2.13 Air Quality

2.13.1 Regulatory Setting

The federal Clean Air Act (CAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act (CCAA) is its companion state law. These laws, and related regulations by EPA and the California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and California ambient air quality standards (CAAQS) have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO); nitrogen dioxide (NO_2); ozone (O_3); particulate matter, which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM10) and particles of 2.5 micrometers and smaller (PM2.5); and sulfur dioxide (SO_2). In addition, national and state standards exist for lead (Pb), and state standards exist for visibility-reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA. In addition to this environmental analysis, a parallel “Conformity” requirement under the CAA also applies.

Conformity Requirement

The conformity requirement is based on CAA Section 176(c), which prohibits the U.S. Department of Transportation (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. “Transportation Conformity” applies to highway and transit projects and takes place on two levels: the regional—or planning and programming level—and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. EPA regulations at 40 CFR 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM10 and PM2.5), and in some areas (although not in California), sulfur dioxide (SO_2). California has attainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO_2, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the CAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP) and 4 years (for the FTIP). RTP and FTIP conformity analyses use travel demand and emission models to determine whether the implementation of those projects would conform to emission budgets or other tests at various analysis years, showing that requirements of the CAA and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA) make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the CAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and "open-to-traffic" schedule of a proposed transportation project are the same as described in the RTP and the FTIP, the proposed project meets regional conformity requirements for purposes of project-level analysis.

Conformity analysis at the project-level includes verification that the project is included in the regional conformity analysis and a "hot-spot" analysis if an area is "nonattainment" or "maintenance" for carbon monoxide (CO) and/or particulate matter (PM10 or PM2.5). A region is "nonattainment" if one or more of the monitoring stations in the region measures a violation of the relevant standard and the EPA officially designates the area as nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by EPA, and are then called "maintenance" areas. "Hot-spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a "hot-spot" analysis. In general, projects must not cause the "hot-spot"-related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

2.13.2 Affected Environment

This section is a summary of the analysis documented in the *Air Quality Study Report* (ICF International 2014a) and the *Air Quality Conformity Analysis* prepared for the project (ICF International 2014b). The report is available on the project website at http://8065interchange.org/.

2.13.2.1 Topography and Climate

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

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

Prevailing wind in the Sacramento Valley is generally from the southwest due to marine breezes flowing through the Carquinez Strait. The Carquinez Strait is the major corridor for air moving into the Sacramento Valley from the west. Incoming airflow strength varies daily, with a pronounced diurnal cycle. Figure 2.13-1 indicates the predominant wind direction in the region based on meteorological data from Sacramento Executive Airport. Influx strength is weakest in the morning and increases in the evening hours. Associated with the influx of air through the Carquinez Strait is the Schultz Eddy. The Schultz Eddy is an eddy formed when mountains on the valley's western side divert incoming marine air. The eddy contributes to the formation of a low-level southerly jet between 500 and 1,000 feet above the surface that is capable of speeds in excess of 35 mph. This jet is important for air quality in the Sacramento Valley because of its ability to transport air pollutants over large distances.

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

2.13.2.2 Existing Air Quality

Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards (AAQS) that the State of California and the federal government have established for several different pollutants. For some pollutants, separate standards have been set for different measurement periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). Table 2.13-1 shows the state and federal standards for a variety of pollutants, as well as the attainment status of the project area in Placer County.

Table 2.13-1. California and National Ambient Air Quality Standards

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria		Attainment Status of Placer County (project area)	
			California	National	California	National	California	National	California	National
Ozone	O_3	1 hour	0.09	NA	180	NA	NA	NA	NA	NA
		8 hours	0.070	0.075	137	147	If exceeded	If fourth-highest 8-hour concentration in a year, averaged over 3 years, is greater than the standard	Nonattainment	Severe nonattainment
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year	Attainment	Moderate maintenance
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year	Attainment	Moderate maintenance
(Lake Tahoe only)		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA	NA	NA
Nitrogen dioxide	NO_2	Annual Mean[a]	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year	Attainment	Attainment/ unclassified
		1 hour	0.18	0.100	339	188	If exceeded	If the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area exceeds the standard	Attainment	Attainment/ unclassified
Sulfur dioxide	SO_2	24 hours	0.04	NA	105	NA	If exceeded	NA	Attainment	NA
		3 hours	NA	NA	NA	NA	NA	NA	Attainment	NA
		1 hour	0.25	0.075	655	196	If exceeded	If the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area exceeds the standard	Attainment	Attainment/ unclassified
Hydrogen sulfide	H_2S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA	Unclassified	NA

Pollutant	Symbol	Average Time	Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria		Attainment Status of Placer County (project area)	
			California	National	California	National	California	National	California	National
Vinyl chloride	C_2H_3Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA	No information available	NA
Inhalable particulate matter	PM10	Annual Mean[a]	NA	NA	20	NA	If exceeded	NA	Nonattainment	NA
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year	Nonattainment	Attainment
	PM2.5	Annual Mean[a]	NA	NA	12	15.0	If exceeded	If the 3-year average of the weighted annual mean from single or multiple community-oriented monitors exceeds the standard	Attainment	Nonattainment
		24 hours	NA	NA	NA	35	NA	If less than 98% of the daily concentrations, averaged over 3 years, is equal to or less than the standard	NA	Nonattainment
Sulfate particles	SO_4	24 hours	NA	NA	25	NA	If equaled or exceeded	NA	Attainment	NA
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded on more than 1 day per year	NA	NA
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA	Attainment	NA
		Rolling 3-month average	NA	NA	NA	0.15	NA	Averaged over a rolling 3-month period	Attainment	Attainment

Notes:

National standards shown are the primary (public health) standards. All equivalent units are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr; ppm (parts per million) in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[a] Measurements are averaged over an annual or multi-annual period (refer to the violation criteria for additional information).

