO_X, CO, PM10, PM2.5, and CO_2 were estimated using the Sacramento Metropolitan Air Quality Management District’s (SMAQMD) Road Construction Emissions Model (RCEM) (Version 7.1.5.1). The RCEM is a public-domain spreadsheet model formatted as a series of individual worksheets available to estimate construction-related emissions for roadway projects. The model enables users to estimate emissions using a minimum amount of project-specific information. The model estimates emissions for load hauling (on-road, heavy-duty vehicle trips), worker commute trips, construction site fugitive dust (PM10 and PM2.5), and off-road construction vehicles. This analysis is based on anticipated construction equipment calculated by the RCEM, which estimates construction equipment based on project size, duration of construction activities, and level of daily construction activities. While exhaust emissions are estimated for each activity, fugitive dust estimates are currently limited to major dust-generating activities, which include grubbing/land clearing and grading/excavation. The RCEM does not include emission factors for methane (CH_4) or nitrous oxide (N_2O) for off-road diesel equipment. Emissions of CH_4 and N_2O from diesel-powered equipment were determined by scaling the CO_2 emissions quantified by the ratio of CH_4/CO_2 (0.000056) and N_2O/CO_2 (0.000025) (Climate Registry 2015).

Construction activity for the project is expected to occur sequentially over 20 months, commencing in July 2020. Construction activities were anticipated to occur over four phases, (1) Grubbing/Land Clearing; (2) Grading/Excavation; (3) Drainage/Utilities/Sub-Grade; and (4) Paving. It was also anticipated that construction activities would be similar for the two Build Alternatives. Construction activity information and assumption data was provided by the project engineers, Mark Thomas & Company (Lee pers. comm.). Table 9 summarizes the provided equipment activity data, while Table 10 summarizes the provided overall construction assumptions.

Table 9. Construction Equipment Assumptions for Project

Equipment	**Average horsepower**	**Number of equipment pieces per phase**			
		Grubbing/ land clearing	**Grading/ excavation**	**Drainage/ utilities/sub-grade**	**Paving**
Crawler Tractors	200	4			
Excavators	160	4			
Crawler Tractors	200		4		
Excavators	160		6		
Cranes	220		2		
Graders	175		4		
Rollers	80		4		
Loaders	200		6		
Scrapers	360		4		
Generators	60			2	
Excavators	160			2	
Graders	175			2	
Forklifts	90			2	
Scrapers	360			2	
Loaders	200			2	
Pavers	120				4
Rollers	80				4
Cold Planers	750				4

Source: Lee pers. comm.

Table 10. Construction Modeling Assumptions for Project

Construction start date (month and year)	July 2020
Construction start date (month and year)	July 2020
Number of months of construction	20
Project length (miles)	7.4 miles
Total project area (acres)	58 acres
Use of water trucks	Yes
Predominant soil type	Sand gravel
Cubic yards of soil will be *exported* per day	1300 CY
Soil hauling round trip length (miles)	20 miles
Soil hauling trips per day	65
Duration of construction activities per phase	
1. Grubbing/land clearing	3 months, 20 working days per month.
2. Grading/excavation	10 months, 20 working days per month
3. Drainage/utilities/sub-grade	3 months, 20 working days per month
4. Paving	4 months, 20 working days per month
Water trucks required per phase	
1. Grubbing/land clearing	2
2. Grading/excavation	2
3. Drainage/utilities/sub-grade	1
Water trucks travel (miles per day)	
1. Grubbing/land clearing	48
2. Grading/excavation	48
3. Drainage/utilities/sub-grade	24
1-way worker commute trips per day	5
Average 1-way worker commute trip length (miles)	20
Number of workers per phase	
1. Grubbing/land clearing	12
2. Grading/excavation	60
3. Drainage/utilities/sub-grade	25
4. Paving	20
Maximum daily disturbance (acres)	
1. Grubbing/land clearing	5 acres
2. Grading/excavation	5 acres
3. Drainage/utilities/sub-grade	1 acre
4. Paving	5 acres

Source: Lee pers. comm.

3.2.2 Impacts

This section discusses air quality and climate change impacts that could result from project implementation.

Impact AQ-1: Conformity of the Regional Transportation Plan with the State Implementation Plan

SACOG is currently underway with updating their MTP/SCS, with the Draft 2016 MPT/SCS released for public review on September 17, 2015. The complete SR 65 Capacity and Operational Improvements Project is included in the regional emissions and conformity analysis for the Draft 2016 MTP/SCS. Adoption and federal approval of the 2016 MTP/SCS is expected in early 2016, whereas the final environmental document for the proposed project is expected in fall 2016. Accordingly, the regional emissions modeling that will be conducted for the Draft 2016 MTP/SCS would ensure that, prior to preparation of the final environmental document for the proposed project, the design, concept, and scope for the project will be consistent with the description in the Draft 2016 MTP/SCS and the “open to traffic” assumptions in SACOG’s regional emissions analysis. The project’s regional conformity determination requirement is satisfied. See Appendix C for a listing of the project in the Draft 2016 MTP/SCS.

Impact AQ-2: Potential Violations of Carbon Monoxide NAAQS or CAAQS

Existing year (2012), construction year (2020), and design year (2040) conditions were modeled to evaluate CO concentrations relative to the NAAQS and CAAQS. As previously discussed, CO concentrations were estimated at four roadway intersections within the project area.

Table 11 summarizes the results of the intersection CO modeling and indicate that CO concentrations are not anticipated to exceed the 1- or 8- hour NAAQS and CAAQS under project conditions.

Table 11. CO Modeling Concentration Results (Parts per Million)

		1-Hour CO Concentrations[b] (ppm)							8-Hour CO Concentrations[c] (ppm)						
			Construction Year (2020)			Design Year (2040)				Construction Year (2020)			Design Year (2040)		
Intersection	**Rec.[a]**	**Existing (2012)**	**Carpool Lane Alt.**	**Gen. Purp. Lane Alt.**	**No Build Alt.**	**Carpool Lane Alt.**	**Gen. Purp. Lane Alt.**	**No Build Alt.**	**Existing (2012)**	**Carpool Lane Alt.**	**Gen. Purp. Lane Alt.**	**No Build Alt.**	**Carpool Lane Alt.**	**Gen. Purp. Lane Alt.**	**No Build Alt.**
Galleria Blvd./ Roseville Pkwy.	1	6.03	4.13	4.13	4.13	2.93	2.93	2.83	4.32	2.99	2.99	2.99	2.15	2.15	2.08
	2	5.63	3.93	3.93	3.93	2.83	2.83	2.83	4.04	2.85	2.85	2.85	2.08	2.08	2.08
	3	5.73	4.03	4.03	4.03	2.93	2.93	2.93	4.11	2.92	2.92	2.92	2.15	2.15	2.15
	4	5.73	3.93	3.93	4.03	2.93	2.93	3.03	4.11	2.85	2.85	2.92	2.15	2.15	2.22
I-80 EB Offramp/ Eureka Rd/ Taylor Rd/ Atlantic St.	5	5.23	3.73	3.73	3.73	2.83	2.83	2.83	3.76	2.71	2.71	2.71	2.08	2.08	2.08
	6	5.33	3.63	3.63	3.63	2.73	2.73	2.73	3.83	2.64	2.64	2.64	2.01	2.01	2.01
	7	5.03	3.53	3.43	3.63	2.83	2.83	2.73	3.62	2.57	2.50	2.64	2.08	2.08	2.01
	8	5.73	4.03	4.03	4.03	3.03	3.03	2.93	4.11	2.92	2.92	2.92	2.22	2.22	2.15
Sunrise Ave./ Douglas Blvd.	9	6.13	3.93	3.93	3.93	2.93	2.93	2.93	4.39	2.85	2.85	2.85	2.15	2.15	2.15
	10	5.03	3.43	3.43	3.43	2.63	2.63	2.63	3.62	2.50	2.50	2.50	1.94	1.94	1.94
	11	5.33	3.63	3.63	3.63	2.73	2.63	2.73	3.83	2.64	2.64	2.64	2.01	1.94	2.01
	12	5.73	3.73	3.73	3.73	2.73	2.73	2.73	4.11	2.71	2.71	2.71	2.01	2.01	2.01
Rocklin Rd./ Granite Dr.	13	4.73	3.73	3.73	3.73	2.73	2.73	2.73	3.41	2.71	2.71	2.71	2.01	2.01	2.01
	14	4.13	3.23	3.23	3.33	2.63	2.63	2.63	2.99	2.36	2.36	2.43	1.94	1.94	1.94
	15	3.93	3.13	3.13	3.13	2.53	2.53	2.53	2.85	2.29	2.29	2.29	1.87	1.87	1.87
	16	4.23	3.43	3.43	3.43	2.63	2.63	2.63	3.06	2.50	2.50	2.50	1.94	1.94	1.94
State Standard (ppm)		20	20	20	20	20	20	20	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Federal Standard (ppm)		35	35	35	35	35	35	35	9	9	9	9	9	9	9

[a] Consistent with Caltrans CO Protocol, receptors are located at 3 meters from the intersection, at each of the four corners to represent the nearest location in which a receptor could potentially be located adjacent to a travelled roadway. The modeled receptors indicated in Table 11 (Receptors 1-16) are not representative of the actual sensitive receptors indicated in Figure 3. All intersections modeled have two intersecting roadways.

[b] Average 1-hour background concentration between 2012 and 2014 was 1.93 ppm (California Air Resources Board 2015b).

[c] Average 8-hour background concentration between 2012 and 2014 was 1.45 ppm (U.S. Environmental Protection Agency 2014).

CO = carbon monoxide; ppm = parts per million; EB = eastbound

Impact AQ-3: Potential Violations of PM2.5 NAAQS or CAAQS

The project would be within a nonattainment area for the federal PM2.5 standard. Therefore, per 40 CFR Part 93, a project-level PM2.5 analysis is required for conformity purposes.

As discussed in Section 3.1.1, *Regulatory Setting*, a quantitative hot-spot analysis is only required for projects identified as a POAQC, as defined in 40 CFR 93.123(b)(1). As described below, the project does not meet any of the project types considered to be POAQCs by EPA's final rule. Accordingly, the project is not considered to be a POAQC, and project-level particulate matter conformity determination requirements are thus satisfied.

(i) **New highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles**. Appendix B from the EPA's *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas* provides guidance on what types of projects may be projects of local air quality concern (40 CFR 93.123(b)(1)). Appendix B indicates that a facility with an AADT volume of 125,000 and 8% trucks (10,000 truck AADT) are likely considered a POAQC. The proposed project would add carpool lanes or general purpose lanes and auxiliary lanes on SR 65 from north of Galleria Boulevard/Stanford Ranch Road to Blue Oaks Boulevard, and would add auxiliary lanes from Blue Oaks Boulevard to Lincoln Boulevard to relieve existing mainline congestion and accommodate planned and anticipated growth along the corridor by adding to mainline capacity. For existing freeway facilities, the effect of a project on truck volumes is normally the main point on which this criterion is judged. The Carpool Lane Alternative under the design year (2040) conditions was selected for the analysis, as traffic volumes are forecasted to be highest for the Carpool Lane Alternative when compared to the General Purpose Lane Alternative, while the design year (2040) condition represents the year with maximum traffic volumes (Fehr & Peers 2015).

Table 7 indicates that AADT on the evaluated road segments on SR 65 for the Carpool Lane Alternative under design year (2040) conditions will vary between 127,000 and 170,900, depending on the location. Heavy-duty trucks comprise between 2.8% and 3.9% of this AADT, resulting in a truck AADT of 3,500 to 6,700 (Fehr & Peers 2015).

Based on the data presented in Table 7, predicted AADT would be in excess of the EPA's AADT guidance criterion of 125,000, while predicted truck percentages and volumes would be well below the EPA's guidance criteria of 8% or 10,000 vehicles per day (maximum truck percentages and truck AADT are 3.9% and 6,700, respectively). Table 7 also indicates truck percentages for all segments analyzed under the Carpool Lane Alternative would decrease relative to the No Build Alternative between 0.2 and 0.5%. Accordingly, the Build Alternatives would not serve a significant number of diesel vehicles or result in a significant increase in diesel vehicles.

(ii) **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**. Peak-hour LOS and delay at study area intersections under existing construction year (2020) and design year (2040) conditions are presented in Tables 1 and 2 in Appendix B**.** Tables 1 and 2 in Appendix B indicate that half of all key intersections analyzed would experience increases in delay with implementation of the Build Alternatives. However, as indicated in Tables A through D in Attachment B of Appendix B, the Build Alternatives would result in reduced congestion and delay on the local regional network, with substantial improvements in measures of effectiveness seen under some conditions. For example, between 11 and 22% reductions in vehicle hours of delay are seen in the PM peak period in the design year. In addition, none of the study intersections have a significant number of trucks (3% during the AM peak hour and 2% during the PM peak hour under Year 2040 conditions), therefore, the proposed project would not affect any at-grade intersections with a high number of diesel vehicles.

(iii) **New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location**. The project does not include new bus or rail terminals and transfer points.

(iv) **Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location**. The project does not include expanded bus or rail terminals and transfer points.

(v) **Projects in or affecting locations, areas, or categories of sites which are identified in the PM2.5 or PM10 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation**. The SMAQMD's PM2.5 SIP, *PM2.5 Implementation/Maintenance Plan and Redesignation Request for Sacramento PM2.5 Nonattainment Area,* has not identified any locations, areas, or categories of sites as s site of violation or possible violation.

Based on the discussion above, the project would not be considered a POAQC, as defined by 40 CFR 93.123(b)(1). Therefore, FCAA and 40 CFR 93.116 requirements were met without a hot-spot analysis.

The project underwent interagency consultation through SACOG's Project Level Conformity Group (PLCG), which issued concurrence that the project is not a POAQC on August 9, 2016. Appendix B contains the documentation submitted to SACOG's PLCG used to support its concurrence, as well as concurrence letters from EPA and Caltrans that the project is not a POAQC.

Impact AQ-4: Potential for Generation of Mobile Source Air Toxic Emissions

As discussed in Section 3.2.1, *Methods,* AADT on SR 65 will vary between 127,000 and 170,900 depending on the location, for Carpool Lane Alternative under design year (2040) conditions (Table 7). This project is considered a project with higher potential MSAT effects, because AADT is in excess of FHWA's MSAT AADT threshold of 140,000 (U.S. Federal Highway Administration 2012). Consequently, based on the FHWA's 2012 MSAT guidance, a quantitative analysis of MSAT emissions is required (U.S. Federal Highway Administration 2012). Therefore, an evaluation of MSAT emissions for existing (2012) and design year (2040) conditions was performed using the CT-EMFAC model and the traffic data presented in Table 8.

Table 12 presents modeled MSAT emissions by scenario, as well as a comparison of Build Alternative emissions to No Build and existing conditions. The differences in emissions between with- and without-project conditions represent emissions generated directly as a result of implementation of the proposed project. The table indicates that implementation of all Build Alternatives would result in decreased MSAT emissions compared to existing conditions, except for naphthalene and POM, which would see no change relative to existing conditions. Table 12 also indicates there would be no meaningful differences in levels of MSAT emissions between the Build and No Build Alternatives, as there is no change in MSAT emissions between the Build Alternatives and No Build Alternative, except for formaldehyde and DPM, which would both result in a 1 pound per day increase in emissions relative to the No Build Alternative. Please also refer to Appendix D containing the Council on Environmental Quality Provisions Covering Incomplete or Unavailable Information (40 CFR 1502.22), which includes a discussion of unavailable information for project-specific MSAT Health Impacts Analysis.

Table 12. Estimated MSAT Emissions from Operation of the SR 65 Capacity and Operational Improvements Project (pounds per day)

Alternative	Benzene	Acrolein	Formaldehyde	Butadiene	Naphthalene	POM	DPM
2012 Baseline	48	2	37	8	3	0	41
2040 No Build	27	1	19	4	3	0	15
2040 General Purpose Lane	27	1	20	4	3	0	16
2040 Carpool Lane	27	1	20	4	3	0	16
Comparison to Existing							
2040 No Build	-21	-1	-18	-4	0	0	-26
2040 General Purpose Lane	-21	-1	-17	-4	0	0	-25
2040 Carpool Lane	-21	-1	-17	-4	0	0	-25
Comparison to No Build							
2040 General Purpose Lane	0	0	1	0	0	0	1
2040 Carpool Lane	0	0	1	0	0	0	1

POM = polycyclic organic matter; DPM = diesel particulate matter

Impact AQ-5: Potential for Generation of Operation-Related Emissions of Ozone Precursors, Carbon Monoxide, and Particulate Matter

Long-term air quality impacts are those associated with motor vehicles operating on the roadway network, predominantly those operating in the project vicinity. Emission of ROG, NO_X, CO, PM10, and PM2.5 for existing year (2012) and design year (2040[5]) with project conditions, were evaluated through modeling conducted using Caltrans' CT-EMFAC model and vehicle activity data provided by the project traffic engineer, Fehr & Peers (Stanek pers. comm.[a]).

Table 13 summarizes the modeled emissions by scenario, as well as a comparison of Build Alternative emissions to No Build and existing conditions, consistent with Caltrans environmental requirements. The differences in emissions between with- and without-project conditions represent emissions generated directly as a result of implementation of the Build Alternatives. Vehicular emission rates are anticipated to lessen in future years due to continuing improvements in engine technology and the retirement of older, higher-emitting vehicles. Emissions associated with implementation of the proposed project were obtained by comparing future with-project emissions to future without-project emissions. Because Caltrans has statewide jurisdiction, and the setting for projects varies so extensively across the state, Caltrans has not and has no intention to develop thresholds of significance for CEQA. Further, because most air district thresholds have not been established by regulation or by delegation from a federal or state agency with regulatory authority over Caltrans, Caltrans is not required to adopt

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[5] CT-EMFAC only includes vehicle emission rates up to the year 2035, thus project design year (2040) emissions use CT-EMFAC 2035 emission rates.

those thresholds in Caltrans documents. Nevertheless, project-level operational emissions are presented in Table 13.

Table 13. Estimated Criteria Pollutant Emissions from Operation of the SR 65 Capacity and Operational Improvements Project (pounds per day)

Alternative	Daily VMT	ROG	NO_X	CO	PM10	PM2.5
2012 Baseline	5,144,317	2,345	4,351	25,181	601	273
2040 No Build	7,734,336	1,492	1,851	13,080	854	365
2040 General Purpose Lane	7,868,726	1,528	1,888	13,334	869	372
2040 Carpool Lane	7,852,195	1,524	1,883	13,297	867	371
Comparison to Existing						
2040 No Build	2,590,019	-853	-2,500	-12,101	253	92
2040 General Purpose Lane	2,724,409	-817	-2,463	-11,847	268	99
2040 Carpool Lane	2,707,878	-821	-2,468	-11,884	266	98
Comparison to No Build						
2040 General Purpose Lane	134,390	36	37	254	15	7
2040 Carpool Lane	117,859	32	32	217	13	6
PCAPCD Threshold	-	*82*	*82*	-	*82*	-

CO = carbon monoxide
NO_X = nitrogen oxides
PCAPCD = Placer County Air Pollution Control District
PM10 = particles of 10 micrometers or smaller
PM2.5 = particles of 2.5 micrometers and smaller
ROG = reactive organic gases
VMT = vehicle miles travelled

Table 13 indicates implementation of the Build Alternatives would result in decreases in ROG, NO_X, and CO emissions compared to existing conditions. These reductions are primarily the result of lower future emission factors associated with the replacement of older, more heavily polluting vehicles with newer and cleaner vehicles, which offset increase in VMT associated with the Build Alternatives. Table 13 also indicates PM2.5 and PM10 emissions would increase relative to existing conditions. This increase is because, unlike reductions seen in ROG, NO_X, and CO exhaust emissions due to lowering emission factors from newer vehicles replacing older vehicles, the increases in PM10 and PM2.5 emissions are due to brake wear and tire wear emissions, which are dependent upon VMT and Table 13 indicates VMT is anticipated to increase between existing and future conditions. Table 13 also indicates implementation of the Build Alternatives would increase all criteria pollutants relative to the No Build condition in 2040.

Tables 14 and 15 present overall construction year (2020) network performance associated with the project, while Tables 16 and 17 present overall design year (2020) network performance associated with the project (Fehr & Peers 2015). Tables 14 through 17 indicate all alternatives, except for the Carpool Lane Alternative in the PM peak period in the construction year, would see improvements in network performance and more efficient operations through decreased vehicle hours of travel and vehicle hours of delay and improved average speed (even as VMT increases) under all Build Alternatives and years. This indicates project-related improvements associated with the Build Alternatives would serve to relieve regional congestion and accommodate more traffic volumes more efficiently.

