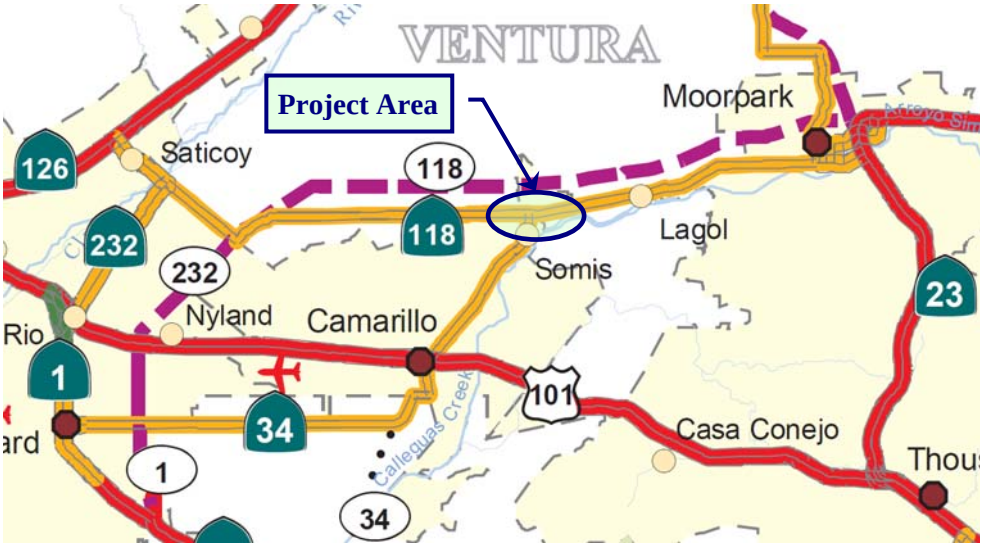
Air Quality Report

INTERSECTION IMPROVEMENTS
SR-118/SR-34/Donlon Road



SR-118 (LOS ANGELES AVE.), SR-34 (SOMIS ROAD) & DONLON ROAD
VENTURA COUNTY, CALIFORNIA

EA 10596
SR-118 PM 10.72 TO 11.80, SR-34 PM 16.80 TO 17.66

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1.0 Introduction

1.1 Introduction

California Department of Transportation (Caltrans) is proposing operational improvements at the "T" intersections of State Route (SR)-118 (Los Angeles Avenue)/SR-34 (Somis Road) and SR-118/Donlon Road in the community of Somis, an unincorporated area of Ventura County. The project area is approximately 1.1 miles long on SR-118, extending from PM 10.72 to PM 11.80. Also, the project area is approximately 0.86 mile long on SR-34, extending from PM 16.80 to PM 17.66. Proposed improvements include modifying the existing intersection configuration, widening the intersection to add turn lanes and merge lanes, lengthening an existing turn lane and realigning Donlon Road to combine the two existing "T" intersections into a four-way intersection. The proposed project is intended to improve traffic operations and reduce collisions at the intersection approaches.

Briefly, Alternative 1, or the "No-Build Alternative" proposes to maintain the existing configuration of the intersections. Alternative 2, or the "Intersection Improvement Alternative" proposes to realign Donlon Road to construct a four-way intersection with SR-118 and SR-34. The existing SR-118/SR-34 intersection would be widened to add turn and merge lanes. Alternative 3, or the "Save Our Somis (SOS) Alternative" proposes to realign Donlon Road to construct a four-way intersection with SR-118 and SR-34. The existing SR-118/SR-34 intersection would be widened to add turn lanes on eastbound (EB) SR-118 and to lengthen the existing left turn lane on westbound (WB) SR-118. Alternative 4, or the "Roundabout Alternative" proposes to realign Donlon Road and SR-34 westerly to construct a one-way, one-lane roundabout that would replace the existing SR-118/SR-34 intersection. Alternative 5, or the "Somis Bypass Alternative" proposes to realign Donlon Road to construct a four-way intersection with SR-118 and SR-34. Alternative 5 also proposes to construct a new two-lane roadway that would travel east of the community of Somis and connect SR-34 and SR-118. Alternative 6, or the "Bridge Alternative" is similar to Alternative 2, with a bridge to be constructed on the realigned Donlon Road to cross over Coyote Canyon. A more detailed discussion of the design Alternatives is presented in section 1.4.

1.2 Background

SR-118 is an interregional highway and freeway that stretches from SR-126 in Saticoy through Moorpark and Simi Valley to the Los Angeles County Line, traversing Ventura County in an east-west direction. The SR-118/SR-34 intersection is a part of the non-freeway segment of SR-118. This segment is a two-lane conventional highway traveling through mostly agricultural and rural areas. From the SR-118/SR-34 intersection the route provides regional connectivity to SR-23 to the east, SR-34 and US 101 to the south and SR-126 to the west.

SR-34 is primarily a two-lane conventional highway that travels between Oxnard Boulevard (Blvd.) in the City of Oxnard through Camarillo to SR-118 in a north-south direction. From Oxnard Blvd. SR-34 travels west, primarily on 5th Street in Oxnard to Lewis Road in Camarillo. In Camarillo, SR-34 runs on Lewis Road between Pleasant Valley Road and Las Posas Road. Land use along this stretch of SR-34 includes agricultural as well as low density residential and commercial land uses. Between Las Posas Road and SR-118, the route becomes Somis Road and travels through mostly agricultural land ending in the community of Somis at the intersection with SR-118. At this location, SR-118 forms two closely spaced intersections with SR-34 and Donlon Road to the east. Major trip generators for SR-34 include the California State University Channel Islands in the City of Camarillo and the Oxnard Transportation Center in the City of Oxnard.

The SR-118/SR-34 "T" intersection is controlled by traffic signal and is located 275 feet west of the SR-118/Donlon Road "T" intersection, which is controlled by a stop sign. At these intersections, both highways consist of 24 feet of traveled way with no median and 4 to 8-foot wide shoulders that are mostly unpaved. The right-of-way for SR-34 and the west leg of SR-118 is 60 feet. The east leg of SR-118 is 100 feet wide. Existing Donlon Road consists of one northbound lane and one southbound lane. There is a 30 ft. left turn pocket for Donlon Road on EB SR-118.

1.3 Purpose And Need

The purpose of the proposed project is to reduce delay time, relieve congestion, enhance safety at the SR-118 "T" intersections with SR-34 and Donlon Road. The proposed project is intended to improve traffic operations and reduce collisions at the intersection approaches. These objectives

would be accomplished by modifying the intersection to correct geometric and operational deficiencies. Additionally, the implementation of the proposed project would facilitate the safe and efficient movement of vehicles, peoples and goods through the area.

Motorists currently experience heavy traffic congestion at the SR-118/SR-34 intersection during both the AM (6:00 – 9:00) and PM (3:00 – 6:00) peak hours. Insufficient storage for vehicles making left turns from WB SR-118 to southbound (SB) SR-34 poses a problem at the intersection, as this causes vehicles to back-up onto the WB SR-118 thru lane. The high volume of traffic passing through the intersection at these hours results in substantial delays and is a factor in congestion related accidents within the project limits.

Congestion, delays and safety issues during peak hours are further exacerbated by the proximity of the SR-118 and Donlon Road "T" intersection. This intersection no longer functions effectively as motorists experience difficulties turning into and out of Donlon Road. Trucks attempting these movements are especially an issue of concern because they encroach into other traffic lanes due to inadequate turning radii.

1.4 Project Description

The proposed project is located in Ventura County. Exhibit 1 shows the proposed project location and Exhibit 2 shows the existing condition of the SR-118/SR-34 intersection and project vicinity.

The project currently has six proposed Alternatives, of which, Alternative 1 is a 'No-Build' alternative and Alternatives 2 through 6 are 'Build' alternatives. Detailed description of the project Alternatives is presented below.

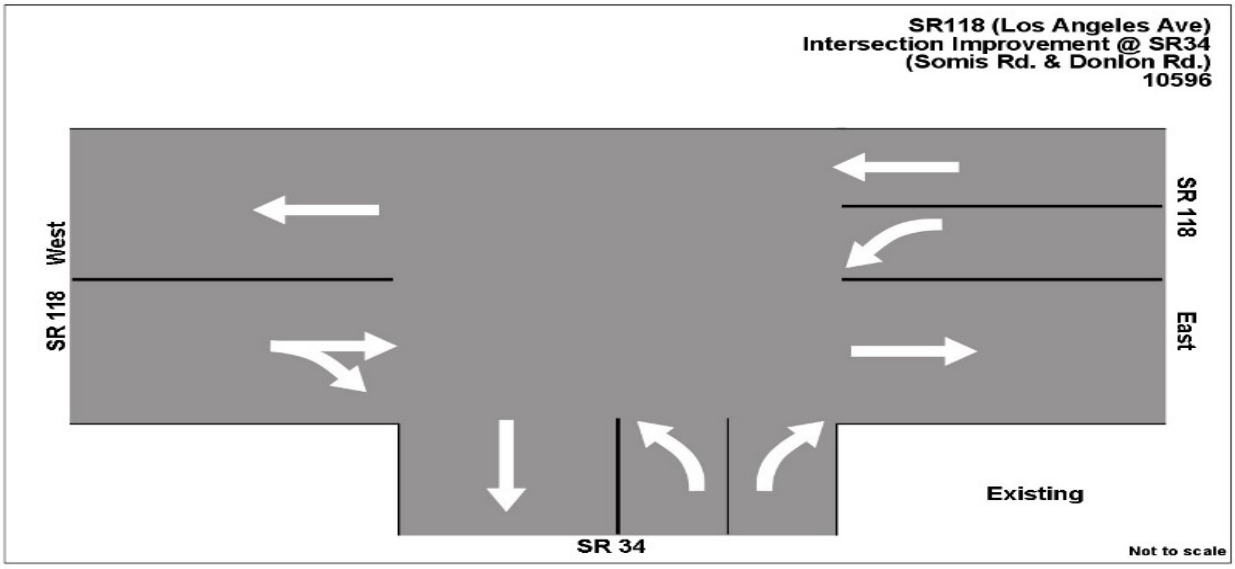
Exhibit 1 Project Location Map

Exhibit 2 Project Vicinity

1.4.1 Alternative 1: "No-Build"

The No-Build Alternative proposes to maintain the existing configuration at the intersection. Exhibit 3 below shows the existing SR-118/SR-34 intersection configuration.

Exhibit 3 Schematic of No-Build Alternative (Existing Configuration)



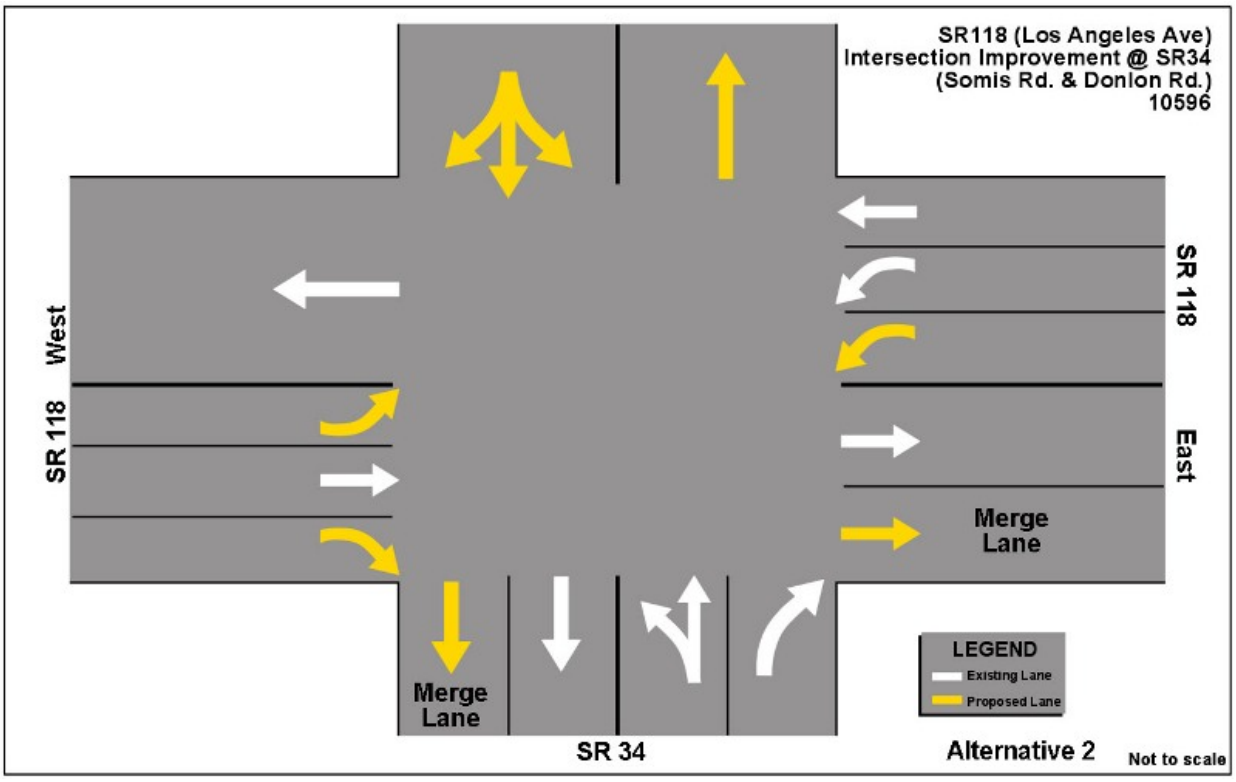
1.4.2 Alternative 2: Intersection Improvement Alternative

Alternative 2 proposes to widen and add a total of seven lanes to the SR-118/SR-34 intersection. Two lanes would be added with the Donlon Road. realignment. Additional lanes on SR-118 would include the following:

- A right-turn lane and a left-turn lane on EB SR-118
- A left-turn lane on WB SR-118 for movements onto SB SR-34
- A merge lane on the east leg of EB SR-118 to accommodate movements from NB SR-34

Also, a merge lane would be added on SB SR-34. Donlon Road would become the north leg of the proposed 4-way intersection. The realigned SB Donlon Road would become a mixed thru/left-turn/right-turn lane at the intersection with SR-118 and the realigned NB lane would remain as a thru lane at this location. Exhibit 4 below shows the proposed intersection configuration for Alternative 2.

Exhibit 4 Alternative 2 Intersection Configuration



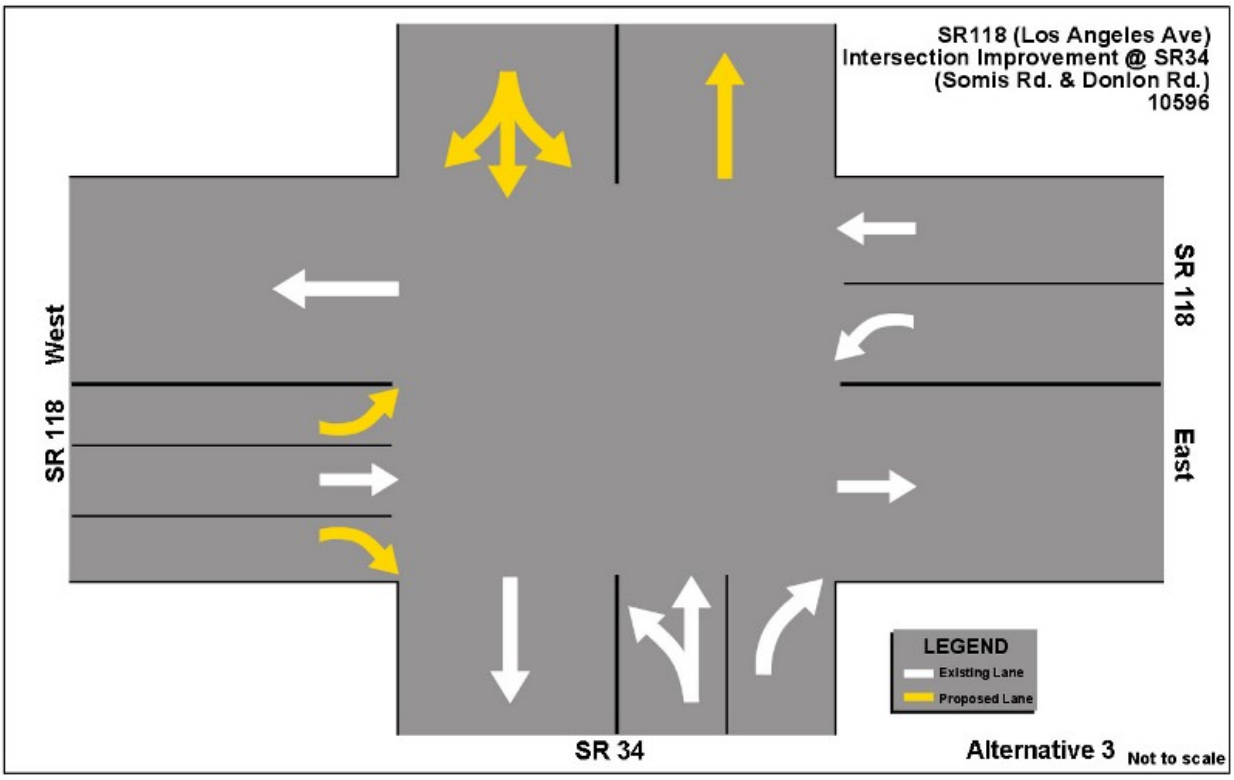
The realigned Donlon Road would run west of Coyote Canyon. A bridge structure would be constructed on Donlon Road to cross over the Coyote Canyon Debris Basin spillway. The existing drainage culvert for Coyote Canyon Creek would be extended on both sides of the highway to accommodate the two additional lanes on the east leg of the SR-118.

1.4.3 Alternative 3: Save Our Somis (SOS) Alternative

Alternative 3 proposes to widen SR-118 and SR-34, and add a total of four lanes to the SR-118/SR-34 intersection. Two lanes would be added with the Donlon Road realignment. The west leg of SR-118 would be widened to add right turn and left turn lanes on SR-34 and Donlon Road. NB SR-34 would be widened to lengthen the right and left turn lanes on SR-118

Donlon Road would become the north leg of the proposed 4-way intersection. The realigned SB lane would become a mixed thru/left-turn/right-turn lane at the intersection with SR-118 and the realigned NB lane would remain a thru lane at this location. Exhibit 5 below shows the proposed intersection configuration for Alternative 3.

Exhibit 5 Alternative 3 Intersection Configuration

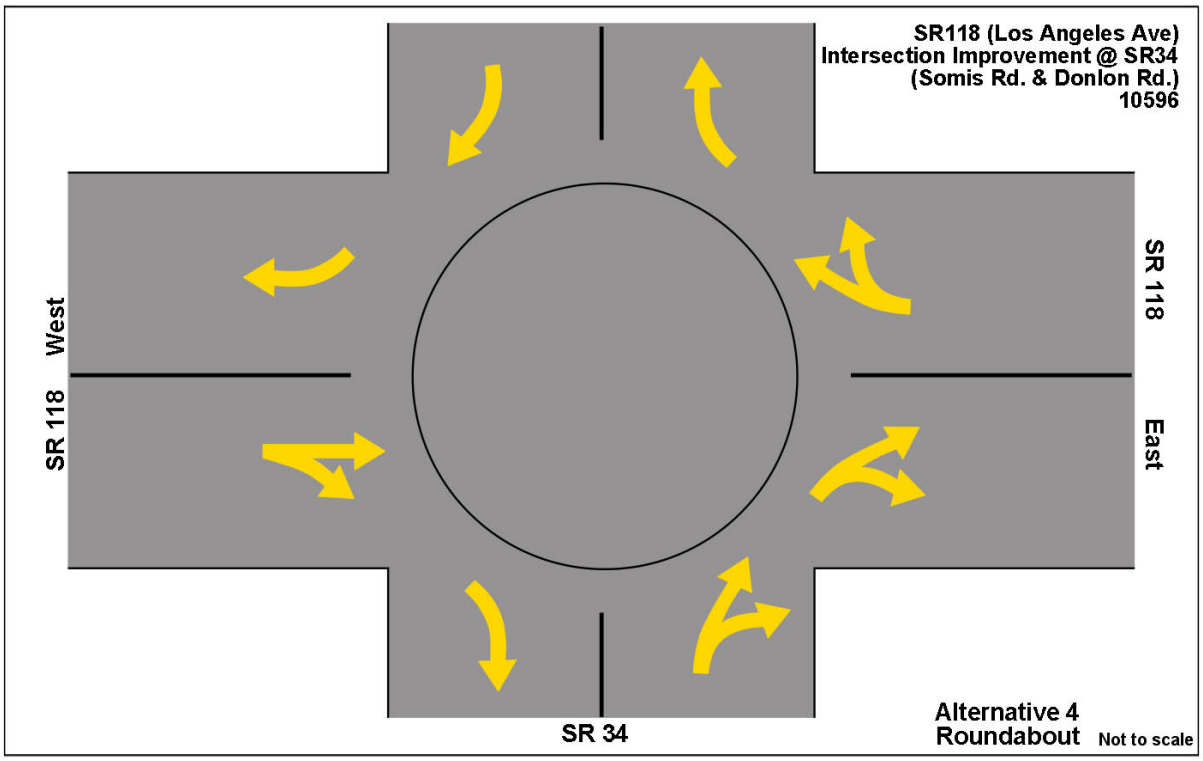


The realigned Donlon Road would run west of Coyote Canyon. A bridge structure would be constructed on Donlon Road to cross over the Coyote Canyon Debris Basin spillway.