NA = not applicable.

Sources*:* California Air Resources Board 2014a, 2014b; U.S. Environmental Protection Agency 2013b.

The nearest air quality monitoring station in the vicinity of the project that reported pollutant concentrations between 2010 and 2012 is the North Sunrise Boulevard monitoring station, located at 151 North Sunrise Boulevard in Roseville, which is approximately 0.65 mile south of the project. The North Sunrise Boulevard station monitors for O_3, NO_2, PM10, and PM2.5. As there are no monitors for CO located within Placer County, monitoring data for CO were taken from the nearest monitoring station, located at North Highlands-Blackfoot Way in Sacramento County (7 miles south of the project).

Air quality monitoring data from the North Sunrise Boulevard and North Highlands-Blackfoot Way monitoring stations are summarized in Table 2.13-2. These data represent air quality monitoring data for the last 3 years (2010–2012) for which complete data are available.

As shown in Table 2.13-2, the North Sunrise Boulevard monitoring station has experienced 29 violations of the state 1-hour O_3 standard, 72 violations of the state 8-hour O_3 standard, no violations of the state NO_2 standards, no violations of the federal 24-hour PM10 standard, 6.1 violations of the state 24-hour PM10 standard, and 6.1 violations of the federal 24-hour PM2.5 standard during the 3-year monitoring period.

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

The ARB has classified the SVAB portion of Placer County as a serious nonattainment area for the state 1-hour O_3 standard. The ARB has classified all of Placer County as a nonattainment area for the state 8-hour O_3 and PM10 standards. With regard to the state CO and PM2.5 standards, the ARB has classified the SVAB portion of Placer County as an attainment area (California Air Resources Board 2014b).