Table 14. Comparison of Overall Network Performance—Construction (2020) Year AM Peak Period

Performance Measure		Existing Conditions	Carpool Lane Alternative	% Change from No Build	General Purpose Lane Alternative	% Change from No Build	No Build Alternative
Volume Served		143,450	167,490	-0.7%	167,510	-0.7%	168,620
(% of total demand)		100%	99%	0.0%	99%	0.0%	99%
Vehicle Miles of Travel (VMT)		645,270	799,520	1.4%	797,360	1.1%	788,490
Person Miles of Travel		786,260	982,670	1.7%	979,180	1.4%	965,810
Vehicle Hours of Travel (VHT)		13,760	18,060	-1.1%	18,000	-1.5%	18,270
Vehicle Hours of Delay (VHD)		2,670	4,350	-8.0%	4,330	-8.5%	4,730
(% of VHT)		19%	24%	-7.7%	24%	-7.7%	26%
Average Delay per Vehicle (min)		1.12	1.56	-7.1%	1.55	-7.7%	1.68
Person Hours of Delay		3,240	5,160	-7.9%	5,140	-8.2%	5,600
Average Speed		46.9	44.3	2.5%	44.3	2.5%	43.2
Average Speed for HOVs		47.0	46.7	2.2%	46.6	2.0%	45.7
Travel Time: Ferrari Ranch Rd to I-80	SOV	-	8:09	-7.2%	8:09	-7.2%	8:47
	HOV	-	8:04	-8.0%	8:08	-7.2%	8:46
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:44	8:51	-4.5%	8:50	-4.7%	9:16
	HOV	9:27	8:33	-3.9%	8:33	-3.9%	8:54

Source: Fehr & Peers 2015

Table 15. Comparison of Overall Network Performance—Construction (2020) Year PM Peak Period

Performance Measure		Existing Conditions	Carpool Lane Alternative	% Change from No Build	General Purpose Lane Alternative	% Change from No Build	No Build Alternative
Volume Served		198,170	231,400	-1.1%	232,110	-0.8%	233,870
(% of total demand)		101%	99%	0.0%	99%	0.0%	99%
Vehicle Miles of Travel (VMT)		730,100	924,670	1.7%	930,140	2.3%	909,560
Person Miles of Travel		880,180	1,146,120	2.0%	1,150,200	2.4%	1,123,280
Vehicle Hours of Travel (VHT)		16,850	27,210	5.2%	25,890	0.1%	25,870
Vehicle Hours of Delay (VHD)		3,950	10,940	11.2%	9,520	-3.3%	9,840
(% of VHT)		23%	40%	5.3%	37%	-2.6%	38%
Average Delay per Vehicle (min)		1.20	2.84	12.7%	2.46	-2.4%	2.52
Person Hours of Delay		4,670	12,770	10.9%	11,220	-2.6%	11,520
Average Speed		43.3	34.0	-3.4%	35.9	2.0%	35.2
Average Speed for HOVs		44.7	39.1	-1.0%	39.8	0.8%	39.5
Travel Time: Ferrari Ranch Rd to I-80	SOV	-	7:56	0.0%	7:59	0.6%	7:56
	HOV	-	7:56	0.2%	7:59	0.8%	7:55
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:16	20:03	15.3%	14:05	-19.0%	17:23
	HOV	9:11	9:23	-2.6%	9:09	-5.0%	9:38

Source: Fehr & Peers 2015

Table 16. Comparison of Overall Network Performance—Design (2040) Year AM Peak Period

Performance Measure		Existing Conditions	Carpool Lane Alternative	% Change from No Build	General Purpose Lane Alternative	% Change from No Build	No Build Alternative
Volume Served		143,450	208,160	-0.3%	207,470	-0.6%	208,800
(% of total demand)		100%	99%	0.0%	99%	0.0%	99%
Vehicle Miles of Travel (VMT)		645,270	940,220	2.5%	950,660	3.6%	917,290
Person Miles of Travel		786,260	1,113,340	1.7%	1,133,470	3.5%	1,094,920
Vehicle Hours of Travel (VHT)		13,760	21,710	-1.9%	21,960	-0.8%	22,140
Vehicle Hours of Delay (VHD)		2,670	5,540	-12.5%	5,620	-11.2%	6,330
(% of VHT)		19%	26%	-10.3%	26%	-10.3%	29%
Average Delay per Vehicle (min)		1.12	1.60	-12.1%	1.63	-10.4%	1.82
Person Hours of Delay		3,240	6,320	-13.7%	6,490	-11.3%	7,320
Average Speed		46.9	43.3	4.6%	43.3	4.6%	41.4
Average Speed for HOVs		47.0	46.4	5.0%	45.9	3.8%	44.2
Travel Time: Ferrari Ranch Rd to I-80	SOV	-	7:49	-30.1%	7:53	-29.5%	11:11
	HOV	-	7:43	-30.1%	7:50	-29.0%	11:02
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:44	8:35	-11.4%	8:37	-11.0%	9:41
	HOV	9:27	8:23	-12.8%	8:29	-11.8%	9:37

Source: Fehr & Peers 2015

Table 17. Comparison of Overall Network Performance—Design (2040) Year PM Peak Period

Performance Measure		Existing Conditions	Carpool Lane Alternative	% Change from No Build	General Purpose Lane Alternative	% Change from No Build	No Build Alternative
Volume Served		198,170	300,780	-0.6%	300,820	-0.6%	302,580
(% of total demand)		101%	100%	1.0%	100%	1.0%	99%
Vehicle Miles of Travel (VMT)		730,100	1,160,700	4.9%	1,166,400	5.4%	1,106,390
Person Miles of Travel		880,180	1,402,510	5.6%	1,402,330	5.6%	1,328,540
Vehicle Hours of Travel (VHT)		16,850	30,890	-6.2%	30,920	-6.1%	32,920
Vehicle Hours of Delay (VHD)		3,950	10,470	-21.7%	10,430	-22.0%	13,380
(% of VHT)		23%	34%	-17.1%	34%	-17.1%	41%
Average Delay per Vehicle (min)		1.20	2.09	-21.1%	2.08	-21.5%	2.65
Person Hours of Delay		4,670	12,230	-20.8%	12,160	-21.3%	15,450
Average Speed		43.3	37.6	11.9%	37.7	12.2%	33.6
Average Speed for HOVs		44.7	40.5	8.6%	40.4	8.3%	37.3
Travel Time: Ferrari Ranch Rd to I-80	SOV	-	7:52	-29.2%	7:53	-29.1%	11:07
	HOV	-	7:51	-17.9%	7:51	-17.9%	9:34
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:16	6:31	-44.7%	6:32	-44.6%	11:47
	HOV	9:11	6:20	-3.6%	6:20	-3.6%	6:34

Source: Fehr & Peers 2015

Impact AQ-6: Potential for Temporary Increase in Ozone Precursors (ROG and NO_X), CO, and Particulate Matter Emissions during Grading and Construction Activities

Implementation of the project would result in the modification of the SR 65 mainline. Temporary construction emissions would result from grubbing/land clearing, grading/excavation, drainage/tilities/sub-grade construction, and paving activities and construction worker commuting patterns. Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather.

The SMAQMD's RCEM (Version 7.1.5.1) was used to estimate construction-related O3 precursors ROG and NOX, CO, PM10, PM2.5, and CO2 emissions from construction activities. The emissions shown in Table 18 assume no concurrent construction activities. To provide a realistic, yet conservative scenario, maximum daily emissions were estimated assuming all equipment would operate at the same time during the individual construction phases. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner burning construction equipment fleet mix, and/or (2) a less intensive build-out schedule (i.e., fewer daily emissions occurring over a longer time interval).

Table 18 summarizes maximum daily emissions levels for the proposed construction year 2020. Because Caltrans has statewide jurisdiction, and the setting for projects varies so extensively across the state, Caltrans has not and has no intention to develop thresholds of significance for CEQA. Further, because most air district thresholds have not been established by regulation or by delegation down from a federal or state agency with regulatory authority over Caltrans, Caltrans is not required to adopt those thresholds in Caltrans' documents. Nevertheless, PCAPCD thresholds of significance are provided for reference.

Table 18. Estimated Unmitigated Criteria Pollutant Emissions from Construction of Project (pounds per day)

Project Phase	ROG	NO_X	CO	PM10			PM2.5		
				Exhaust	Dust	Total	Exhaust	Dust	Total
Grubbing/Land Clearing	3.7	39.2	31.8	1.7	50.0	51.7	1.5	10.4	11.9
Grading/Excavation	16.5	170.7	127.0	7.8	50.0	57.8	6.7	10.4	17.1
Drainage/Utilities/Sub-Grade	5.7	52.2	49.0	2.6	10.0	12.6	2.2	2.1	4.3
Paving	6.0	91.6	85.3	2.8	-	2.8	2.4	-	2.4
Maximum Daily	16.5	170.7	127.0	7.8	50.0	57.8	1.5	10.4	11.9
PCAPCD Threshold	*82*	*82*	-	-	-	*82*	-	-	-

CO = carbon monoxide
NO_X = nitrogen oxides
PCAPCD = Placer County Air Pollution Control District
PM10 = particles of 10 micrometers or smaller
PM2.5 = particles of 2.5 micrometers and smaller
ROG = reactive organic gases

Construction activities are subject to requirements found in the *Standard Specifications for Construction of Local Streets and Roads* (California Department of Transportation 2010), Section 14-9.02, which includes specifications relating to air pollution control by complying with air pollution control rules, regulations, ordinances, and statutes that apply to work performed under the contract, including air pollution control rules, regulations, ordinances, and statutes provided in Government Code Section 11017 (Public Contract Code § 10231) while standard specification Section 14-9.03 addresses dust control and palliative requirements. Implementation of Caltrans' standard specification and measures to control dust during construction would help to minimize air quality impacts from construction activities.

Naturally Occurring Asbestos

According to the California Department of Conservation's 2000 publication, *A General Location Guide for Ultramafic Rocks in California*, and PCAPCD mapping (Placer County Air Pollution Control District 2008), there are no geologic features normally associated with NOA (i.e., serpentine rock or ultramafic rock near fault zones) in or near the project area (California Department of Conservation 2000). As such, there is no potential for impacts related to NOA emissions during construction activities. However, construction activities that involve the demolition of any building or structure containing asbestos would be subject to EPA's National Emissions Standards for Hazardous Air Pollutants and ARB's Airborne Toxic Control Measures.

Impact AQ-7: Potential for Generation of Greenhouse Gas Contaminant Emissions

Operational Emissions

Caltrans' CT-EMFAC model was used to estimate CO_2 emissions for existing (2012) and design year (2040[6]) conditions and evaluate potential emissions increases. Table 19 summarizes the modeled emissions by scenario, as well as a comparison of Build emissions to No Build and existing conditions, consistent with Caltrans environmental requirements. Emissions are presented with and without state mandates to reduce GHG emissions from on-road vehicles and transportation fuels.[7]

Table 19. Estimated Greenhouse Gas Emissions from Operation of the SR 65 Capacity and Operational Improvements Project (metric tons per year)

Alternative	Annual VMT[a]	Emissions without Pavley and LCFS			Emissions with Pavley and LCFS		
		CO_2	Other[b]	CO_2e	CO_2	Other[b]	CO_2e
2012 Baseline	5,144,317	785,570	8,536	794,106	751,407	8,165	759,572
2040 No Build	7,734,336	1,176,948	12,788	1,189,736	783,440	8,513	791,953
2040 General Purpose Lane	7,868,726	1,202,027	13,061	1,215,088	800,028	8,693	808,721
2040 Carpool Lane	7,852,195	1,198,204	13,019	1,211,223	797,494	8,665	806,160
Comparison to Existing							
2040 No Build	2,590,019	391,378	4,252	395,630	32,033	348	32,381
2040 General Purpose Lane	2,724,409	416,457	4,525	420,982	48,621	528	49,149
2040 Carpool Lane	2,707,878	412,634	4,483	417,117	46,087	500	46,588
Comparison to No Build							
2040 General Purpose Lane	134,390	25,079	273	25,352	16,588	180	16,768
2040 Carpool Lane	117,859	21,256	231	21,487	14,054	152	14,207

[a] Annual VMT values derived from Daily VMT values in Table 7 multiplied by 347, per ARB methodology (ARB 2008).

[b] Includes methane (CH_4), nitrous oxide (N_2O), and other trace GHGs emissions emitted by on-road vehicles based on the California 2013 GHG Inventory (California Air Resources Board 2015c).

Table 19 indicates all Build Alternatives will result in increased GHG emissions relative to existing conditions. This is due to a smaller reduction in long-range (i.e., 2040) CO_2 emission factors relative to the dramatic increase in VMT from existing to 2040 build conditions.

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[6] CT-EMFAC only includes vehicle emission rates up to the year 2035, thus project design year (2040) emissions use CT-EMFAC 2035 emission rates.

[7] Actions undertaken by the state will contribute to project-level GHG reductions. The state mandate analysis assumes implementation of Pavley and the Low Carbon Fuel Standard (LCFS). Pavley will improve the efficiency of automobiles and light duty trucks, whereas LCFS will reduce the carbon intensity of diesel and gasoline transportation fuels.

Accordingly, since CO_2 emission factors do not decrease as rapidly as VMT rises between existing and 2040 conditions, emissions increase.

Table 19 also indicates GHG emissions associated with the Build Alternatives are expected to increase relative to the No Build Alternative in 2040. Similar to criteria pollutant emissions (see Table 13), this increase is due to induced vehicle travel and growth in VMT under the Build Alternatives.

Currently, there are no federal or state standards set for CO_2 emissions; therefore, the estimated emissions shown in Table 19 are only useful for a comparison between alternatives. The numbers are not necessarily an accurate reflection of what the true CO_2 emissions would be because CO_2 emissions are dependent on other factors that are not part of the model, such as the fuel mix[8], rate of acceleration, and the aerodynamics and efficiency of the vehicles. Refer to Appendix E for a summary of limitations and uncertainties associated with the emissions modeling.

Construction Emissions

Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. The SMAQMD’s RCEM (Version 7.1.5.1) was used to estimate CO_2 emissions from construction activities.

Table 20 summarizes estimated GHG emissions generated by on-site construction equipment over the 20-month construction period. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Measures to reduce construction emissions include maintenance of construction equipment and vehicles, limiting of construction vehicle idling time, and scheduling and routing of construction traffic to reduce engine emissions.

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[8] CT-EMFAC model emission rates are only for direct engine-out CO_2 emissions not full fuel cycle; fuel cycle emission rates can vary dramatically depending on the amount of additives like ethanol and the source of the fuel components.

Table 20. GHG Emissions from Construction of Project (metric tons per year)

Project Phase	CO_2	CH_4	N_2O	CO_2e
Grubbing/Land Clearing	6,930.8	0.4	0.2	6,992.4
Grading/Excavation	32,652.8	1.8	0.8	32,942.9
Drainage/Utilities/Sub-Grade	11,117.6	0.6	0.3	11,216.4
Paving	16,360.0	0.9	0.4	16,505.4
Total GHG Emissions	67,061.2	3.8	1.7	67,657.1

GHG = greenhouse gas
CO_2 = carbon dioxide
CH_4 = methane
N_2O = nitrous oxide
CO_2e = carbond dioxide equivalent

3.3 Avoidance, Minimization, and/or Mitigation Measures

Implement California Department of Transportation Standard Specification Section 14

To control the generation of construction-related PM10 emissions, the project proponent will follow Standard Specification Section 14, “Environmental Stewardship,” which addresses the contractor’s responsibility on many items of concern, such as air pollution; protection of lakes, streams, reservoirs, and other water bodies; use of pesticides; safety; sanitation; convenience for the public; and damage or injury to any person or property as a result of any construction operation. Section 14-9.02, which includes specifications relating to air pollution control by complying with air pollution control rules, regulations, ordinances, and statutes that apply to work performed under the contract, including air pollution control rules, regulations, ordinances, and statutes provided in Government Code Section 11017 (Public Contract Code § 10231). Section 14-9.03 is directed at controlling dust.

Implement Additional Control Measures for Construction Emissions of Fugitive Dust

Additional measures to control dust will be borrowed from the PCAPCD Fugitive Dust Control Requirements and implemented to the extent practicable when the measures have not already been incorporated and do not conflict with requirements of Caltrans’ Standard Specifications, Special Provisions, National Pollutant Discharge Elimination System permit, and the Biological Opinions, Clean Water Act Section 404 permit, Clean Water Act Section 401 Certification, and other permits issued for the project. The following excerpt is taken from the PCAPCD Fugitive Dust Control Requirements Fact Sheet (Placer County Air Pollution Control District 2013).

For areas to be disturbed of any size, Rule 228, Fugitive Dust, Section 400 establishes standards to be met by activities generating fugitive dust. Minimum dust control requirements, summarized below, are to be initiated at the start and maintained throughout the duration of construction:

401.1—Unpaved areas subject to vehicle traffic must be stabilized by being kept wet, treated with a chemical dust suppressant, or covered. In geographic ultramafic rock units, or when naturally occurring asbestos, ultramafic rock, or serpentine is to be disturbed, the cover material shall contain less than 0.25 percent asbestos as determined using the bulk sampling method for asbestos in Section 502.

401.2—The speed of any vehicles and equipment traveling across unpaved areas must be no more than 15 miles per hour unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust exceeding Ringelmann 2 or visible emissions from crossing the project boundary line.

401.3—Storage piles and disturbed areas not subject to vehicular traffic must be stabilized by being kept wet, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile.

401.4—Prior to any ground disturbance, including grading, excavating, and land clearing, sufficient water must be applied to the area to be disturbed to prevent emitting dust exceeding Ringelmann 2 and to minimize visible emissions from crossing the boundary line.

401.5—Construction vehicles leaving the site must be cleaned to prevent dust, silt, mud, and dirt from being released or tracked off site.

401.6—When wind speeds are high enough to result in dust emissions crossing the boundary line, despite the application of dust mitigation measures, grading and earthmoving operations shall be suspended.

401.7—No trucks are allowed to transport excavated material off-site unless the trucks are maintained such that no spillage can occur from holes or other openings in cargo compartments, and loads are either;

401.7.1 Covered with tarps; or

401.7.2 Wetted and loaded such that the material does not touch the front, back, or sides of the cargo compartment at any point less than six inches from the top and that no point of the load extends above the top of the cargo compartment.

402—A person shall take actions such as surface stabilization, establishment of a vegetative cover, or paving, to minimize wind-driven dust from inactive disturbed surface areas.

In addition, Rule 228 requires that all projects must minimize and clean-up the track-out of bulk material or other debris onto public paved roadways. For 1 acre and less disturbed surface area in areas that are not "Most Likely" to contain NOA according to PCAPCD's NOA Hazard maps, and where NOA has not been found, only these minimum dust measures must be met (i.e., no Dust Control Plan is required).

For projects where greater than 1 acre of the site's surface will be disturbed, a Dust Control Plan must be submitted to PCAPCD for approval prior to the start of earth-disturbing activities if this requirement has been established as a Condition of Approval of a discretionary permit.

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4.2 Personal Communications

Lee, Andy. RE: SR 65 C&O Data for Construction Emissions Mark Thomas & Company, Sacramento, CA. September 22, 2015 — Email message to Claire Bromund of ICF International regarding SR 65 Capacity and Operational Improvements Project.

Stanek, David (a). Principal in Charge of Technical Development. Fehr & Peers, Roseville, CA. September 8, 2015 — Email message to Darrin Trageser of ICF International regarding SR 65 Capacity and Operational Improvements Project SACOG VMT speed bin information.

Stanek, David (b). Principal in Charge of Technical Development. Fehr & Peers, Roseville, CA. August 28, 2015 — Email message to Shannon Hatcher of ICF International regarding SR 65 Capacity and Operational Improvements Project AADT and vehicle mix.