1.4.4 Alternative 4: Roundabout Alternative

Alternative 4 proposes to combine the two "T" intersections of SR-118/SR-34 and SR-118/Donlon Road, and to construct a roundabout that would replace the existing signalized and unsignalized intersections. Donlon Road and SR-34 would be realigned and the roundabout would be constructed to the west of the existing SR-118/SR-34 intersection. The west leg of SR-118 would be widened. Exhibit 6 below shows the proposed intersection configuration for Alternative 4.

Exhibit 6 Alternative 4 Intersection Configuration

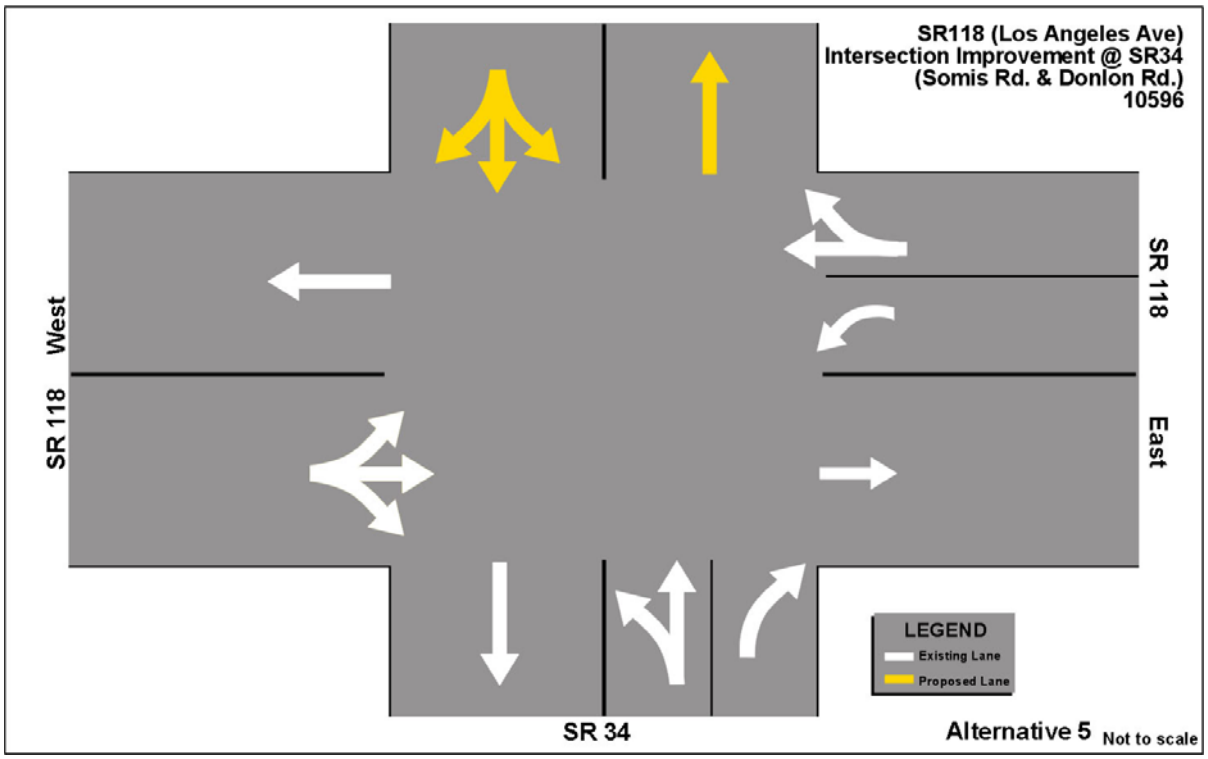


The east leg of SR-118 would consist of four lanes, two lanes on EB SR-118 and two lanes on WB SR-118. The west leg of SR-118 would consist of three lanes, two lanes on EB SR-118 and one lane on WB SR-118. SR-34 would consist of three lanes, two lanes on NB SR-34 and one lane on SB SR-34. The realigned Donlon Road would consist of two lanes, one lane on NB Donlon Road and one lane on SB Donlon Road

1.4.5 Alternative 5: Somis Bypass Alternative

Alternative 5 proposes to realign Donlon Road to construct a four-way intersection with SR-118 and SR-34. The Alternative also proposes to construct a new two-lane roadway that would connect SR-34 to SR-118. The new roadway would begin at the southern end of the community of Somis, at the intersection of West Street/SR-34. From this point, the proposed roadway would continue northeast, paralleling the Southern Pacific railroad on the north side of the tracks and connecting with SR-118 approximately one half mile east of the existing SR-118/SR-34 intersection. Exhibit 7 shows the proposed configuration of the SR-118/SR-34/Donlon Road intersection and Exhibit 8 shows the proposed alignment of the new roadway.

Exhibit 7 SR-118/SR-34/Donlon Road Intersection Configuration



Two new signalized intersections are being proposed as part of this Alternative. The new intersections would be located at the southern and northern ends of the bypass, with SR-34 and SR-118, respectively. Exhibits 9 and 10 below show the configuration and design for both of the proposed intersections.

Exhibit 8 Somis Bypass Proposed Alignment

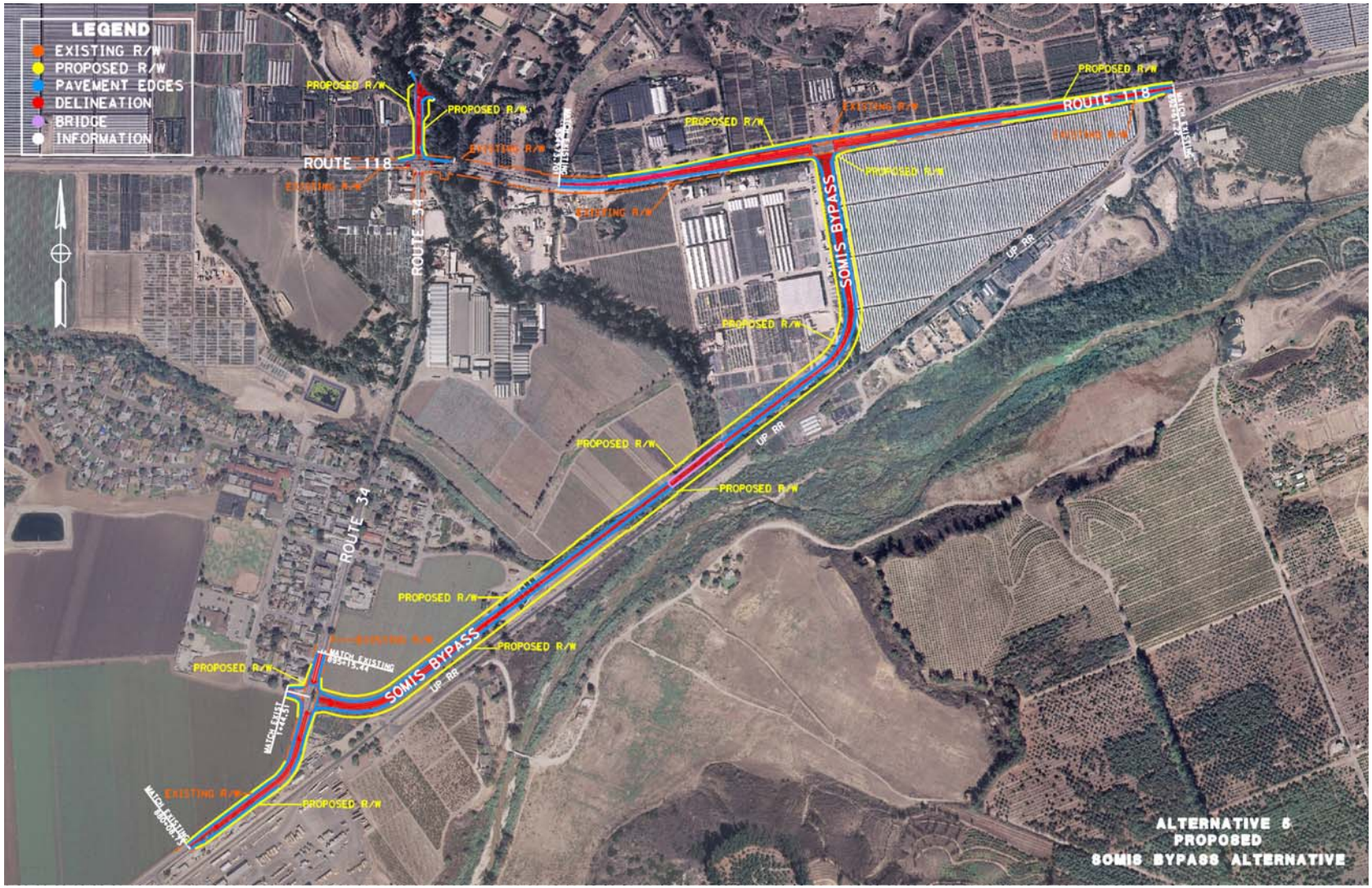


Exhibit 9 Somis Bypass/SR-34 Intersection Configuration

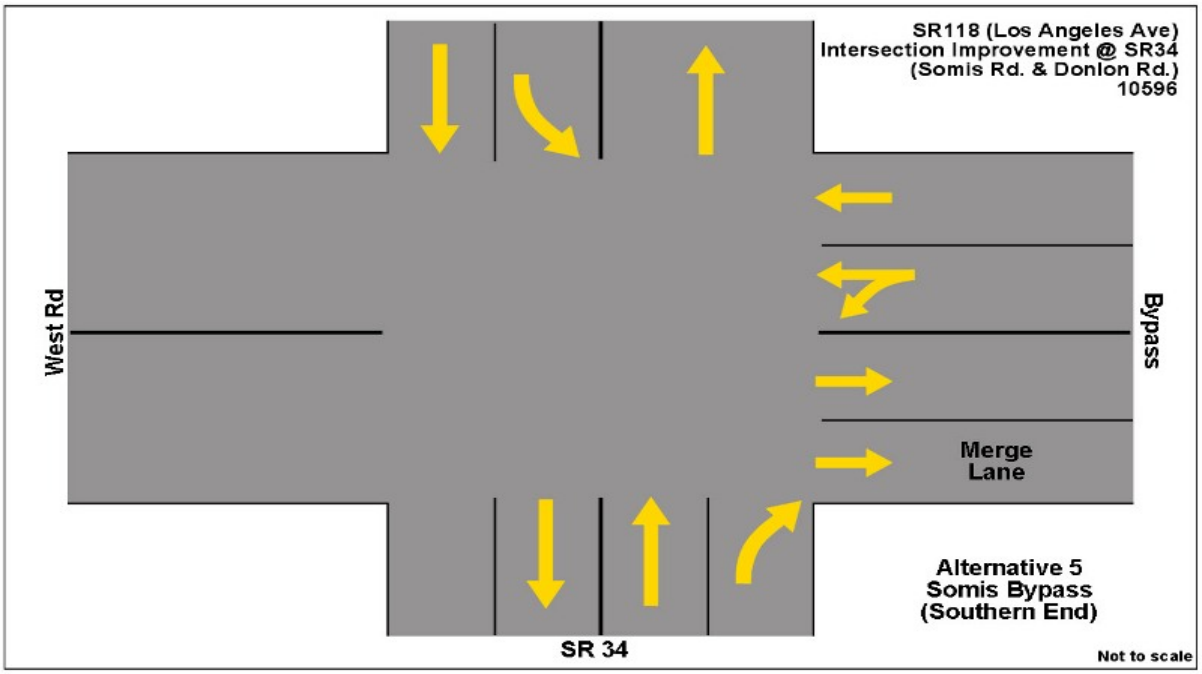
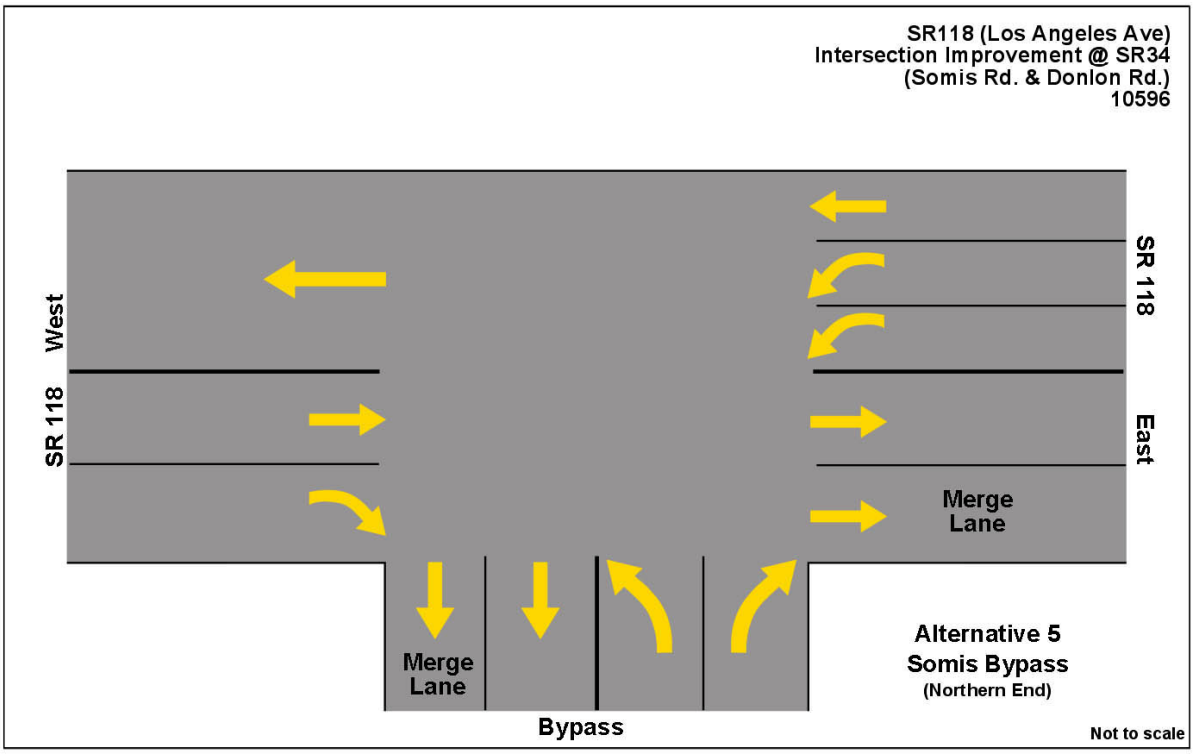


Exhibit 10 Somis Bypass/SR-118 Intersection Configuration



The majority of new right-of-way acquired for this Alternative would consist of open space and agricultural land. A bridge structure would be constructed on the new roadway to cross the Coyote Canyon/Fox Barranca. Also, a drainage structure would be required at Sand Canyon.

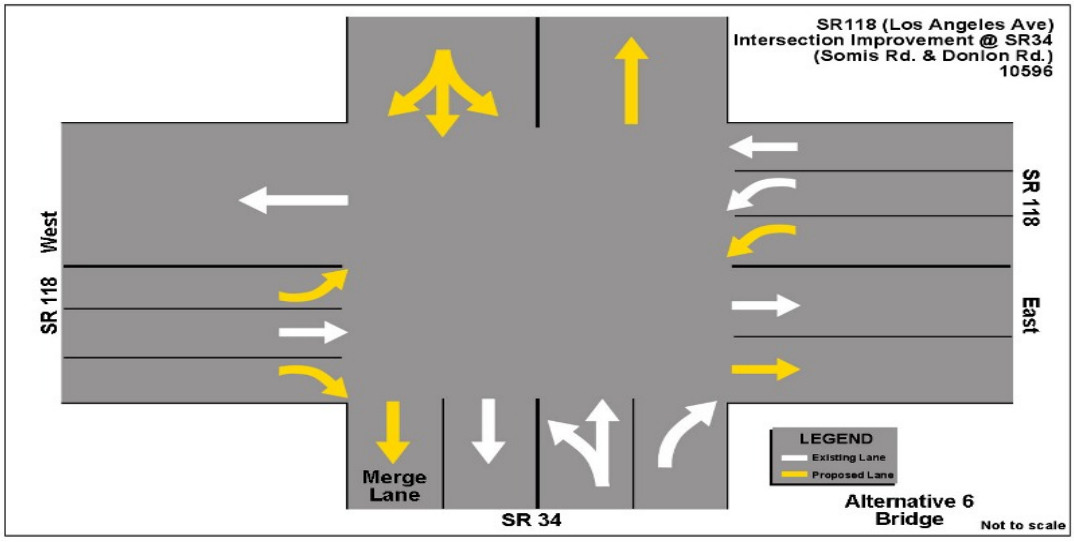
1.4.6 Alternative 6: Bridge Alternative

Alternative 6 proposes the same intersection improvements as Alternative 2. The SR-118/SR-34 intersection would be widened to add a total of seven lanes at the location. Two lanes would be added with the Donlon Road realignment. Additional lanes would include the following:

- A right-turn lane and a left-turn lane on the west leg of EB SR-118,
- A left-turn lane on the east leg of WB SR-118 for movements onto SB SR-34,
- A merge lane on the east leg of EB SR-118 to accommodate movements from NB SR-34,
- A merge lane would be added on SB SR-34.

Donlon Road would become the north leg of the proposed 4-way intersection. The realigned SB lane would become a mixed thru/left-turn/right-turn lane at the intersection with SR-118 and the realigned NB lane would remain a thru lane at this location. Exhibit 11 below shows the proposed intersection configuration for Alternative 6.

Exhibit 11 Alternative 6 Intersection Configuration



The alignment of Donlon Road is the only feature of this Alternative that differs from the proposed Alternative 2. A bridge structure would be constructed on Donlon Road to cross over Coyote Canyon. The existing drainage culvert for Coyote Canyon Creek would be extended on both sides of the highway to accommodate the two additional lanes on the east leg of the SR-118.

2.0 Regulatory Framework

The proposed project is located in the South Central Coast Air Basin (Basin). The Basin is comprised of San Luis Obispo, Santa Barbara, and Ventura Counties. The proposed project is located in Ventura County.

The primary agencies responsible for regulations to improve air quality in the Basin are the Ventura County Air Pollution Control District (VCAPCD) and the California Air Resources Board (CARB). The SCAG is an important partner to the VCAPCD as it is the designated metropolitan planning authority for the respective area and produces estimates of anticipated future growth and vehicular travel in the Basin, which are used for air quality planning and analyses. The VCAPCD sets and enforces regulations for non-vehicular sources of air pollution in the Basin and works with SCAG to develop and implement Transportation Control Measures (TCMs). TCMs are intended to reduce and improve vehicular travel and associated pollutant emissions.

The CARB was established in 1967 by the California Legislature to attain and maintain healthy air quality, conduct research into the causes and solutions to air pollution, and systematically attack the serious problem caused by motor vehicles, which are the major causes of air pollution in the State. The CARB sets and enforces emission standards for motor vehicles, fuels, and consumer products. It sets the health based California Ambient Air Quality Standards (CAAQS) and monitors air quality levels throughout the state. The board identifies and sets control measures for toxic air contaminants. The board also performs air quality related research, provides compliance assistance for businesses, and produces education and outreach programs and materials. The CARB provides assistance for local air quality districts, such as VCAPCD.

The United States Environmental Protection Agency (EPA) is the primary federal agency for regulating air quality. The EPA implements the provisions of the Federal Clean Air Act (FCAA). This Act establishes National Ambient Air Quality Standards (NAAQS) that are applicable nationwide. The EPA designates areas with pollutant concentrations that do not meet the NAAQS as nonattainment. States are then required by the FCAA to prepare State Implementation Plans (SIP) for the areas designated as nonattainment. The SIP is required to demonstrate how the areas will attain the NAAQS by the prescribed deadlines and what

measures will be required to attain the standards. The EPA also oversees implementation of the prescribed measures. Areas that achieve the NAAQS after a nonattainment designation are redesignated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the NAAQS.

The California Clean Air Act (CCAA) required all air pollution control districts in the state to prepare a plan prior to December 31, 1994 to reduce pollutant concentrations exceeding the CAAQS and ultimately achieve the CAAQS. The districts are required to review and revise these plans every three years. The VCAPCD satisfies this requirement through the publication of an Air Quality Management Plan (AQMP). The AQMP is developed in coordination with local governments and the private sector. Once approved and adopted, the AQMP is incorporated into the SIP by CARB to satisfy the FCAA requirements discussed above. Table 1 lists the current designations of the Basin in Ventura County. The unclassified designation indicates that the air quality data for the area do not support a designation of attainment or nonattainment.