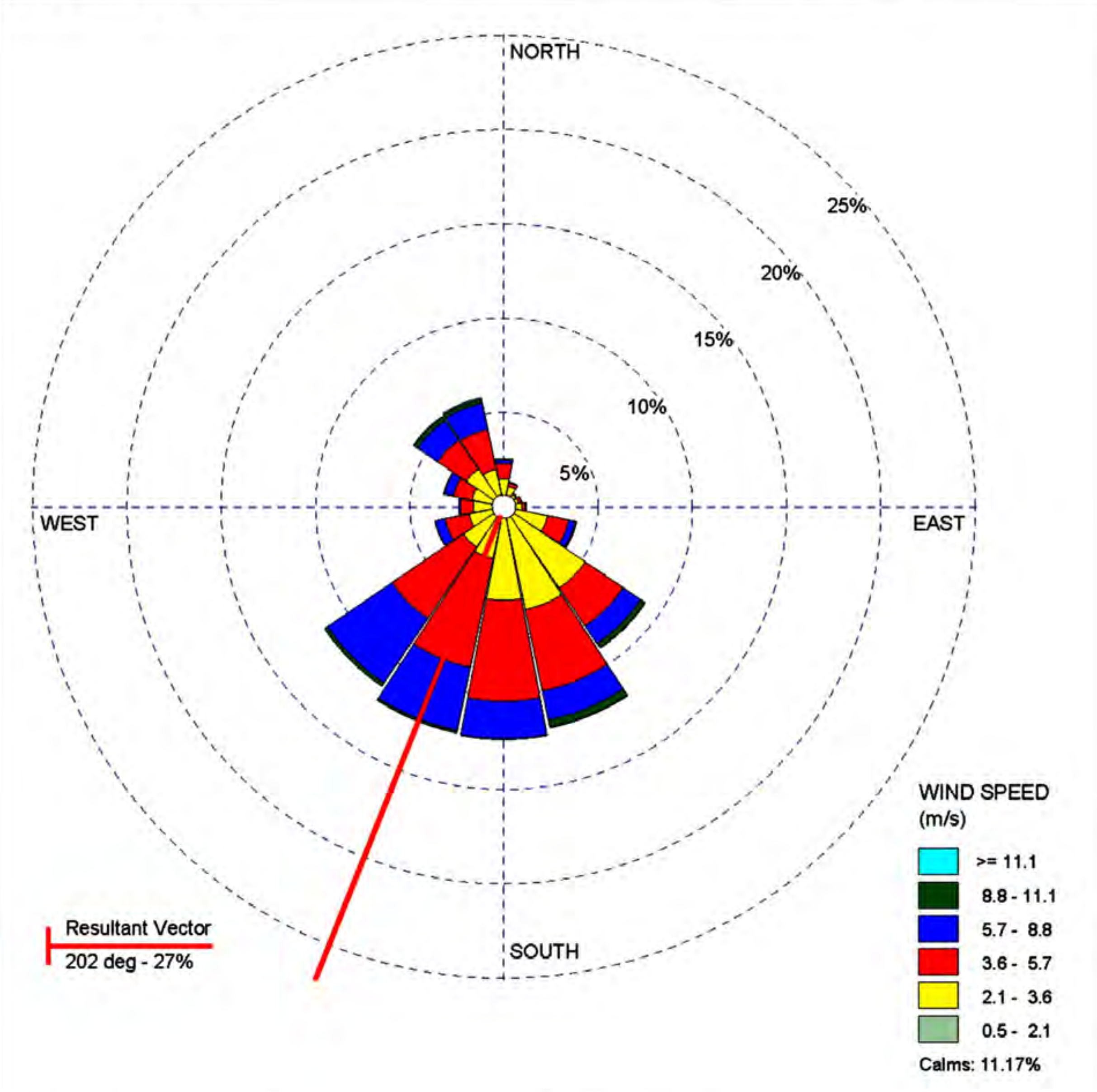
2.13.2.3 Sensitive Receptors

S*ensitive receptors* are defined as facilities or land uses that include members of the population which are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of sensitive receptors include schools, hospitals, and residential areas. Primary pollutants of concern to sensitive receptors are CO, diesel particulate matter (DPM), and, to a lesser extent, odors or odorous compounds such as ammonia and sulfur dioxide. Sensitive receptors would not be directly affected by emissions of regional pollutants, such as ozone precursors (ROG and NO_X).

[1] The 24-hour PM2.5 standard was lowered from 35 micrograms per cubic meter (μg/m^3) to 12.0 μg/m^3 in 2012, and EPA issued their final attainment status designations for the 12.0 μg/m^3 standard on January 15, 2013.

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

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 1/1/1992 - 00:00** **End Date: 12/31/1992 - 23:00**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **11.17%**	TOTAL COUNT: **8784 hrs.**	
	AVG. WIND SPEED: **3.58 m/s**	DATE: **1/28/2014**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Graphics ... 00189.11 (12-5-14) tm

Figure 2.13-1
Wind Rose Plot—Sacramento Executive Airport

Table 2.13-2. Ambient Air Quality Monitoring Data Measured at the Roseville–North Sunrise Boulevard and North Highland Sacramento Monitoring Stations

Pollutant Standards	2010	2011	2012
O_3 (Roseville – North Sunrise Boulevard)			
Maximum 1-hour concentration (ppm)	0.124	0.109	0.108
Maximum 8-hour concentration (ppm)	0.105	0.094	0.092
Number of days standard exceeded[a]			
CAAQS 1-hour (>0.09 ppm)	9	11	9
CAAQS 8-hour (>0.070 ppm)	21	23	28
Nitrogen Dioxide (NO_2) (Roseville – North Sunrise Boulevard)			
State maximum 1-hour concentration (ppm)	0.071	0.066	0.055
State second-highest 1-hour concentration (ppm)	0.062	0.056	0.054
Annual average concentration (ppm)	0.010	0.011	0.010
Number of days standard exceeded			
CAAQS 1-hour (0.18 ppm)	0	0	0
Carbon Monoxide (CO) (Sacramento County – North Highlands-Blackfoot Way)			
Maximum 8-hour concentration (ppm)	1.16	1.87	1.54
Maximum 1-hour concentration (ppm)[c]	3.1	2.3	2.1
Number of days standard exceeded[a]			
NAAQS 8-hour (≥9 ppm)	0	0	0
CAAQS 8-hour (≥9.0 ppm)	0	0	0
NAAQS 1-hour (≥35 ppm)[c]	0	0	0
Particulate Matter (PM_{10})[b] (Roseville – North Sunrise Boulevard)			
National[c] maximum 24-hour concentration ($\mu g/m^3$)	36.3	56.5	43.2
National[c] second-highest 24-hour concentration ($\mu g/m^3$)	33.1	30.8	28.0
State[d] maximum 24-hour concentration ($\mu g/m^3$)	35.1	58.8	44.8
State[d] second-highest 24-hour concentration ($\mu g/m^3$)	32.4	30.5	27.5
National annual average concentration ($\mu g/m^3$)	15.2	17.3	15.1
State annual average concentration ($\mu g/m^3$)[e]	15.4	17.5	15.3
Number of days standard exceeded[a]			
NAAQS 24-hour (>150 $\mu g/m^3$)[f]	0.0	0.0	0.0
CAAQS 24-hour (>50 $\mu g/m^3$)[f]	0.0	6.1	0.0
Particulate Matter (PM2.5) (Roseville – North Sunrise Boulevard)			
National[c] maximum 24-hour concentration ($\mu g/m^3$)	27.3	42.3	16.1
National[c] second-highest 24-hour concentration ($\mu g/m^3$)	20.3	23.0	14.9
State[d] maximum 24-hour concentration ($\mu g/m^3$)	60.1	50.4	28.0
State[d] second-highest 24-hour concentration ($\mu g/m^3$)	38.0	39.6	27.5
National annual average concentration ($\mu g/m^3$)	6.6	8.5	6.4
State annual average concentration ($\mu g/m^3$)[e]	10.9	10.7	9.5
Number of days standard exceeded[a]			
NAAQS 24-hour (>35 $\mu g/m^3$)	0.0	6.1	0.0

Notes:
CAAQS = California ambient air quality standards.
NAAQS = national ambient air quality standards.
– = insufficient data available to determine the value.
ppm = parts per million.
$\mu g/m^3$ = micrograms per cubic meter.

An exceedance is not necessarily a violation.

Measurements usually are collected every 6 days.

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

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

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

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

Sources: California Air Resources Board 2014a; U.S. Environmental Protection Agency 2013a.

The project area is located within an existing urban environment that includes a number of sensitive receptors, such as single- and multi-family homes, medical facilities, recreational land uses, child care facilities, and schools. Sensitive receptors near the project area are shown on Figure 2.13-2). Please refer to the *Air Quality Study Report* for a detailed description of sensitive receptors.