Appendix A AQ Model Output

File Name: Placer (SV) - 2012 - Annual.EF
CT-EMFAC Version: 5.0.0.14319
Run Date: 9/9/2015 16:11
Area: Placer (SV)
Analysis Year: 2012
Season: Annual

==

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category
Truck 1	0.023	0.49
Truck 2	0.009	0.93
Non-Truck	0.968	0.005

==

Fleet Average Running Exhaust Emission Factors (grams/mile)

Speed	ROG	TOG	CO	NOx	CO2	CO2 (Pavle
5 mph	0.408339	0.546355	4.704395	0.752448	1393.405	1331.898
10 mph	0.279597	0.369952	3.941987	0.612971	1047.433	1001.495
15 mph	0.193722	0.254237	3.323837	0.509943	802.4855	767.3388
20 mph	0.139655	0.182648	2.883167	0.437962	641.387	613.2875
25 mph	0.110442	0.143061	2.565897	0.405471	533.7293	510.4359
30 mph	0.091762	0.117762	2.333485	0.382401	461.3499	441.2861
35 mph	0.079823	0.101657	2.155023	0.367609	413.1189	395.2068
40 mph	0.072856	0.092166	2.031124	0.35953	383.9486	367.3314
45 mph	0.069938	0.087864	1.952814	0.358079	369.4411	353.4638
50 mph	0.07089	0.088347	1.934306	0.364149	368.6434	352.6904
55 mph	0.074879	0.092959	1.970421	0.375536	382.728	366.125
60 mph	0.083794	0.103423	2.07749	0.388939	408.1538	390.3813
65 mph	0.101023	0.123048	2.3313	0.414647	442.4392	423.1276
70 mph	0.101023	0.123048	2.3313	0.414647	442.4392	423.1276
75 mph	0.101023	0.123048	2.3313	0.414647	442.4392	423.1276

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Fleet Average Idling Exhaust Emission Factors (grams/vehicle-idle-hour)

Pollutant Name	Emission Factor
ROG	1.850611
TOG	2.514244
CO	23.464924
NOx	3.329498
CO2	6876.64502

CO2 (Pavley I + LCFS)	6569.564453
PM10	0.085476
PM2.5	0.078152
Benzene	0.003194
Acrolein	0.000069
Acetaldehyde	0.007235
Formaldehyde	0.014988
Butadiene	0.000467
Naphthalene	0.005673
POM	0.000887
Diesel PM	0.021367
DEOG	0.113831

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Fleet Average Running Loss Emission Factors (grams/mile)

Pollutant Name	Emission Factor
ROG	0.117733
TOG	0.117733
Benzene	0.001178
Acrolein	0
Acetaldehyde	0
Formaldehyde	0
Butadiene	0
Naphthalene	0.000047

===

Fleet Average Tire Wear and Brake Wear Factors (grams/mile)

Pollutant Name	Emission Factor
PM10	0.047224
PM2.5	0.018775

=========================END=====================================

File Name: Placer (SV) - 2035 - Annual.EF
CT-EMFAC Version: 5.0.0.14319
Run Date: 9/9/2015 16:12
Area: Placer (SV)
Analysis Year: 2035
Season: Annual

==

Vehicle Category	VMT Fraction Across Category	Diesel VMT Fraction Within Category
Truck 1	0.025	0.49
Truck 2	0.011	0.937
Non-Truck	0.964	0.005

==

Fleet Average Running Exhaust Emission Factors (grams/mile)

Speed	ROG	TOG	CO	NOx	CO2	CO2 (Pavle	PM10
5 mph	0.098735	0.13957	1.246112	0.198539	1060.893	707.2792	0.009734
10 mph	0.089338	0.12877	1.220349	0.179967	1045.671	693.5795	0.009556
15 mph	0.061405	0.08776	1.084349	0.151398	805.7075	534.5714	0.006583
20 mph	0.04451	0.06306	0.976976	0.130737	643.4799	426.8735	0.004777
25 mph	0.035886	0.04989	0.892381	0.119573	535.5181	355.8662	0.003678
30 mph	0.030519	0.0417	0.825435	0.111331	463.0506	308.1967	0.002995
35 mph	0.0273	0.03672	0.769565	0.105423	415.1074	276.6406	0.002578
40 mph	0.025714	0.03407	0.724353	0.101949	385.1935	256.933	0.002344
45 mph	0.025516	0.03337	0.695327	0.100086	371.6663	247.9699	0.002246
50 mph	0.0267	0.03447	0.677731	0.100686	370.5601	247.1837	0.002258
55 mph	0.029425	0.03755	0.678187	0.103193	383.8373	255.8388	0.002373
60 mph	0.034287	0.04324	0.701394	0.106592	410.004	272.8098	0.002596
65 mph	0.04245	0.05281	0.76671	0.112214	447.7551	297.3603	0.002933
70 mph	0.04245	0.05281	0.76671	0.112214	447.7551	297.3603	0.002933
75 mph	0.04245	0.05281	0.76671	0.112214	447.7551	297.3603	0.002933

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Fleet Average Idling Exhaust Emission Factors (grams/vehicle-idle-hour)

Pollutant Name	Emission Factor
ROG	0.665402
TOG	0.9991
CO	7.72346
NOx	1.313288
CO2	6812.604492

```
CO2 (Pavley I + LCFS)          4491.753906
        PM10                      0.070953
       PM2.5                      0.065786
      Benzene                     0.001701
      Acrolein                    0.000008
    Acetaldehyde                  0.005696
    Formaldehyde                   0.01146
     Butadiene                    0.000182
    Naphthalene                   0.005737
        POM                       0.000833
     Diesel PM                    0.005857
        DEOG                      0.086268

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Fleet Average Running Loss Emission Factors (grams/mile)

   Pollutant Name        Emission Factor
        ROG                       0.055958
        TOG                       0.055958
      Benzene                     0.000559
      Acrolein                           0
    Acetaldehyde                         0
    Formaldehyde                         0
     Butadiene                           0
    Naphthalene                   0.000022

======================================================================

Fleet Average Tire Wear and Brake Wear Factors (grams/mile)

   Pollutant Name        Emission Factor
        PM10                      0.047227
       PM2.5                      0.018771

============================END=======================================
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EMFAC2011 Emission Rates
Region Type: County
Region: Placer
Calendar Year: 2012
Season: Winter
Vehicle Classification: EMFAC2011 Categories

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed	VMT	ROG_RUN	TOG_RUN	CO_RUNE	NOX_RUN	CO2_RUN	CO2_RUN	PM10_RU	PM2_5_RUNEX
						(miles/hr)	(miles/day	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)
Placer	2012	Winter	LDA	GAS	Aggregate	5	1787.465	0.259841	0.356084	3.47548	0.255451	1072.355	1010.72	0.012445	0.011327
Placer	2012	Winter	LDA	DSL	Aggregate	5	7.562396	0.171281	0.194992	1.268236	1.141819	432.0839	397.5908	0.123489	0.11361
Placer	2012	Winter	LDT1	GAS	Aggregate	5	252.0735	0.606338	0.774473	8.078247	0.605356	1243.601	1173.304	0.023764	0.02156
Placer	2012	Winter	LDT1	DSL	Aggregate	5	0.264174	0.279219	0.317872	1.667315	1.187555	436.291	397.3121	0.235638	0.216787
Placer	2012	Winter	LDT2	GAS	Aggregate	5	725.5092	0.267629	0.389139	3.932171	0.472851	1471.01	1407.138	0.012045	0.011031
Placer	2012	Winter	LDT2	DSL	Aggregate	5	0.250238	0.257803	0.293491	1.56748	1.371712	424.4659	396.942	0.213379	0.196309
Placer	2012	Winter	LHD1	GAS	Aggregate	5	10520.96	0.850756	0.969321	10.30109	0.567364	2513.497	2500.93	0.011564	0.010666
Placer	2012	Winter	LHD1	DSL	Aggregate	5	6276.477	0.599793	0.682824	3.690851	7.552268	524.1788	521.5579	0.125885	0.115814
Placer	2012	Winter	LHD2	GAS	Aggregate	5	794.1564	0.602448	0.695036	9.662195	0.403893	2513.497	2500.93	0.009421	0.008425
Placer	2012	Winter	LHD2	DSL	Aggregate	5	1262.65	0.495545	0.564145	3.243424	6.731915	521.8	519.191	0.107326	0.098739
Placer	2012	Winter	MCY	GAS	Aggregate	5	29.69706	5.393435	5.905841	35.64708	1.280419	249.5459	248.2981	0.001768	0.001408
Placer	2012	Winter	MDV	GAS	Aggregate	5	701.3501	0.388751	0.57612	5.352142	0.715083	1867.75	1809.963	0.013012	0.011955
Placer	2012	Winter	MDV	DSL	Aggregate	5	0.571929	0.142318	0.16202	0.94873	0.760802	463.5335	442.2013	0.118814	0.109308
Placer	2012	Winter	MH	GAS	Aggregate	5	289.2822	1.624138	1.871303	36.16488	0.996462	2513.497	2500.93	0.017286	0.01535
Placer	2012	Winter	MH	DSL	Aggregate	5	67.23698	1.733289	1.973235	2.603248	20.23608	2377.037	2365.152	0.638626	0.587536
Placer	2012	Winter	Motor Coa	DSL	Aggregate	5	12.30506	6.472582	7.368542	11.25481	37.19751	4015.39	3995.313	1.084397	0.997645
Placer	2012	Winter	OBUS	GAS	Aggregate	5	116.1394	0.920771	1.103139	12.9235	1.105926	2513.497	2500.93	0.004329	0.003993
Placer	2012	Winter	SBUS	GAS	Aggregate	5	14.95158	6.832181	7.515106	113.4969	3.037438	2513.497	2500.93	0.043649	0.038102
Placer	2012	Winter	SBUS	DSL	Aggregate	5	47.54645	4.427373	5.040227	5.404886	30.30737	2625.474	2612.347	1.376329	1.266222
Placer	2012	Winter	T6 Ag	DSL	Aggregate	5	39.83015	5.940001	6.762238	7.37861	27.06914	2631.743	2618.585	1.642537	1.511134
Placer	2012	Winter	T6 Public	DSL	Aggregate	5	62.15105	3.065273	3.48958	3.985021	25.72829	2615.804	2602.725	1.058278	0.973616
Placer	2012	Winter	T6 CAIRP h	DSL	Aggregate	5	1.165915	3.06494	3.489201	4.518595	19.39582	2604.773	2591.749	0.657246	0.604666
Placer	2012	Winter	T6 CAIRP s	DSL	Aggregate	5	3.902308	2.549647	2.902579	4.02073	15.43871	2602.522	2589.509	0.422823	0.388997
Placer	2012	Winter	T6 OOS he	DSL	Aggregate	5	0.668443	3.06494	3.489201	4.518595	19.39582	2604.773	2591.749	0.657246	0.604666
Placer	2012	Winter	T6 OOS sm	DSL	Aggregate	5	2.237275	2.549647	2.902579	4.02073	15.43871	2602.522	2589.509	0.422823	0.388997
Placer	2012	Winter	T6 instate	DSL	Aggregate	5	29.35672	4.892466	5.5697	6.495927	26.2847	2608.291	2595.25	1.342738	1.235319
Placer	2012	Winter	T6 instate	DSL	Aggregate	5	80.06686	3.552352	4.044082	5.159724	19.81183	2603.45	2590.433	0.786456	0.72354
Placer	2012	Winter	T6 instate	DSL	Aggregate	5	178.0733	4.782136	5.444098	6.352193	25.50526	2607.146	2594.11	1.305423	1.200989
Placer	2012	Winter	T6 instate	DSL	Aggregate	5	492.9218	3.432303	3.907416	4.994499	19.00181	2601.473	2588.466	0.752976	0.692738
Placer	2012	Winter	T6 utility	DSL	Aggregate	5	3.874531	1.865515	2.123747	2.771382	20.10772	2602.847	2589.833	0.526954	0.484798
Placer	2012	Winter	T6TS	GAS	Aggregate	5	156.3598	2.265124	2.591423	35.00275	1.711588	2513.497	2500.93	0.013215	0.011752
Placer	2012	Winter	T7 Ag	DSL	Aggregate	5	49.87115	9.484757	10.79767	15.85816	46.71018	4055.306	4035.029	2.412598	2.21959
Placer	2012	Winter	T7 CAIRP	DSL	Aggregate	5	346.4879	6.99333	7.961374	12.91996	32.70234	4020.441	4000.338	0.786934	0.723979
Placer	2012	Winter	T7 CAIRP c	DSL	Aggregate	5	8.701616	7.080503	8.060614	13.07596	33.20823	4021.476	4001.369	0.79985	0.735862
Placer	2012	Winter	T7 NNOOS	DSL	Aggregate	5	389.786	4.64301	5.285713	8.789516	19.87101	4002.43	3982.418	0.387362	0.356373
Placer	2012	Winter	T7 NOOS	DSL	Aggregate	5	126.1821	6.882913	7.835672	12.75434	32.70234	4020.982	4000.877	0.759215	0.698478
Placer	2012	Winter	T7 other p	DSL	Aggregate	5	1.256646	3.373153	3.840078	6.025025	51.45719	4060.66	4040.357	0.472297	0.434513
Placer	2012	Winter	T7 POAK	DSL	Aggregate	5	16.81924	3.222141	3.668162	5.611104	53.94117	4064.203	4043.882	0.494374	0.454824
Placer	2012	Winter	T7 POLA	DSL	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2012	Winter	T7 Public	DSL	Aggregate	5	26.16592	6.260985	7.127655	10.62795	46.67194	4097.513	4077.025	2.353519	2.165237
Placer	2012	Winter	T7 Single	DSL	Aggregate	5	116.037	7.757346	8.831148	12.76552	43.61873	4029.07	4008.924	2.14006	1.968855
Placer	2012	Winter	T7 single c	DSL	Aggregate	5	22.50994	7.444021	8.474451	12.26483	42.64522	4023.88	4003.761	2.001191	1.841096
Placer	2012	Winter	T7 SWCV	DSL	Aggregate	5	16.30478	1.318212	1.500684	2.299832	42.1966	4090.744	4070.29	0.298861	0.274952
Placer	2012	Winter	T7 tractor	DSL	Aggregate	5	149.5958	10.85318	12.35552	18.05622	46.05804	4030.357	4010.205	2.363742	2.174643
Placer	2012	Winter	T7 tractor	DSL	Aggregate	5	16.78282	11.43354	13.01621	18.8641	47.3348	4029.967	4009.817	2.561796	2.356852
Placer	2012	Winter	T7 utility	DSL	Aggregate	5	1.17532	3.451184	3.92891	5.87924	36.8196	4015.879	3995.799	0.976562	0.898437
Placer	2012	Winter	T7IS	GAS	Aggregate	5	13.00931	13.99711	15.29727	232.8801	7.777982	2513.497	2500.93	0.01313	0.011155
Placer	2012	Winter	UBUS	GAS	Aggregate	5	30.5859	4.038265	4.396655	34.92805	2.678504	2513.497	2500.93	0.005791	0.005373
Placer	2012	Winter	UBUS	DSL	Aggregate	5	83.828	1.425644	1.623001	8.152289	20.41997	2461.297	2448.99	0.493018	0.453577
Placer	2012	Winter	All Other B	DSL	Aggregate	5	27.0927	4.830698	5.499382	6.471855	26.94113	2621.003	2607.898	1.219026	1.121504

EMFAC2011 Emission Rates
Region Type: County
Region: Placer
Calendar Year: 2020
Season: Winter
Vehicle Classification: EMFAC2011 Categories

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	VMT (miles/day	ROG_RUN (gms/mile)	TOG_RUN (gms/mile)	CO_RUNE (gms/mile)	NOX_RUN (gms/mile)	CO2_RUN (gms/mile)	CO2_RUN (gms/mile)	PM10_RU (gms/mile)	PM2_5_RUNEX (gms/mile)
Placer	2020	Winter	LDA	GAS	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2020	Winter	LDA	DSL	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2020	Winter	LDT1	GAS	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2020	Winter	LDT1	DSL	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2020	Winter	LDT2	GAS	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2020	Winter	LDT2	DSL	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2020	Winter	LHD1	GAS	Aggregate	5	11857.93	0.357786	0.424995	4.314903	0.294377	2513.497	2262.148	0.005429	0.005033
Placer	2020	Winter	LHD1	DSL	Aggregate	5	6937.612	0.416407	0.474052	3.130002	4.242457	520.9447	468.8502	0.08764	0.080629
Placer	2020	Winter	LHD2	GAS	Aggregate	5	901.6011	0.124053	0.169463	1.830226	0.193557	2513.497	2262.148	0.003255	0.003015
Placer	2020	Winter	LHD2	DSL	Aggregate	5	1370.218	0.354932	0.404066	2.848973	3.836528	520.0415	468.0373	0.078361	0.072092
Placer	2020	Winter	MCY	GAS	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2020	Winter	MDV	GAS	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2020	Winter	MDV	DSL	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2020	Winter	MH	GAS	Aggregate	5	334.3768	0.3192	0.420806	6.352573	0.423125	2513.497	2262.147	0.00561	0.005189
Placer	2020	Winter	MH	DSL	Aggregate	5	74.94922	1.509904	1.718925	2.39988	16.10568	2389.476	2150.528	0.414082	0.380956
Placer	2020	Winter	Motor Coa	DSL	Aggregate	5	15.2852	2.421865	2.757109	4.802255	11.65812	3981.589	3583.43	0.082186	0.075611
Placer	2020	Winter	OBUS	GAS	Aggregate	5	117.014	0.407281	0.501949	5.636887	0.504468	2513.497	2262.147	0.002012	0.001867
Placer	2020	Winter	SBUS	GAS	Aggregate	5	17.25806	2.866684	3.219286	39.49084	1.934284	2513.497	2262.147	0.018525	0.017188
Placer	2020	Winter	SBUS	DSL	Aggregate	5	49.50327	1.309685	1.490976	1.99049	25.77931	2632.233	2369.01	0.231237	0.212738
Placer	2020	Winter	T6 Ag	DSL	Aggregate	5	41.59436	2.313415	2.633647	3.506768	10.12172	2584.145	2325.73	0.367431	0.338037
Placer	2020	Winter	T6 Public	DSL	Aggregate	5	77.98124	0.836999	0.952859	1.39629	12.74817	2603.121	2342.809	0.085679	0.078825
Placer	2020	Winter	T6 CAIRP h	DSL	Aggregate	5	1.391484	1.058776	1.205335	1.856711	6.319983	2573.548	2316.193	0.051007	0.046926
Placer	2020	Winter	T6 CAIRP s	DSL	Aggregate	5	4.759123	1.084687	1.234833	1.923457	3.571197	2563.519	2307.167	0.043517	0.040036
Placer	2020	Winter	T6 OOS he	DSL	Aggregate	5	0.797767	1.058776	1.205335	1.856711	6.319983	2573.548	2316.193	0.051007	0.046926
Placer	2020	Winter	T6 OOS sm	DSL	Aggregate	5	2.728505	1.084687	1.234833	1.923457	3.571197	2563.519	2307.167	0.043517	0.040036
Placer	2020	Winter	T6 instate	DSL	Aggregate	5	52.46013	1.142206	1.300315	1.966523	11.10869	2590.115	2331.103	0.076233	0.070134
Placer	2020	Winter	T6 instate	DSL	Aggregate	5	140.1396	1.271995	1.448069	2.255607	4.846698	2568.647	2311.782	0.05841	0.053737
Placer	2020	Winter	T6 instate	DSL	Aggregate	5	223.1275	1.134864	1.291956	1.964744	10.0395	2586.661	2327.995	0.069825	0.064239
Placer	2020	Winter	T6 instate	DSL	Aggregate	5	625.0797	1.233637	1.404402	2.187588	4.572565	2567.476	2310.728	0.055152	0.050739
Placer	2020	Winter	T6 utility	DSL	Aggregate	5	5.066328	0.815818	0.928746	1.439114	5.767122	2579.588	2321.629	0.035192	0.032377
Placer	2020	Winter	T6TS	GAS	Aggregate	5	197.8882	0.523094	0.631678	7.16767	0.530648	2513.497	2262.147	0.003188	0.002951
Placer	2020	Winter	T7 Ag	DSL	Aggregate	5	51.75546	3.867006	4.402292	7.176022	18.57925	4000.431	3600.388	0.459345	0.422598
Placer	2020	Winter	T7 CAIRP	DSL	Aggregate	5	469.3559	2.662913	3.031523	5.30627	8.574062	3964.755	3568.279	0.082993	0.076353
Placer	2020	Winter	T7 CAIRP c	DSL	Aggregate	5	20.89206	2.663583	3.032287	5.30608	8.712187	3965.34	3568.806	0.083483	0.076804
Placer	2020	Winter	T7 NNOOS	DSL	Aggregate	5	528.0079	2.26303	2.576288	4.514954	5.814729	3958.594	3562.734	0.064999	0.059799
Placer	2020	Winter	T7 NOOS	DSL	Aggregate	5	170.9275	2.661998	3.030482	5.303974	8.585729	3964.772	3568.295	0.083121	0.076471
Placer	2020	Winter	T7 other p	DSL	Aggregate	5	1.516091	5.980481	6.808323	11.89675	26.23109	4084.476	3676.029	0.124146	0.114214
Placer	2020	Winter	T7 POAK	DSL	Aggregate	5	27.65973	5.999852	6.830374	11.93528	26.29847	4085.555	3677	0.124175	0.114241
Placer	2020	Winter	T7 POLA	DSL	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2020	Winter	T7 Public	DSL	Aggregate	5	32.62586	1.313796	1.495657	2.431427	32.69859	4088.322	3679.489	0.230158	0.211745
Placer	2020	Winter	T7 Single	DSL	Aggregate	5	157.1849	1.955525	2.226216	3.791054	17.84161	4007.021	3606.319	0.100993	0.092914
Placer	2020	Winter	T7 single c	DSL	Aggregate	5	54.04502	1.955354	2.226022	3.791188	18.00102	4007.878	3607.09	0.100953	0.092877
Placer	2020	Winter	T7 SWCV	DSL	Aggregate	5	20.33016	1.653311	1.882169	3.115672	23.81535	4016.504	3614.854	0.156744	0.144204
Placer	2020	Winter	T7 tractor	DSL	Aggregate	5	202.6439	2.825352	3.216448	5.545632	17.48559	3997.189	3597.47	0.117369	0.107979
Placer	2020	Winter	T7 tractor	DSL	Aggregate	5	40.29456	2.853081	3.248016	5.569696	20.0685	4005.44	3604.896	0.129741	0.119362
Placer	2020	Winter	T7 utility	DSL	Aggregate	5	1.61596	1.471607	1.675312	2.894027	13.36848	4000.234	3600.21	0.0637	0.058604
Placer	2020	Winter	T7IS	GAS	Aggregate	5	15.2013	4.932785	5.732246	133.6094	4.687909	2513.497	2262.148	0.002976	0.002662
Placer	2020	Winter	UBUS	GAS	Aggregate	5	36.25494	3.579021	3.882648	29.37059	2.310969	2513.497	2262.147	0.004592	0.004261
Placer	2020	Winter	UBUS	DSL	Aggregate	5	99.36538	1.146553	1.305275	7.287798	16.41383	2398.518	2158.666	0.411182	0.378288
Placer	2020	Winter	All Other B	DSL	Aggregate	5	33.12472	1.232716	1.403353	2.128714	9.610592	2581.803	2323.623	0.077148	0.070976

EMFAC2011 Emission Rates
Region Type: County
Region: Placer
Calendar Year: 2035
Season: Winter
Vehicle Classification: EMFAC2011 Categories

Region	CalYr	Season	Veh_Class	Fuel	MdlYr	Speed (miles/hr)	VMT (miles/day	ROG_RUNI (gms/mile)	TOG_RUNI (gms/mile)	CO_RUNEX (gms/mile)	NOX_RUNI (gms/mile)	CO2_RUNE (gms/mile)	CO2_RUNE (gms/mile)	PM10_RUI (gms/mile)	PM2_5_RUNEX (gms/mile)
Placer	2035	Winter	LDA	GAS	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2035	Winter	LDA	DSL	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2035	Winter	LDT1	GAS	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2035	Winter	LDT1	DSL	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2035	Winter	LDT2	GAS	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2035	Winter	LDT2	DSL	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2035	Winter	LHD1	GAS	Aggregate	5	13953.01	0.047158	0.077516	0.732794	0.11052	2513.497	2262.148	0.001395	0.001294
Placer	2035	Winter	LHD1	DSL	Aggregate	5	7974.956	0.20731	0.236008	2.510485	1.5895	519.0508	467.1457	0.055599	0.051151
Placer	2035	Winter	LHD2	GAS	Aggregate	5	1101.074	0.033125	0.060563	0.516628	0.081108	2513.497	2262.147	0.001033	0.000959
Placer	2035	Winter	LHD2	DSL	Aggregate	5	1635.09	0.183701	0.209132	2.292815	1.420013	519.0781	467.1703	0.050173	0.046159
Placer	2035	Winter	MCY	GAS	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2035	Winter	MDV	GAS	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2035	Winter	MDV	DSL	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2035	Winter	MH	GAS	Aggregate	5	387.376	0.054194	0.096575	0.752364	0.131379	2513.497	2262.148	0.001025	0.000951
Placer	2035	Winter	MH	DSL	Aggregate	5	89.06197	1.061453	1.208394	1.865149	10.76188	2408.689	2167.82	0.112549	0.103545
Placer	2035	Winter	Motor Coa	DSL	Aggregate	5	19.82838	2.3591	2.685655	4.712242	6.068083	3956.383	3560.744	0.069697	0.064121
Placer	2035	Winter	OBUS	GAS	Aggregate	5	135.3024	0.071924	0.115862	1.042829	0.137664	2513.497	2262.148	0.00099	0.000919
Placer	2035	Winter	SBUS	GAS	Aggregate	5	19.90691	0.654186	0.773915	9.108072	0.853272	2513.497	2262.147	0.004389	0.004072
Placer	2035	Winter	SBUS	DSL	Aggregate	5	46.71976	2.281405	2.597206	4.045577	12.56862	2617.434	2355.691	0.064331	0.059184
Placer	2035	Winter	T6 Ag	DSL	Aggregate	5	39.67927	1.199057	1.365035	2.126267	3.877313	2560.316	2304.285	0.046345	0.042637
Placer	2035	Winter	T6 Public	DSL	Aggregate	5	104.9525	0.887145	1.009947	1.568143	3.121741	2562.97	2306.673	0.034551	0.031787
Placer	2035	Winter	T6 CAIRP h	DSL	Aggregate	5	1.714406	1.047124	1.192071	1.856847	3.179918	2559.771	2303.794	0.038962	0.035845
Placer	2035	Winter	T6 CAIRP s	DSL	Aggregate	5	5.935137	0.995141	1.132892	1.764666	2.924044	2559.758	2303.782	0.036386	0.033475
Placer	2035	Winter	T6 OOS he	DSL	Aggregate	5	0.982905	1.047124	1.192071	1.856847	3.179918	2559.771	2303.794	0.038962	0.035845
Placer	2035	Winter	T6 OOS sm	DSL	Aggregate	5	3.402738	0.995141	1.132892	1.764666	2.924044	2559.758	2303.782	0.036386	0.033475
Placer	2035	Winter	T6 instate	DSL	Aggregate	5	66.3747	1.137353	1.29479	2.01685	3.619596	2559.83	2303.847	0.043423	0.039949
Placer	2035	Winter	T6 instate	DSL	Aggregate	5	194.8438	1.035935	1.179334	1.837007	3.12387	2559.773	2303.796	0.038406	0.035334
Placer	2035	Winter	T6 instate	DSL	Aggregate	5	276.5357	1.141365	1.299357	2.023964	3.638817	2559.839	2303.855	0.043619	0.04013
Placer	2035	Winter	T6 instate	DSL	Aggregate	5	806.5079	1.037949	1.181626	1.840577	3.133763	2559.775	2303.798	0.038505	0.035425
Placer	2035	Winter	T6 utility	DSL	Aggregate	5	7.018945	0.838258	0.954293	1.486469	2.149032	2559.765	2303.789	0.028595	0.026308
Placer	2035	Winter	T6TS	GAS	Aggregate	5	233.7801	0.072552	0.117002	1.061929	0.139518	2513.497	2262.148	0.00104	0.000965
Placer	2035	Winter	T7 Ag	DSL	Aggregate	5	49.37253	2.497298	2.842984	4.986957	6.566654	3956.995	3561.296	0.074674	0.0687
Placer	2035	Winter	T7 CAIRP	DSL	Aggregate	5	612.3156	2.572821	2.928961	5.142669	6.937884	3956.349	3560.714	0.078127	0.071877
Placer	2035	Winter	T7 CAIRP c	DSL	Aggregate	5	24.4201	2.57297	2.929131	5.142971	6.938994	3956.349	3560.714	0.078133	0.071882
Placer	2035	Winter	T7 NNOOS	DSL	Aggregate	5	688.8322	2.233784	2.542993	4.460214	5.565072	3956.346	3560.711	0.064801	0.059617
Placer	2035	Winter	T7 NOOS	DSL	Aggregate	5	222.9898	2.572821	2.928961	5.14267	6.937883	3956.349	3560.714	0.078127	0.071877
Placer	2035	Winter	T7 other p	DSL	Aggregate	5	1.923671	3.095829	3.524366	6.195514	9.074166	3956.344	3560.709	0.098693	0.090798
Placer	2035	Winter	T7 POAK	DSL	Aggregate	5	57.50259	3.095829	3.524366	6.195514	9.053272	3956.344	3560.709	0.098693	0.090798
Placer	2035	Winter	T7 POLA	DSL	Aggregate	5	0	0	0	0	0	0	0	0	0
Placer	2035	Winter	T7 Public	DSL	Aggregate	5	43.91012	1.689947	1.923876	3.297875	12.00744	3984.098	3585.688	0.085803	0.078938
Placer	2035	Winter	T7 Single	DSL	Aggregate	5	205.0613	2.164196	2.463773	4.319045	5.268575	3956.584	3560.926	0.061922	0.056969
Placer	2035	Winter	T7 single c	DSL	Aggregate	5	63.17158	2.145191	2.442137	4.280961	5.195347	3956.546	3560.892	0.061198	0.056302
Placer	2035	Winter	T7 SWCV	DSL	Aggregate	5	27.36172	1.932912	2.200473	3.850255	4.795914	3959.615	3563.653	0.053367	0.049098
Placer	2035	Winter	T7 tractor	DSL	Aggregate	5	264.3666	2.723214	3.100172	5.444225	7.531767	3956.538	3560.884	0.083884	0.077173
Placer	2035	Winter	T7 tractor	DSL	Aggregate	5	47.09908	2.754291	3.13555	5.506675	7.65239	3956.555	3560.899	0.085092	0.078284
Placer	2035	Winter	T7 utility	DSL	Aggregate	5	2.384217	1.692269	1.926519	3.37008	3.376063	3956.396	3560.756	0.043503	0.040022
Placer	2035	Winter	T7IS	GAS	Aggregate	5	13.35405	2.468702	3.119634	116.8445	3.938737	2513.497	2262.147	0.001008	0.000936
Placer	2035	Winter	UBUS	GAS	Aggregate	5	42.80168	1.442945	1.601118	17.58666	1.699865	2513.497	2262.147	0.001822	0.00169
Placer	2035	Winter	UBUS	DSL	Aggregate	5	117.3083	0.810097	0.922242	5.65711	10.67909	2303.905	2073.514	0.299256	0.275316
Placer	2035	Winter	All Other B	DSL	Aggregate	5	42.97031	1.229527	1.399723	2.180299	4.068706	2559.919	2303.927	0.04797	0.044133

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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_20
                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= 1000. M              AMB=  0.0 PPM
       SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

        LINK      *  LINK COORDINATES (M)   *              EF     H     W
     DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*-------------------------*-----------------------------
--
  A. Link_1       * -1000    -5     0    -5 *  AG    525   8.0    0.0
17.0
  B. Link_2       *     0    -4  1000    -4 *  AG    482   8.0    0.0
13.3
  C. Link_3       *  1000     5     0     5 *  AG    557   8.0    0.0
17.0
  D. Link_4       *     0     4 -1000     4 *  AG    591   8.0    0.0
13.3
  E. Link_5       *   -11  1000   -11     0 *  AG   1191   8.0    0.0
27.9
  F. Link_6       *    -5     0    -5 -1000 *  AG   1777   8.0    0.0
17.0
  G. Link_7       *    11 -1000    11     0 *  AG   2011   8.0    0.0
27.9
  H. Link_8       *     5     0     5  1000 *  AG   1434   8.0    0.0
17.0


  III.  RECEPTOR LOCATIONS

              *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
 ------------*---------------------
 1. R_001    *    -25     10   1.8
 2. R_002    *     14     14   1.8
 3. R_003    *    -14    -14   1.8
 4. R_004    *     25    -10   1.8


1






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

                     JOB: C:\Lakes\CALRoads View\Stanford Ranch_20
                     RUN: CALINE4 RUN      (WORST CASE ANGLE)
               POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

               *       * PRED  *                CONC/LINK
               *  BRG  * CONC  *                  (PPM)
   RECEPTOR    * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 --------------*-------*-------*----------------------------------------
  1. R_001     *  168. *   2.3 *  0.2  0.0  0.0  0.3  0.1  0.9  0.7  0.0
  2. R_002     *  185. *   3.1 *  0.0  0.2  0.3  0.0  0.0  0.8  1.5  0.3
  3. R_003     *  171. *   2.8 *  0.0  0.0  0.0  0.0  0.0  1.9  1.0  0.0
  4. R_004     *  277. *   2.3 *  0.4  0.2  0.0  0.4  0.1  0.4  0.8  0.0


1
EXIT
```