Table 1 Designations of Criteria Pollutants for the Basin in Ventura County

Pollutants	Federal	State
O_3 (1-hour)	Standard revoked by EPA on June 15, 2005	Nonattainment
O_3 (8-hour)	Serious Nonattainment	Nonattainment
CO	Attainment/Unclassified	Attainment
PM_{10}	Attainment/Unclassified	Nonattainment
$PM_{2.5}$	Attainment/Unclassified	Nonattainment
NO_2	Attainment/Unclassified	Attainment

Source: http://www.vcapcd.org/air_quality_standards.htm

On June 15, 2005, the federal 1-hour ozone standard was rescinded along with all nonattainment and attainment-maintenance designations; however, the 1-hour ozone NAAQS designation and classification status was retained in reference to the effective data of designation for the 8-hour NAAQS for purposes of the anti-backsliding regulations (40 Code of Federal Regulations [CFR] 51.905).

Because a SIP is required for each criteria pollutant whose ambient concentration exceeds the NAAQS, the VCAPCD adopted the 2007 Ventura County Air Quality Management Plan (2007

AQMP) to comply with the FCAA in achieving the NAAQS on May 13, 2008. The 2007 AQMP presents Ventura County's strategy for attaining the federal 8-hour ozone standard as required by the FCAA Amendments of 1990. The 2007 AQMP also presents the District's Triennial Assessment and Plan Update required by the California Clean Air Act (CCAA) of 1988.

The 2007 AQMP contains an attainment demonstration (photochemical modeling and weight of evidence analyses) showing that Ventura County will attain the federal 8-hour ozone standard by June 15, 2013, the deadline for serious 8-hour ozone nonattainment areas. The 2007 AQMP also contains: a Reasonable Further Progress demonstration, a Motor Vehicle Conformity Budget for transportation conformity purposes, an emissions inventory and emission forecasts, and a local control strategy containing several new and "further study" emission control measures. The new control measures are proposed revisions to existing District rules that District staff has found practicable for Ventura County pursuant to the separate every feasible measure requirement of the CCAA. The 2007 AQMP also incorporates the ARB's State Strategy to achieve the additional emission reductions needed for all areas of the state, including Ventura County, to attain the federal 8-hour ozone standard.

2.1 The Clean Air Act Amendments of 1990

The FCAA Amendments of 1990 (Public Law [Pub.L.] 101-549) direct the EPA to implement strong environmental policies and regulations that will ensure cleaner air quality. These amendments will affect the proposed project. According to Title 1, Section 101, Paragraph F of the amendments, "no federal agency may approve, accept, or fund any transportation plan, program, or project unless such plan, program, or project has been found to conform to any applicable SIP in effect under this act." Title I of the amendments defines conformity as follows:

> Conformity to an implementation plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards; and
>
> (i) That such activities will not cause or contribute to any new violation of any NAAQS in any area;
>
> (ii) That such activities will not increase the frequency or severity of any existing

violation of any NAAQS in any area; or

(iii)That such activities will not delay timely attainment of any NAAQS.

2.1.1 Chronology of Transportation Conformity Milestones

The basis of regional and project-level air quality analysis dates back to the passage of the FCAA of 1970 (Pub. L.101-549). Since inception of FCAA, many milestones to improve air quality have been undertaken through various laws, regulations, and rules. Several of the significant achievements are highlighted herein.

- In 1976, the California Legislature adopted the Lewis Air Quality Management Act that created the Air Quality Management Districts (AQMDs) in addition to Air Quality Control Districts (AQCDs). Though separate from federal actions, the creation of AQMDs is an integral part of transportation conformity. The AQMDs and AQCDs promulgate the SIPs for achieving cleaner air quality on a region-by-region basis. The SIP is a legal agreement between California and the federal government to commit resources to improving air quality. It serves as the template for conducting regional and project-level air quality analysis. The appropriate Metropolitan Planning Organization (MPO) performs the project-level regional analysis, which is used by the project sponsor and is used for conformity determinations. For both analyses, the AQMD or APCD for the area provide technical assistance.

- Amendments were added that culminated in the FCAA Amendments of 1977 (Pub. L.95-95). The key provisions of the 1977 FCAA ascertained the assurance of conformity as an affirmative responsibility of the head of each Federal agency and that no MPO could approve any transportation plan, program, or project that did not conform to a SIP. Specifically, the 1977 FCAA stated: “No Federal department shall 1) engage in, 2) support in any way or provide financial assistance for, 3) license or permit, or 4) approve any activity which does not conform to a SIP after it has been approved or promulgated”.

- The most recent revision to the FCAA is the Amendment of 1990 [FCAA §176(c)(1), 42 U.S.C. § 7506 (c)(1)]. The scope and content of transportation conformity provisions were expanded to require the reconciliation of the emissions impacts of transportation plans, programs, and projects with the SIP. Specifically, transportation plans, programs, and projects must conform to the purpose of the SIP. This integration of transportation and air

quality planning is intended to ensure that transportation plans, programs, and projects will not: "(i) cause or contribute to any new violation of any standard in any area; (ii) increase the frequency or severity of any existing violation of any standard in any area; or (iii) delay timely attainment of any standard or any required interim emissions reductions or other milestones in any area".

- The 1990 FCAA required a mechanism to conform the transportation plans, programs, and projects to the SIPs. This was accomplished by the development of the Transportation Conformity Rule (40 CFR Parts 51 and 93) in 1993. This rule established the criteria and procedures by which the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and MPO entities determine the conformity of federally funded or approved highway and transit plans, programs, and projects to SIP provisions.

- Subsequently, several revisions were made to the Transportation Conformity Rule. The August 1997 Transportation Conformity Rule Amendments revised the rule to: 1) streamline and clarify regulatory text; 2) eliminate the build/no-build test when SIP budgets have been submitted; 3) provide more flexibility even where there are no submitted SIP budgets; 4) allow for previously planned non-Federal projects to go forward when there is no currently conforming transportation plan/TIP (the Court found this provision invalid and it no longer applies); 5) limit network-based modeling requirements to large, urban areas; 6) provide rural areas the flexibility to choose among several conformity tests; 7) streamline and clarify modeling requirements; and 8) makes consequences of a EPA SIP disapproval without a protective finding less severe (the court found this provision invalid and it no longer applies).

- In March of 2006, the Transportation Conformity Rule was updated to include regulations for performing qualitative analysis of PM_{10} and $PM_{2.5}$ Hotspot impacts. Only projects that are considered 'Projects of Air Quality Concern' (POAQC) are required to perform an analysis. POAQC are defined, generally, as those for new or expanded highway projects that have a significant number of or significant increase in diesel vehicles, projects affecting intersections that are Level of Service D, E, or F with a significant number of diesel vehicles, new or expanded bus and rail terminals and transfer points with a significant number of diesel vehicles congregating in a single location, and projects in or affecting locations, areas

or categories of sites which are identified in the PM_{10} or $PM_{2.5}$ applicable implementation plan as sites of possible violation. The rule allows for projects that have prepared a PM_{10} Hotspot analysis based on prior guidance to use that analysis without any changes.

- In January 24, 2008, the Transportation Conformity Rule was amended to implement provisions contained in the 2004 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). On August 10, 2005, the SAFETEA-LU section 6011 amended the Clean Air Act Section 176 (c) by:

  - Changing the required frequency of transportation conformity determinations from three years to four years;
  - Providing two years to determine conformity after new SIP motor vehicle emissions budgets are either found adequate, approved or promulgated;
  - Adding a one-year grace period before the consequences of a conformity lapse apply;
  - Providing an option for reducing the time period addressed by conformity determinations;
  - Streamlining requirements for conformity SIPs; and
  - Providing procedures for areas to use in substituting or adding TCMs to approved SIPs.

  SAFETEA-LU section 6011 (g) requires that EPA revise the transportation conformity rule as necessary to address the new statutory provisions. This final rule addresses the relevant changes that SAFETEA-LU made to the Clean Air Act. This final rule is effective on February 25, 2008.

2.2 Criteria Pollutants

Since the passage of FCAA and subsequent amendments, the EPA has established and revised the NAAQS. The NAAQS was established for six major pollutants or criteria pollutants. The NAAQS are two tiered: primary, to protect public health; and secondary, to prevent degradation to the environment (i.e., impairment of visibility, damage to vegetation and property). The six criteria pollutants are O_3, CO, PM_{10} and $PM_{2.5}$, NO_2, sulfur dioxide (SO_2), and lead (Pb). Table 2 presents the state and national AAQSs. A brief explanation of each pollutant is presented below.

2.2.1 Ozone (O_3)

Ozone is a toxic gas that irritates the lungs and damages materials and vegetation. Ozone is a secondary pollutant; it is not directly emitted. Ozone is a principal cause of lung and eye irritation in an urban environment. It is formed in the atmosphere through a series of reactions involving hydrocarbons (HC) and nitrogen oxides in the presence of sunlight.

2.2.2 Particulate Matter (PM_{10} & $PM_{2.5}$)

Particulate matter includes both aerosols and solid particles of a wide range of size and composition. Of particular concern are those particles 10 microns in diameter (PM_{10}) and those with 2.5 microns or smaller in diameter ($PM_{2.5}$). The size of the particulate matter is referenced to the aerodynamic diameter of the particulate. The PM_{10} criteria are aimed primarily at what the EPA refers to as "coarse particles." Coarse particles are often found near roadways, dusty industries, construction sites, and fires. The $PM_{2.5}$ criteria are referred to as "fine particles." These particles can also be directly emitted and they can also form when gases emitted from power plants, industries and automobiles react in the air. The principal health effect of airborne particulate matter is on the respiratory system. Studies have linked particulate pollution with irritation of the airways, coughing, aggravated asthma, irregular heartbeat, and premature death in people with heart or lung disease.

2.2.3 Carbon Monoxide (CO)

Carbon monoxide is a colorless and odorless gas, which, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. Carbon monoxide combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High carbon monoxide concentrations can lead to headaches, aggravation of cardiovascular disease, and impairment of central nervous system functions. Carbon monoxide concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near crowded intersections, along heavily used roadways carrying slow-moving traffic, and at or near ground level. Even under the most severe meteorological and traffic conditions, high concentrations of carbon monoxide are limited to locations within a relatively short distance (300 to 600 feet [90 to 185 meters]) of heavily traveled roadways. Overall carbon monoxide emissions are decreasing as a result of the Federal

Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973.

2.2.4 Nitrogen Oxides (NO_X)

Nitrogen oxides from automotive sources are some of the precursors in the formation of ozone and secondary particulate matter. Ozone and particulate matter are formed through a series of photochemical reactions in the atmosphere. Because the reactions are slow and occur as the pollutants are diffusing downwind, elevated ozone levels are often found many miles from the source of precursor emission. The effects of nitrogen oxides emission are examined on a regional basis.

2.2.5 Lead (Pb)

Lead is a stable compound, which persists and accumulates both in the environment and in animals. In humans, it affects the blood-forming or hematopoletic, the nervous, and the renal systems. In addition, lead has been shown to affect the normal functions of the reproductive, endocrine, hepatic, cardiovascular, immunological, and gastrointestinal systems, although there is significant individual variability in response to lead exposure. Since 1975, lead emissions have been in decline due in part to the introduction of catalyst-equipped vehicles, and decline in production of leaded gasoline. In general, an analysis of lead is limited to projects that emit significant quantities of the pollutant (i.e. lead smelters) and are not applied to transportation projects.

2.2.6 Sulfur Oxides (SO_x)

Sulfur oxides constitute a class of compounds of which sulfur dioxide (SO_2) and sulfur trioxide (SO_3) are of greatest importance. The oxides are formed during combustion of the sulfur components in motor fuels. Relatively few sulfur oxides are emitted from motor vehicles since motor fuels are now de-sulfured. The health effects of sulfur oxides include respiratory illness, damage to the respiratory tract, and bronchia-constriction.

Table 2 Ambient Air Quality Standards

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		Federal Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)	24 Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15.0 µg/m^3		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	—
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m^3)		0.100 ppm (see footnote 8)	None	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (80 µg/m^3)	—	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	—	
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	1 Hour	0.25 ppm (655 µg/m^3)		—	—	—
Lead[9]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m^3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average[10]	—		0.15 µg/m^3		
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[9]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

For more information please call ARB-PIO at (916) 322-2990 California Air Resources Board (02/16/10)

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calender year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.

8. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

9. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

10. National lead standard, rolling 3-month average: final rule signed October 15, 2008.

3.0 Environmental Setting

3.1 Climate and Meteorology

Meteorology (weather) and terrain can influence air quality trends. Certain weather parameters are highly correlated to air quality, including temperature, the amount of sunlight, and the type of winds at the surface and above the surface. Winds can transport ozone or ozone precursors from one region to another, contributing to air quality problems downwind of the source regions. Mountains such as the San Joaquin Valley, Sierra Nevada Mountains, and the San Bernardino Mountains in the Los Angeles area can form a barrier that prevents ozone from dispersing.

The air above Ventura County often exhibits weak vertical and horizontal dispersion characteristics, which limit the dispersion of emissions and cause increased ambient air pollutant levels. Persistent temperature inversions prevent vertical dispersion. The inversions act as a "ceiling" that prevents pollutants from rising and dispersing. Mountain ranges act as "walls" that inhibit horizontal dispersion of air pollutants. The diurnal land/sea breeze pattern common in Ventura County re-circulates air contaminants. Air pollutants are pushed toward the ocean (west) during the early morning by the land breeze, and toward inland (east) during the afternoon, by the sea breeze. This creates a "sloshing" effect, causing pollutants to remain in the area for several days. Residual emissions from previous days accumulate and chemically react with new emissions in the presence of sunlight, thereby increasing ambient air pollutant levels. This pollutant "sloshing" effect happens most predominantly from May through October ("smog" season). Air temperatures are usually higher and sunlight more intense during the "smog" season. This explains why Ventura County experiences the most exceedances of the state and federal ozone standards during this six-month period.

The climatological station closest to the site that monitors temperature is the Santa Paula (# 047957) maintained by the Western Regional Climate Center. The annual average maximum temperature recorded from 1971 to 2000 at this station is 74.7 $^{\circ}$F, and the annual average minimum is 48.0 $^{\circ}$F. The average annual precipitation recorded was 18.41 inches.

The project site is located in Ventura County which is on the southern portion of the Central Coast of California. General topography in the county is diversified and characterized by

mountain ranges, river valleys and plains. The general area of the project site is flat to mildly sloped towards southeast. According to a United States Geological Survey (USGS) topographic map (1978), the approximate elevation of the project site is around 320 feet above mean sea level (MSL). A dry former creek-bed lies to the east of the site and is adjacent to the intersection of SR-118 and SR-34.

3.2 Monitored Air Quality

The CARB and VCAPCD operate a regional air quality-monitoring network in the Basin that provides information on ambient concentrations criteria air pollutants. Areas not in compliance with the AAQS are deemed nonattainment areas. Areas that have insufficient data to make a determination are deemed unclassified, and are treated as being attainment areas until proven otherwise. Using the ambient air monitoring data collected at the monitoring stations around Ventura county, the EPA and CARB determine whether the county air is in attainment of the federal and state air quality standards.

Table 3 shows ambient air monitoring data taken from a station closest to the project site (El Rio-Rio Mesa School #2 Monitoring Station, ARB number 56436). Data were obtained from the CARB air quality website (http://www.arb.ca.gov/adam/welcome.html). Among the criterion pollutants, the station monitors 1-hr O_3, 8-hr O_3, PM_{10}, $PM_{2.5}$ and NO_2. The most recent data available from this station is from year 2008. None of the ARB monitoring stations in Ventura County monitors CO or SO_2.

Table 3 Air Quality Levels Measured at Nearby Monitoring Station

Pollutant/Standard		2006	2007	2008
Ozone(O_3)	O_3 (1-hour)[a]			
	Maximum Concentration (ppm)	0.089	0.089	0.086
	Days> CAAQS (0.09 ppm)	0	0	0
	O_3 (8-hour)			
	Maximum Concentration (ppm)	0.070	0.072	0.074
	Days> CAAQS (0.070 ppm)	0	1	1
	Days> NAAQS (0.075 ppm)	0	0	0
Particulate Matter (PM_{10})	PM_{10}(24-hour)			
	Maximum Concentration (ug/m3)	119.4	245.5	79.0
	Days> CAAQS (50 ug/m3)	4	2	3
	Days> NAAQS (150 ug/m3)	0	1	0
	PM_{10} (Annual Average)			
	National Annual Average	27.3	28.9	25.6
Particulate Matter ($PM_{2.5}$)	$PM_{2.5}$ (24-hour)			
	Maximum Concentration (ug/m3)	29.8	39.9	23.4
	Days> NAAQS (35 ug/m3)[a]	0	1	0
	$PM_{2.5}$ (Annual Average)			
	National Annual Average	9.8	10.6	10.0
Nitrogen Dioxide (NO_2)	NO_2 (1-hour - - State Standard)			
	Maximum Concentration (ppm)	0.050	0.053	0.052
	Days > CAAQS (0.25 ppm)[b]	0	0	0
	NO_2 (Annual Average - - National Standard)			
	Maximum Concentration (ppm)	*	*	*
	Days > NAAQS (0.053 ppm)	*	*	*

Notes:

** There was insufficient (or no) data available to determine the value.*

a. As of June 15, 2005 EPA revoked the 1-hr ozone standard in all areas except the 8-hr ozone nonattainment early action compact areas. However the data is presented here for informational purpose only.

b. The California 1-hour NO_2 standard was changed effective February 2, 2007 from 0.25 ppm to 0.18 ppm and establish a new annual standard of 0.030 ppm.

3.3 Sensitive Receptors

Generally, sensitive receptors are facilities or land uses that include members of the population sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. The proposed project passes through the community of Somis in Ventura County. Farmland and residential areas make up the majority in this community. Somis School and a childcare facility are located within approximately 600 yds from the project site.

The Ventura County General Plan designates two "Existing Community" areas within close proximity to the project limits. The Somis Existing Community is located approximately 0.5 mi.

(0.8 km) south of the project. In addition, the La Cumbre Road Existing Community is located northeast of SR-118/SR-34 intersection and includes Donlon Road. The General Land Use Map of the Ventura County General Plan identifies the land use within the project vicinity as rural and agricultural land with 1 Acre and 40 Acre Minimum (see Table 4 below). Exhibit 12 presents a general depiction of sensitive receptors in the vicinity of the project area.

Table 4 Existing Land Use in Project Vicinity

North side of SR-118, East of Donlon Road:	Rural-1 Acre Minimum Agricultural-40 Acre Minimum
North side of SR-118, West of Donlon Road:	Agricultural-40 Acre Minimum
South side of SR-118, East & West of SR-34:	Agricultural-40 Acre Minimum

Exhibit 12 Sensitive Receptors Map

4.0 Regional Analysis

4.1 Rules and Implementation

The authority requiring projects to undergo a regional emissions analysis originates from section 176 (c) of the Clean Air Act Amendments of 1990. The law is codified as title 23 of the United States Code (23 U.S.C) and is known as the Federal Transit Act. The regulations cited to implement 23 U.S.C is contained in title 40 of the Code of Federal Regulation parts 51 and 93 40 CFR 51 and 40 CFR 93). Parts 51 and 93 are commonly recognized as the Transportation Conformity Rule. On August 15, 1997 the Federal Register, published a public notice in which the EPA requested to streamline the 40 CFR 51 & 93. The final rule issued by the EPA modified 40 CFR 51 and 93, and classified the Transportation Conformity Rule as 40 CFR 51.390 and 40 CFR 93.100-93.128.

The Transportation Conformity Rule requires a regional emissions analysis to be performed by the MPO for projects within its jurisdiction. For the Basin, the MPO is the SCAG. The regional emissions analysis includes all projects listed in the RTP and the RTIP. The Plan is a regional planning document spanning a 25-year period, and the TIP implements the Plan on a 4-year increment. Both the Plan and TIP must support an affirmative conformity finding to obtain the FHWA approval. Projects that are included in the regional analysis are listed in the TIP and referenced in the Plan. Projects in a Plan and TIP that have been approved by the FHWA are considered to have met the conformity requirement for regional emissions analysis.

The most recently approved Plan and TIP are the 2008 RTP and the 2008 RTIP. The 2008 Plan was adopted by SCAG on May 8, 2008 as Resolution #06-471-3. The FHWA approved the 2008 Plan on June 5, 2008. The 2008 RTIP was adopted by SCAG on July 17, 2008 as Resolution #08-498-1. FHWA approved the 2008 RTIP on November 17, 2008. The most recent approved amendments to the RTP and RTIP are amendment #2 and amendment #08-35, which were approved by FHWA on January 22, 2010 and February 17, 2010, respectively.

In order to obtain FHWA approval of the Plan and TIP as conforming, the following tests, demonstrating affirmative findings with respect to the Transportation Conformity Rule, were applied to the 2008 SCAG's RTP.