2.13.3 Environmental Consequences

2.13.3.1 Build Alternatives

Regional Conformity

Phase 1 of the I-80/SR 65 Interchange Improvements Project is included in the regional emissions analysis conducted by Sacramento Area Council of Governments (SACOG) for the conforming 2035 Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy (SCS) and 2015-2018 MTIP (SACOG ID PLA25440). The complete project (i.e., Phases 1 through 4) will be included in the regional emissions and conformity analysis for the upcoming 2036 MTP/SCS. Adoption and federal approval of the 2036 MTP/SCS is expected in early 2016, prior to the final environmental document for the project. Accordingly, the regional emissions modeling conducted for the 2036 MTP/SCS would ensure that, prior to preparation of the final environmental document for the Project, the design, concept, and scope for the project will be consistent with the description in the 2036 MTP/SCS and the "open to traffic" assumptions in SACOG's regional emissions analysis.

Project-Level Conformity

Carbon Monoxide

Existing year (2012), construction year (2020), and design year (2040) conditions were modeled to evaluate CO concentrations relative to the NAAQS and CAAQS. CO concentrations were estimated at four roadway intersections within the project area. These roadway intersections and segments were modeled because they represent the roadway intersections that would have the worst LOS and highest traffic volumes. Traffic data provided by Fehr & Peers (2014) indicate that peak-period volumes and delay at the affected intersections would typically be highest under Alternative 3. Accordingly, CO concentrations were modeled for Alternative 3 to evaluate the highest potential CO impacts of all build alternatives. Since congestion and traffic volumes are forecasted to be lower under Alternatives 1 and 2, CO concentrations under these alternatives would likewise be lower than those estimated for Alternative 3.

Table 2.13-3 summarizes the results of the intersection CO modeling, which indicate that CO concentrations are not anticipated to exceed the 1- or 8- hour NAAQS or CAAQS under Alternative 3 and the No Build Alternative. Consequently, CO concentrations under all build alternatives are not expected to exceed the 1- or 8- hour NAAQS or CAAQS.

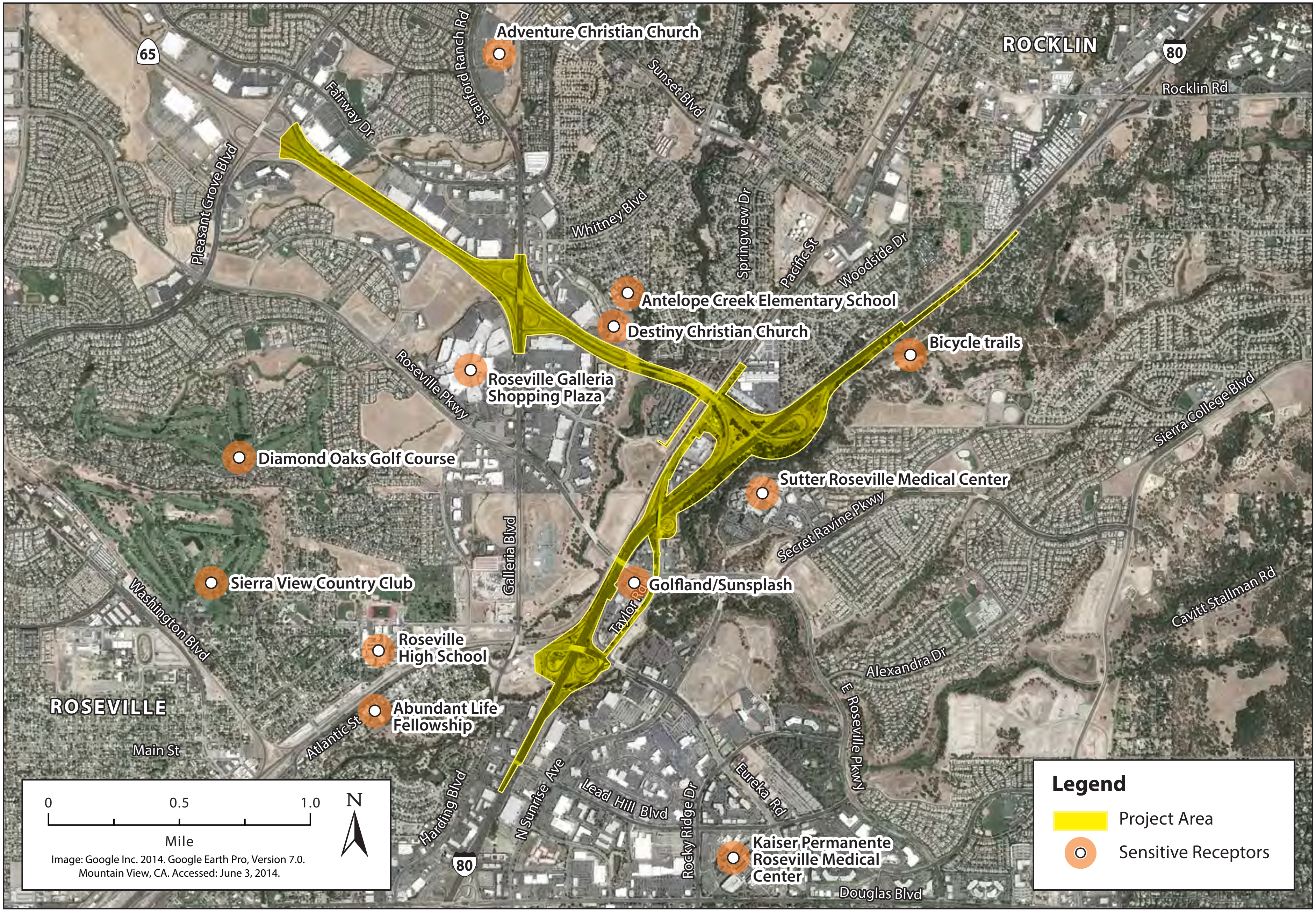


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Figure 2.13-2
Sensitive Receptors