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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_20
                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= 1000. M              AMB=  0.0 PPM
       SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

        LINK      *  LINK COORDINATES (M)   *              EF     H     W
     DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*-------------------------*----------------------------
--
  A. Link_1       * -1000    -5     0    -5 *  AG    475   4.0    0.0
17.0
  B. Link_2       *     0    -4  1000    -4 *  AG    530   4.0    0.0
13.3
  C. Link_3       *  1000     5     0     5 *  AG    630   4.0    0.0
17.0
  D. Link_4       *     0     4 -1000     4 *  AG    505   4.0    0.0
13.3
  E. Link_5       *   -11  1000   -11     0 *  AG   1300   4.0    0.0
27.9
  F. Link_6       *    -5     0    -5 -1000 *  AG   1890   4.0    0.0
17.0
  G. Link_7       *    11 -1000    11     0 *  AG   2170   4.0    0.0
27.9
  H. Link_8       *     5     0     5  1000 *  AG   1650   4.0    0.0
17.0


  III.  RECEPTOR LOCATIONS

              *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
  ------------*---------------------
  1. R_001    *    -25     10   1.8
  2. R_002    *     14     14   1.8
  3. R_003    *    -14    -14   1.8
  4. R_004    *     25    -10   1.8


1







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

               JOB: C:\Lakes\CALRoads View\Stanford Ranch_20
               RUN: CALINE4 RUN      (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

              *       * PRED  *                 CONC/LINK
              *  BRG  * CONC  *                   (PPM)
   RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*---------------------------------------
  1. R_001    *  168. *   1.2 *  0.1  0.0  0.0  0.1  0.1  0.5  0.4  0.0
  2. R_002    *  185. *   1.7 *  0.0  0.1  0.2  0.0  0.0  0.4  0.8  0.2
  3. R_003    *  171. *   1.5 *  0.0  0.0  0.0  0.0  0.0  1.0  0.5  0.0
  4. R_004    *  189. *   1.2 *  0.0  0.0  0.0  0.0  0.0  0.4  0.8  0.0


1
EXIT
```

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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_20
                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= 1000. M              AMB=  0.0 PPM
       SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

        LINK      *  LINK COORDINATES (M)   *              EF     H     W
     DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*-------------------------*----------------------------
--
  A. Link_1       * -1000    -5     0    -5 *  AG    425   1.8    0.0
17.0
  B. Link_2       *     0    -4  1000    -4 *  AG    560   1.8    0.0
13.3
  C. Link_3       *  1000     5     0     5 *  AG    670   1.8    0.0
17.0
  D. Link_4       *     0     4 -1000     4 *  AG    480   1.8    0.0
13.3
  E. Link_5       *   -11  1000   -11     0 *  AG   1390   1.8    0.0
27.9
  F. Link_6       *    -5     0    -5 -1000 *  AG   1880   1.8    0.0
17.0
  G. Link_7       *    11 -1000    11     0 *  AG   1820   1.8    0.0
27.9
  H. Link_8       *     5     0     5  1000 *  AG   1385   1.8    0.0
17.0


  III.  RECEPTOR LOCATIONS

              *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
  ------------*---------------------
  1. R_001    *    -25     10   1.8
  2. R_002    *     14     14   1.8
  3. R_003    *    -14    -14   1.8
  4. R_004    *     25    -10   1.8

1
```

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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_20
                RUN: CALINE4 RUN      (WORST CASE ANGLE)
          POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

              *       * PRED  *                CONC/LINK
              *  BRG  * CONC  *                  (PPM)
   RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*-----------------------------------------
  1. R_001    *  168. *   0.5 *  0.0  0.0  0.0  0.1  0.0  0.2  0.2  0.0
  2. R_002    *  185. *   0.7 *  0.0  0.0  0.1  0.0  0.0  0.2  0.3  0.1
  3. R_003    *  171. *   0.6 *  0.0  0.0  0.0  0.0  0.0  0.4  0.2  0.0
  4. R_004    *  190. *   0.5 *  0.0  0.0  0.0  0.0  0.0  0.2  0.3  0.0


1
EXIT
```

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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_11
                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= 1000. M              AMB=  0.0 PPM
       SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

        LINK       *  LINK COORDINATES (M)   *              EF     H     W
     DESCRIPTION   *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*------------------------*-----------------------------
--
  A. Link_1       * -1000    -2     0    -2 *  AG    383   8.0    0.0
10.0
  B. Link_2       *     0     0  1000     0 *  AG      0   8.0    0.0
10.0
  C. Link_3       *  1000     2     0     2 *  AG    764   8.0    0.0
10.0
  D. Link_4       *     0     2 -1000     2 *  AG    925   8.0    0.0
10.0
  E. Link_5       *    -5  1000    -5     0 *  AG   1773   8.0    0.0
17.0
  F. Link_6       *    -5     0    -5 -1000 *  AG   1890   8.0    0.0
17.0
  G. Link_7       *     5 -1000     5     0 *  AG   2168   8.0    0.0
17.0
  H. Link_8       *     5     0     5  1000 *  AG   2273   8.0    0.0
17.0


  III.  RECEPTOR LOCATIONS

              *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
 ------------*---------------------
  1. R_001    *    -14      7   1.8
  2. R_002    *     14      7   1.8
  3. R_003    *    -14     -7   1.8
  4. R_004    *     14     -5   1.8


1







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

             JOB: C:\Lakes\CALRoads View\Stanford Ranch_11
             RUN: CALINE4 RUN      (WORST CASE ANGLE)
       POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

                *       * PRED  *                 CONC/LINK
                *  BRG  * CONC  *                   (PPM)
   RECEPTOR     * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*---------------------------------------
  1. R_001    *  171. *   3.7 *  0.2  0.0  0.0  0.5  0.2  1.7  1.1  0.0
  2. R_002    *  189. *   3.6 *  0.0  0.0  0.4  0.0  0.0  1.0  2.0  0.3
  3. R_003    *    9. *   3.6 *  0.2  0.0  0.0  0.4  1.6  0.2  0.0  1.1
  4. R_004    *  351. *   3.6 *  0.0  0.0  0.4  0.0  0.9  0.0  0.2  2.1


1
EXIT
```

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

                 JOB: C:\Lakes\CALRoads View\Stanford Ranch_11
                 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= 1000. M              AMB=  0.0 PPM
      SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*------------------------*-----------------------------
--
  A. Link_1      * -1000    -2     0    -2 *  AG    380   4.0    0.0
10.0
  B. Link_2      *     0     0  1000     0 *  AG      0   4.0    0.0
10.0
  C. Link_3      *  1000     2     0     2 *  AG    825   4.0    0.0
10.0
  D. Link_4      *     0     2 -1000     2 *  AG    925   4.0    0.0
10.0
  E. Link_5      *    -5  1000    -5     0 *  AG   1905   4.0    0.0
17.0
  F. Link_6      *    -5     0    -5 -1000 *  AG   1935   4.0    0.0
17.0
  G. Link_7      *     5 -1000     5     0 *  AG   2295   4.0    0.0
17.0
  H. Link_8      *     5     0     5  1000 *  AG   2545   4.0    0.0
17.0


  III.  RECEPTOR LOCATIONS

              *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
 ------------*---------------------
  1. R_001    *    -14      7   1.8
  2. R_002    *     14      7   1.8
  3. R_003    *    -14     -7   1.8
  4. R_004    *     14     -5   1.8


1






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

                 JOB: C:\Lakes\CALRoads View\Stanford Ranch_11
                 RUN: CALINE4 RUN      (WORST CASE ANGLE)
           POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

              *       * PRED  *                CONC/LINK
              *  BRG  * CONC  *                  (PPM)
   RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*---------------------------------------
  1. R_001    *  171. *   1.9 *  0.1  0.0  0.0  0.3  0.1  0.9  0.6  0.0
  2. R_002    *  189. *   1.9 *  0.0  0.0  0.2  0.0  0.0  0.5  1.0  0.1
  3. R_003    *    9. *   1.9 *  0.1  0.0  0.0  0.2  0.9  0.1  0.0  0.6
  4. R_004    *  351. *   1.9 *  0.0  0.0  0.2  0.0  0.5  0.0  0.1  1.2