- Regional Emissions Analysis (Sections 93.109, 93.110, 93.118, and 93.119)
- Timely Implementation of TCMs Analysis (Section 93.113)
- Financial Constraint Analysis (Section 93.108)
- Interagency Consultation and Public Involvement Analysis (Sections 93.105 and 93.112)
- Likewise, the approval of the 2008 SCAG's RTIP is contingent upon satisfying all relevant CFR sections applicable:
- Consistency with SCAG's 2008 RTP (Section 450.324 of the US DOT-Metropolitan Planning Regulations)
- Regional Emissions Analysis (Sections 93.109, 93.110, 93.118, and 93.119)
- Timely Implementation of TCMs Analysis (Section 93.113)
- Financial Constraint Analysis (Section 93.108)

Interagency Consultation and Public Involvement Analysis (Sections 93.105 and 93.112)

4.2 Alternatives Exempt From Regional Analysis

Out of the five build Alternatives proposed for the project, Alternatives 2, 3, 4 and 6 involve addition of turn lanes to aid traffic flow and are considered exempt from regional emissions analysis (intersection channelization projects in Table 3 of 40 CFR 93.127). However, project level conformity determination is still applicable. Since Alternative 5 includes construction of a new bypass on SR-34, this Alternative would not be considered as exempt from regional emissions analysis.

4.3 Project Inclusion in Approved RTP/RTIP

The project is included in the 2008 RTP with funding only for Preliminary Engineering (PE). Although the project is not listed in the 2008 RTIP, the project is included in the latest approved 2008 RTP amendment #2 and RTIP amendment #08-24 modeling list. The project's listing on the 2008 RTP and the stated RTP/RTIP amendment's modeling list are attached under Appendix A.

The following project information is excerpted from 2008 RTP amendment #2 and RTIP amendment #08-24 modeling list:

- Project ID: 5A0716
- Description: Widen Intersection, add turn lanes, realign Donlon Road (County portion only).

4.4 Results of Regional Emissions Analysis

The intent and purpose of the Transportation Conformity Rule is to satisfy the federal Clean Air Act Amendments of 1990. This requires that projects do not cause new violation relating to NAAQS, increase the severity of such violation, and delay the attainment of NAAQS. The 2008 RTP and RTIP satisfy these objectives by incorporating the applicable SIPs that contain the applicable tests for regional emissions analysis. To achieve the stated goals, the regional emissions analysis is categorized into several tests: the emissions budget test or the emissions reduction test. For the budget test, the regional emissions must be equal to or less than the emissions budgets. A budget test is used only if there is a submitted (with affirmative adequacy determination) or approved SIP for the criteria pollutant.

Due to a recent litigation relative to EPA's 8-hr Ozone Phase 2 Rule, EPA instructed ARB to revise the established method of demonstrating Reasonable Further Progress (RFP) in O_3 non-attainment areas that utilize reductions from other areas to demonstrate attainment, including Ventura County portion of the Basin. Therefore, at this time, there are no AQMPs or SIPs and, thereby, there is no 8-hr O_3 transportation emission budget for the Basin. With EPA's agreement, ARB has adopted Early Progress Plans (EPPs) for areas that need upwind reductions to show RFP, which establish the transportation emission budgets during the time of litigation.

Therefore, the budget test is used for 8-hr O_3 and is performed in the 2008 RTP. EMFAC2007, which was found adequate as of January 2008, was used in modeling vehicular pollutant emissions for the test. Table 5 presents the results of the budget test from the 2008 RTP. The 2008 RTP was adopted by SCAG in May of 2008 and was approved by FHWA in June 2008. The 2008 RTIP was adopted by SCAG in July of 2008 and was approved by FHWA in November 2008. Both documents are in compliance with the new SAFETEA-LU.

For criteria pollutants, regional emissions are compared to budgets. Usually, the budget, the maximum allowed emission of a pollutant, decreases for future years until a reference year is attained. After this attainment year, the budget remains relatively constant with little or no further future rate of decrease. This budget at the attainment year corresponds to the ambient concentration of the criteria pollutant at NAAQS level. Alternatively, the intent in decreasing the budget is to reduce the ambient concentration of a criteria pollutant to the level delineated in

the NAAQS, the essence of the Clean Air Act Amendments of 1990. Until criteria pollutant concentration is reduced to the level required for attaining NAAQS, the pollutant is considered to be in non-attainment.

Table 5 Results of 2008 RTP Regional Emissions Analysis (8-hr Ozone)

Pollutant (tons/day)		2009	2010	2020	2030	2035
ROG	Budget	13	13	13	13	13
	Plan	12	11	7	6	5
	Budget - Plan	1	2	6	7	8
NO_x	Budget	19	19	19	19	19
	Plan	19	17	9	6	6
	Budget - Plan	0	2	10	13	13

Source: 2008 RTP Transportation Conformity Report

4.5 Regional Analysis Contingency and Finding

The CO Protocol was used to analyze CO impacts for the proposed project. The CO Protocol Flowcharts were utilized in determining the type of project-level CO analysis required for the proposed projects. A step-by-step response to each step and level is provided below. The flowchart begins with Section 3.1.1 of the flowchart from Figure 1 of the CO protocol, which is the procedure used to determine requirements. Out of the five build Alternatives proposed for the project, Alternatives 2, 3, 4, and 6 fall into the category of projects listed in Table 3 of 40 CFR 93.127; whereas, Alternative 5 (Somis Bypass Alternative) does not fall under this category. Thereby, analysis of CO impacts for Alternative 5 was performed separately. The CO Protocol paths taken are attached under Appendix B.

4.5.1 Regional CO Analysis for Alternatives 2, 3, 4, and 6

Q: 3.1.1 Is this project exempt from all emissions analyses? (see Table l)

A: **NO.** Table 1 of the CO Protocol is Table 2 of 40 CFR 93.126. Section 3.1.1 is inquiring if the project is exempt from all the requirements to determine conformity. Alternatives 2, 3, 4 and 6 of the proposed project are not classified according to Table 1; and therefore, are not deemed exempt from all emissions analyses.

Q: 3.1.2. Is project exempt from regional emissions analyses? (see Table 2)

A: **YES.** Table 2 of the CO Protocol is Table 3 of 40 CFR 93.127. The question is attempting to determine if project is exempt from regional emissions analyses. Alternatives 2, 3, 4, and 6 of the proposed project involve addition of turn lanes to aid traffic flow and do not increase capacity of the roads. Thereby, these Alternatives are classified to be in accordance with Table 2; and therefore, are deemed exempt from regional emissions analyses. The flowchart directs the project evaluation to Section 3.1.9.

Q: 3.1.9. Examine local impacts.

A: Section 3.1.9 of the flowchart directs the project evaluation to Section 4, Local Analysis, of the CO Protocol.

This concludes the flowchart presented in Figure 1 of the CO Protocol for Alternatives 2, 3, 4 and 6. The flowchart is now continued to Section 4.

4.5.2 Regional CO Analysis for Alternative 5

Q: 3.1.1 Is this project exempt from all emissions analyses? (see Table l)

A: **NO.** Table 1 of the CO Protocol is Table 2 of 40 CFR 93.126. Section 3.1.1 is inquiring if the project is exempt from all the requirements to determine conformity. Alternative 5 of the proposed project is not classified according to Table 1; and therefore, it is not deemed exempt from all emissions analyses.

Q: 3.1.2. Is project exempt from regional emissions analyses? (see Table 2)

A: **NO.** Table 2 of the CO Protocol is Table 3 of 40 CFR 93.127. The question is attempting to determine if project is exempt from regional emissions analyses. Alternative 5 of the proposed project is not classified according to Table 2; and therefore, it is not deemed exempt from regional emissions analyses.

Q: 3.1.3. Is project locally defined as regionally significant?

A: **YES.** Projects not listed as exempt (as per 40 CFR 93.126 and 93.128) are usually considered regionally significant (defined in 40 CFR 93.101 as projects that would normally be included in the modeling of a metropolitan area's transportation network),

unless otherwise stipulated via interagency consultation. Since the project is not an exempt project, it is considered as regionally significant.

Q: 3.1.4. Is project in a federal attainment area?

A: **NO.** As depicted in Table 1 of this report, the Basin is in non-attainment for 8-hr O_3 per federal designation. The flowchart directs the project evaluation to Section 3.1.5.

Q: 3.1.5. Is there a currently conforming RTP and TIP?

A: **YES.** The 2008 RTP was adopted by SCAG in May of 2008 and was approved by FHWA in June 2008. The 2008 RTIP was adopted by SCAG in July of 2008 and was approved by FHWA in November 2008.

Q: 3.1.6. Is the project included in the regional emissions analysis supporting the currently conforming RTP and TIP?

A: **YES.** The project is included in the FHWA approved 2008 RTP amendment #2 and 2008 RTIP amendment #08-24 modeling list. A copy of the modeling list is attached under Appendix A of this report. The flowchart directs the project evaluation to Section 3.1.7.

Q: 3.1.7. Has project design concept and /or scope changed significantly from that in regional analysis?

A: **NO.** The project has not changed significantly with regards to scope and/or design concept from that in the regional analysis. The flowchart directs the project evaluation to Section 3.1.9.

Q: 3.1.9. Examine local impacts.

A: Section 3.1.9 of the flowchart directs the project evaluation to Section 4, Local Analysis, of the CO Protocol. This concludes the flowchart presented in Figure 1 of the CO Protocol for Alternative 5. The flowchart is now continued to Section 4.

5.0 Local Air Quality Analysis

5.1 Overview of Local Analysis

The local analysis is commonly referred to as a project-level air quality or "hot spot" analysis. The primary focus is the operational impact on air quality created by the proposed improvement. Unlike a regional analysis, a local analysis is constrained in scope and is limited to the particular project. The criteria pollutants analyzed do not consist of all pollutants in nonattainment. The analysis is restricted to CO, PM_{10}, and $PM_{2.5}$. The analysis years consist of the year the completed lanes open to traffic and the ultimate horizon year referenced in the approved Plan rather than a series of present and future years. The approach to the local analysis is tiered and is dependent on the status of the CO SIP: the CO analysis can be qualitative, quantitative, or computational. The PM_{10} and $PM_{2.5}$ analysis is qualitative in scope.

Similar to the regional analysis, the Transportation Conformity Rule also applies to the local analysis. Sections of pertinence are 40 CFR 93.115 to 93.117, 93.123,and 93.126 to 93.128. In California, the procedures of the local analysis for carbon monoxide are modified pursuant §93.123(a)(1). Sub-paragraph (a)(1) states the following:

> *CO hot-spot analysis. (1) The demonstrations required by §93.116 ("Localized CO and PM_{10} violations") must be based on a quantitative analysis using the applicable air quality models, data bases, and other requirements specified in 40 CFR part 51, Appendix W (Guideline on Air Quality Models). These procedures shall be used in the following cases, unless different procedures developed through the interagency consultation process required in §93.105 and approved by the EPA Regional Administrator are used:*

The sub-paragraph allows for an Alternative. In California, the procedure for performing a CO analysis is detailed in the *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) developed by the Institute of Transportation Studies at the University of California, Davis. David P. Howekamp, Director of Air Division of the EPA Region IX, in October of 1997, approved the CO Protocol. The EPA deemed the Protocol as an acceptable option to the mandated quantitative analysis. The CO Protocol incorporates §93.115 – 93.117, §93.126 –

93.128 into its rules and procedures. §93.123(b)(1) requires that the PM_{10}, and $PM_{2.5}$ analysis be quantitative. However, §93.123(b)(4) waives such analysis until the EPA releases modeling guidance and announces such guidance in the Federal Register. Since no modeling guidance has been released to date, §93.123(b)(4) offsets the implementation of §93.123(b)(1) and only a qualitative analysis is required.

5.2 Local Analysis: Carbon Monoxide Operational Impact

The requirements for new projects as summarized in Section 3 and illustrated in Figure 1 of the CO Protocol have already been discussed in this report. Therefore, the scope required for project-level local analysis will be discussed, beginning with Section 4 of the CO Protocol, Local Analysis, and illustrated in Figure 3 entitled Local CO Analysis. This flowchart is utilized in determining the type of project-level CO analysis required for the proposed project. A step-by-step response to each step and level along the flowchart is provided below. Each level cited is followed by a response, which will determine the next applicable level of the flowchart for the proposed project. Figure 3 of the CO Protocol with the path taken highlighted is attached under Appendix B. The flowchart begins at level 1:

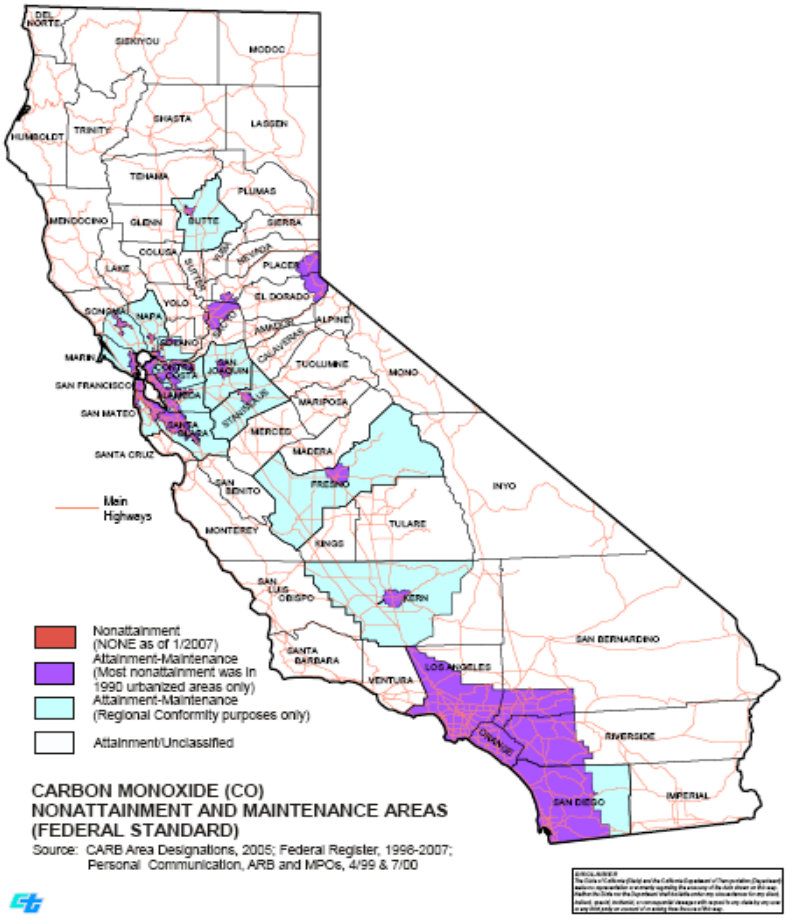
Q: Level 1. Is the project in a CO nonattainment area?

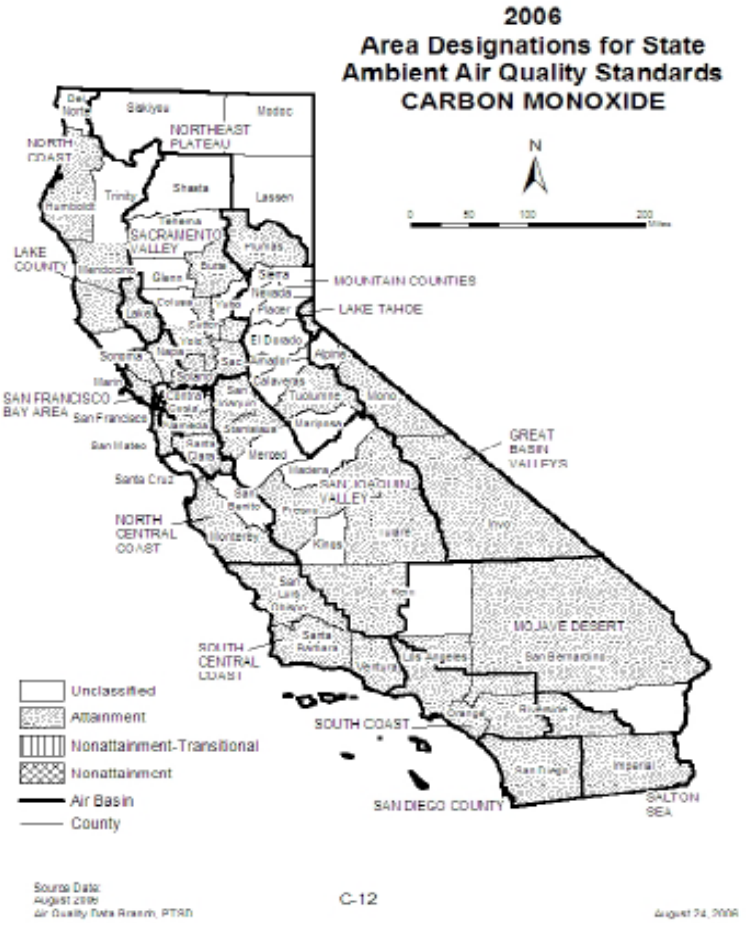
A: **No.** As shown in Table 1 (Designations for the Basin in Ventura County), the proposed project is located in CO attainment area. The federal and California designation for CO are illustrated in Exhibit 13 below.

Q: Was the area redesignated as "attainment" after the 1990 Clean Air Act?

A: **No.** The Basin had not been designated as nonattainment earlier; but is designated as attainment/unclassified at the time. The flowchart directs the project evaluation to Level 7.

Exhibit 13 Federal and State CO Area Designation Maps





Q: Level 7. Does project worsen air quality?

The CO Protocol Section 4.7.1 recommends the following criteria to be used to determine whether the project is likely to worsen air quality for the area substantially affected by the project.

- *The project significantly increases the percentage of vehicles operating in cold start mode. Increasing the number of vehicles operating in cold start mode by as little as 2 percent should be considered potentially significant.*

  Existing land uses within the project area remain unchanged for the Alternatives. Therefore, the proposed project would not increase the percentage of vehicles operating in cold start mode.

- *The project significantly increases traffic volumes. Increases in traffic volumes in excess of 5 percent should be considered potentially significant. Increasing the traffic volume by less than 5 percent may still be potentially significant if there is also a reduction in average speeds.*

  Table 6 below presents the AM and PM Peak Hourly average traffic. Based on the data presented, the Build Alternatives do not increase the traffic by more than 5 percent compared to the No-Build Alternative for the years opening or horizon years. Therefore, the project does not significantly increase traffic volumes.

Table 6 Summary of Peak Hourly Traffic Data

Year	Alternatives	AM Peak Hourly Traffic					PM Peak Hourly Traffic				
		SR 118 East Leg	SR 118 West Leg	SR 34	Donlon Road	Bypass	SR 118 East Leg	SR 118 West Leg	SR 34	Donlon Road	Bypass
Existing 2008	No-build	1521	781	1057	201	n/a	1596	919	1048	223	n/a
Opening 2015	Alternative 1 (No build)	1770	810	1120	*	n/a	1790	920	1090	*	n/a
	Alternative 2 & 6	1590	820	1100	210	n/a	1670	950	1090	230	n/a
	Alternative 3	1590	820	1100	210	n/a	1670	950	1090	230	n/a
	Alternative 4	1590	820	1100	210	n/a	1710	950	1130	230	n/a
	Alternative 5	1590	810	1100	210	890	1670	920	1100	230	840
Horizon 2035	Alternative 1 (No build)	2000	910	1250	*	n/a	2030	1050	1240	*	n/a
	Alternative 2 & 6	1810	920	1260	250	n/a	1880	1090	1230	260	n/a
	Alternative 3	1810	920	1260	250	n/a	1850	1060	1230	260	n/a
	Alternative 4	1810	920	1260	250	n/a	1880	1090	1230	260	n/a
	Alternative 5	1800	920	1250	250	1020	1890	1090	1240	260	950

*Data unavailable.
Source: Caltrans Division of Environmental Planning

- *The project worsens traffic flow. For uninterrupted roadway segments, a reduction in average speeds (within a range of 3 to 50 mph) should be regarded as worsening traffic flow. For intersection segments, a reduction in average speed or an increase in average delay should be considered as worsening traffic flow.*

  The proposed improvements would not worsen the flow or operations with the implementation of the project. As shown in Table 7 below, the LOS shows an improvement with the implementation of the project for all the Build Alternatives compared to the No-Build Alternative. Therefore, proposed project is not expected to worsen the traffic flow, but rather, is anticipated to improve flows during AM and PM peaks.

Table 7 Existing and Future Peak Hour LOS

	2008		2015		2035	
Alternatives	**AM Peak Hour**	**PM Peak Hour**	**AM Peak Hour**	**PM Peak Hour**	**AM Peak Hour**	**PM Peak Hour**
1 (No-Build)	F	F	F	F	F	F
2 and 6	C	C	C	C	C	D
3	C	D	C	D	D	D
4	–	–	–	–	–	–
5 (existing 118/34 intersection)	B	D	C	C	C	C
5 (North 118/Bypass intersection)	C	C	C	C	C	C
5 (South 34/Bypass intersection)	B	B	B	B	B	B
5 (Donlon Realigned)	–	–	B	B	B	B

Source: Caltrans Traffic Investigations.

All criteria in section 4.7.1 have been satisfactorily and adequately answered; and the project has sufficiently addressed the CO impact, indicating that no further analysis is needed according to Figure 3 of the CO Protocol and demonstrating that the proposed project will not cause or contribute to any new violation of the federal CO standard.