Table 2.13-3. CO Modeling Concentration Results (parts per million)

	Receptor[a]	Existing (2012)		Construction Year (2020) No Build		Construction Year (2020) Alternative 3		Design Year (2040) No Build		Design Year (2040) Alternative 3	
		1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]
Stanford Ranch Road/ Five Star Boulevard	1	4.9	3.2	3.7	2.4	3.7	2.4	3.0	1.9	3.1	1.9
	2	5.2	3.4	3.9	2.5	3.9	2.5	3.1	1.9	3.2	2.0
	3	6.0	4.0	4.4	2.9	4.3	2.8	3.3	2.1	3.4	2.2
	4	5.8	3.8	4.3	2.8	4.2	2.7	3.3	2.1	3.4	2.2
Creekside Ridge Drive/ Roseville Parkway	5	7.1	4.7	4.9	3.2	4.5	2.9	3.6	2.3	3.5	2.2
	6	6.8	4.5	4.7	3.1	4.4	2.9	3.5	2.2	3.5	2.2
	7	6.3	4.2	4.4	2.9	4.1	2.6	3.3	2.1	3.3	2.1
	8	5.4	3.6	4.1	2.6	3.9	2.5	3.2	2.0	3.2	2.0
Taylor Road/ Roseville Parkway	9	6.4	4.3	4.5	2.9	4.6	3.0	3.6	2.3	3.6	2.3
	10	6.1	4.0	4.3	2.8	4.3	2.8	3.5	2.2	3.5	2.2
	11	5.6	3.7	4.1	2.6	4.1	2.6	3.4	2.2	3.4	2.2
	12	5.2	3.4	3.9	2.5	4.0	2.6	3.3	2.1	3.3	2.1
I-80 EB/ Eureka Road/ Taylor Road	13	5.8	3.8	4.4	2.9	4.5	2.9	3.2	2.0	3.5	2.2
	14	5.9	3.9	4.6	3.0	4.7	3.1	3.3	2.1	3.6	2.3
	15	5.7	3.8	4.3	2.8	4.4	2.9	3.2	2.0	3.5	2.2
	16	5.3	3.5	3.9	2.5	4.0	2.6	3.1	1.9	4.3	2.8

NA = not applicable.

[a] Consistent with Caltrans CO Protocol, receptors are located at 3 meters from the intersection, at each of the four corners to represent the nearest location in which a receptor could potentially be located adjacent to a traveled roadway. The modeled receptors indicated in Table 2.13-3 (Receptors 1–16) are not representative of the actual sensitive receptors indicated in Figure 2.1 3-2. All intersections modeled have two intersecting roadways.

[b] Average 1-hour background concentration between 2010 and 2012 was 2.5 ppm (California Air Resources Board 2014a).

[c] Average 8-hour background concentration between 2010 and 2012 was 1.5 ppm (U.S. Environmental Protection Agency 2013a).

CO = carbon monoxide; EB = eastbound

PM2.5

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

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

The project underwent interagency consultation through SACOG's Project Level Conformity Group (PLCG), which issued concurrence that the project is not a POAQC on April 23, 2013. Appendix F contains the documentation submitted to SACOG's PLCG used to support its concurrence, as well as concurrence letters from EPA and FHWA dated May 6, 2013 that the project is not a POAQC.

Additional Environmental Analysis

Roadway Vehicle Emissions

Long-term air quality impacts are those associated with motor vehicles operating on the roadway network, predominantly those operating in the project vicinity. Emission of ROG, NO_X, CO, PM10, and PM2.5 for existing year (2012), construction year (2020), and design year (2040) with- and without-project conditions were evaluated through modeling conducted using Caltrans' CT-EMFAC model and vehicle activity data provided by the project traffic engineer, Fehr & Peers (Milam pers. comm.[a]).

Table 2.13-4 summarizes the modeled emissions by scenario and compares build emissions to no build and existing conditions. The differences in emissions between with- and without-project conditions represent emissions generated directly from implementation of the build alternatives. Vehicular emission rates are anticipated to lessen in future years due to continuing improvements in engine technology and the retirement of older, higher-emitting vehicles.

Table 2.13-4. Estimated Criteria Pollutant Emissions from Operation of I 80/SR 65 Interchange Improvements Project (pounds per day)