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EXIT
```

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

                   JOB: C:\Lakes\CALRoads View\Stanford Ranch_11
                   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= 1000. M              AMB=  0.0 PPM
      SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ---------------*-------------------------*----------------------------
--
  A. Link_1      * -1000    -2     0    -2 *  AG    385   1.8    0.0
10.0
  B. Link_2      *     0     0  1000     0 *  AG      0   1.8    0.0
10.0
  C. Link_3      *  1000     2     0     2 *  AG   1055   1.8    0.0
10.0
  D. Link_4      *     0     2 -1000     2 *  AG   1425   1.8    0.0
10.0
  E. Link_5      *    -5  1000    -5     0 *  AG   1915   1.8    0.0
17.0
  F. Link_6      *    -5     0    -5 -1000 *  AG   1915   1.8    0.0
17.0
  G. Link_7      *     5 -1000     5     0 *  AG   2250   1.8    0.0
17.0
  H. Link_8      *     5     0     5  1000 *  AG   2265   1.8    0.0
17.0


  III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
  ------------*---------------------
  1. R_001    *    -14      7   1.8
  2. R_002    *     14      7   1.8
  3. R_003    *    -14     -7   1.8
  4. R_004    *     14     -5   1.8


1






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

              JOB: C:\Lakes\CALRoads View\Stanford Ranch_11
              RUN: CALINE4 RUN      (WORST CASE ANGLE)
        POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

             *       * PRED  *                 CONC/LINK
             *  BRG  * CONC  *                   (PPM)
   RECEPTOR  * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 ------------*-------*-------*----------------------------------------
  1. R_001   *  171. *   0.9 *  0.0  0.0  0.0  0.2  0.0  0.4  0.3  0.0
  2. R_002   *  189. *   0.9 *  0.0  0.0  0.1  0.0  0.0  0.2  0.5  0.1
  3. R_003   *    9. *   0.9 *  0.0  0.0  0.0  0.1  0.4  0.0  0.0  0.3
  4. R_004   *  351. *   0.9 *  0.0  0.0  0.1  0.0  0.2  0.0  0.0  0.5


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EXIT
```

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

                  JOB: C:\Lakes\CALRoads View\Stanford Ranch_12
                  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= 1000. M              AMB=  0.0 PPM
      SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

       LINK      *  LINK COORDINATES (M)   *              EF     H     W
    DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*------------------------*----------------------------
--
  A. Link_1       * -1000    -4     0    -4 *  AG    583   8.0    0.0
13.3
  B. Link_2       *     0    -4  1000    -4 *  AG    983   8.0    0.0
13.3
  C. Link_3       *  1000     2     0     2 *  AG    204   8.0    0.0
10.0
  D. Link_4       *     0     0 -1000     0 *  AG      0   8.0    0.0
10.0
  E. Link_5       *    -9  1000    -9     0 *  AG   1890   8.0    0.0
24.3
  F. Link_6       *    -7     0    -7 -1000 *  AG   1930   8.0    0.0
20.6
  G. Link_7       *     7 -1000     7     0 *  AG   2404   8.0    0.0
20.6
  H. Link_8       *     7     0     7  1000 *  AG   2168   8.0    0.0
20.6


  III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
  ------------*---------------------
  1. R_001    *    -21      5   1.8
  2. R_002    *     18      7   1.8
  3. R_003    *    -18    -10   1.8
  4. R_004    *     18    -10   1.8


1







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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_12
                RUN: CALINE4 RUN      (WORST CASE ANGLE)
          POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

              *       * PRED  *                CONC/LINK
              *  BRG  * CONC  *                  (PPM)
   RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*----------------------------------------
  1. R_001    *  170. *   2.7 *  0.3  0.0  0.0  0.0  0.1  1.4  1.0  0.0
  2. R_002    *  189. *   3.6 *  0.0  0.4  0.1  0.0  0.0  0.9  2.0  0.2
  3. R_003    *    8. *   3.1 *  0.3  0.0  0.0  0.0  1.6  0.2  0.0  0.9
  4. R_004    *  351. *   3.5 *  0.0  0.5  0.1  0.0  0.8  0.0  0.3  1.7


1
EXIT
```

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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_12
                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= 1000. M              AMB=  0.0 PPM
       SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

        LINK      *  LINK COORDINATES (M)   *              EF     H     W
     DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*-------------------------*-----------------------------
--
  A. Link_1       * -1000    -4     0    -4 *  AG    770   4.0    0.0
13.3
  B. Link_2       *     0    -4  1000    -4 *  AG   1055   4.0    0.0
13.3
  C. Link_3       *  1000     2     0     2 *  AG    225   4.0    0.0
10.0
  D. Link_4       *     0     0 -1000     0 *  AG      0   4.0    0.0
10.0
  E. Link_5       *    -9  1000    -9     0 *  AG   1935   4.0    0.0
24.3
  F. Link_6       *    -7     0    -7 -1000 *  AG   2115   4.0    0.0
20.6
  G. Link_7       *     7 -1000     7     0 *  AG   2535   4.0    0.0
20.6
  H. Link_8       *     7     0     7  1000 *  AG   2295   4.0    0.0
20.6


  III.  RECEPTOR LOCATIONS

              *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
  ------------*---------------------
  1. R_001    *    -21       5   1.8
  2. R_002    *     18       7   1.8
  3. R_003    *    -18     -10   1.8
  4. R_004    *     18     -10   1.8


1





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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_12
                RUN: CALINE4 RUN      (WORST CASE ANGLE)
          POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

              *       * PRED  *                CONC/LINK
              *  BRG  * CONC  *                  (PPM)
   RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*-----------------------------------------
  1. R_001    *  170. *   1.5 *  0.2  0.0  0.0  0.0  0.0  0.7  0.5  0.0
  2. R_002    *  189. *   1.9 *  0.0  0.2  0.1  0.0  0.0  0.5  1.0  0.1
  3. R_003    *    8. *   1.6 *  0.2  0.0  0.0  0.0  0.8  0.1  0.0  0.5
  4. R_004    *  351. *   1.8 *  0.0  0.3  0.0  0.0  0.4  0.0  0.2  0.9


1
EXIT
```

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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_12
                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= 1000. M              AMB=  0.0 PPM
       SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

        LINK      *  LINK COORDINATES (M)   *              EF     H     W
     DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*-------------------------*----------------------------
--
  A. Link_1       * -1000    -4     0    -4 *  AG   1290   1.8    0.0
13.3
  B. Link_2       *     0    -4  1000    -4 *  AG   1210   1.8    0.0
13.3
  C. Link_3       *  1000     2     0     2 *  AG    350   1.8    0.0
10.0
  D. Link_4       *     0     0 -1000     0 *  AG      0   1.8    0.0
10.0
  E. Link_5       *    -9  1000    -9     0 *  AG   1915   1.8    0.0
24.3
  F. Link_6       *    -7     0    -7 -1000 *  AG   2560   1.8    0.0
20.6
  G. Link_7       *     7 -1000     7     0 *  AG   2465   1.8    0.0
20.6
  H. Link_8       *     7     0     7  1000 *  AG   2250   1.8    0.0
20.6


  III.  RECEPTOR LOCATIONS

              *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
 ------------*---------------------
  1. R_001    *    -21      5   1.8
  2. R_002    *     18      7   1.8
  3. R_003    *    -18    -10   1.8
  4. R_004    *     18    -10   1.8


1
```

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

              JOB: C:\Lakes\CALRoads View\Stanford Ranch_12
              RUN: CALINE4 RUN      (WORST CASE ANGLE)
        POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

              *       * PRED  *                 CONC/LINK
              *  BRG  * CONC  *                   (PPM)
   RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*----------------------------------------
  1. R_001    *  169. *   0.8 *  0.1  0.0  0.0  0.0  0.0  0.4  0.2  0.0
  2. R_002    *  189. *   0.9 *  0.0  0.1  0.0  0.0  0.0  0.2  0.5  0.0
  3. R_003    *   82. *   0.8 *  0.1  0.2  0.1  0.0  0.0  0.3  0.1  0.0
  4. R_004    *  351. *   0.8 *  0.0  0.1  0.0  0.0  0.2  0.0  0.1  0.4


1
EXIT
```

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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_13
                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= 1000. M              AMB=  0.0 PPM
       SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

        LINK      *  LINK COORDINATES (M)   *              EF     H     W
     DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*-------------------------*----------------------------
--
  A. Link_1       * -1000    -9     0    -9 *  AG    554   8.0    0.0
24.3
  B. Link_2       *     0    -4  1000    -4 *  AG    454   8.0    0.0
13.3
  C. Link_3       *  1000     9     0     9 *  AG    617   8.0    0.0
24.3
  D. Link_4       *     0     4 -1000     4 *  AG    327   8.0    0.0
13.3
  E. Link_5       *   -11  1000   -11     0 *  AG   1469   8.0    0.0
27.9
  F. Link_6       *    -7     0    -7 -1000 *  AG   1491   8.0    0.0
20.6
  G. Link_7       *    11 -1000    11     0 *  AG   1840   8.0    0.0
27.9
  H. Link_8       *     7     0     7  1000 *  AG   2208   8.0    0.0
20.6


  III.  RECEPTOR LOCATIONS

              *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
  ------------*---------------------
  1. R_001    *    -25     10   1.8
  2. R_002    *     18     21   1.8
  3. R_003    *    -18    -21   1.8
  4. R_004    *     25    -10   1.8


1






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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_13
                RUN: CALINE4 RUN      (WORST CASE ANGLE)
          POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

              *       * PRED  *                CONC/LINK
              *  BRG  * CONC  *                  (PPM)
   RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*----------------------------------------
  1. R_001    *  169. *    2.1 *  0.2  0.0  0.0  0.2  0.1  0.9  0.7  0.0
  2. R_002    *  187. *    2.9 *  0.0  0.1  0.3  0.0  0.0  0.7  1.2  0.6
  3. R_003    *    8. *    2.7 *  0.2  0.0  0.0  0.1  1.0  0.4  0.0  1.0
  4. R_004    *  349. *    2.4 *  0.0  0.2  0.2  0.0  0.6  0.0  0.2  1.3


1
EXIT
```

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

                 JOB: C:\Lakes\CALRoads View\Stanford Ranch_13
                 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= 1000. M              AMB=  0.0 PPM
       SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

        LINK      *  LINK COORDINATES (M)   *              EF     H     W
     DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*-------------------------*----------------------------
--
  A. Link_1       * -1000    -9     0    -9 *  AG    340   4.0    0.0
24.3
  B. Link_2       *     0    -4  1000    -4 *  AG    470   4.0    0.0
13.3
  C. Link_3       *  1000     9     0     9 *  AG    640   4.0    0.0
24.3
  D. Link_4       *     0     4 -1000     4 *  AG    160   4.0    0.0
13.3
  E. Link_5       *   -11  1000   -11     0 *  AG   1545   4.0    0.0
27.9
  F. Link_6       *    -7     0    -7 -1000 *  AG   1655   4.0    0.0
20.6
  G. Link_7       *    11 -1000    11     0 *  AG   2020   4.0    0.0
27.9
  H. Link_8       *     7     0     7  1000 *  AG   2260   4.0    0.0
20.6


  III.  RECEPTOR LOCATIONS

            *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
  ------------*---------------------
  1. R_001    *    -25     10   1.8
  2. R_002    *     18     21   1.8
  3. R_003    *    -18    -21   1.8
  4. R_004    *     25    -10   1.8


1






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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_13
                RUN: CALINE4 RUN      (WORST CASE ANGLE)
          POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

              *       * PRED  *                CONC/LINK
              *  BRG  * CONC  *                  (PPM)
   RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*-----------------------------------------
  1. R_001    *  169. *   1.0 *  0.1  0.0  0.0  0.0  0.1  0.5  0.4  0.0
  2. R_002    *  187. *   1.5 *  0.0  0.1  0.1  0.0  0.0  0.4  0.7  0.3
  3. R_003    *    8. *   1.3 *  0.1  0.0  0.0  0.0  0.5  0.2  0.0  0.5
  4. R_004    *  349. *   1.2 *  0.0  0.1  0.1  0.0  0.3  0.0  0.1  0.6


1
EXIT
```

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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_13
                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= 1000. M              AMB=  0.0 PPM
       SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

        LINK      *  LINK COORDINATES (M)   *              EF     H     W
     DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*-------------------------*-----------------------------
--
  A. Link_1       * -1000    -9     0    -9 *  AG    455   1.8    0.0
24.3
  B. Link_2       *     0    -4  1000    -4 *  AG    520   1.8    0.0
13.3
  C. Link_3       *  1000     9     0     9 *  AG    665   1.8    0.0
24.3
  D. Link_4       *     0     4 -1000     4 *  AG    320   1.8    0.0
13.3
  E. Link_5       *   -11  1000   -11     0 *  AG   1855   1.8    0.0
27.9
  F. Link_6       *    -7     0    -7 -1000 *  AG   1680   1.8    0.0
20.6
  G. Link_7       *    11 -1000    11     0 *  AG   1560   1.8    0.0
27.9
  H. Link_8       *     7     0     7  1000 *  AG   2015   1.8    0.0
20.6


  III.  RECEPTOR LOCATIONS

              *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
  ------------*---------------------
  1. R_001    *    -25     10   1.8
  2. R_002    *     18     21   1.8
  3. R_003    *    -18    -21   1.8
  4. R_004    *     25    -10   1.8


1






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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch_13
                RUN: CALINE4 RUN      (WORST CASE ANGLE)
          POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

              *       * PRED  *                 CONC/LINK
              *  BRG  * CONC  *                   (PPM)
   RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*----------------------------------------
  1. R_001    *   10. *   0.5 *  0.0  0.0  0.0  0.0  0.3  0.0  0.0  0.2
  2. R_002    *  188. *   0.6 *  0.0  0.0  0.1  0.0  0.0  0.2  0.2  0.1
  3. R_003    *    7. *   0.6 *  0.0  0.0  0.0  0.0  0.3  0.1  0.0  0.2
  4. R_004    *  349. *   0.6 *  0.0  0.1  0.0  0.0  0.2  0.0  0.0  0.3


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EXIT
```

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

                 JOB: C:\Lakes\CALRoads View\Stanford Ranch 14
                 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= 1000. M              AMB=  0.0 PPM
       SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

        LINK      *  LINK COORDINATES (M)   *              EF     H     W
     DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*-------------------------*----------------------------
--
  A. Link_1       * -1000   -11     0   -11 *  AG   1958   8.0    0.0
27.9
  B. Link_2       *     0    -7  1000    -7 *  AG   1668   8.0    0.0
20.6
  C. Link_3       *  1000    11     0    11 *  AG   2147   8.0    0.0
27.9
  D. Link_4       *     0     7 -1000     7 *  AG   2041   8.0    0.0
20.6
  E. Link_5       *   -11  1000   -11     0 *  AG   1536   8.0    0.0
27.9
  F. Link_6       *    -7     0    -7 -1000 *  AG   1337   8.0    0.0
20.6
  G. Link_7       *    11 -1000    11     0 *  AG   1208   8.0    0.0
27.9
  H. Link_8       *     7     0     7  1000 *  AG   1803   8.0    0.0
20.6


  III.  RECEPTOR LOCATIONS

              *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
  ------------*---------------------
  1. R_001    *    -25     18   1.8
  2. R_002    *     18     25   1.8
  3. R_003    *    -18    -25   1.8
  4. R_004    *     25    -18   1.8


1






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

                    JOB: C:\Lakes\CALRoads View\Stanford Ranch 14
                    RUN: CALINE4 RUN      (WORST CASE ANGLE)
              POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

              *       * PRED  *                 CONC/LINK
              *  BRG  * CONC  *                   (PPM)
   RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*----------------------------------------
  1. R_001    *   97. *   3.7 *  0.0  0.7  1.3  0.6  0.6  0.0  0.0  0.4
  2. R_002    *  259. *   3.4 *  0.7  0.0  0.3  1.2  0.4  0.0  0.0  0.8
  3. R_003    *    8. *   3.4 *  0.8  0.0  0.0  0.4  1.0  0.4  0.0  0.8
  4. R_004    *  277. *   3.4 *  1.2  0.5  0.0  0.9  0.0  0.3  0.5  0.0


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EXIT
```

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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch 14
                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= 1000. M              AMB=  0.0 PPM
       SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

        LINK      *  LINK COORDINATES (M)   *              EF     H     W
     DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*-------------------------*-----------------------------
--
  A. Link_1       * -1000   -11     0   -11 *  AG   2255   4.0    0.0
27.9
  B. Link_2       *     0    -7  1000    -7 *  AG   1760   4.0    0.0
20.6
  C. Link_3       *  1000    11     0    11 *  AG   2255   4.0    0.0
27.9
  D. Link_4       *     0     7 -1000     7 *  AG   2330   4.0    0.0
20.6
  E. Link_5       *   -11  1000   -11     0 *  AG   1725   4.0    0.0
27.9
  F. Link_6       *    -7     0    -7 -1000 *  AG   1555   4.0    0.0
20.6
  G. Link_7       *    11 -1000    11     0 *  AG   1415   4.0    0.0
27.9
  H. Link_8       *     7     0     7  1000 *  AG   2005   4.0    0.0
20.6


  III.  RECEPTOR LOCATIONS

              *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
  ------------*---------------------
  1. R_001    *    -25     18   1.8
  2. R_002    *     18     25   1.8
  3. R_003    *    -18    -25   1.8
  4. R_004    *     25    -18   1.8


1






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

                JOB: C:\Lakes\CALRoads View\Stanford Ranch 14
                RUN: CALINE4 RUN      (WORST CASE ANGLE)
          POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

              *       * PRED  *                 CONC/LINK
              *  BRG  * CONC  *                   (PPM)
   RECEPTOR   * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*----------------------------------------
  1. R_001    *   97. *   2.0 *  0.0  0.4  0.7  0.3  0.3  0.0  0.0  0.2
  2. R_002    *  259. *   1.9 *  0.4  0.0  0.2  0.6  0.2  0.0  0.0  0.4
  3. R_003    *    8. *   1.9 *  0.4  0.0  0.0  0.2  0.5  0.2  0.0  0.4
  4. R_004    *  277. *   1.9 *  0.7  0.3  0.0  0.5  0.0  0.2  0.3  0.0


1
EXIT
```

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

                  JOB: C:\Lakes\CALRoads View\Stanford Ranch 14
                  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= 1000. M              AMB=  0.0 PPM
       SIGTH=   15. DEGREES       TEMP=  6.8 DEGREE (C)


   II.  LINK VARIABLES

        LINK       *  LINK COORDINATES (M)   *               EF     H     W
     DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)
(M)
  ----------------*------------------------*----------------------------
--
  A. Link_1       * -1000   -11     0   -11 *  AG   2790   1.8    0.0
27.9
  B. Link_2       *     0    -7  1000    -7 *  AG   2055   1.8    0.0
20.6
  C. Link_3       *  1000    11     0    11 *  AG   2090   1.8    0.0
27.9
  D. Link_4       *     0     7 -1000     7 *  AG   2580   1.8    0.0
20.6
  E. Link_5       *   -11  1000   -11     0 *  AG   1855   1.8    0.0
27.9
  F. Link_6       *    -7     0    -7 -1000 *  AG   1905   1.8    0.0
20.6
  G. Link_7       *    11 -1000    11     0 *  AG   1295   1.8    0.0
27.9
  H. Link_8       *     7     0     7  1000 *  AG   1490   1.8    0.0
20.6


  III.  RECEPTOR LOCATIONS

             *    COORDINATES (M)
    RECEPTOR  *    X      Y      Z
```

```
  ------------*---------------------
  1. R_001    *    -25     18   1.8
  2. R_002    *     18     25   1.8
  3. R_003    *    -18    -25   1.8
  4. R_004    *     25    -18   1.8


1






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

              JOB: C:\Lakes\CALRoads View\Stanford Ranch 14
              RUN: CALINE4 RUN      (WORST CASE ANGLE)
        POLLUTANT: Carbon Monoxide


   IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

                *       * PRED  *                CONC/LINK
                *  BRG  * CONC  *                  (PPM)
   RECEPTOR     * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -------------*-------*-------*----------------------------------------
  1. R_001    *   98. *   0.9 *  0.0  0.2  0.3  0.2  0.2  0.0  0.0  0.1
  2. R_002    *  259. *   0.9 *  0.2  0.0  0.1  0.3  0.1  0.0  0.0  0.1
  3. R_003    *    7. *   0.9 *  0.2  0.0  0.0  0.1  0.3  0.1  0.0  0.1
  4. R_004    *  277. *   1.0 *  0.4  0.1  0.0  0.2  0.0  0.1  0.1  0.0


1
EXIT
```

Appendix B Interagency Consultation

MTIP ID# *(required):* SACOG ID PLA25529

Project Description *(clearly describe project):*
Caltrans, in cooperation with the Placer County Transportation Planning Agency (PCTPA), Placer County, and the Cities of Roseville, Rocklin, and Lincoln, proposes the State Route (SR) 65 Capacity and Operational Improvements Project (from post miles 6.2 to 12.8). This project has been assigned the Project Development Processing Category 4A for widening the existing freeway without requiring a revised freeway agreement. The project would add operational and capacity improvements for the SR 65 corridor with the following improvements:

- Construct carpool lanes or general purpose lanes and auxiliary lanes on SR 65 from north of Galleria Boulevard/Stanford Ranch Road to Blue Oaks Boulevard
- Construct auxiliary lanes from Blue Oaks Boulevard to Lincoln Boulevard

The No Build Alternative and two Build Alternatives (widen to provide carpool or general purpose lanes) are currently being considered.