5.3 Local Analysis: PM_{10} and $PM_{2.5}$ Operational Impact

The FCAA section 176(c)(1)(B) is the statutory criterion that must be met by all projects in nonattainment and maintenance areas that are subject to transportation conformity. Section 176(c)(1)(B) states that federally-supported transportation projects must not "cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area." To meet statutory requirements, the March, 2006 final rule requires $PM_{2.5}$ and PM_{10} hot-spot analyses to be performed for projects of air quality concern (POAQC). Qualitative hot-spot analyses would be done for these projects before appropriate methods and modeling guidance are available and quantitative $PM_{2.5}$ and PM_{10} hot-spot analyses are required under 40 CFR 93.123(b)(4). In addition, through the final rule, EPA determined that projects not identified in 40 CFR 93.123(b)(1) as POAQC have also met statutory requirements without any further hot-spot analyses (40 CFR 93.116(a)). The final rule requires Interagency Consultation concurrence on the project-level hot spot analysis and findings for every project in a PM nonattainment and maintenance area, which is not fully exempt from conformity analysis requirements. Interagency

Consultation concurrence is required for projects where a detailed analysis is done, and also for the decision that a project is not a POAQC and does not need a detailed analysis. On March 10, 2006, EPA released guidance on PM_{10}, and $PM_{2.5}$ analyses, titled "*Transportation Conformity Guidance for Qualitative Hot-spot Analysis in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas."* Because the proposed project is located in Ventura County and the county is designated as area in attainment of federal $PM_{2.5}$ and PM_{10} standards, a qualitative PM hot-spot analysis is not required according to the FHWA/EPA Guidance.

The Basin in is in attainment for federal $PM_{2.5}$ and PM_{10} standards (Exhibits 14 and 15); however, the Basin does not meet the state $PM_{2.5}$ and PM_{10} standards. State of California Health and Safety Code Section 39614 required air districts that violate California PM air quality standards to adopt a schedule for implementing cost effective PM control measures. The deadline for adopting the schedule was July 31, 2005. The two main sources of $PM_{2.5}$ are engine exhaust and PM formed in the atmosphere from other pollutants, such as NOx and ROG. These pollutants react chemically in the atmosphere to form $PM_{2.5}$. Because existing District rules had already regulated these pollutants, Ventura County District staff did not propose new measures to control $PM_{2.5}$. However, a schedule adopted new measures to reduce fugitive dust, a coarser form of PM, most commonly created by soil disturbed activities such as farming and construction operations, and strong winds blowing across disturbed and bare soil. The schedule included new fugitive dust control measures from the following sources: construction, earthmoving, and demolition operations; bulk material handling and storage operations; agricultural operations; paved and unpaved roads; unpaved parking lots and staging areas; and weed abatement operations. The VCAPCD Board approved the PM control measure schedule on June 28, 2005.

Impacts on the ambient PM_{10} and $PM_{2.5}$ by the proposed project have been evaluated based on the technical report *"Particulate Matter and Transportation Projects, An Analysis Protocol"* (PM Protocol), prepared by UC DAVIS, dated February 23, 2005. Impacts by $PM_{2.5}$ have been evaluated based on the understanding that they are a subset of the PM_{10}; and thus, are considered inclusive in the step-by-step assessment below based on the PM Protocol

Q: ***F3.1*** *At the most representative monitor for the proposed project site, are 24-hr average concentrations expected to be ≤80% of the 24-hr standard (120μg/m³[1])*

A: **Yes.** Data monitored at the most representative monitor for the proposed project site (El Rio-Rio Mesa School #2 station) show that in 2008 the highest measured 24-hr PM_{10} concentration was 79.0 μg/m³. 80 percent of this measured value is 63.2, and is less than the current Federal 24-hr PM_{10} standard of 150μg/m³. The PM Protocol directs that, "Project conforms to 24-hr PM_{10} standard. Continue analysis for annual standard."

Q: ***F3.3*** *At the most representative monitor for the proposed project site, are annual average concentrations expected to be ≤64% of the annual standard(32μg/m³)?*

A: **Not Applicable.** The Federal annual PM_{10} standard was revoked by EPA on October 17, 2006. Thereby, this section of the analysis is no longer applicable, and the next step of the PM Protocol is evaluated.

F3.5 *Project screened out. End analysis and document.*

[1] Note that the current Federal Primary standard for PM_{10} is 150μg/m³.

Exhibit 14 PM_{10} Non-attainment Area Map

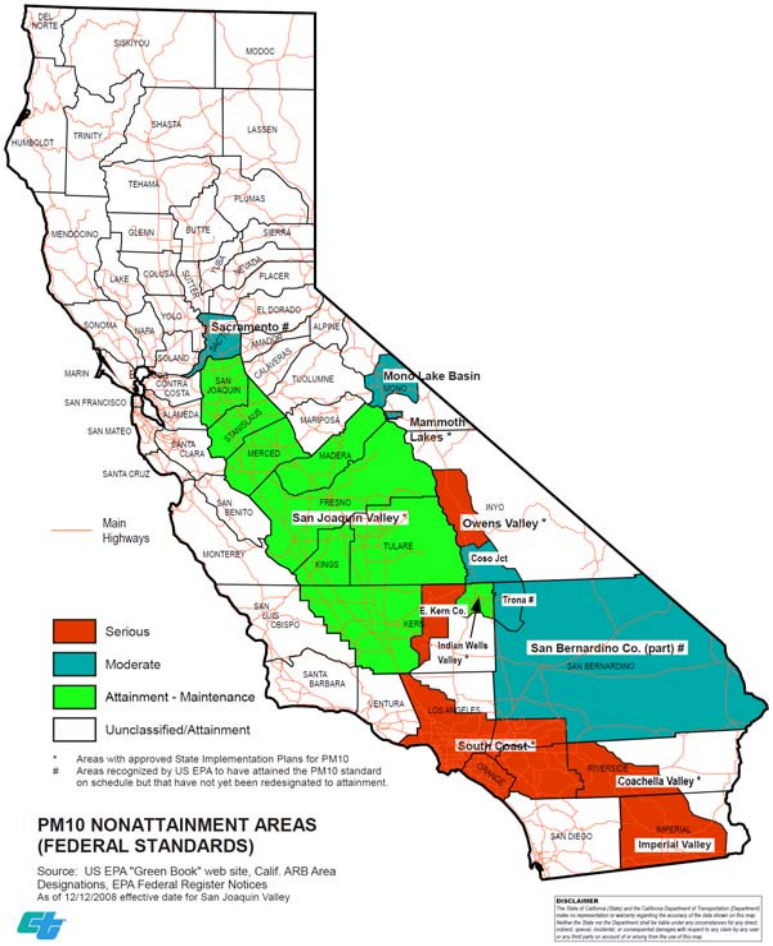
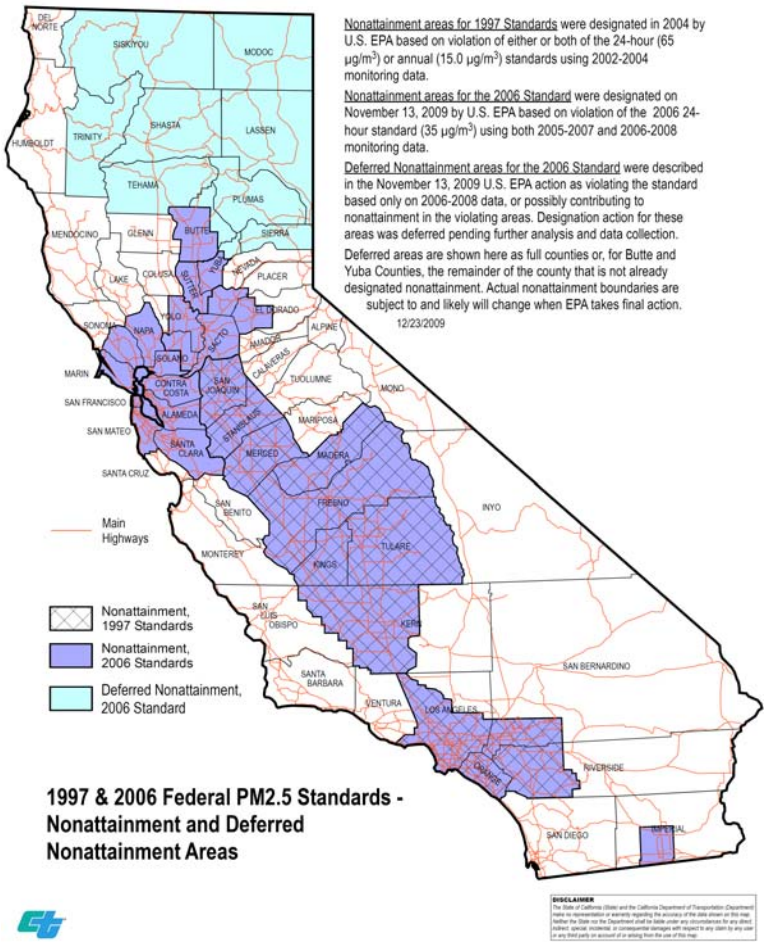


Exhibit 15 $PM_{2.5}$ Non-attainment Area Map



5.4 Construction-Related Emissions

It should be noted that the project is currently included in the RTP/RTIP with funding only for PE, as mentioned before. Thereby, all construction related discussions presented in this report are for informational purposes and are presented as guidelines for the future.

Construction activities associated with the proposed project are anticipated to be temporary. Based on the information present at the Caltrans project management database, the project's anticipated date for Ready to List (RTL) is July 2014 and contract acceptance date is December 2015. Short-term impacts to air quality may occur during construction phase. Additional sources of construction related emissions include:

- Exhaust emissions and potential odors from construction equipment used on the construction site as well as the vehicles used to transport materials to and from the site; and

- Exhaust emissions from the motor vehicles of the construction crew.

Project construction may result in temporary emissions of CO, NO_x, ROG, and PM_{10}. Stationary or mobile powered on-site construction equipment includes trucks, tractors, signal boards, excavators, backhoes, concrete saws, crushing and/or processing equipment, graders, trenchers, pavers and other paving equipment. The amount of worker trips to the site is unknown at this time. However, compared to the existing traffic in this area, the addition of worker trips will be inconsequential. Based on anticipated numbers of daily work trips required for project construction, construction worker trips are not anticipated to contribute to or affect traffic flow on local roadways. Thereby, construction-related emissions may be considered temporary.

In order to further minimize construction-related emissions, all construction vehicles and construction equipment would be required to be equipped with the state-mandated emission control devices pursuant to state emission regulations and standard construction practices. After construction of the project is complete, all construction-related impacts would cease, thus resulting in a less than significant impact. Short-term construction PM_{10} emissions would be further reduced with the implementation of VCAPCD fugitive dust reduction measures (Rule 55). Note that the Caltrans Standard Specifications Section 10 (Dust Control) and 18 (Dust

Palliative) and Section 39-3.06 (Asphalt Concrete Plants) must also be adhered to.

5.5 Fugitive Dust and PM_{10} Minimization Measures

Chapter 7-1.01F of Caltrans Standard Specifications (May, 2006) deals with Air Pollution Control. This chapter requires the contractor to comply with all "air pollution control rules, regulations, ordinances and statutes which apply to any work performed pursuant to the contract, including any air pollution rules, regulations, ordinances and statutes appearing in Section 11017 of the Government Code." Furthermore, Standard Specifications Sections 10, 17, and 18 require application of water or dust palliatives to keep fugitive dust from blowing off-site.

The proposed project is located within the boundaries of the VCAPCD in the South Central Coast Air Basin. Measures to control fugitive dust caused by project construction are presented in VCAPCD Rule 55 – Fugitive Dust, which is effective since October 8, 2008. Measures to control Valley Fever fungal spore entrainment are presented in the Ventura County Air Quality Assessment Guidelines (VCAQAG) Section 7.4.2, "Valley Fever Mitigation Measures." Measures to control Reactive Organic Compound (ROC) and NOx emissions from project construction are presented in VCAQAG Section 7.4.3 "ROC and NOx Construction Mitigation Measures." The project construction will need to comply with these control measures and any other local or regional applicable rules, guidance and measures.

Control techniques for fugitive dust generally involve watering, chemical dust control agents for soil stabilization, scheduling of activities, and vehicle speed control. Watering, the most common and generally least expensive method provides only temporary dust control. Watering also usually requires the use of diesel-powered watering trucks or pumps. The effectiveness of water for fugitive dust control depends greatly on the prevailing weather conditions and frequency of application. Chemical dust control agents provide longer dust suppression, but are not effective in reducing the large portion of construction dust emissions caused by grading, excavation, and cut-and-fill operations.

Dust control agents for soil stabilization are useful primarily for application on completed cuts, fills, and unpaved roadways. Fugitive dust emissions from inactive portions of a construction site can be reduced up to 80 percent with chemical stabilizers. Chemical stabilizers, however,

may be costly and should be limited to environmentally safe materials to avoid adverse effects on plant and animal life.

Scheduling activities during periods of low wind speed will also reduce fugitive dust emissions. Low wind speeds typically occur during morning hours. Highest wind speeds are observed during Santa Ana wind conditions, which commonly occur between October and February with December having the highest frequency of events. Additionally, vehicle speed control can reduce fugitive dust emissions from unpaved roads and areas at construction sites by up to 60 percent, assuming compliance with 15 miles per hour (mph) on-site speed limit.

Some of the key fugitive dust minimization measures are presented below. It should be noted that the list of measures below is not inclusive of all the rules and regulations that the project needs to abide by, rather, the list is presented to highlight key dust control measures only.

- The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of dust.
- Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.
- Fugitive dust produced during grading, excavation, and construction activities shall be controlled by the following activities:

    a) All trucks shall be required to cover their loads as required by California Vehicle Code §23114.

    b) All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible.

- Graded and/or excavated inactive areas of the construction site shall be monitored by at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area should be seeded and watered until grass growth is evident, or periodically treated with environmentally-safe dust suppressants, to prevent excessive fugitive dust.
- Signs shall be posted on-site limiting traffic to 15 miles per hour or less.
- During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site. The site superintendent/supervisor shall use his/her discretion in conjunction with the VCAPCD in determining when winds are excessive.
- Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.
- Personnel involved in grading operations, including contractors and subcontractors, should be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.

5.6 ROC and NO_x Construction Minimization Measures

As discussed in VCAQAG, Chapter 5, Estimating Ozone Precursor Emissions, ozone precursor emissions from construction vehicles can be substantial. However, there are very few feasible measures available to reduce these emissions. VCAPCD recommends the following measures to minimize ozone precursor emissions from construction motor vehicles:

- Minimize equipment idling time.
- Maintain equipment engines in good condition and in proper tune as per manufacturers' specifications.

- Lengthen the construction period during smog season (May through October), to minimize the number of vehicles and equipment operating at the same time.
- Use alternatively fueled construction equipment, such as compressed natural gas (CNG), liquefied natural gas (LNG), or electric, if feasible.

6.0 Additional Air Quality Topics

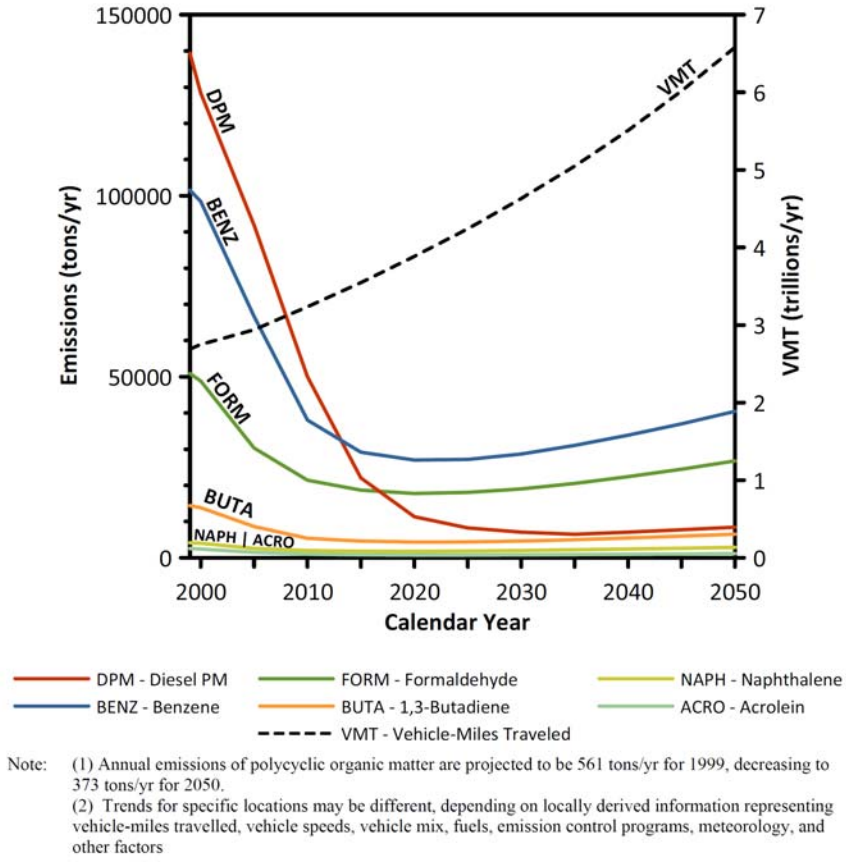
6.1 Mobile Source Air Toxics (MSATs)

6.1.1 Background

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://cfcpub.epa.gov/ncea/iris/index.cfm). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (http://www.epa.gov/ttn/atw/nata1999/). These are *acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter.* While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2 model, even if vehicle activity (VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050, as shown in Exhibit 16.

Exhibit 16 National MSAT Emission Trends 1999-2050 For Vehicles Operating On Roadways Using EPA's Mobile 6.2 Model



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

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making within the context of the National Environmental Policy Act (NEPA).

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, we are duly expected by the public and other agencies to address MSAT impacts in our environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this emerging field.

6.1.2 NEPA Context

The NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the Federal Government be interpreted and administered in accordance with its environmental protection goals. The NEPA also requires Federal agencies to use an interdisciplinary approach in planning and decision-making for any action that adversely impacts the environment. The NEPA requires and FHWA is committed to the examination and avoidance of potential impacts to the natural and human environment when considering approval of proposed transportation projects. In addition to evaluating the potential environmental effects, we must also take into account the need for safe and efficient transportation in reaching a decision that is in the best overall public interest. The FHWA policies and procedures for implementing NEPA is prescribed by regulation in 23 CFR § 771.

6.1.3 Analysis of MSAT in NEPA Documents

The FHWA developed a tiered approach for analyzing MSAT in NEPA documents, depending on specific project circumstances. The FHWA has identified three levels of analysis:

(1) No analysis for projects with no potential for meaningful MSAT effects;

(2) Qualitative analysis for projects with low potential MSAT effects; or

(3) Quantitative analysis to differentiate Alternatives for projects with higher potential MSAT effects.

For projects warranting MSAT analysis, the seven priority MSAT should be analyzed.

(1) Projects with No Meaningful Potential MSAT Effects or Exempt Projects.

The types of projects included in this category are:

- Projects qualifying as a categorical exclusion under 23 CFR 771.117(c);
- Projects exempt under the Clean Air Act conformity rule under 40 CFR 93.126; or
- Other projects with no meaningful impacts on traffic volumes or vehicle mix.

(2) Projects with Low Potential MSAT Effects.

The types of projects included in this category are those that serve to improve operations of highway, transit or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. This category covers a broad range of projects. Any projects not meeting the criteria in subsection (*1*) or subsection (*3*) as follows is be included in this category. Examples of these types of projects are minor widening projects; new

interchanges, such as those that replace a signalized intersection on a surface street; or projects where design year traffic is projected to be less than 140,000 to 150,000 annual average daily traffic (AADT).

(3) Projects with Higher Potential MSAT Effects.

This category includes projects that have the potential for meaningful differences in MSAT emissions among project Alternatives. We expect a limited number of projects to meet this two-pronged test. To fall into this category, a project must:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location; or
- Create new 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 or greater by the design year;

  And also

- Proposed to be located in proximity to populated areas.

6.1.4 Project MSAT Evaluation

The proposed project does not qualify as a categorical exclusion under 23 CFR 771.117(c) and it is not exempt per CFR 93.126 or 93.128. As described in Chapter 2 of this report, the project proposes a total of five build Alternatives. Further, the five build Alternatives can be classed into two groups. The first group of build Alternatives (consisting of Alternatives 2, 3, 4 and 6) essentially proposes to add turn lanes or a roundabout to the existing SR-118/SR-34 and SR-118/Donlon Road intersections. The second group of Alternative (consisting of Alternative 5 or the 'Somis Bypass' Alternative) essentially proposes to construct a new two-lane roadway that would connect SR-34 to SR-118 approximately one half mile east of the existing SR-118/SR-34 intersection. Purpose of the project is primarily to reduce delay time, relieve congestion, and enhance safety. Based on the scope of the project and the AADT being less than 150,000, the project is considered to have minimal MSAT effects and a qualitative MSAT analysis is considered appropriate. A qualitative MSAT analysis provides a basis for identifying and comparing various Alternatives based on their potential differences in MSAT emissions.