Alternative	Daily VMT	ROG	NO_X	CO	PM10	PM2.5
2012 Existing	5,144,317	2,383	7,000	24,612	641	304
2012 + Alternative 1[a]	5,192,584	2,402	7,064	24,786	647	307
2012 + Alternative 2[a]	5,180,124	2,396	7,049	24,715	645	306
2012 + Alternative 3[a]	5,188,621	2,398	7,057	24,733	646	306
2020 No Build	5,887,102	1,527	2,929	14,005	670	290
2020 Alternative 1	5,900,892	1,530	2,935	14,028	671	290
2020 Alternative 2	5,897,332	1,529	2,934	14,016	671	290
2020 Alternative 3	5,899,760	1,530	2,935	14,020	671	290
2040 No Build	7,744,063	1,511	2,609	12,794	876	378
2040 Alternative 1	7,792,330	1,520	2,623	12,852	881	380
2040 Alternative 2	7,779,870	1,518	2,618	12,825	880	379
2040 Alternative 3	7,788,367	1,519	2,620	12,833	881	380
Comparison to Existing *(Alternative emissions minus Existing emissions)*[b]						
Alternative 1	48,267	19	65	173	6	3
Alternative 2	35,807	13	50	103	4	2
Alternative 3	44,304	15	58	121	5	2
Comparison to No Build *(Alternative emissions minus No Build emissions)*[b]						
2020 Alternative 1	13,791	3	6	22	2	1
2020 Alternative 2	10,231	2	5	11	1	0
2020 Alternative 3	12,658	3	6	15	1	1
2040 Alternative 1	48,267	9	14	58	5	2
2040 Alternative 2	35,807	7	10	30	4	2
2040 Alternative 3	44,304	8	12	39	5	2
PCAPCD Threshold	-	82	82	-	*82*	-

PCAPCD = Placer County Air Pollution Control District.

[a] Evaluates the net project impact on vehicle miles traveled (VMT) under existing conditions. For this analysis, net VMT under the project was derived using design year (2040) conditions and added to VMT under existing conditions. The analysis was undertaken to support the project-level CEQA document.

[b] Values represent the difference in emissions among the Build Alternatives and existing or no build conditions. Positive values indicate a net increase in emissions.

Emissions associated with implementation of the project were obtained by comparing with-project emissions to without-project emissions. Because Caltrans has statewide jurisdiction, and the setting for projects varies so extensively across the state, Caltrans has not developed, and has no intention to develop, thresholds of significance for CEQA. Further, because most air district thresholds have not been established by regulation or by delegation down from a federal or state agency with regulatory authority over Caltrans, Caltrans is not required to adopt those thresholds in Caltrans' documents. Nevertheless, project-level operational emissions are presented in Table 2.13-4 and Placer County Air Pollution Control District (PCAPCD) criteria pollutant thresholds are provided for reference. A comparison of existing-plus-project conditions also is presented.

Implementation of the build alternatives would increase all criteria pollutants compared to the existing conditions and the No Build Alternative in 2020 and 2040. This increase is due to improved traffic operations under the project, which in turn increases demand and associated VMT on the transportation network. Future year peak-period traffic volumes are forecasted to exceed available capacity in many locations on I-80 and SR 65 under the No Build Alternative. The build alternatives would expand capacity in these locations, which would reduce travel times and induce more vehicle travel. Accordingly, because delay would be reduced under the build alternatives, VMT and resultant vehicle emissions would increase.

Construction Emissions

Implementation of Alternatives 1 through 3 would result in the construction of widened roads, overcrossings, and ramps, as well as intersection improvements and the removal of existing ramp connections. Temporary construction emissions would result from grubbing/land clearing, grading/excavation, drainage/utilities/subgrade construction, and paving activities and construction worker commuting patterns. Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather.

The Sacramento Metropolitan Air Quality Management District's Roadway Construction Emissions Model (RCEM) (Version 7.1.5.1) was used to estimate construction-related O_3 precursors ROG and NO_X, CO, PM10, PM2.5, and CO_2 emissions from construction activities. As shown in Tables 8 thorough 10 in the *Air Quality Study Report*, several construction phases are anticipated to occur concurrently. To provide a realistic, yet conservative scenario, maximum daily emissions were estimated assuming that all equipment would operate at the same time during periods of overlap among the various construction phases. Daily emissions estimates for overlapping construction phases were therefore added to obtain the maximum total project-related construction impact. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner burning construction equipment fleet mix; and/or (2) a less intensive build-out schedule (i.e., fewer daily emissions occurring over a longer time interval).

Tables 2.13-5 through 2.13-7 summarize estimated maximum daily emissions levels in each of the 15 construction years for Alternatives 1 thorough 3, respectively. As noted earlier, Caltrans has not developed, and has no intention to develop, thresholds of significance for CEQA. Nevertheless, PCAPCD thresholds of significance are provided for reference.

Table 2.13-5. Estimated Unmitigated Criteria Pollutant Emissions from Construction of Alternative 1 (pounds per day)[a]

Year	ROG	NO_X	CO	PM10			PM2.5		
				Dust	Exhaust	Total	Dust	Exhaust	Total
2020	11	115	80	0	5	5	0	5	5
2021	6	62	45	46	3	49	10	2	12
2022	9	86	80	46	4	48	10	3	12
2023	9	86	80	18	4	22	4	3	7
2024	6	53	52	18	2	21	4	2	6
2025	8	78	79	10	3	13	2	3	5
2026	6	49	52	10	2	12	2	2	4
2027	8	78	79	2	3	6	0	3	4
2028	6	49	52	2	2	4	0	2	2
2029	9	84	79	92	4	96	19	4	23
2030	9	84	79	92	4	96	19	4	23
2031	5	46	52	92	2	94	19	2	21
2032	10	90	90	78	5	83	16	4	20
2033	7	61	67	78	3	81	16	3	19
2034	8	78	79	9	3	12	2	3	5
2035	6	49	52	9	2	11	2	2	4
PCAPCD Threshold	*82*	*82*	-	-	-	*82*	-	-	-

PCAPCD = Placer County Air Pollution Control District.