Type of Project:

Change to existing state highway

County:
Placer

Narrative Location/Route & Post Miles: SR 65 from north of Galleria Boulevard/Stanford Ranch Road in Roseville to Lincoln Boulevard in Lincoln (R6.2 to R12.8)
Caltrans Projects – EA#: 03-1F1700

Lead Agency: Caltrans

Contact Person:
Luke McNeel-Caird (PCTPA, Project Sponsor)

Email:
lmcneel-caird@pctpa.net

Phone#: 530-823-4033

Fax#: 530-823-4033

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

Is this a 6004 or 6005 Federal process? *(check one)*
6004 ☒ **6005** ☐

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*
Categorical Exclusion (NEPA) ☒ **EA or Draft EIS** ☐ **FONSI or Final EIS** ☐

Scheduled Date of Federal Action: August 2016

Current Programming Dates *(as appropriate)*

	PE/Environmental	ENG	ROW	CON
Start	2014	2017	2018	2018
End	2016	2018	2018	2020

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

Purpose

The primary purpose of the proposed project is to relieve existing mainline congestion by adding to mainline capacity. Adding capacity would help accommodate planned and anticipated growth along the corridor and takes the regional mobility and economic development goals of the PCTPA into consideration. The project is expected to improve traffic operations and safety in this segment of the highway.

Need

Recurring morning and evening peak-period demand exceeds the current design capacity along SR 65, creating traffic operations and safety issues. These issues result in high delays and wasted fuel, all of which will be exacerbated by anticipated increases in traffic from future population and employment growth.

Projected growth along the SR 65 corridor in Roseville, Lincoln, Rocklin, and south Placer County will result in additional mainline congestion. SR 65 connects major regional routes and must operate efficiently in order to serve commuter traffic, goods movement, and regional traffic in south Placer County.

Surrounding Land Use/Traffic Generators *(Describe effect of traffic generators or diesel traffic. Also, provide a map, preferably aerial photo, including locations of nearby (within 500 ft.) sensitive receptors, such as daycare facilities and schools)*:

The area immediately adjacent the project contains several traffic generators, such as retail and wholesale stores to the north and east and the Westfield Galleria shopping center to the south and west, which contribute to the traffic along SR 65 corridor in the project area. Sensitive receptors within 1,000 feet of the project area that could be affected by the proposed action include the following (see Attachment A for project map):

Single Family Residences

Residences are located in multiple areas surrounding the SR 65 Capacity and Operational Improvements project:

- Single-family residences within 250 feet of the project site on the north end of the project alignment across Lincoln Boulevard/Old Highway 65. These single-family residences are the predominant receptors within the north end of the project alignment.
- Single- and multi-family residences located within 450 feet of the project alignment on the south end of the project alignment. On the south end of the project, alignment, residences are located along Fairway Drive, Gibson Drive, and Pleasant Grove Boulevard.

Educational

- Western Sierra Collegiate Academy approximately 250 feet east of SR 65 on Menlo Drive.
- University of Phoenix Roseville approximately 150 feet southwest of SR 65 on Gibson Drive.

Medical

- Kaiser Lincoln, which is located approximately 800 feet east of SR 65 on Dresden Drive.

Opening Year: **Build and No-Build LOS – AM 2-Hr, % and # trucks, truck AM 2-Hr of proposed facility**
(if No Change between Build and N-Build, explain and document why.)

Table 1 summarizes LOS and average delay in seconds per vehicle at key study intersections analyzed in the Transportation Analysis Report prepared by the project traffic engineers, Fehr & Peers (2015) for the Build and No Build Alternatives under construction year (2020) conditions. LOS and average delay values in Table 1 were developed by Fehr & Peers (2015) based on the SACMET regional travel demand model.

Table 1. Intersection Operations Results – Construction Year (2020) Conditions

Intersection	Carpool Lane Alternative		General Purpose Lane Alternative		No Build Alternative	
	AM	PM	AM	PM	AM	PM
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	C / 31	**D / 47**	C / 35	D / 44	**D / 52**	**F / 126**
10. Stanford Ranch Rd / Five Star Blvd	C / 27	**F / 92**	C / 27	**E / 76**	C / 29	**D / 48**
11. Stanford Ranch Rd / SR 65 NB Ramps	B / 15	C / 23	B / 20	C / 25	B / 18	B / 12
12. Galleria Blvd / SR 65 SB Ramps	B / 17	B / 16	B / 17	B / 17	B / 17	B / 16
16. Roseville Pkwy / Taylor Rd	**D / 49**	**D / 51**	**D / 46**	**D / 53**	**F / 133**	**D / 42**
18. Atlantic St / Wills Rd	C / 24	**D / 39**	C / 24	**D / 36**	B / 19	C / 22
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 25	**D / 52**	C / 25	**E / 72**	C / 22	**D / 41**
21. Eureka Rd / Sunrise Ave	C / 32	**D / 44**	C / 33	**D / 44**	C / 26	**E / 62**
23. Douglas Blvd / Harding Blvd	**D / 51**	**E / 77**	C / 30	**F / 128**	**D / 36**	**F / 92**
24. Douglas Blvd / I-80 WB Ramps	C / 23	C / 35	C / 24	C / 31	B / 20	C / 31
25. Douglas Blvd / I-80 EB Ramps	B / 20	**D / 41**	A / 10	**D / 35**	B / 12	C / 29
26. Douglas Blvd / Sunrise Ave	C / 33	**D / 54**	C / 33	**F / 86**	C / 28	**D / 39**
28. Pacific St / Sunset Blvd	C / 24	C / 30	C / 24	C / 29	C / 27	**F / 86**
29. Rocklin Rd / Granite Dr	B / 17	**F / 130**	B / 18	**F / 130**	B / 19	**F / 127**
30. Rocklin Rd / I-80 WB Ramps	C / 23	C / 27	C / 29	C / 25	C / 21	**D / 38**
31. Rocklin Rd / I-80 EB Ramps	**D / 42**	**E / 57**	**D / 49**	**D / 46**	**D / 37**	C / 33

Note: **Bold** font indicates intersections at LOS D, E, or F. Underlined font indicate an increase in delay from the no build to build alternatives. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2015

MTP Horizon Year/Design Year: **Build and No-Build LOS, AADT, AM 2-Hr, Truck AADT, and % and # trucks for AM 2-Hr of proposed facility**

Table 2 summarizes LOS and average delay in seconds per vehicle at key study intersections analyzed in the Transportation Analysis Report by Fehr & Peers (2015) for the Build and No Build Alternatives under design year (2040) conditions. The year 2040 was selected as the design year to provide a 20-year design life based on Caltrans guidelines and represent the maximum worst-case traffic conditions with regards to levels of service (LOS) and average delay due to anticipated regional growth. LOS and average delay values in Table 2 were developed by Fehr & Peers (2015) based on the SACMET regional travel demand model.

Table 2. Intersection Operations Results – Design Year (2040) Conditions

Intersection	Carpool Lane Alternative		General Purpose Lane Alternative		No Build Alternative	
	AM	PM	AM	PM	AM	PM
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	**E / 57**	**F / 140**	**E / 59**	**F / 153**	**F / 90**	**F / 214**
7. Blue Oaks Blvd / SR 65 NB Ramps	B / 17	**D / 45**	B / 16	**D / 49**	B / 17	**F / 94**
10. Stanford Ranch Rd / Five Star Blvd	C / 27	**F / 82**	C / 26	**E / 57**	C / 26	**F / 85**
11. Stanford Ranch Rd / SR 65 NB Ramps	B / 11	**D / 36**	B / 12	B / 19	B / 19	C / 21
12. Galleria Blvd / SR 65 SB Ramps	B / 19	C / 25	B / 17	B / 19	**D / 55**	C / 27
13. Galleria Blvd / Antelope Creek Dr	A / 10	C / 28	A / 10	C / 29	A / 8	C / 28
14. Galleria Blvd / Roseville Pkwy	**D / 47**	**F / 93**	**D / 45**	**F / 82**	**D / 41**	**F / 93**
15. Roseville Pkwy / Creekside Ridge Dr	A / 8	**D / 50**	A / 8	**D / 47**	A / 8	**D / 50**
16. Roseville Pkwy / Taylor Rd	**E / 70**	**D / 52**	**E / 66**	**D / 52**	**E / 60**	**E / 55**
17. Roseville Pkwy / Sunrise Ave	C / 33	**E / 70**	C / 35	**E / 57**	C / 33	**F / 89**
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 30	**E / 75**	C / 30	**F / 81**	C / 30	**F / 99**
21. Eureka Rd / Sunrise Ave	**D / 41**	**F / 94**	D / 41	**F / 103**	**D / 41**	**F / 104**
23. Douglas Blvd / Harding Blvd	C / 26	**F / 91**	C / 28	**F / 96**	C / 26	**E / 69**
24. Douglas Blvd / I-80 WB Ramps	C / 21	C / 28	B / 19	C / 33	C / 22	C / 20
25. Douglas Blvd / I-80 EB Ramps	C / 28	**D / 37**	C / 24	**D / 37**	C / 29	**D / 39**
26. Douglas Blvd / Sunrise Ave	**D / 54**	**F / 254**	**D / 44**	**F / 241**	**D / 43**	**F / 239**
29. Rocklin Rd / Granite Dr	C / 29	**F / 95**	C / 28	**F / 84**	C / 26	**F / 101**
30. Rocklin Rd / I-80 WB Ramps	C / 23	**E / 68**	C / 24	**E / 63**	C / 22	**D / 54**
31. Rocklin Rd / I-80 EB Ramps	C / 30	C / 21	C / 26	B / 20	**D / 41**	C / 21

Note: **Bold** font indicates intersections at LOS D, E, or F. Underlined font indicate an increase in delay from the no build to build alternatives. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2015

Only if Facility is an Interchange or Intersection: Existing Year, Opening Year, and MTP Horizon Year/Design Year *(Build and No Build cross-street AADT, % and # trucks, truck AADT)*:

Table 3 summarizes AADT and truck volumes on SR 65 for the Build and No Build Alternatives under existing year (2009[1]), opening year (2020), and design year (2040) conditions. The year 2040 was selected as the design year to provide a 20-year design life based on Caltrans guidelines and represent the maximum worst-case traffic conditions with regards to volumes (AADT) due to anticipated regional growth. AADT volumes in Table 3 were developed by Fehr & Peers (2015) based on the SACMET regional travel demand model. As indicated in Table 3, truck percentages under build alternatives would decrease by up to 0.5% relative to the No Build Alternative at affected segments.

---

[1] The existing conditions total volume data is from 2009 as reported in the PeMS database. The existing truck volumes are estimated from the base year SACMET model.

Table 3. AADT Volumes and Truck Percentages

Segment	Existing Year (2009[1]) Conditions			Design Year (2040) Conditions										
				General Purpose Lane Alternative				Carpool Lane Alternative				No Build Alternative		
	AADT	Truck AADT	% Truck	AADT	Truck AADT	% Truck	Δ % Truck from No Build Alternative	AADT	Truck AADT	% Truck	Δ % Truck from No Build Alternative	AADT	Truck AADT	% Truck
Stanford Ranch Rd/ Galleria Blvd to Pleasant Grove Blvd	104,400	3,500	3.4%	169,200	6,600	3.9%	-0.2%	170,900	6,700	3.9%	-0.2%	152,400	6,300	4.1%
Pleasant Grove Blvd to Blue Oaks Blvd	83,400	3,100	3.7%	159,800	6,300	3.9%	-0.4%	162,300	6,400	3.9%	-0.4%	140,800	6,000	4.3%
Blue Oaks Blvd to Sunset Blvd	65,300	2,400	3.7%	134,600	4,900	3.6%	-0.5%	135,700	4,900	3.6%	-0.5%	112,100	4,600	4.1%
Whitney Ranch Pkwy/Placer Pkwy to Twelve Bridges Dr	54,000	1,900	3.5%	126,500	3,500	2.8%	-0.2%	127,000	3,500	2.8%	-0.2%	112,700	3,400	3.0%

Notes:

[1] The existing conditions total volume data is from 2009 as reported in the PeMS database. The existing truck volumes are estimated from the base year SACMET model.

[2] The existing condition total volume data from Twelve Bridges Dr to Lincoln Blvd is estimated based on 2009 PeMS data at Sunset Blvd and the base year SACMET model.

Source: Fehr & Peers 2015

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

Local Effects:

Construction Year (2020)

Under construction year (2020) conditions, Table 1 indicates that over half of all key intersections analyzed would experience increases in delay.

Design Year (2040)

Under design year (2040) conditions, Table 2 indicates that less than half of all key intersections analyzed would experience increases in delay.

Regional Effects:

Construction Year (2020)

Tables A and B in Attachment B present overall construction year (2020) network performance associated with the project. Table A indicates both Build Alternatives would result in improvements in performance of the network in the AM peak period, with improvements in all measures of effectiveness (MOE), even as total vehicle miles of travel increases. This indicates project-related improvements associated with the Build Alternatives would serve to relieve regional congestion and accommodate more traffic volumes more efficiently.

Table B indicates the General Purpose Lane Alternative would result in improvements in performance of the network in the PM peak period, with improvements in all MOE, while the Carpool Lane Alternative would see decreases in all MOE during this period.

These improvements in regional traffic operations indicate the Build Alternatives would lead to a better operating roadway network by accommodating increased traffic volumes more efficiently by reducing congestion and delay on the local regional network.

Design Year (2040)

Tables C and D in Attachment B present overall design year (2020) network performance associated with the project (Fehr & Peers 2015).

Tables C and D indicate both Build Alternatives would result in substantial improvements in performance of the network in the AM and PM peak periods, with improvements in all measures of effectiveness (MOE), even as total vehicle miles of travel increases. This indicates project-related improvements associated with the Build Alternatives would serve to relieve regional congestion and accommodate more traffic volumes more efficiently.

These improvements in regional traffic operations indicate the Build Alternatives would lead to better operating roadway network by accommodating increased traffic volumes more efficiently and reducing congestion and delay on the local roadway network.

Comments/Explanations/Details *(attach additional sheets as necessary):*

EPA's 2006 final transportation conformity rule (40 CFR 51.390 and Part 93) that addresses local air quality impacts in PM10 and PM2.5 nonattainment and maintenance areas specified in 40 CFR93.123(b)(1) that only "projects of air quality concern" are required to undergo a PM2.5 or PM10 hotspot analysis. EPA defines projects of air quality concern as certain highway and transit projects that involve significant levels of diesel vehicle traffic, or any other project that is identified by the PM10/PM2.5 SIP as a localized concern. A list of projects of air quality concern, as defined by 40 CFR93.123(b)(1), is provided below.

1. New highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles.
2. Projects affecting intersections that are at level –of –service (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.
3. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.
4. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.
5. Projects in or affecting locations, areas, or categories of sites that are identified in the $PM_{2.5}$- or PM_{10}-applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

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 EPA's Transportation Conformity Guidance.

1. **New highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in diesel vehicles.** Appendix B from the EPA's *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas* provides guidance on what types of projects may be projects of local air quality concern 40 CFR 93.123(b)(1). Appendix B indicates that a facility with an ADT of 125,000 and 8% trucks (10,000 truck ADT) are likely considered a Project of Air Quality Concern (POAQC). The proposed project would add carpool lanes or general purpose lanes and auxiliary lanes on SR 65 from north of Galleria Boulevard/Stanford Ranch Road to Blue Oaks Boulevard, and would add auxiliary lanes from Blue Oaks Boulevard to Lincoln Boulevard to relieve existing mainline congestion and accommodate planned and anticipated growth along the corridor by adding to mainline capacity. For existing freeway facilities, the effect of a project on truck volumes is normally the main point on which this criterion is judged. The Carpool Lane Alternative under the design year (2040) condition was selected for the analysis, as traffic volumes are forecasted to be highest for the Carpool Lane Alternative when compared to the General Purpose Lane Alternative, while the design year (2040) condition represents the year with maximum AADT (Fehr & Peers 2015).

Table 3 indicates that AADT on the evaluated road segments on SR 65 for the Carpool Lane Alternative under design year (2040) conditions will vary between 127,000 and 170,900, depending on the location. Heavy-duty trucks comprise between 2.8% and 3.9% of this AADT, resulting in a truck AADT of 3,500 to 6,700 (Fehr & Peers 2015).

Based on the data presented in Table 3, predicted AADT would be in excess of the EPA's AADT guidance criterion of 125,000, while predicted truck percentages and volumes would be well below the EPA's guidance criteria of 8% or 10,000 vehicles per day (maximum truck percentages and truck AADT are 3.9% and 6,700, respectively). Table 3 also indicates truck percentages for all segments analyzed under the Carpool Lane Alternative would decrease relative to the No Build Alternative between 0.2 and 0.5%. Accordingly, the Build Alternative would not serve a significant number of diesel vehicles or result in a significant increase in diesel vehicles.

2. **Projects affecting intersections that are at Level-of-Service D, E, or F with a significant number of diesel vehicles, or those that will change to Level-of-Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.** As indicated above, half of all key intersections analyzed would experience increases in delay under construction year (2020) conditions, while less than half of all key intersections analyzed would experience increases in delay. However, as indicated in Tables A through D in Attachment B, the Build Alternatives would result in reduced congestion and delay on the local regional network, with substantial improvements in measures of effectiveness seen under some conditions. For example, between 11 and 22% reductions in vehicle hours of delay are seen in the PM peak period in the design year. In addition, none of the study intersections have a significant number of trucks (3% during the AM peak hour and 2% during the PM peak hour under Year 2040 conditions), therefore, the proposed project would not affect any at-grade intersections with a high number of diesel vehicles.

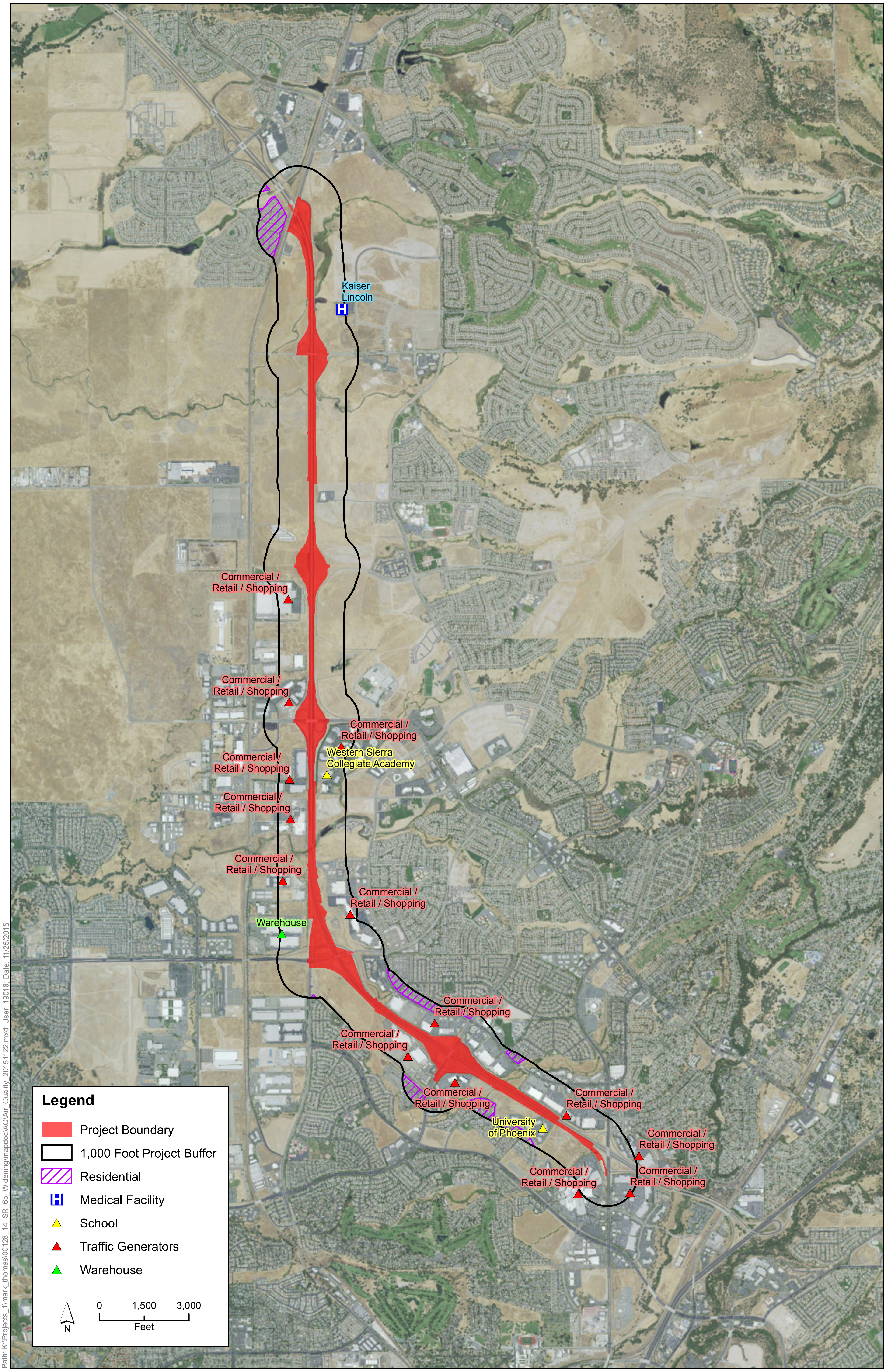
3. **New bus and rail terminals and transfer points than have a significant number of diesel vehicles congregating at a single location.** The project does not include new bus or rail terminals and transfer points.