For each of the project Alternatives the amount of MSAT emitted would be proportional to the VMT, assuming that other variables such as fleet mix are the same. The first group of

Alternatives mentioned above is expected to have similar VMTs compared to the No-Build Alternative based on the peak hour volumes and changes in LOS as shown on Tables 6 and 7. The 'Somis Bypass' Alternative, on the other hand, proposes to essentially shorten the travel distance for traffic on WB SR-118 to SB SR-34 and for traffic on NB SR-34 to EB SR-118. This is because the approximate length of the proposed Somis Bypass is 5,100 feet whereas the approximate distance through the existing SR-118/SR-34 intersection is 5,800 feet, saving approximately 700 feet of traveling for motorists. Thereby, the Build Alternative is expected to have lower VMT compared to the No-Build Alternative. In addition, improvements in operation are anticipated based on the LOS data in Table 7; and have potential to further reduce MSAT emissions. Based on the above discussion, higher levels of MSAT emissions are not anticipated from any of the Build Alternatives compared to the No Build Alternative.

Regardless of the Alternative chosen, MSAT emissions will likely be lower in the opening and design years than present as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by 72 percent from 1999 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

Under each Alternative there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the newly proposed 'Somis Bypass' (Alternative 5). However, even if this increase does occur, it too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

In sum, under all Build Alternatives in the opening and design years it is expected that MSAT emissions would decrease in the immediate area of the project, relative to the No-Build Alternative. This is due primarily to EPA's MSAT reduction programs and VMTs either remaining the same or decreasing with the Build Alternatives as discussed above.

6.1.5 *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. The results produced by the EPA's MOBILE6.2 model, the California EPA's EMFAC2007 model, and the EPA's DraftMOVES2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE6.2 significantly underestimates diesel particulate matter (PM) emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of EPA's guideline CAL3QHC model was conducted in an NCHRP study (http://www.epa.gov/scram001/dispersion_alt.htm#hyroad), which documents poor model performance at ten sites across the country – three where intensive monitoring was conducted plus an additional seven with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with National Ambient Air Quality Standards for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roadways, and to determine the portion of time that people are actually exposed at a specific location.

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 a "safe" or "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 safe or 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.

6.1.6 Quantitative Health Risk Analysis

FHWA's concerns regarding Incomplete or Unavailable Information do not preclude preparation of a Health Risk Analysis, using or adapting documented procedures issued by California health and air quality agencies, where sufficient justification exists. However, such analysis should be reserved for unusual situations where a project clearly has the potential for substantial MSAT

effects, such as through lane addition to or relocation of a freeway with very high traffic and/or truck volumes adjacent to residential areas, schools, and/or health care facilities, especially where they are already impacted by heavy diesel traffic and/or raise substantial environmental justice concerns.

6.1.7 Mitigation for Construction MSAT Emissions

As noted in the MSAT Guidance document, there is no obligation to identify and consider MSAT mitigation strategies as part of a qualitative analysis, although such strategies may be part of a project's design. Construction activity may generate a temporary increase in MSAT emissions. Project-level assessments that render a decision to pursue construction emission mitigation will benefit from a number of technologies and operational practices that should help lower short-term MSAT. In addition, the SAFETEA-LU has emphasized a host of diesel retrofit technologies in the Congestion Mitigation and Air Quality Improvement (CMAQ) Program provisions – technologies that are designed to lessen a number of MSATs.[2]

Construction mitigation includes strategies that reduce engine activity or reduce emissions per unit of operating time, such as reducing the numbers of trips and extended idling. Operational agreements that reduce or redirect work or shift times to avoid community exposures can have positive benefits when sites are near populated areas. For example, agreements that stress work activity outside normal hours of an adjacent school campus would be operations-oriented mitigation. Verified emissions control technology retrofits or fleet modernization of engines for construction equipment could be appropriate mitigation strategies. Technology retrofits could include particulate matter traps, oxidation catalysts, and other devices that provide an after-treatment of exhaust emissions. Implementing maintenance programs per manufacturers' specifications to ensure engines perform at EPA certification levels, as applicable, and to ensure retrofit technologies perform at verified standards, as applicable, could also be deemed appropriate. The use of clean fuels, such as ultra-low sulfur diesel, biodiesel, or natural gas also can be a very cost-beneficial strategy.

The EPA has listed a number of approved diesel retrofit technologies; many of these can be

[2] SAFETEA-LU, Public Law 109-59, August 10, 2005

deployed as emissions mitigation measures for equipment used in construction. This listing can be found at: www.epa.gov/otaq/retrofit/index.htm.

6.2 Naturally Occurring Asbestos (NOA)

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by state, federal, and international agencies and was identified as a toxic air contaminant by the CARB in 1986. All types of asbestos are hazardous and may cause lung disease and cancer.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. 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.

Serpentinite may contain chrysotile asbestos, especially near fault zones. Ultramafic rock, a rock closely related to serpentinite, may also contain asbestos minerals. Asbestos can also be associated with other rock types in California, though much less frequently than serpentinite and/or ultramafic rock. Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. The California Department of Conservation, Division of Mines and Geology has developed a map of the state showing the general location of ultramafic rock in the state. Serpentinite and ultramafic rock are not known to be present in Ventura County. Therefore the potential for NOA is minimal.

While unlikely, if naturally occurring asbestos, serpentine, or ultramific rock is discovered

during grading operations Section 93105, Title 17 of the California Code of Regulations requires notification to the VCAPCD by the next business day and implementation of the following measures within 24-hours:

1. Unpaved areas subject to vehicle traffic must be stabilized by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25 percent asbestos;

2. The speed of any vehicles and equipment traveling across unpaved areas must be no more than fifteen (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 that is visible crossing the project boundaries;

3. Storage piles and disturbed areas not subject to vehicular traffic must be stabilized by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25 percent asbestos; and

4. Activities must be conducted so that no track-out from any road construction project is visible on any paved roadway open to the public.

5. Equipment and operations must not cause the emission of any dust that is visible crossing the project boundaries.

6.3 Toxic Air Contaminants (TACs)

In 1998, the EPA's Office of Environmental Health Hazard Assessment (OEHHA) completed a comprehensive health assessment of diesel exhaust. This assessment formed the basis for a decision by the ARB to formally identify particles in diesel exhaust as a toxic air contaminant that may pose a threat to human health.

Diesel exhaust is a complex mixture of thousands of gases and fine particles (commonly known as soot) that contains more than 40 toxic air contaminants. These include many known or suspected cancer-causing substances, such as benzene, arsenic and formaldehyde. It also contains other harmful pollutants, including nitrogen oxides and PM from diesel-fueled engines

(diesel PM). People spending time on or near roads and freeways, truck loading and unloading operations, operating diesel-powered machinery or working near diesel equipment face exposure to higher levels of diesel exhaust and face higher health risks.

The ARB has found that diesel PM contributes over 70 percent of the known risk from air toxics and poses the greatest cancer risks among all identified air toxics. Diesel trucks contribute more that half of the total diesel combustion sources. However, the ARB has adopted a Diesel Risk Reduction Plan (DRRP) with control measures that would reduce the overall diesel PM emissions by about 85% from 2000 to 2020. In addition, total toxic risk from diesel exhaust may only be exposed for a much shorter duration. Further, diesel PM is only one of many environmental toxics and those of other toxics and other pollutants in various environmental media may over shadow its cancer risks. Thus, while diesel exhaust may pose potential cancer risks to receptors spending time on or near high risk diesel PM facilities, most receptors' short-term exposure would only cause minimal harm, and these risks would also greatly diminish in the future operating years of the project due to planned emission control regulations.

From 2000 to 2010, ARB staff predicts diesel PM emissions and risk would decrease by only about 20 percent if the recommended measures are not implemented. This reduction would result from the implementation of existing federal and state regulations and the attrition of older diesel-fueled passenger cars and light-duty trucks from the on-road fleet. The EPA has proposed new, lower emission standards for heavy-duty trucks for 2007 and lower sulfur limits for diesel fuel (on-road vehicles only) in 2006.

The recommended measures can be grouped as follows: measures addressing on-road vehicles; measures addressing off-road equipment and vehicles; and measures addressing stationary and portable engines. These measures include the EPA's 2007 new heavy-duty truck standards and the 2006 low-sulfur fuel limits. Exhibits 17 and 18 illustrate the impact of each of these groups of measures on projected diesel PM emission levels for 2010 and 2020. As shown, off-road recommended measures have the largest impact. Of the off-road recommended measures, the retrofit measures result in over 90 percent of the diesel PM reductions associated with all of the off-road measures.

Exhibit 17 Projected Percent Reduction in Diesel PM Cancer Risk from Year 2000 Levels With and Without ARB Risk Reduction Plan (RRP) Implemented

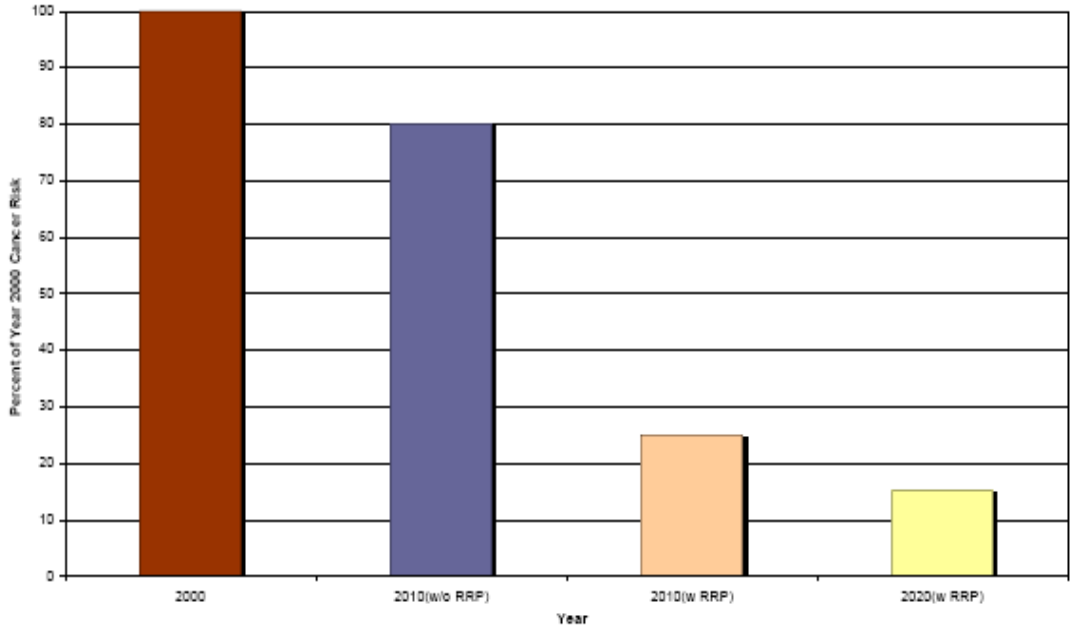
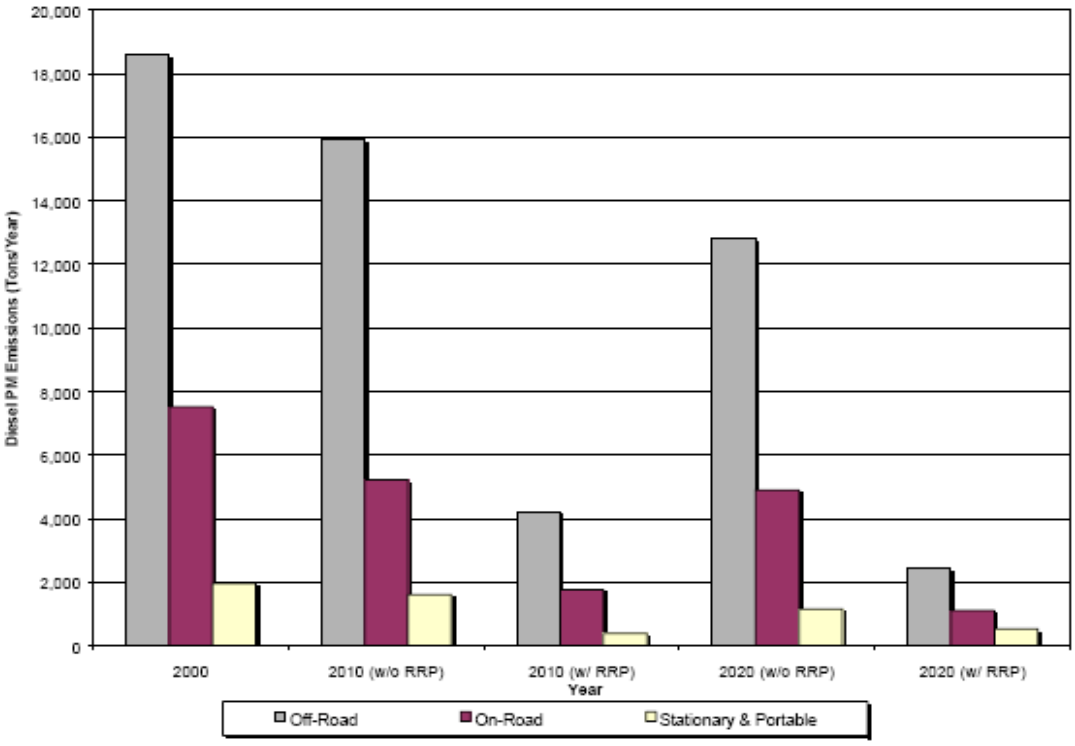


Exhibit 18 Projected Diesel PM Emission Levels With and Without ARB Risk Reduction Plan (RRP) Implemented



7.0 Climate Change

7.1 Climate Change and Green House Gases

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to GHG emissions reduction and climate change research and policy have increased dramatically in recent years.

Global climate change is expressed as changes in the average weather of the earth, as measured by changes in wind patterns, storms, precipitation, and temperature. Much scientific research has indicated that the human-related emissions of GHGs above natural levels are likely a significant contributor to global climate change.

Changes in the global climate are associated with substantial potential physical, economic, and social effects, such as inundation of settled areas near the coast from rises in sea level associated with melting of land-based glacial ice sheets, exposure to more frequent and powerful climate events, and changes in suitability of certain areas for agriculture, among others. The IPCC constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that stabilization of GHGs at 400 to 450 ppm carbon dioxide (CO_2)-equivalent concentration is required to keep global mean warming below 2°C, which is assumed to be necessary to avoid dangerous climate change.[3]

GHGs are gases that trap heat in the atmosphere; GHGs are emitted by natural processes and human activities. Emissions from human activities, such as electricity production and internal combustion vehicle use, have elevated the concentration of these gases in the atmosphere. It is estimated that approximately 40 percent of GHGs in the State of California are produced by passenger vehicles and light-duty trucks.[4] GHGs generated by human activities include CO_2, methane, nitrous oxide (N_2O), chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and O_3.

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[3] IPCC, 2001.

The accumulation of GHGs in the atmosphere regulates the temperature of the earth. Without these natural GHGs, the surface of the earth would be approximately 61°F cooler.[5] However, emissions from fossil fuel combustion for activities such as electricity production and vehicular transportation have elevated the concentration of GHGs in the atmosphere above natural levels. According to the IPCC study[6], the atmospheric concentration of CO_2 in 2005 was 379 ppm compared to the pre-industrial levels of 280 ppm. In addition, the Fourth U.S. Climate Action Report concluded, in assessing current trends, that CO_2 emissions increased by 20 percent from 1990 to 2004, while methane and N_2O emissions decreased by 10 percent and 2 percent, respectively.

There appears to be a close relationship between the increased concentration of GHGs in the atmosphere and global temperatures. For example, the California Climate Change Center reports that by the end of this century, average global surface temperatures could rise by 4.7 ºF to 10.5ºF due to increased GHG emissions. Scientific evidence indicates a trend of increasing global temperatures near the surface of the earth over the past century due to increased human-induced levels of GHGs.

GHGs differ from criteria pollutants in that GHG emissions do not cause direct adverse human health effects. Rather, the direct environmental effect of GHG emissions is the increase in global temperatures, which in turn has numerous indirect effects on the environment and humans. For example, some observed changes include shrinking glaciers, thawing permafrost, later freezing and earlier break-up of ice on rivers and lakes, a lengthened growing season, shifts in plant and animal ranges, and earlier flowering of trees.[7] Other longer-term environmental impacts of global warming may include a rise in sea level, changing weather patterns with increases in the severity of storms and droughts, changes to local and regional ecosystems including the potential loss of species, and a significant reduction in winter snow pack. For example, estimates include a 30 to 90 percent reduction in snow pack in the Sierra Nevada mountain range. Current data

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4 CEC, 2006. *Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004,* December. http://www.energy.ca.gov/2006publications/CEC 600 2006 013/.

5 AEP, 2007. *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents.*

6 IPCC, 2007.

7 IPCC, 2001.

suggest that in the next 25 years, in every season of the year, California could experience unprecedented heat, longer and more extreme heat waves, greater intensity and frequency of heat waves, and longer dry periods. More specifically, the California Climate Change Center (2006) predicted that California could witness the following events:

- Temperature rises between 3 ºF and 10.5ºF;
- 6 to 20 inches or more rise in sea level;
- 2 to 4 times as many heat-wave days in major urban centers;
- 2 to 6 times as many heat-related deaths in major urban centers;
- 1 to 1.5 times more critically dry years;
- 25 to 85 percent increase in days conducive to O_3 formation;
- 3 to 20 percent increase in electricity demand; and
- to 55 percent increase in the risk of wildfires.

Currently, there are no federal standards for GHG emissions. Recently, the U.S. Supreme Court ruled that the harms associated with climate change are serious and well recognized, that EPA must regulate GHGs as pollutants, and unless the agency determines that GHGs do not contribute to climate change, it must promulgate regulations for GHG emissions from new motor vehicles (Massachusetts *et al.* Environmental Protection Agency [case No. 05-1120], 2007); however, no federal regulations have been set at this time. Currently, control of GHGs is generally regulated at the state level and approached by setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increase energy efficiency, and developing statewide action plans.

To date, 12 states, including California, have set state GHG emission targets. EO S-3-05 and the passage of AB 32, the California Global Warming Solutions Act of 2006, promulgated the California target to achieve 1990 GHG levels by the year 2020. The target-setting approach allows progress to be made in addressing climate change and is a forerunner to the setting of emission limits. A companion bill, SB 1368, similarly addresses global warming, but from the perspective of electricity generators selling power into the state. The legislation requires that imported power meet the same GHG standards that power plants in California meet. SB 1368

also sets standards for CO_2 for any long-term power production of electricity at 1,000 pounds per megawatt hour.

The World Resources Institute's GHG Protocol Initiative identifies six GHGs generated by human activity that are believed to be contributors to global warming:[8]

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)

These are the same GHGs that are identified in California AB 32 and by EPA. Appendix E1 contains descriptions of the natural and man-made sources of emissions for each of these GHGs.

The different GHGs have varying global warming potential (GWP). The GWP is the potential of a gas to trap heat in the atmosphere. The reference gas for GWP is CO_2, which has a GWP of one. CH_4 has a GWP of 21, which means that it has 21 times greater global warming effect than CO_2 on a mass basis. N_2O has a GWP of 310. To assess the effect of GHG emissions, the combined emissions of various GHGs from a source are presented as a CO_2 equivalent (CO_2e). The total CO_2e is calculated by multiplying the amount of each GHG emitted from the project by its GWP and adding them up.

Black carbon has recently been implicated as a contributor to global warming due to its heat absorption while airborne in the atmosphere (House of Representatives 2007). It also may contribute to melting of snow-pack, glaciers, and polar ice when it settles on these surfaces, as its black color absorbs more solar radiation than ice. Recent research indicates that some fraction of black carbon observed in California mountains is likely due to trans-Pacific transport from Asia (Hadley, O., et. al. 2008). Black carbon is emitted from a range of naturally occurring events and

[8] WRI/WBCSD, 2007.

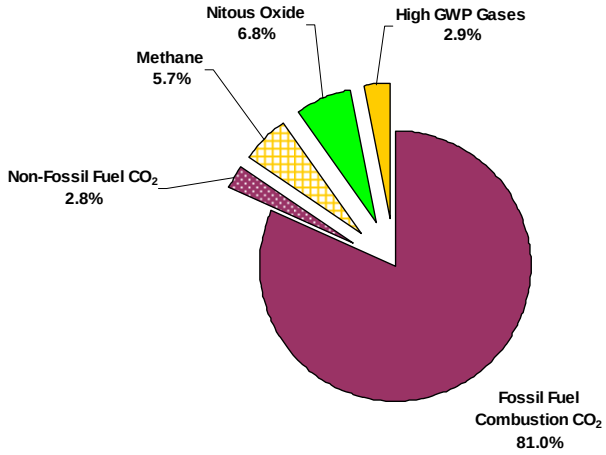
human activities, including wildfires, diesel engines, and domestic biofuel burning. Emission studies suggest that approximately one-third of black carbon emissions come from biomass burning sources such as waste combustion and wood-fired stoves, and the remainder come from fossil fuel burning sources such as diesel engines (House of Representatives 2007). Currently, there are no standards, regulations, or protocols related to assessing or mitigating black carbon emissions. Black carbon is a component of DPM; therefore, it is released into the atmosphere as a component of diesel engine emissions.