[a] The RCEM only includes annual emission factors through 2025. Accordingly, emissions in 2026 through 2034 were modeled using 2025 emission factors. Since emission factors are expected to decline overtime as a result of regulations and continuing improvements in engine technology, emissions presented for 2026 through 2034 likely overestimate potential air quality impacts.

Table 2.13-6. Estimated Unmitigated Criteria Pollutant Emissions from Construction of Alternative 2 (pounds per day)[a]

Year	ROG	NO_X	CO	PM10			PM2.5		
				Dust	Exhaust	Total	Dust	Exhaust	Total
2020	11	115	80	0	5	5	0	5	5
2021	6	63	45	46	3	49	10	2	12
2022	9	86	80	46	4	48	10	3	12
2023	9	86	80	42	4	45	9	3	12
2024	6	53	52	42	2	44	9	2	11
2025	8	78	79	10	3	13	2	3	5
2026	6	49	52	10	2	12	2	2	4
2027	14	126	128	64	6	70	13	5	19
2028	8	73	79	64	3	68	13	3	16
2029	9	79	79	82	4	86	17	3	20
2030	9	79	79	82	4	86	17	3	20
2031	5	44	52	82	2	84	17	2	19
2032	13	121	124	66	6	72	14	5	19
2033	9	48	52	28	2	30	6	2	8
2034	9	85	90	36	4	39	8	3	10
2035	6	49	52	9	2	11	2	2	4
PCAPCD Threshold	*82*	*82*	-	-	-	*82*	-	-	-

PCAPCD = Placer County Air Pollution Control District.

[a] The RCEM only includes annual emission factors through 2025. Accordingly, emissions in 2026 through 2034 were modeled using 2025 emission factors. Since emission factors are expected to decline overtime as a result of regulations and continuing improvements in engine technology, emissions presented for 2026 through 2034 likely overestimate potential air quality impacts.

Table 2.13-7. Estimated Unmitigated Criteria Pollutant Emissions from Construction of Alternative 3 (pounds per day)[a]

Year	ROG	NO_X	CO	PM10			PM2.5		
				Dust	Exhaust	Total	Dust	Exhaust	Total
2020	11	115	80	0	5	5	0	5	5
2021	6	63	45	46	3	49	10	2	12
2022	9	86	80	46	4	48	10	3	12
2023	9	86	80	17	4	21	3	3	7
2024	6	53	52	17	2	19	3	2	6
2025	8	78	79	10	3	14	2	3	5
2026	6	49	52	10	2	12	2	2	4
2027	14	126	128	22	6	28	5	5	10
2028	8	73	79	22	3	26	5	3	8
2029	9	85	79	80	4	84	17	4	20
2030	9	85	79	80	4	84	17	4	20
2031	5	46	52	80	2	82	17	2	19
2032	13	123	124	62	6	68	13	5	18
2033	9	81	85	62	4	66	13	3	16
2034	8	78	52	9	3	12	2	3	5
2035	6	49	52	9	2	11	2	2	4
PCAPCD Threshold	*82*	*82*	-	-	-	*82*	-	-	-

PCAPCD = Placer County Air Pollution Control District.

[a] The RCEM only includes annual emission factors through 2025. Accordingly, emissions in 2026 through 2034 were modeled using 2025 emission factors. Since emission factors are expected to decline overtime as a result of regulations and continuing improvements in engine technology, emissions presented for 2026 through 2034 likely overestimate potential air quality impacts.

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

Asbestos

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

Mobile Source Air Toxics

Annual average daily traffic (AADT) on SR 65 and I-80 under 2040 design year conditions will vary between 137,300 and 217,800, depending on the location. Based on this information, it is estimated that mainline AADT would be above FHWA's mobile source air toxics (MSAT) AADT threshold of 140,000. The project is also located within 500 feet of sensitive receptors, which is the ARB's recommended screening distance for potential land use conflicts among sensitive receptors and freeways (California Air Resources Board 2005). Based on the FHWA's 2012 MSAT guidance, this project is considered a project with higher potential MSAT effects, and a quantitative analysis of MSAT emissions is required (U.S. Federal Highway Administration 2012). Therefore, an evaluation of MSAT emissions for existing (2012), construction year (2020), and design year (2040) conditions was performed using the CT-EMFAC model and the traffic data presented in Table 7 in the *Air Quality Study Report*.

Table 2.13-8 presents modeled MSAT emissions by scenario and compares build emissions to no build and existing conditions. The differences in emissions between with- and without-project conditions represent emissions generated directly from implementation of the project. The build alternatives would not affect acetaldehyde, acrolein, or butadiene emissions relative to the No Build Alternative. However, they would slightly increase DPM emissions under 2020 conditions and benzene and DPM emissions under 2040 conditions. Implementation of Alternative 1 would also slightly increase formaldehyde emissions, relative to the No Build Alternative, under 2040 conditions. All alternatives would slightly increase benzene and DPM, relative to existing conditions; Alternative 1 would also slightly increase acetaldehyde and formaldehyde.