4. **Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.** The project does not include expanded bus or rail terminals and transfer points.

5. **Projects in or affecting locations, areas, or categories of sites which are identified in the PM10 or PM2.5 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.** The SMAQMD's PM2.5 State Implementation Plan, *PM2.5 Implementation/Maintenance Plan and Redesignation Request for Sacramento PM2.5 Nonattainment Area*, has not identified any locations, areas, or categories of sites as a site of violation or possible violation.

Source Cited

Fehr & Peers. 2015. State Route 65 Capacity and Operational Improvements Transportation Analysis Report. September 2015.



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Attachment A
Air Quality Sensitive Receptors

Attachment B. Overall Network Performance Data

Table A. Comparison of Overall Network Performance – Construction (2020) Year AM Peak Period

Performance Measure		Existing Conditions	Carpool Lane Alternative	% Change from No Build	General Purpose Lane Alternative	% Change from No Build	No Build Alternative
Volume Served		143,450	167,490	-0.7%	167,510	-0.7%	168,620
(% of total demand)		100%	99%	0.0%	99%	0.0%	99%
Vehicle Miles of Travel (VMT)		645,270	799,520	1.4%	797,360	1.1%	788,490
Person Miles of Travel		786,260	982,670	1.7%	979,180	1.4%	965,810
Vehicle Hours of Travel (VHT)		13,760	18,060	-1.1%	18,000	-1.5%	18,270
Vehicle Hours of Delay (VHD)		2,670	4,350	-8.0%	4,330	-8.5%	4,730
(% of VHT)		19%	24%	-7.7%	24%	-7.7%	26%
Average Delay per Vehicle (min)		1.12	1.56	-7.1%	1.55	-7.7%	1.68
Person Hours of Delay		3,240	5,160	-7.9%	5,140	-8.2%	5,600
Average Speed		46.9	44.3	2.5%	44.3	2.5%	43.2
Average Speed for HOVs		47.0	46.7	2.2%	46.6	2.0%	45.7
Travel Time: Ferrari Ranch Rd to I-80	SOV	-	8:09	-7.2%	8:09	-7.2%	8:47
	HOV	-	8:04	-8.0%	8:08	-7.2%	8:46
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:44	8:51	-4.5%	8:50	-4.7%	9:16
	HOV	9:27	8:33	-3.9%	8:33	-3.9%	8:54

Source: Fehr & Peers 2015

Table B. Comparison of Overall Network Performance – Construction (2020) Year PM Peak Period

Performance Measure		Existing Conditions	Carpool Lane Alternative	% Change from No Build	General Purpose Lane Alternative	% Change from No Build	No Build Alternative
Volume Served		198,170	231,400	-1.1%	232,110	-0.8%	233,870
(% of total demand)		101%	99%	0.0%	99%	0.0%	99%
Vehicle Miles of Travel (VMT)		730,100	924,670	1.7%	930,140	2.3%	909,560
Person Miles of Travel		880,180	1,146,120	2.0%	1,150,200	2.4%	1,123,280
Vehicle Hours of Travel (VHT)		16,850	27,210	5.2%	25,890	0.1%	25,870
Vehicle Hours of Delay (VHD)		3,950	10,940	11.2%	9,520	-3.3%	9,840
(% of VHT)		23%	40%	5.3%	37%	-2.6%	38%
Average Delay per Vehicle (min)		1.20	2.84	12.7%	2.46	-2.4%	2.52
Person Hours of Delay		4,670	12,770	10.9%	11,220	-2.6%	11,520
Average Speed		43.3	34.0	-3.4%	35.9	2.0%	35.2
Average Speed for HOVs		44.7	39.1	-1.0%	39.8	0.8%	39.5
Travel Time: Ferrari Ranch Rd to I-80	SOV	-	7:56	0.0%	7:59	0.6%	7:56
	HOV	-	7:56	0.2%	7:59	0.8%	7:55
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:16	20:03	15.3%	14:05	-19.0%	17:23
	HOV	9:11	9:23	-2.6%	9:09	-5.0%	9:38

Source: Fehr & Peers 2015

Table C. Comparison of Overall Network Performance – Design (2040) Year AM Peak Period

Performance Measure		Existing Conditions	Carpool Lane Alternative	% Change from No Build	General Purpose Lane Alternative	% Change from No Build	No Build Alternative
Volume Served		143,450	208,160	-0.3%	207,470	-0.6%	208,800
(% of total demand)		100%	99%	0.0%	99%	0.0%	99%
Vehicle Miles of Travel (VMT)		645,270	940,220	2.5%	950,660	3.6%	917,290
Person Miles of Travel		786,260	1,113,340	1.7%	1,133,470	3.5%	1,094,920
Vehicle Hours of Travel (VHT)		13,760	21,710	-1.9%	21,960	-0.8%	22,140
Vehicle Hours of Delay (VHD)		2,670	5,540	-12.5%	5,620	-11.2%	6,330
(% of VHT)		19%	26%	-10.3%	26%	-10.3%	29%
Average Delay per Vehicle (min)		1.12	1.60	-12.1%	1.63	-10.4%	1.82
Person Hours of Delay		3,240	6,320	-13.7%	6,490	-11.3%	7,320
Average Speed		46.9	43.3	4.6%	43.3	4.6%	41.4
Average Speed for HOVs		47.0	46.4	5.0%	45.9	3.8%	44.2
Travel Time: Ferrari Ranch Rd to I-80	SOV	-	7:49	-30.1%	7:53	-29.5%	11:11
	HOV	-	7:43	-30.1%	7:50	-29.0%	11:02
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:44	8:35	-11.4%	8:37	-11.0%	9:41
	HOV	9:27	8:23	-12.8%	8:29	-11.8%	9:37

Source: Fehr & Peers 2015

Table D. Comparison of Overall Network Performance – Design (2040) Year PM Peak Period

Performance Measure		Existing Conditions	Carpool Lane Alternative	% Change from No Build	General Purpose Lane Alternative	% Change from No Build	No Build Alternative
Volume Served		198,170	300,780	-0.6%	300,820	-0.6%	302,580
(% of total demand)		101%	100%	1.0%	100%	1.0%	99%
Vehicle Miles of Travel (VMT)		730,100	1,160,700	4.9%	1,166,400	5.4%	1,106,390
Person Miles of Travel		880,180	1,402,510	5.6%	1,402,330	5.6%	1,328,540
Vehicle Hours of Travel (VHT)		16,850	30,890	-6.2%	30,920	-6.1%	32,920
Vehicle Hours of Delay (VHD)		3,950	10,470	-21.7%	10,430	-22.0%	13,380
(% of VHT)		23%	34%	-17.1%	34%	-17.1%	41%
Average Delay per Vehicle (min)		1.20	2.09	-21.1%	2.08	-21.5%	2.65
Person Hours of Delay		4,670	12,230	-20.8%	12,160	-21.3%	15,450
Average Speed		43.3	37.6	11.9%	37.7	12.2%	33.6
Average Speed for HOVs		44.7	40.5	8.6%	40.4	8.3%	37.3
Travel Time: Ferrari Ranch Rd to I-80	SOV	-	7:52	-29.2%	7:53	-29.1%	11:07
	HOV	-	7:51	-17.9%	7:51	-17.9%	9:34
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:16	6:31	-44.7%	6:32	-44.6%	11:47
	HOV	9:11	6:20	-3.6%	6:20	-3.6%	6:34

Source: Fehr & Peers 2015

EPA and Caltrans Concurrence

Ngan, Sandy

From: Jose Luis Caceres <JCaceres@sacog.org>
Sent: Tuesday, August 09, 2016 11:38 AM
To: Jerry Barton <jbarton@edctc.org>,Kennard Aleta <akennard@airquality.org>,Ungvarsky.John@epa.gov,Heather.Phillips@arb.ca.gov,CAnderson@airquality.org,Renee DeVere-Oki <RDeVere-Oki@sacog.org>,sharon.tang@dot.ca.gov,lmcneel-caird@pctpa.net,"Wright Molly (mwright@airquality.org)" <mwright@airquality.org>,oconnor.karina@epa.gov,alexander.fong@dot.ca.gov,shalanda_christian@dot.ca.gov,sspaethe@fraqmd.org,rodney.tavitas@dot.ca.gov,mjones@ysaqmd.org,AGreen@placer.ca.gov,douglas.coleman@dot.ca.gov,"Lee Jason (jason.l
Cc: Yoon, Laura
Subject: Re: POAQC SR 65 Capacity & Operational Improvements Phase 1 project: Due July 1st

Project Level Conformity Group:

I received concurrence on July 15 from both Caltrans and EPA. PCTPA’s SR 65 Capacity & Operational Improvements Phase 1 project (PLA25529) has been determined through SACOG's interagency review process to NOT be a project of air quality concern.

José Luis Cáceres
Transportation Planner, SACOG
(916) 340-6218

On Jun 17, 2016 7:51 AM, Jose Luis Caceres <JCaceres@sacog.org> wrote:

> (Resending with the correct deadline.)
>
> Project Level Conformity Group,
>
> Attached for interagency review is PCTPA’s SR 65 Capacity & Operational Improvements Phase 1 project (PLA25529). As part of project level conformity under NEPA, it requires a determination of whether it is a project of air quality concern.
>
> Please confirm that you concur that this is NOT a Project of Air Quality Concern (POAQC). **Please email questions and comments by 5 p.m., Friday, July 1st.**

This project falls under the 6004 federal process. As such, it requires written concurrence by EPA (Karina O'Conner) and Caltrans (Jason Lee). Please remember to use "reply all," to make comments to the group. Otherwise, you may also contact the consultant for the sponsor directly:

> LAURA YOON | Air Quality and Climate Change Specialist | 916.231.9774 | laura.yoon@icfi.com | icfi.com
>
> ICF INTERNATIONAL | 630 K Street, Suite 400, Sacramento, CA 95814 | 916.276.5874 (m)

Sincerely,

José Luis Cáceres
Transportation Planner, SACOG
(916) 340-6218

Ngan, Sandy

From:	Jose Luis Caceres <JCaceres@sacog.org>
Sent:	Tuesday, August 09, 2016 11:39 AM
To:	Yoon, Laura
Cc:	Sandy.Ngan@icfi.com,Luke McNeel-Caird <lmcneel-caird@pctpa.net>,Claire.Bromund@icfi.com
Subject:	Fwd: Re: POAQC SR 65 Capacity & Operational Improvements Phase 1 project: Due July 1st

Save this too. This is EPA's concurrence.

- José Luis Cáceres

---------- Forwarded message ----------
From: "OConnor, Karina" <OConnor.Karina@epa.gov>
Date: Jul 15, 2016 8:14 AM
Subject: Re: POAQC SR 65 Capacity & Operational Improvements Phase 1 project: Due July 1st
To: "Lee, Jason@DOT" <jason.lee@dot.ca.gov>,Jose Luis Caceres <JCaceres@sacog.org>
Cc:

> EPA also concurs that this is not a project of air quality concern.

\>
\>
\> Karina OConnor
\>
\> EPA, Region 9
\>
\> Air Planning Office (AIR-2)
\>
\> (775) 434-8176
\> oconnor.karina@epa.gov
\>
\> ________________________________
> From: Lee, Jason@DOT <jason.lee@dot.ca.gov>
> Sent: Friday, July 15, 2016 6:59:49 AM
> To: Jose Luis Caceres; OConnor, Karina
> Subject: RE: POAQC SR 65 Capacity & Operational Improvements Phase 1 project: Due July 1st
\>
\>
\> Hi Jose!
\>
\>
\>
\> Caltrans concurs that the project above is NOT a Project of Air Quality of Concern (POAQC) after reviewing the attached IAC.
\>
\>

>
> Thanks a lot!
>
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>
> Sorry for a late response! I was out of town for a while!
>
>
>
> Jason Lee, PE
>
> Air Quality and Noise Unit
>
>
>
> From: Jose Luis Caceres [mailto:JCaceres@sacog.org]
> Sent: Wednesday, July 13, 2016 10:36 AM
> To: oconnor.karina@epa.gov; Lee, Jason@DOT <jason.lee@dot.ca.gov>
> Subject: FW: POAQC SR 65 Capacity & Operational Improvements Phase 1 project: Due July 1st
>
>
>
> Karina and Jason,
>
>
>
> I'm just following up on this POAQC request. Assuming that you agree that this project is not a project of quality concern, could I please get an email from each of you confirming that? If you could send something this week, that would be great.
>
>
>
> - José Luis
>
>
>
> From: Jose Luis Caceres
> Sent: Friday, June 17, 2016 7:51 AM
> To: sspaethe@fraqmd.org; Wright Molly (mwright@airquality.org); Heather.Phillips@arb.ca.gov; sharon.tang@dot.ca.gov; douglas.coleman@dot.ca.gov; shalanda_christian@dot.ca.gov; Lee Jason (jason.lee@dot.ca.gov); rodney.tavitas@dot.ca.gov; alexander.fong@dot.ca.gov; jbarton@edctc.org; dave.johnston@edcgov.us; Ungvarsky.John@epa.gov; oconnor.karina@epa.gov; Joseph.Vaughn@dot.gov; lmcneel-caird@pctpa.net; AGreen@placer.ca.gov; Renee DeVere-Oki; Jose Luis Caceres; CAnderson@airquality.org; ALETA KENNARD; pphilley@airquality.org; mjones@ysaqmd.org
> Cc: Shengyi Gao; lmcneel-caird@pctpa.net; alee@markthomas.com; Hatcher, Shannon; Cooper, Keith; Ngan, Sandy; Bromund, Claire; Yoon, Laura
> Subject: POAQC SR 65 Capacity & Operational Improvements Phase 1 project: Due July 1st
>
>

>
> (Resending with the correct deadline.)
>
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> LAURA YOON | Air Quality and Climate Change Specialist | 916.231.9774 | laura.yoon@icfi.com | icfi.com
>
> ICF INTERNATIONAL | 630 K Street, Suite 400, Sacramento, CA 95814 | 916.276.5874 (m)
>
>
>
>
>
> Sincerely,
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>
> José Luis Cáceres
> Transportation Planner, SACOG
> (916) 340-6218

Ngan, Sandy

From: Jose Luis Caceres <JCaceres@sacog.org>
Sent: Tuesday, August 09, 2016 11:39 AM
To: Yoon, Laura
Cc: Claire.Bromund@icfi.com,Sandy.Ngan@icfi.com,Luke McNeel-Caird <lmcneel-caird@pctpa.net>
Subject: Fwd: RE: POAQC SR 65 Capacity & Operational Improvements Phase 1 project: Due July 1st

Laura,

Save this. This is Caltrans' concurrence.

- José Luis Cáceres

---------- Forwarded message ----------
From: "Lee, Jason@DOT" <jason.lee@dot.ca.gov>
Date: Jul 15, 2016 6:59 AM
Subject: RE: POAQC SR 65 Capacity & Operational Improvements Phase 1 project: Due July 1st
To: Jose Luis Caceres <JCaceres@sacog.org>,oconnor.karina@epa.gov
Cc:

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>
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Subject: FW: POAQC SR 65 Capacity & Operational Improvements Phase 1 project: Due July 1st

Karina and Jason,

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Sent: Friday, June 17, 2016 7:51 AM
To: sspaethe@fraqmd.org; Wright Molly (mwright@airquality.org); Heather.Phillips@arb.ca.gov; sharon.tang@dot.ca.gov; douglas.coleman@dot.ca.gov; shalanda_christian@dot.ca.gov; Lee Jason (jason.lee@dot.ca.gov); rodney.tavitas@dot.ca.gov; alexander.fong@dot.ca.gov; jbarton@edctc.org; dave.johnston@edcgov.us; Ungvarsky.John@epa.gov; oconnor.karina@epa.gov; Joseph.Vaughn@dot.gov; lmcneel-caird@pctpa.net; AGreen@placer.ca.gov; Renee DeVere-Oki; Jose Luis Caceres; CAnderson@airquality.org; ALETA KENNARD; pphilley@airquality.org; mjones@ysaqmd.org
Cc: Shengyi Gao; lmcneel-caird@pctpa.net; alee@markthomas.com; Hatcher, Shannon; Cooper, Keith; Ngan, Sandy; Bromund, Claire; Yoon, Laura
Subject: POAQC SR 65 Capacity & Operational Improvements Phase 1 project: Due July 1st

(Resending with the correct deadline.)

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> LAURA YOON | Air Quality and Climate Change Specialist | 916.231.9774 | laura.yoon@icfi.com | icfi.com
>
> ICF INTERNATIONAL | 630 K Street, Suite 400, Sacramento, CA 95814 | 916.276.5874 (m)

Sincerely,

José Luis Cáceres
Transportation Planner, SACOG
(916) 340-6218

Appendix C MTIP Documentation

BUILDING A SUSTAINABLE SYSTEM

2016

METROPOLITAN TRANSPORTATION PLAN/SUSTAINABILITY COMMUNITIES STRATEGY

Projects listed with a status of "Project Development Only" are anticipated to begin early stages of development including project planning, design, preliminary engineering, environmental clearance, and ROW acquisition by 2036. These projects remain eligible to seek federal and state funding, but under the financial constraint requirements for projecting revenues, the construction phase is not included in the DPS. If/when additional revenues for these projects become available to cover full construction costs, these projects can be considered as part of an amendment to the MTP/SCS following a technical analysis and consistency with plan requirements. While total costs are shown for these projects, for budgeting purposes, no more than 10% of the total project costs are anticipated to be captured within the MTP/SCS planning period. Year of expenditure costs are not provided since construction of these projects is not part of the financially constrained project list.