7.2 Sources of GHGs

The GHG emissions are mostly related to fossil fuel combustion for energy use, as shown in Figure 15. These are driven largely by economic growth and fuel used for power generation, transportation, heating, and cooling. According to the California Energy Commission (CEC), energy-related CO_2 emissions resulting from fossil fuel combustion represents approximately 81 percent of California's total GHG emissions (Exhibit 19). Although the emissions of other GHG gases, such as CH_4 and N_2O are small, it should be noted that their GWP is very high in relation to that of CO_2. Primary sources of emissions of these GHGs are from:

- CH_4 – agricultural activities and landfills
- N_2O – agricultural soil and mobile source fuel combustion
- High GWP gases – industrial processes, refrigerants, insulating material; these have a long lifetime in the atmosphere, varying from several decades to several centuries

Exhibit 19 California GHG Composition by Type of Gas in 2004



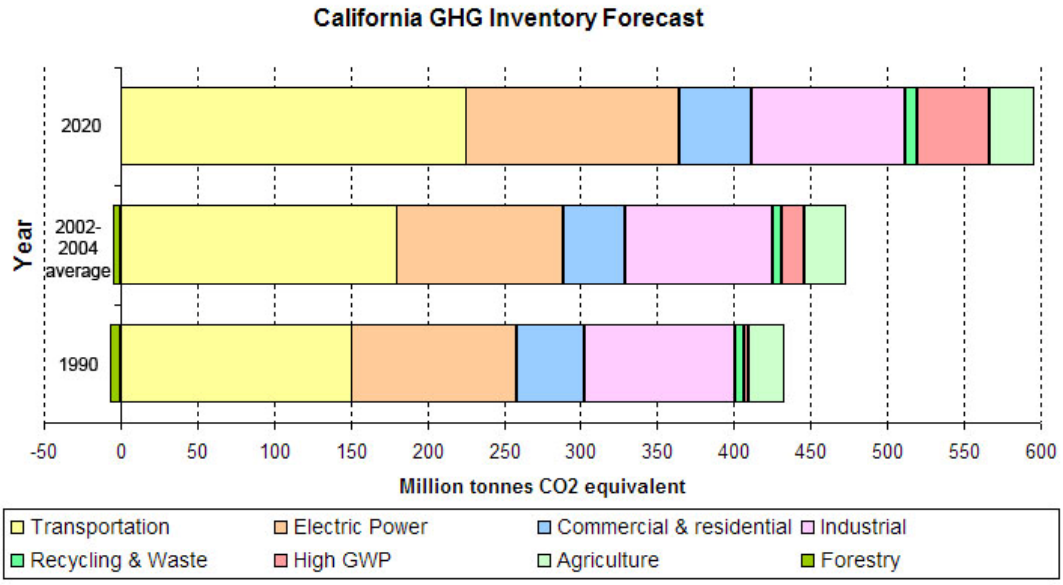
Primary sources of emissions of these GHGs are from:

Methane – agricultural activities and landfills
Nitrous oxide – agricultural soil and mobile source fuel combustion
High GWP gases – industrial processes, refrigerants, insulating material; these have long lifetime in the atmosphere (varying from several decades to several centuries)

Source: CEC, 2006.

As part of its supporting documentation for the Draft Scoping Plan, CARB recently released an updated version of the GHG inventory for California (June 26, 2008). Exhibit 20 is a graph from that update that shows the total GHG emissions for California for 1990, 2002–2004 average, and 2020 projected if no action is taken.

Exhibit 20 California Greenhouse Gas Inventory



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

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human-made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans, which was published in December 2006. This document can be found at: http://www.dot.ca.gov/docs/ClimateReport.pdf.

7.3 Construction Emissions

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

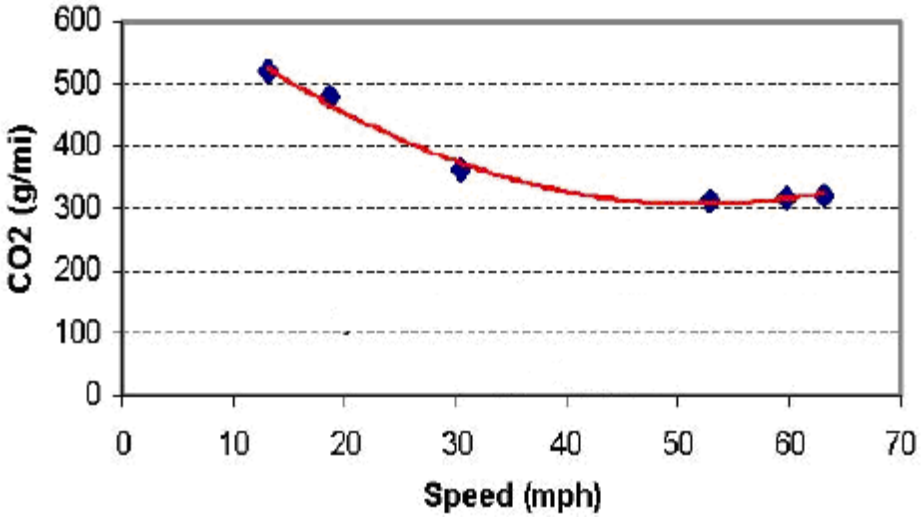
7.4 Control Measures

Caltrans and the Business, Transportation, and Housing Agency have taken an active role in addressing GHG emission reductions from transportation sources. Recognizing that more than 81 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human-made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans (December 2006).

One of the main strategies in the proposed Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of CO_2 from mobile sources, such as automobiles, occur at stop-and-go speeds (zero to 25 mph) and speeds higher than 55 mph (Exhibit 21). Relieving congestion by enhancing operations and improving

travel times in high-congestion travel corridors may lead to an overall reduction in GHG emissions.

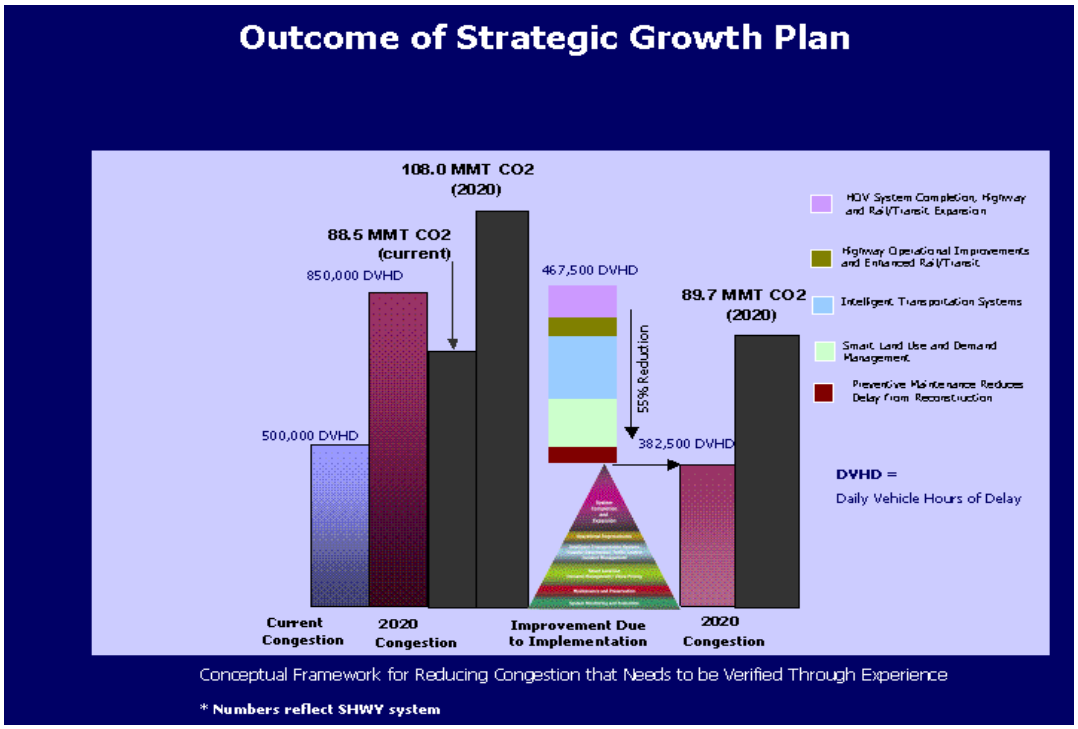
Exhibit 21 Fleet CO_2 Emissions vs. Speed (Highway)



7.5 AB 32 Compliance

Caltrans continues to be actively involved on the Governor's Climate Action Team as CARB works to implement the Governor's Executive Orders and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a $222 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including $107 in transportation funding during the next decade. As shown in Exhibit 22 below, the Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together yield the promised reduction in congestion. The Strategic Growth Plan relies on a complete systems approach of a variety of strategies: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements.

Exhibit 22 Outcome of Strategic Growth Plan



As part of the Climate Action Program at Caltrans (December 2006, http://www.dot.ca.gov/docs/ClimateReport.pdf), Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by EPA and CARB. Lastly, the use of Alternative fuels is also being considered; the Department is participating in funding for Alternative fuel research at the UC Davis.

Table 8 summarizes the Department and statewide efforts that Caltrans is implementing in order to reduce GHG emissions. For more detailed information about each strategy, please see Climate Action Program at Caltrans (December 2006); it is available at http://www.dot.ca.gov/docs/ClimateReport.pdf

Table 8 Climate Change Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.007	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.45 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 .36	3.6
Goods Movement	Office of Goods Movement	Cal EPA, CARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.67

8.0 Conclusions

This project-level Air Quality Report (AQR) addresses all pertinent aspects of conformity, NEPA, and CEQA; and adheres to the Transportation Conformity Rule. The proposed project is included in the latest FHWA approved amendment #2 of the 2008 RTP and Amendment #08-24 of the 2008 RTIP modeling list. The design, concept, and scope of the project have not changed significantly and the project will not interfere with the timely implementation of TCMs identified in the SIPs and/or RTP. The essential role of applicable SIP in regional analysis is documented in this report.

A comprehensive project-level CO analysis has concluded that the proposed project Alternatives do not pose any significant operational impact from CO on the ambient air quality in the project vicinity. The project has sufficiently addressed the CO impact, indicating that no further analysis is needed according the CO Protocol and demonstrating that the proposed project will not cause or contribute to any new violation of the federal CO standard. In addition, based on the most recent 3-year CO data from the El Rio-Rio Mesa School #2 Monitoring Station, it is unlikely that the proposed project will contribute to the ambient CO level to violate NAAQS.

Because the proposed project is located in the South Central Coast Air Basin in Ventura County, which is designated as an area in attainment of federal $PM_{2.5}$ and PM_{10} standards, a qualitative PM hot-spot analysis is not required. Impacts on the ambient PM_{10} and $PM_{2.5}$ by the proposed project have been evaluated based on the technical report *"Particulate Matter and Transportation Projects, An Analysis Protocol"* prepared by UC DAVIS, dated February 23, 2005. Based on the analysis, the project is screened out of any further PM evaluation. Activities of the proposed project are not expected to cause new violations and therefore consistent with the purposes of the SIP and conform to the requirements of the FCAA.

Based on the scope of the project and the AADT being less than 150,000, the project is considered to have minimal MSAT effects and a qualitative MSAT analysis is considered appropriate. Alternatives 2, 3, 4 and 6 are expected to have similar VMTs compared to the No-Build Alternative based on the peak hour volumes and changes in LOS. The 'Somis Bypass' Alternative on the other hand proposes to essentially shorten the travel distance for traffic on WB SR-118 to SB SR-34 and for traffic on NB SR-34 to EB SR-118. Thereby, the Build Alternative

is expected to have lower VMT compared to the No-Build Alternative. In addition, improvements in operation are anticipated based on the LOS data in Table 7; and have potential to further reduce MSAT emissions. Thereby, higher levels of MSAT emissions are not anticipated from any of the Build Alternatives compared to the No Build Alternative. Regardless of the Alternative chosen, MSAT emissions will likely be lower in the opening and design years than present as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by 72 percent from 1999 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

According to 40 CFR §93.123(c)(5), hot-spot analyses are not required to consider construction-related activities that cause temporary increases in emissions. Temporary increases in emissions are defined as those that occur only during the construction phase and that last five years or less at any individual site. Based on the 9-month anticipated construction schedule for the project, construction related emissions from the project are considered temporary. The project construction must adhere to VCAPCD's fugitive dust reduction measures (Rule 55) and Caltrans Standard Specifications Section 10 (Dust Control) and 18 (Dust Palliative) and Section 39-3.06 (Asphalt Concrete Plants).

Control measures have not been identified for NOA because the proposed project is not located in an area identified as potentially containing serpentinite and ultramafic rocks. However, in an unlikely event the NOA, serpentine or ultramific rock, is discovered during grading operations, the VCAPCD should be notified per Title 17, Section 93105 of the California Code of Regulations.

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10.0 Appendices

Appendix A – Project Inclusion in RTP/RTIP

VENTURA COUNTY ARTERIAL PROJECTS						
RTP ID	ROUTE NAME	FROM	TO	DESCRIPTION	PROJECT COMPLE-TION BY*	PROJECT COST ($1,000'S)
5A0711	RICE AVENUE	AT CHANNEL ISLANDS BLVD		ADD 3RD NORTHBOUND THROUGH LANE AND 3RD SOUTHBOUND THROUGH LANE AND SOUTHBOUND RIGHT-TURN LANE	2015	$1,267
5A0402	ROSE AVE	AT GONZALEZ RD		CONSTRUCT 4 LANE FLYOVER WITH LEFT TURN POCKETS	2018	$31,862
5G0404	ROSE AVE	AT SR-34 (E. FIFTH ST)		CONSTRUCT 4 LANE GRADE SEPARATION WITH LEFT TURN POCKETS	2014	$24,655
5A0719	SANTA CLARA AVENUE WIDENING IMPROVE-MENT	N/O OXNARD CITY LIMITS	SR 118	WIDEN FROM TWO TO FOUR LANES	2018	$30,071
5A0716	SOMIS RD/SR118/DON-LON D INTERSECTION IMPROVEMENTS			WIDEN INTERSECTION, ADD TURN LANES, RALIGN DONLON ROAD (COUNTY PORTION ONLY)	2020	$6,127
5A0705	SR 33	SR 33	SR 150 AT "Y"	ROUNDABOUT	2020	$1,622
5A0706	SR 33	SR 33	CUYAMA RD	ROUNDABOUT	2014	$644
5A0703	SR-118	AT COLLINS DRIVE		INTERCHANGE AND SIGNAL IMPROVEMENT. WIDEN W/B OFF-RAMP TO ADD A FREE RIGHT- TURN LANE AND SIGNAL MODIFICATION.	2011	$2,001
5G0403	SR-232 (VINEYARD AVE)	OXNARD BLVD	SAINT MARY'S DRIVE	CONSTRUCT 6 LANE GRADE SEPARATION OVER UPRR TRACKS	2014	$24,655
5A0704	SR33/SR150	VARIOUS LOCATIONS		VARIOUS MINOR SPOT IMPROVEMENTS TO REDUCE CONGESTION ON SR 33 AND 150 IN OJAI VALLEY AND NEAR OJAI	2025	$3,287
5A0734	STEARNS STREET	COCHRAN STREET	LEEDS STREET	WIDENING OF STEARNS STREET TO ADD A LANE IN EACH DIRECTION (FROM 2 TO 4 LANES)	2010	$1,707
5A0728	TAPO CANYON RD	WALNUT STREET	LOST CANYON RD.	WIDEN TAPO CANYON ROAD TO ADD AN ADDITIONAL LANE IN EACH DIRECTION (FROM 2 TO 4 LANES) AND A DIVIDED CENTER MEDIAN.	2012	$5,393
5A0738	TAPO STREET	WALNUT STREET	PRESIDIO DR.	WIDENING OF TAPO STREET TO ADD A LANE IN EACH DIRECTION (FROM 2 TO 4 LANES)	2010	$740
5A0736	TBD	BETWEEN FLANAGAN DRIVE	AND EVENING SKY DR.	PROVIDES THE MISSING LINK (A 60' ROAD WITH TWO LANES) BE-TWEEN TWO STREETS (FLANAGAN DR. & EVENING SKY DR.). FROM 0 TO 2 LANES)	2010	$911
5A0713	TOPA TOPA ST	FOX ST	MONTGOMERY ST	GAP CLOSURE EXTENSION	2015	$1,149
5A0401	VICTORIA AVE	AT GONZALES RD		CONSTRUCT 4 LANE FLYOVER WITH LEFT TURN POCKETS	2018	$31,862

CO	SYS*	LEAD AGENCY	RTP ID	RTIP ID	RTE	BEG PM	END PM	STREET	FROM	TO	DESCRIPTION	ADDITIONAL DETAILS, IF AVAILABLE	2008 RTIP	NO BUILD	NETWORK YR (PROJECT COMPLETION BY)**							
															2008	2009	2010	2012	2014	2020	2030	2035
VE	L	SIMI VALLEY	5A0735		0	0.0	0.0	LOS ANGELES AVE	Approximately 1250' E/O Sycamore Drive	Approximately 1000' E/O Sycamore Drive	WIDEN TAPO CHANNEL BRIDGE AT LOS ANGELES AVENUE (15' ON THE NORTH SIDE & 20' ON THE SOUTH SIDE). THIS INCLUDES ADDITION OF ONE LANE IN EACH DIRECTION (FROM 4 TO 6 LANES), RELOCATION OF THE EXISITING UTILITIES & MODIFICATIONS TO UPSTREAM & DOWN STREAM OF THE CHANNEL.	Exist Config: 60' right-of-way with 4 lanes					√						
VE	L	SIMI VALLEY	5A0736		0	0.0	0.0	NEW FACILITY	between Flanagan Drive	and Evening Sky Dr.	PROVIDES THE MISSING LINK (A 60' ROAD WITH TWO LANES) BETWEEN TWO STREETS (FLANAGAN DR. & EVENING SKY DR.). FROM 0 TO 2 LANES)	Exist Config: Empty land; 0 lanes					√						
VE	L	SIMI VALLEY	VEN051002	VEN051002	0	0.0	0.0	OLSON RD	PRESIDENTIAL DRIVE	SIMI VALLEY CITY LIMIT	OLSON ROAD WIDENING FROM FOUR TO SIX LANES FROM PRESIDENTIAL DRIVE TO SIMI VALLEY CITY LIMIT, 2700 FEET	WIDEN FROM 4 TO 6 LANES	√	√		√							
VE	L	SIMI VALLEY	5A0734		0	0.0	0.0	STEARNS ST	Cochran Street	Leeds Street	WIDENING OF STEARNS STREET TO ADD A LANE IN EACH DIRECTION (FROM 2 TO 4 LANES)	Exist Config: One lane in each direction					√						
VE	L	SIMI VALLEY	5A0728		0	0.0	0.0	TAPO CANYON RD	Walnut Street	Lost Canyon Rd.	WIDEN TAPO CANYON ROAD TO ADD AN ADDITIONAL LANE IN EACH DIRECTION (FROM 2 TO 4 LANES) AND A DIVIDED CENTER MEDIAN.	Exist Config: One lane in each direction						√					
VE	L	SIMI VALLEY	5A0738		0	0.0	0.0	TAPO ST	Walnut Street	Presidio Dr.	WIDENING OF TAPO STREET TO ADD A LANE IN EACH DIRECTION (FROM 2 TO 4 LANES)	Exist Config: One lane in each direction					√						
VE	L	THOUSAND OAKS	VEN34305	VEN34305	0	0.0	0.0	HILLCREST	RANCHO CONEJO	CAMINO DOS RIOS	IN THOUSAND OAKS HILLCREST FROM RANCHO CONEJO TO CAMINO DOS RIOS WIDEN FROM 2 TO 4 LANES	WIDEN FROM 2 TO 4 LANES	√							√			
VE	L	THOUSAND OAKS	VEN34304	VEN34304	0	0.0	0.0	OLD CONEJO RD	REINO	WENDY	IN THOUSAND OAKS OLD CONEJO RD FROM REINO TO WENDY WIDEN FROM 2 TO 4 LANES	WIDEN FROM 2 TO 4 LANES	√	√						√			
VE	L	VENTURA COUNTY	5A0725		0	0.0	0.0	CENTRAL AVE	Santa Clara Ave.	Camarillo City Limits	WIDEN FROM TWO LANES TO FOUR LANES	Exist Config: 2 lane Arterial								√			
VE	L	VENTURA COUNTY	5A0720		0	0.0	0.0	HARBOR BL	Oxnard City Limits	Ventura City Limits	WIDEN FROM TWO LANES TO FOUR LANES, INCLUDING REPLACEMENT OR WIDENING OF EXISTING BRIDGE	Exist Config: 2 lane Arterial									√		
VE	L	VENTURA COUNTY	VEN011202	VEN011202	0	0.0	0.0	HUENEME RD	OXNARD CITY LIMIITS	RICE ROAD	HUENEME RD FROM OXNARD CITY LIMITS TO RICE RD - WIDEN FROM 2 TO 4 LANES	WIDEN FROM 2 TO 4 LANES	√	√					√				
VE	L	VENTURA COUNTY	VEN54122 + VEN040501	VEN54122 + VEN040501	0	0.0	0.0	LEWIS RD	RT 101	HUENEME ROAD	NEAR CAMARILLO LEWIS RD WIDEN FROM 2 TO 4 LANES PLUS BIKE LANES BETWEEN RT 101 & HUENEME RD, & PROVIDE SIGNAL IMPROVEMENTS - CON PHASE (PE & ROW IN 07-VEN54122) - INCL FINANCE COST	Widen from 2 to 4 Lanes	√	√		√							
VE	L	VENTURA COUNTY	5A0721		0	0.0	0.0	PLEASANT VALLEY RD	Dodge Rd	Las Posas Road	WIDEN FROM TWO TO FOUR LANES	Exist Config: 2 lane Arterial									√		
VE	L	VENTURA COUNTY	5A0719		0	0.0	0.0	SANTA CLARA AVE	n/o Oxnard City Limits	SR 118	WIDEN FROM TWO TO FOUR LANES	Exist Config: 2 lane Arterial								√			
VE	L	VENTURA COUNTY	VEN54132	VEN54132	0	0.0	0.0	SANTA CLARA AVE	OXNARD CITY LIMIITS	ROUTE 118	SANTA CLARA AVE IMPROVEMENTS - S PH11 BTW OXANRD CITY LIMITS & SR 118 WIDEN TO ADD EXTRA LANE IN EACH DIRECTION (FROM 2 TO 4 LANES TOTAL) GEOM 7 DRAIN IMPR. OVERLAN, MODIFY SIGNALS	ADD EXTRA LANES IN EACH DIRECTION FROM 2 TO 4 LANES)	√	√	√								
VE	L	VENTURA COUNTY	5A0716		118	0.0	0.0	SOMIS RD / SR-118 / DONLON DR			WIDEN INTERSECTION, ADD TURN LANES, RALIGN DONLON ROAD (COUNTY PORTION ONLY)	Exist Config: 2 lane state highway								√			

* S = State Hwy, L = Local Hwy, T = Transit
** The actual completion date may vary, e.g. a project completed in 2016 would have a network year of 2020.