Table 2.13-8. Estimated MSAT Emissions for the I-80/SR 65 Interchange Improvements Project (pounds per day)

Alternative	Acetaldehyde	Acrolein	Benzene	Butadiene	Formaldehyde	DPM
2012 Existing	22	2	36	8	55	103
2012 + Alternative 1[a]	22	2	36	8	55	104
2012 + Alternative 2[a]	22	2	36	8	55	104
2012 + Alternative 3[a]	22	2	36	8	55	104
2020 No Build	9	1	17	4	23	24
2020 Alternative 1	9	1	17	4	23	24
2020 Alternative 2	9	1	17	4	23	24
2020 Alternative 3	9	1	17	4	23	24
2040 No Build	12	1	18	4	29	37
2040 Alternative 1	12	1	18	4	30	37
2040 Alternative 2	12	1	18	4	29	37
2040 Alternative 3	12	1	18	4	29	37
Comparison to Existing *(Alternative emissions minus Existing emissions)*[b]						
Alternative 1	0.1	0.0	0.2	0.0	0.2	1.1
Alternative 2	0.0	0.0	0.1	0.0	0.0	1.0
Alternative 3	0.0	0.0	0.1	0.0	0.0	1.0
Comparison to No Build *(Alternative emissions minus No Build emissions)*[b]						
2020 Alternative 1	0.0	0.0	0.0	0.0	0.0	0.1
2020 Alternative 2	0.0	0.0	0.0	0.0	0.0	0.1
2020 Alternative 3	0.0	0.0	0.0	0.0	0.0	0.1
2040 Alternative 1	0.0	0.0	0.1	0.0	0.1	0.3
2040 Alternative 2	0.0	0.0	0.1	0.0	0.0	0.3
2040 Alternative 3	0.0	0.0	0.1	0.0	0.0	0.3

DPM = diesel particulate matter.
MSAT = mobile source air toxics.
[a] Evaluates the net project impact on vehicle miles traveled (VMT) under existing conditions. For this analysis, net VMT under the project was derived from the design (2040) year analysis and added to VMT under existing conditions. The analysis was undertaken to support the project-level CEQA document.
[b] Values represent the difference in emissions among the Build Alternatives and existing or no build conditions. Positive values indicate a net increase in emissions.

While the analysis provided in Table 2.13-8 indicates no meaningful differences in MSAT emissions between the alternatives, consistent with Council on Environmental Quality (CEQ) regulations regarding incomplete or unavailable data (40 CFR 1502.22[b]), Appendix E contains a discussion explaining how current scientific techniques, tools, and data are not sufficient to accurately estimate human health impacts that could result from a transportation project in a way that would be useful to decision makers.

2.13.3.2 No Build Alternative

The increased congestion under the No Build Alternative, compared with the Build Alternatives, would likely result in worsened air quality.

2.13.4 Avoidance, Minimization, and/or Mitigation Measures

Implement Control Measures for Construction Emissions of Fugitive Dust

Standard Specification Section 14, "Environmental Stewardship" addresses the construction contractor's responsibility on many items of concern, such as air pollution; protection of lakes, streams, reservoirs, and other waterbodies; use of pesticides; safety; sanitation; convenience for the public; and damage or injury to any person or property as a result of any construction operation. Section 14-9.02 includes specifications relating to air pollution control by complying with air pollution control rules, regulations, ordinances, and statutes that apply to work performed under the contract, including air pollution control rules, regulations, ordinances, and statutes provided in Government Code Section 11017 (Public Contract Code Section 10231). Section 14-9.03 is directed at controlling dust. The Caltrans Standard Specifications are incorporated into all Caltrans' construction contracts.

To the extent practicable, the following additional measures will be implemented to control dust based on the PCAPCD Fugitive Dust Control Requirements, when the measures have not already been incorporated in, and do not conflict with, the requirements of Caltrans' Standard Specifications, special provisions, the NPDES permit, the Biological Opinions, the CWA Section 404 permit, CWA Section 401 Certification, and other permits issued for the project. The following excerpt is taken from the PCAPCD Fugitive Dust Control Requirements Fact Sheet (Placer County Air Pollution Control District 2013).

> For areas to be disturbed of any size, Rule 228, Fugitive Dust, Section 400 establishes standards to be met by activities generating fugitive dust. Minimum dust control requirements, summarized below, are to be initiated at the start and maintained throughout the duration of construction:
>
> 401.1 – Unpaved areas subject to vehicle traffic must be stabilized by being kept wet, treated with a chemical dust suppressant, or covered. In geographic ultramafic rock units, or when naturally occurring asbestos, ultramafic rock, or serpentine is to be disturbed, the cover material shall contain less than 0.25 percent asbestos as determined using the bulk sampling method for asbestos in Section 502.
>
> 401.2 – The speed of any vehicles and equipment traveling across unpaved areas must be no more than 15 miles per hour unless the road surface and surrounding area is sufficiently stabilized to

prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust exceeding Ringelmann 2[2] or visible emissions from crossing the project boundary line.

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

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

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

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

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

401.7.1 Covered with tarps; or

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

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

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

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

2.13.5 Climate Change

Climate change is analyzed in Chapter 3. Neither EPA nor FHWA has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. As stated on FHWA’s climate

[2] Ringelmann is a scale for measuring the density of smoke, where Ringelmann 0, 1, 2, 3, 4, and 5 are equivalent to an opacity of 0, 20, 40, 60, and 100.

change website (http://www.fhwa.dot.gov/hep/climate/index.htm), climate change considerations should be integrated throughout the transportation decision-making process–from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will aid decision making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because additional requirements are set forth in California legislation and executive orders on climate change, the issue is addressed in the Chapter 3 of this environmental document and may be used to inform the NEPA decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the State has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours travelled.

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2.13.6.1 Personal Communications

Milam, Ronald T. (A). Principal in Charge of Technical Development. Fehr & Peers, Roseville, California. March 17, 2014 — Email message to Claire Bromund of ICF International regarding I-80/SR 65 Updated SACMET VMT runs.