Project ID	COUNTY	LEAD AGENCY	CATEGORY	TITLE	PROJECT DESCRIPTION	PRIMARY STREET NAME(S)	FROM (LOCATION)	TO (LOCATION)	TOTAL COST (2015 Dollars)	YEAR OF EXPENDITURE COST	COMPLETION TIMING	STATUS
PLA25582	Placer	City of Roseville	A- Bike & Ped	Washington Boulevard Improvement	In Roseville, along Washington Boulevard from Kaseburg Drive to Pleasant Grove Boulevard, construct new concrete sidewalks, Class I & Class II bike facilities. Proposed facilities cross under the Union Pacific tracks (aka "Andora Underpass"). (Emission Benefits in kg/day: 0.24 ROG; 0.16 NOx; 0.05 PM2.5).				$1,242,517	$1,242,517	Project complete by 2020	Programmed
PLA25483	Placer	City of Roseville	B- Road & Highway Capacity	Westbrook Blvd.	Construct New Road: west of Fiddyment Road between Baseline and Pleasant Grove in proposed new Sierra Vista Specific Plan.	Westbrook Blvd	Baseline Rd	Pleasant Grove Blvd	$7,500,000	N/A	Project complete after 2036	Project Development Only
PLA25481	Placer	City of Roseville	B- Road & Highway Capacity	Westbrook Blvd.	Construct New Road: west of Fiddyment and north of Blue Oaks in proposed new Creekview Specific Plan.	Westbrook Blvd	Blue Oaks Blvd	Northern City Limits	$6,000,000	$6,293,000	Project complete by 2020	Planned
PLA19470	Placer	City of Roseville	B- Road & Highway Capacity	Woodcreek Oaks	Widen from 2 - 4 lanes from Canavari Dr to North Branch of Pleasant Grove Creek.	Woodcreek Oaks Blvd	Canavari Dr	Blue Oaks Blvd	$3,500,000	N/A	Project complete after 2036	Project Development Only
PLA25626	Placer	PCTPA	G- System Management, Operations, and ITS	At-Grade Railroad Crossings	At-Grade Railroad Crossings, including quit zones throughout County				$500,000,000	$781,967,000	Project complete by 2036	Planned
PLA25588	Placer	PCTPA	A- Bike & Ped	Bicycle Facilities	Construct various bicycle facilities according to implement the Regional Bicycle Master Plan and Local Bicycle Master Plans as amended.				$40,000,000	$52,565,000	Lump Sum or Ongoing	Planned
PLA25632	Placer	PCTPA	E- Transit Capital (Vehicles)	Bus Replacement	Lump-sum for bus vehicles for fiscal years 2019-2036; does not account for expansion of service. Placer County operators only.				$63,153,000	$82,991,000	Lump Sum or Ongoing	Planned
PLA25587	Placer	PCTPA	A- Bike & Ped	Complete Street & Safe Routes to School Improvements	Enhance pedestrian/bicycle and landscaping along approximately 40 miles of roadway and construct Safe Routes to School improvements to implement local plans.				$52,000,000	$68,335,000	Lump Sum or Ongoing	Planned
PLA25586	Placer	PCTPA	G- System Management, Operations, and ITS	Electric Vehicle Charging and Alternative Fuels Infrastructure	Develop and construct an electric vehicle charging and alternative fuels infrastructure.				$20,000,000	$26,283,000	Lump Sum or Ongoing	Planned
PLA25601	Placer	PCTPA	B- Road & Highway Capacity	I-80/SR 65 Interchange Improvements Phase 2	In Placer County: Between Douglas Blvd. and Rocklin Road; Reconfigure I-80/SR 65 interchange to widen southbound to eastbound ramp from 1 to 2 lanes, and replace existing eastbound to northbound loop ramp with a new 3 lane direct flyover ramp.				$110,000,000	$172,033,000	Project complete by 2036	Planned
PLA25602	Placer	PCTPA	B- Road & Highway Capacity	I-80/SR 65 Interchange Improvements Phase 3	In Placer County: Between Douglas Blvd. and Rocklin Road; Widen Taylor Road from 2 to 4 lanes between Roseville Parkway and Pacific Street, and Reconfigure I-80/SR 65 interchange to widen the southbound to westbound ramp from 2 to 3 lanes.				$179,000,000	$279,944,000	Project complete by 2036	Planned
PLA25603	Placer	PCTPA	B- Road & Highway Capacity	I-80/SR 65 Interchange Improvements Phase 4	In Placer County: Between Douglas Blvd. and Rocklin Road; Reconfigure I-80/SR 65 interchange to construct one lane HOV direct connectors from eastbound to northbound and southbound to westbound (HOV lanes would extend to between Galleria Blvd. and Pleasant Grove Blvd. on SR 65).				$95,000,000	$148,574,000	Project complete by 2036	Planned
PLA25634	Placer	PCTPA	E- Transit Capital (Major)	Placer County - Bus Rapid Transit Capital	Capital Costs for a three route Bus Rapid Transit (BRT) system serving South Placer County; including planning, engineering, environmental studies, right-of-way acquisition, vehicles, related roadway improvements, signalization, park & ride facilities, signage, bus stop improvements, ITS elements, fare vending equipment. BRT Route 1-CSUS Placer to Galleria to Watt/I-80 LRT station via I-80 HOV lane. BRT Route 2 - CSUS Placer to Placer Vineyards to Watt/I-80 LRT station via Watt Avenue. BRT Route 3 - Galleria to Hazel & Sunrise LRT stations via Sierra College Boulevard/Hazel Avenue.				$82,526,000	$108,450,000	Lump Sum or Ongoing	Planned
PLA25585	Placer	PCTPA	F- Transit O&M (BRT & Express)	Placer County - Bus Rapid Transit O&M	Annual operating & maintenance (O&M) costs ($5,704,000) specifically for a three route BRT system for Fiscal years 2019-2036) for a TBD transit operator.				$142,600,001	$187,394,000	Lump Sum or Ongoing	Planned
PLA25637	Placer	PCTPA	B- Road & Highway Capacity	SR 65 Capacity & Operational Improvements Phase 2	SR 65, from Galleria Blvd. to Lincoln Blvd., make capacity and operational improvements. Phase 2: From Galleria Blvd. to Blue Oaks Blvd., widen from 4 to 7 lanes with 1 carpool lane and 1 general purpose lane southbound, and 1 lane as general purpose northbound.	State Route 65	Galleria Boulevard	Blue Oaks Blvd	$32,500,000	$50,828,000	Project complete by 2036	Planned
PLA25638	Placer	PCTPA	B- Road & Highway Capacity	SR 65 Capacity & Operational Improvements Phase 3	SR 65, from Galleria Blvd. to Lincoln Blvd., make capacity and operational improvements. Phase 3: From Blue Oaks Blvd. to Lincoln Blvd., construct auxillary lanes both northbound and southbound.	State Route 65	Blue Oaks Blvd	Lincoln Blvd.	$12,000,000	$18,767,000	Project complete by 2036	Planned

Projects listed with a status of "Project Development Only" are anticipated to begin early stages of development including project planning, design, preliminary engineering, environmental clearance, and ROW acquisition by 2036. These projects remain eligible to seek federal and state funding, but under the financial constraint requirements for projecting revenues, the construction phase is not included in the DPS. If/when additional revenues for these projects become available to cover full construction costs, these projects can be considered as part of an amendment to the MTP/SCS following a technical analysis and consistency with plan requirements. While total costs are shown for these projects, for budgeting purposes, no more than 10% of the total project costs are anticipated to be captured within the MTP/SCS planning period. Year of expenditure costs are not provided since construction of these projects is not part of the financially constrained project list.

Project ID	COUNTY	LEAD AGENCY	CATEGORY	TITLE	PROJECT DESCRIPTION	PRIMARY STREET NAME(S)	FROM (LOCATION)	TO (LOCATION)	TOTAL COST (2015 Dollars)	YEAR OF EXPENDITURE COST	COMPLETION TIMING	STATUS
	Placer	PCTPA	B- Road & Highway Capacity	SR 65 Capacity & Operational Improvements Phase 4	SR 65, from Galleria Blvd. to Lincoln Blvd., make capacity and operational improvements. Phase 4: From Lincoln Blvd. to Blue Oaks Blvd., widen southbound in median to add lane, and from north of Galleria Blvd. (end of the I-80/SR 65 Interchange project) to Lincoln Blvd., widen northbound in median to add lane. Future enviornmental document will be completed to determine if widneing in median will be carpool or general purpose lanes.	State Route 65	Blue Oaks Blvd	Lincoln Blvd.	$57,000,000	N/A	Project complete after 2036	Project Development Only
PLA25631	Placer	PCTPA	F- Transit O&M (Bus)	Transit Operating & Maintenance	Lump-sum annual Operating & Maintenance costs for fiscal years 2019-2036; does not account for expansion of service				$224,910,000	$295,560,000	Lump Sum or Ongoing	Planned
PLA25519	Placer	PCTPA	B- Road & Highway Capacity	I-80 Eastbound Auxiliary Lane: SR 65 to Rocklin Rd.	In Rocklin: Between SR 65 (PM 4.5) and Rocklin Rd. (PM 5.9); Construct eastbound I-80 auxiliary lane, including two-lane off-ramp, concrete barrier/retaining walls, and shoulder improvements. (Toll credits for PE, ROW, and CON)				$4,990,000	$4,990,000	Project complete by 2020	Programmed
PLA25576	Placer	PCTPA	B- Road & Highway Capacity	I-80 Westbound 5th Lane	In Roseville: Between east of Douglas Blvd. off-ramp to west of Riverside Ave.; Extend I-80 westbound auxiliary lane (PLA25542) to the east and west to create continuous 5th lane on westbound I-80. The Douglas Boulevard off-ramp would be reduced from a 2-lane off-ramp to a 1-lane off-ramp.				$3,700,000	$3,700,000	Project complete by 2020	Programmed
PLA25542	Placer	PCTPA	B- Road & Highway Capacity	I-80 Westbound Auxiliary Lane - Douglas Blvd. to Riverside Ave.	In Roseville: Between Douglas Blvd.(PM 2.0) and Riverside Ave. (PM 0.2); Construct westbound I-80 auxiliary lane and shoulder improvements. (Toll credits for PE, ROW, and CON)				$5,910,000	$5,910,000	Project complete by 2020	Programmed
PLA25440	Placer	PCTPA	B- Road & Highway Capacity	I-80/SR 65 Interchange Improvements Phase 1	In Placer County: Between I-80 and Pleasant Grove Blvd; Reconfigure I-80/SR 65 interchange to widen northbound and southbound SR 65 from 2 to 3 lanes, and widen westbound to northbound ramp from 1 to 2 lanes. (PA&ED, PS&E, ROW, and CON to be matched with Toll Credits.)				$66,000,000	$66,000,000	Project complete by 2036	Programmed
PLA25468	Placer	PCTPA	D- Programs & Planning	Placer County Congestion Management Program	Provide educational and outreach efforts regarding alternative transportation modes to employers, residents, and the school community through the Placer County Congestion Management Program (CMP). CMP activities will be coordinated with the City of Roseville and SACOG's Regional Rideshare / TDM Program. (KG/day ROG 54.00; NOx 60.00; PM10 39.00)				$955,429	$955,429	Project complete by 2020	Programmed
PLA25543	Placer	PCTPA	G- System Management, Operations, and ITS	Placer County Freeway Service Patrol	In Placer County: provide motorist assistance and towing of disabled vehicles during am and pm commute periods on I-80 (Riverside Ave to SR 49) and SR 65 (I-80 to Twelve Bridges Dr). (Emission Benefits in kg/day: ROG 7.35; NOx 1.10; PM10 1.16)				$550,000	$550,000	Project complete by 2020	Programmed
PLA25413	Placer	PCTPA	D- Programs & Planning	Planning, Programming, Monitoring 2011-2015	PCTPA plan, program, monitor (PPM) for RTPA related activities.				$1,455,000	$1,455,000	Project complete by 2020	Programmed
PLA25529	Placer	PCTPA	B- Road & Highway Capacity	SR 65 Capacity & Operational Improvements Phase 1	SR 65, from Galleria Blvd. to Lincoln Blvd., make capacity and operational improvements. Phase 1: From Galleria Blvd. to Pleasant Grove Blvd., construct auxiliary lanes on northbound and southbound SR 65.	State Route 65	Galleria Boulevard	Pleasant Grove Blvd	$16,520,000	$16,520,000	Project complete by 2020	Programmed
PLA25479	Placer	Placer County	B- Road & Highway Capacity	16th St.	Construct New Road: 4 lanes from Sacramento/Placer County Line to Baseline Rd.	16th Street	Sacramento County Line	Baseline Road	$12,955,800	N/A	Project complete after 2036	Project Development Only
PLA25477	Placer	Placer County	C- Maintenance & Rehabilitation	Alpine Meadows Rd Bridge Rehabilitation	Alpine Meadows Rd over Truckee River, 0.1 miles west of SH 89: Replace the existing structurally deficient 2 lane bridge with a new 2 lane bridge. (Toll Credits programmed for ROW & CON)				$22,625,063	$22,625,063	Project complete by 2020	Programmed
PLA25472	Placer	Placer County	A- Bike & Ped	Auburn Folsom Rd Class II Bike Lane	On Auburn-Folsom Rd between Douglas Blvd and Joe Rodgers Rd, construct a Class II Bike lane on both sides of the road, including signing and striping; construct sidewalk on both sides of Auburn-Folsom Rd from Wilcox Place north to Joe Rodgers. (Emission benefits in kg/day: ROG 0.06, NOx 0.04, PM10 0.03) [Toll Credits for CON]				$1,227,674	$1,227,674	Project complete by 2020	Programmed
PLA25533	Placer	Placer County	A- Bike & Ped	Auburn Folsom Rd. Safety Improvements	Auburn Folsom Rd. from approximately 60' N of Willow Ln. to Robin Hood Ln.: Construct sidewalks, curb ramps, curb and gutter; install mid-block crosswalk; improve pavement friction; provide dynamic speed sign.(HSIP5-03-013)				$746,300	$746,300	Project complete by 2020	Programmed

Appendix D 40 CFR 1502.22

Appendix D. Compliance with 40 CFR 1502.22

This text based on Appendix C from the FHWA's *Interim Guidance on Air Toxic Analysis in NEPA Documents* (Federal Highway Administration 2012).

Sec. 1502.22 INCOMPETE OR UNAVAILABLE INFORMATION

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

(a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

(b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:

1. a statement that such information is incomplete or unavailable;
2. a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;
3. a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and
4. the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts that have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

(c) The amended regulation will be applicable to all environmental impact statements for which a Notice to Intent (40 CFR 1508.22) is published in the Federal Register on or after May 27, 1986. For environmental impact statements in progress, agencies may choose to comply with the requirements of either the original or amended regulation.

INCOMPLETE OR UNAVAILABLE INFORMATION FOR PROJECT-SPECIFIC MSAT HEALTH IMPACTS ANALYSIS

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

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

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

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

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

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

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

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

Due to the limitations cited, a discussion such as the example provided in this Appendix (reflecting any local and project-specific circumstances), should be included regarding incomplete or unavailable information in accordance with Council on Environmental Quality (CEQ) regulations [40 CFR 1502.22(b)].

Appendix E Modeling Limitations

Limitations and Uncertainties with Modeling

EMFAC

Although EMFAC can calculate CO_2 emissions from mobile sources, the model does have limitations when it comes to accurately reflecting changes in CO_2 emissions due to impacts on traffic. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008) and a 2009 University of California study (Barth and Boriboonsomsin 2009), brief but rapid accelerations, such as those occurring during congestion, can contribute significantly to a vehicle's CO_2 emissions during a typical urban trip. Current emission-factor models are insensitive to the distribution of such modal events (i.e., cruise, acceleration, deceleration, and idling) in the operation of a vehicle and instead estimate emissions by average trip speed. This limitation creates an uncertainty in the model's results when compared to the estimated emissions of the various alternatives with baseline in an attempt to determine impacts. Although work by EPA and the ARB is underway on modal-emission models, neither agency has yet approved a modal emissions model that can be used to conduct this more accurate modeling.

The ARB is currently not using EMFAC to create its inventory of greenhouse gas emissions. It is unclear why the ARB has made this decision. Their website only states:

> REVISION: Both the EMFAC and OFFROAD Models develop CO2 and CH4 [methane] emission estimates; however, they are not currently used as the basis for [ARB's] official [greenhouse gas] inventory which is based on fuel usage information. . . However, ARB is working towards reconciling the emission estimates from the fuel usage approach and the models. (California Air Resources Board 2010)

Other Variables

With the current science, project-level analysis of greenhouse gas emissions has limitations. Although a greenhouse gas analysis is included for this project, there are numerous key greenhouse gas variables that are likely to change dramatically during the design life of the proposed project and would thus dramatically change the projected CO_2 emissions.

First, vehicle fuel economy is increasing. The EPA's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012 ," which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy has improved each year beginning in 2005, and is now at a record high (U.S. Environmental Protection Agency 2013). Corporate Average Fuel Economy (CAFE) standards remained the same between model years 1995 and 2003 and subsequently began setting increasingly higher fuel economy standards for future vehicle model years. The EPA estimates that light duty fuel economy rose by 16% from 2007 to 2012. Table E-1 shows the increases in required fuel economy standards for cars and trucks between Model Years 2012 and 2025 as available from the National Highway Traffic Safety Administration for the 2012-2016 and 2017-2025 CAFE Standards.

Table E-1. Average Required Fuel Economy (mpg)

	2012	2013	2014	2015	2016	2018	2020	2025
Passenger Cars	33.3	34.2	34.9	36.2	37.8	41.1 to 41.6	44.2 to 44.8	55.3 to 56.2
Light Trucks	25.4	26	26.6	27.5	28.8	29.6 to 30.0	30.6 to 31.2	39.3 to 40.3
Combined	29.7	30.5	31.3	32.6	34.1	36.1 to 36.5	38.3 to 38.9	48.7 to 49.7
Source: U.S. Environmental Protection Agency 2013								

Second, near zero carbon vehicles will come into the market during the design life of this project. According to the 2013 Annual Energy Outlook:

> "LDVs that use diesel, other alternative fuels, hybrid-electric, or all-electric systems play a significant role in meeting more stringent GHG emissions and CAFE standards over the projection period. Sales of such vehicles increase from 20 percent of all new LDV sales in 2011 to 49 percent in 2040 in the AEO2013 Reference case." (U.S. Energy Information Administration 2013)

The greater percentage of alternative fuel vehicles on the road in the future will reduce overall GHG emissions as compared to scenarios in which vehicle technologies and fuel efficiencies do not change.

Third, California has recently adopted a low-carbon transportation fuel standard in 2009 to reduce the carbon intensity of transportation fuels by 10 percent by 2020. The regulation became effective on January 12, 2010 (codified in title 17, California Code of Regulations, Sections 95480-95490). Beginning January 1, 2011, transportation fuel producers and importers must meet specified average carbon intensity requirements for fuel in each calendar year.

Lastly, driver behavior has been changing as the U.S. economy and oil prices have changed. In its January 2008 report, "Effects of Gasoline Prices on Driving Behavior and Vehicle Market," the Congressional Budget Office found the following results based on data collected from California (U.S. Congressional Budget Office 2008):

1. freeway motorists adjust to higher gas prices by making fewer trips and driving more slowly;
2. the market share of sports utility vehicles is declining; and
3. the average prices for larger, less-fuel-efficient models declined from 2003 to 2008 as average prices for the most-fuel-efficient automobiles have risen, showing an increase in demand for the more fuel efficient vehicles.

More recent reports from the Energy Information Agency and Bureau of Economic Analysis also show slowing re-growth of vehicle sales in the years since its dramatic drop in 2009 due to the Great Recession as gasoline prices continue to climb to $4 per gallon and beyond (U.S. Energy Information Administration 2013: Table 53, U.S. Bureau of Economic Analysis 2014).

Limitations and Uncertainties with Impact Assessment

Taken from p. 5-22 of the National Highway Traffic Safety Administration Final EIS for MY2017-2025 CAFE Standards (July 2012), Figure illustrates how the range of uncertainties in assessing greenhouse gas impacts grows with each step of the analysis:

> “Moss and Schneider (2000) characterize the “cascade of uncertainty” in climate change simulations Figure). As indicated in Figure , the emission estimates used in this EIS have narrower bands of uncertainty than the global climate effects, which are less uncertain than regional climate change effects. The effects on climate are, in turn, less uncertain than the impacts of climate change on affected resources (such as terrestrial and coastal ecosystems, human health, and other resources […] Although the uncertainty bands broaden with each successive step in the analytic chain, all values within the bands are not equally likely; the mid-range values have the highest likelihood.”(National Highway Traffic Safety Administration 2012:5-21).

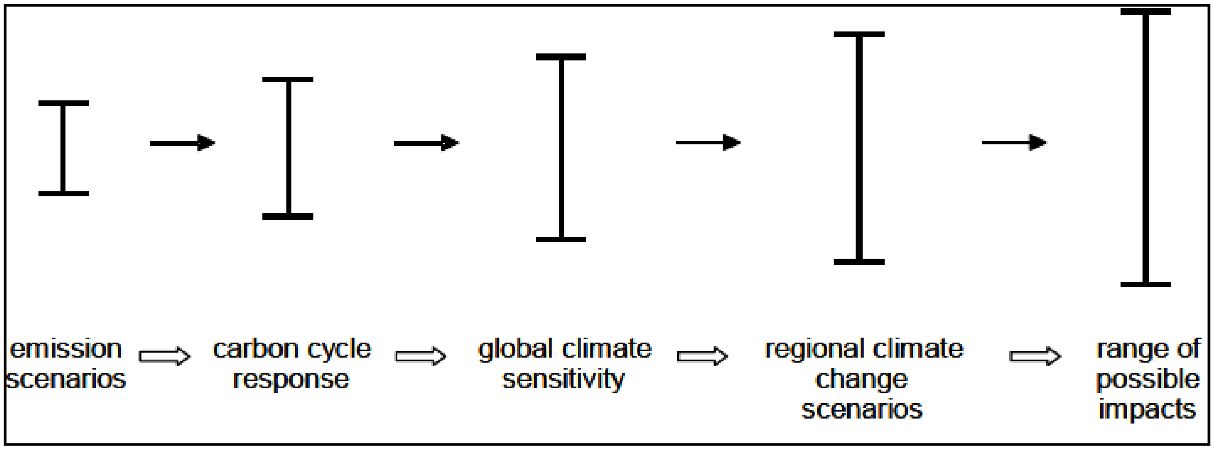

Figure E-1. Cascade of Uncertainties

Much of the uncertainty in assessing an individual project’s impact on climate change surrounds the global nature of the climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory or other framework in place that would allow for a ready assessment of what any modeled increase in CO_2 emissions would mean for climate change given the overall California greenhouse gas emissions inventory of approximately 430 million tons of CO_2 equivalent. This uncertainty only increases when viewed globally. The IPCC has created multiple scenarios to project potential future global greenhouse gas emissions as well as to evaluate potential changes in global temperature, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce greenhouse gas emissions. Non-mitigation IPCC scenarios project an increase in global greenhouse gas emissions by 9.7 up to 36.7 billion metric tons CO_2 from 2000 to 2030, which represents an increase of between 25 and 90%. (Intergovernmental Panel on Climate Change 2007)

The assessment is further complicated by the fact that changes in greenhouse gas emissions can be difficult to attribute to a particular project because the projects often cause shifts in the locale for some type of greenhouse gas emissions, rather than causing “new” greenhouse gas emissions. It is difficult to assess the extent to which any project level increase in CO_2 emissions represents a net global increase, reduction, or no change; there are no models approved by regulatory agencies that operate at the global or even statewide scale.

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