Appendix B – CO Protocol Flowchart

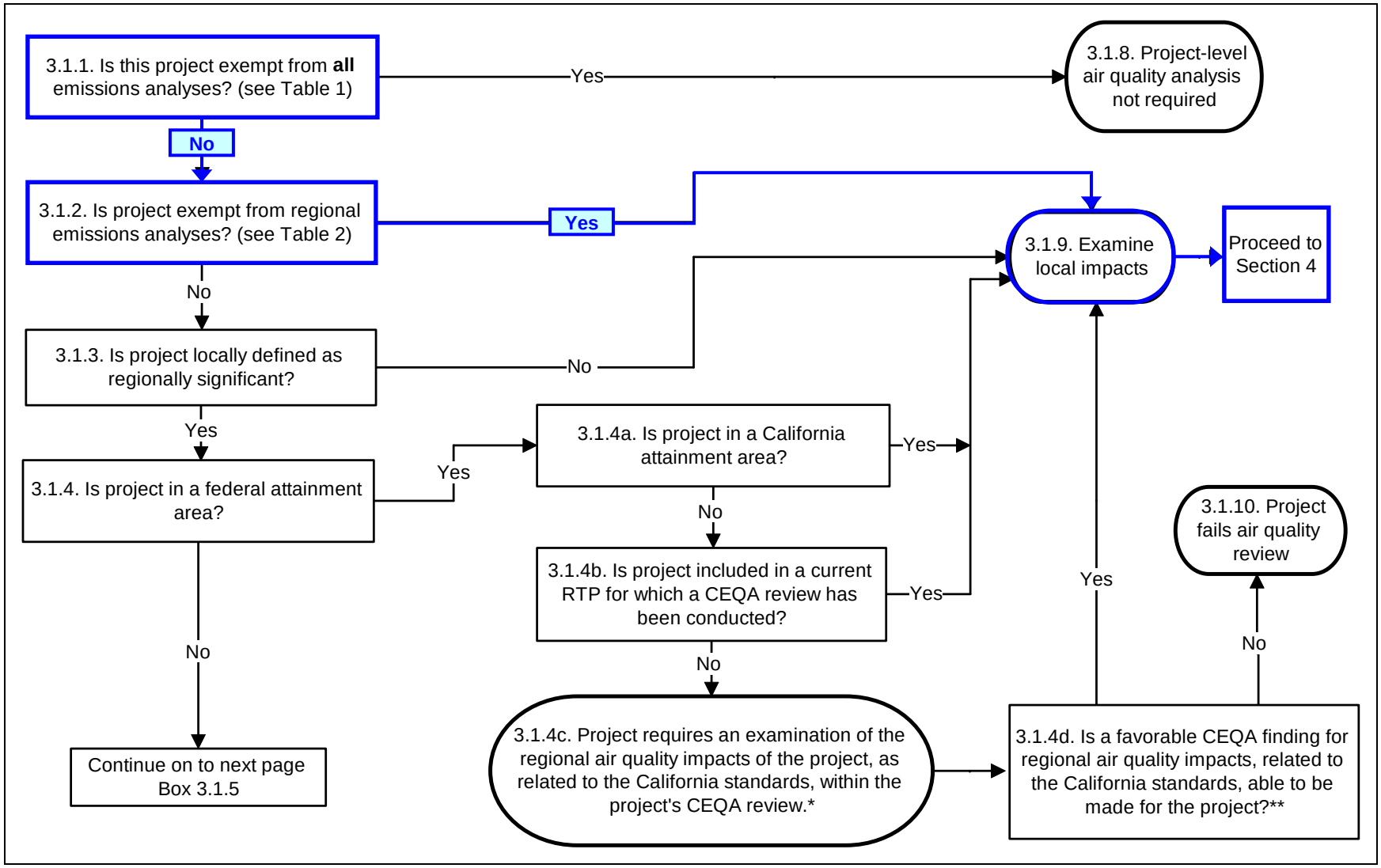

Figure 1. Requirements for New Projects (Alternatives 2, 3, 4 and 6)

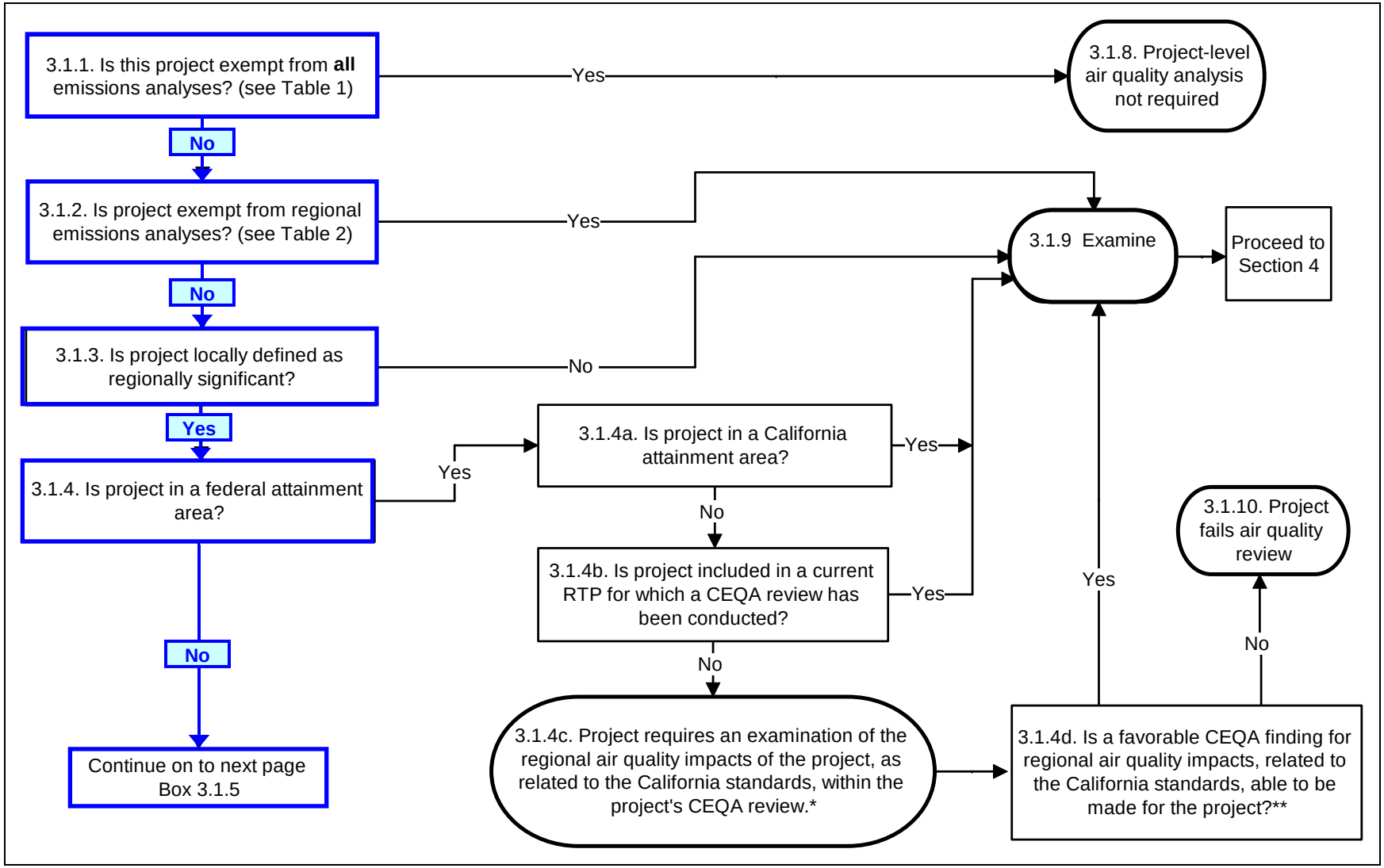

Figure 1. Requirements for New Projects (Alternative 5)

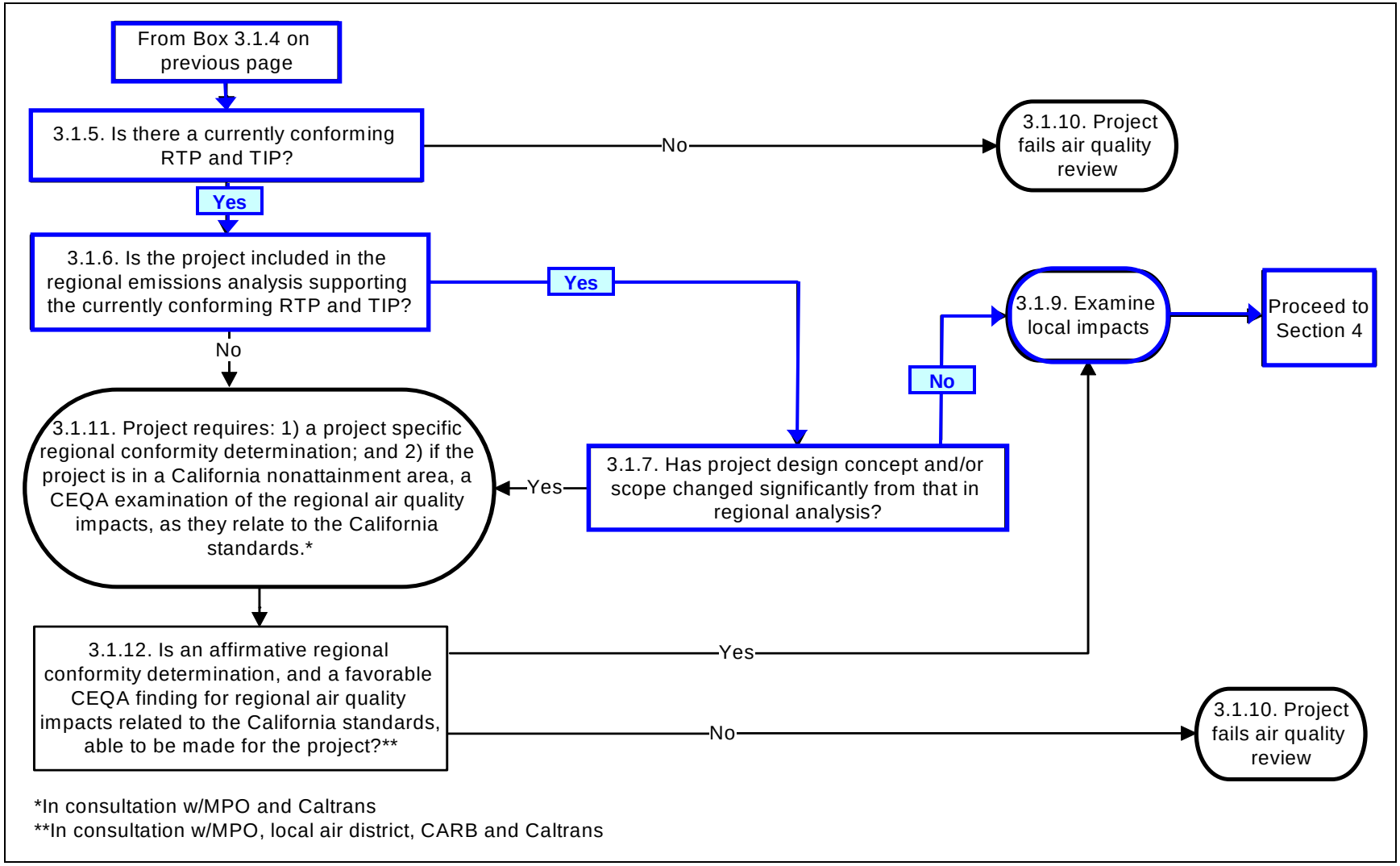

Figure 1 (cont.). Requirements for New Projects (Alternative 5)

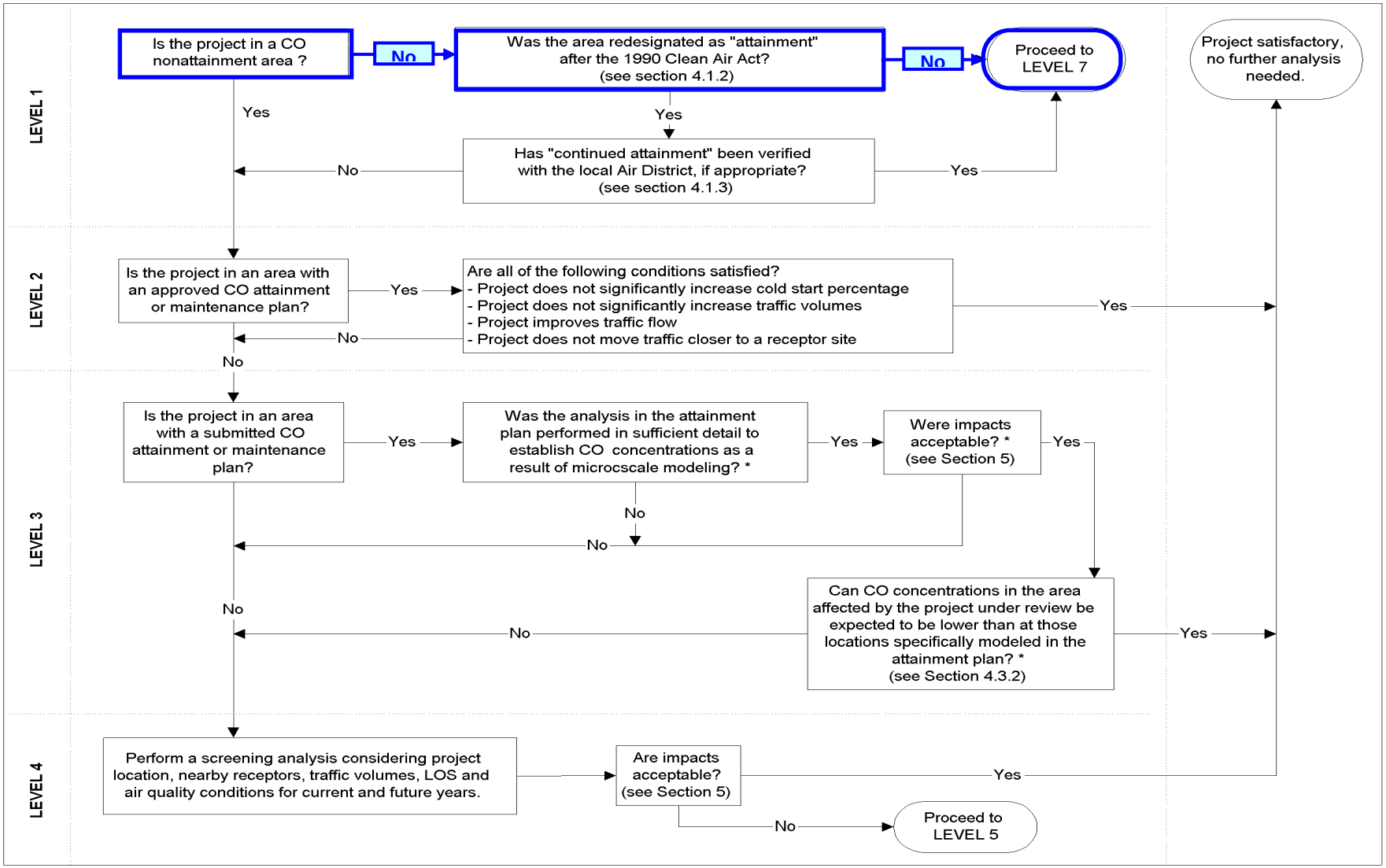

Figure 3. Local CO Analysis

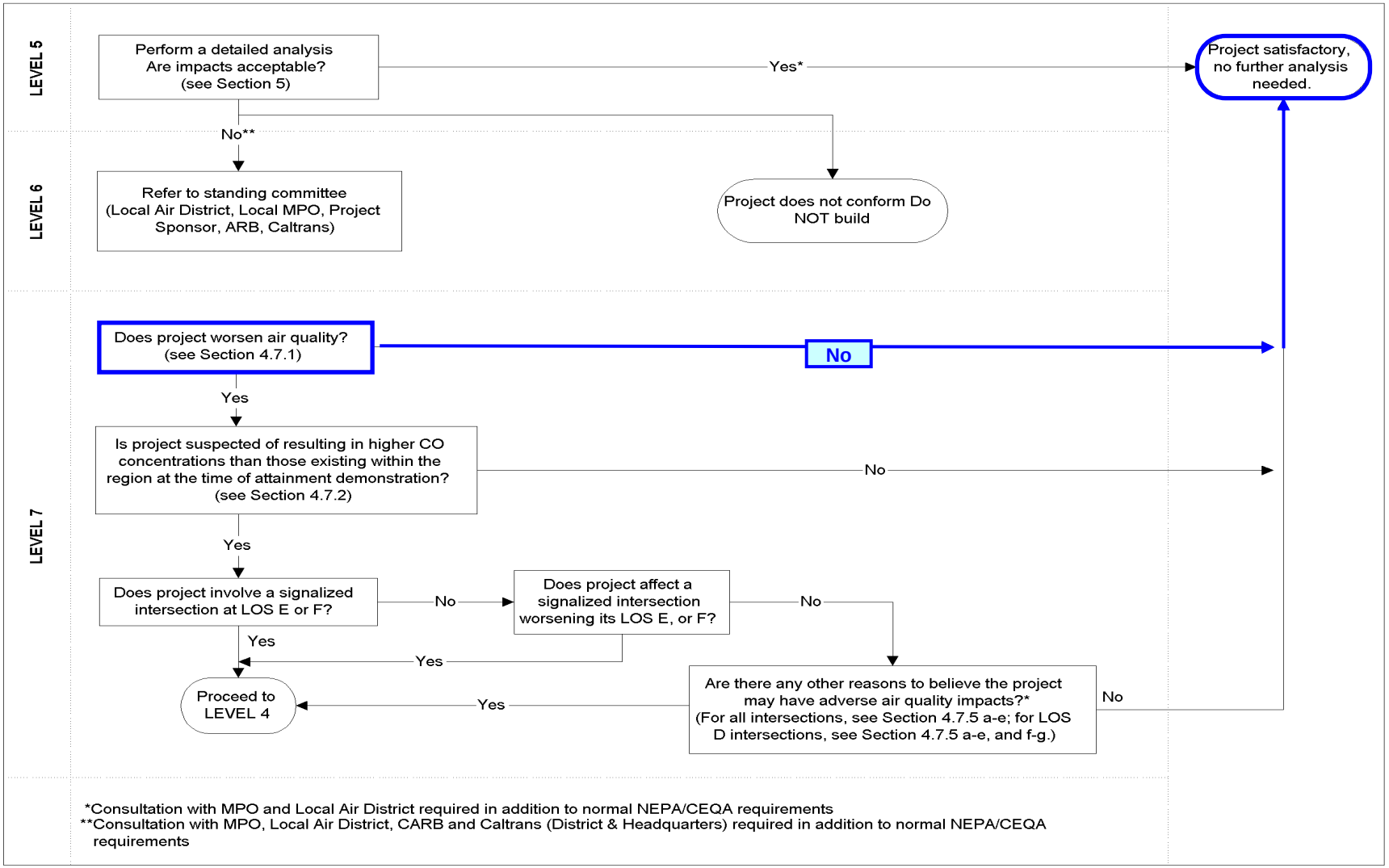

Figure 3 (cont.). Local CO Analysis

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