3.14 Air Quality

3.14.1 Regulatory Setting

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

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

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

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

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

3.14.2 Affected Environment

This section is based on the *Air Quality Analysis* (March 2012) prepared for the project.

3.14.2.1 Climate

The project site is in Riverside County, an area within the South Coast Air Basin (Basin), which includes Orange County and the nondesert parts of Los Angeles, Riverside, and San Bernardino Counties. Air quality regulation in the Basin is administered by the South Coast Air Quality Management District.

Climate in the Basin is determined by its terrain and geographical location. The Basin is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern boundary, and high mountains surround the rest of the Basin. The region lies in the semipermanent high-pressure zone of the eastern Pacific. The resulting climate is mild and tempered by cool ocean breezes. This climatological pattern is rarely interrupted. However, periods of extremely hot weather, winter storms, and Santa Ana Wind conditions do occur.

The annual average temperature varies little throughout the Basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station closest to the project limits for the project that monitors temperature is the Perris Station.[1] The annual average maximum temperature recorded at this station is 78.7°F, and the annual average minimum is 45.3°F. January is typically the coldest month in this area of the Basin.

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin along the coastal side of the mountains. The climatological station closest to the project limits that monitors precipitation is the Perris Station. Average rainfall measured at this station varied from 1.93 inches (in) in February to 0.35 in or less between May

[1] Western Regional Climatic Center. 2011. http://www. wrcc.dri.edu, accessed June 2011.

and October, with an annual average total of 10.42 in. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

The Basin experiences persistent temperature inversions (increasing temperature with increasing altitude) as a result of the Pacific high. These inversions limit the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed from midafternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

Inversion layers are significant in determining O_3 formation. O_3 and its precursors will mix and react to produce higher concentrations under an inversion. The inversion will also simultaneously trap and hold directly emitted pollutants such as CO. PM_{10} is both directly emitted and created indirectly in the atmosphere as a result of chemical reactions. Concentration levels of these pollutants are directly related to inversion layers due to the limitation of mixing space.

Surface or radiation inversions are formed when the ground surface becomes cooler than the air above it during the night. The earth's surface goes through a radiative process on clear nights, when heat energy is transferred from the ground to a cooler night sky. As the earth's surface cools during the evening hours, the air directly above it also cools, while air higher up remains relatively warm. The inversion is destroyed when heat from the sun warms the ground, which in turn heats the lower layers of air; this heating stimulates the ground level air to float up through the inversion layer.

The combination of stagnant wind conditions and low inversions produces the greatest concentration of pollutants. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas in Los Angeles and Orange Counties are transported predominantly onshore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are CO and oxides of nitrogen (NO_x) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_x to form photochemical smog.

3.14.2.2 Monitored Air Quality

The South Coast Air Quality Management District operates several air quality monitoring stations in the Basin. There are three air quality monitoring stations in the project vicinity: Perris Station (237 ½ North D Street, located in the MCP study area), Lake Elsinore Station (506 West Flint Street, approximately 9 miles (mi) south of the MCP study area), and Riverside-Rubidoux Station (5888 Mission Boulevard, approximately 20 mi north of the MCP study area). Tables 3.14.A, 3.14.B, and 3.14.C provide monitoring data from these stations for the years 2006 through 2010.

From the ambient air quality data listed, it can be seen that CO, SO_2, and NO_2 levels are below the relevant state and federal standards. One-hour ozone levels exceeded the state standard in each of the past 5 years. Eight-hour ozone levels exceeded the federal standard in each of the past 5 years. The PM_{10} levels in the MCP project area exceeded the state standards in each of the past 5 years and exceeded the federal PM_{10} standard in 2007. The federal 24-hour $PM_{2.5}$ standard was exceeded in each of the last 5 years. The federal and state annual $PM_{2.5}$ standards were also exceeded in each of the past 5 years.

3.14.2.3 Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The majority of the sensitive receptors in or adjacent to the MCP study area are residential uses.

3.14.2.4 Criteria Pollutant Attainment/Nonattainment Status

The national and California ambient air quality standards (AAQS) for criteria pollutants are summarized in Table 3.14.D.

Air quality monitoring stations are located throughout the nation and maintained by the local air districts and state air quality regulating agencies. Data collected at permanent monitoring stations are used by the EPA to identify regions as “attainment,” “nonattainment,” or “maintenance,” depending on whether the regions meet the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA. In addition, different classifications of nonattainment, such as marginal, moderate, serious, severe, and

Table 3.14.A Ambient Air Quality Monitored at the Perris Air Monitoring Station

Pollutant	Standard	2010	2009	2008	2007	2006
Carbon Monoxide						
Max 1-hr concentration (ppm)		NM	NM	NM	NM	NM
No. days exceeded: State Federal	> 20 ppm/1-hr > 35 ppm/1-hr	NM	NM	NM	NM	NM
Max 8-hr concentration (ppm)		NM	NM	NM	NM	NM
No. days exceeded: State Federal	≥ 9 ppm/8-hr ≥ 9 ppm/8-hr	NM	NM	NM	NM	NM
Ozone						
Max 1-hr concentration (ppm)		0.122	0.125	0.142	0.138	0.169
No. days exceeded: State	> 0.09 ppm/1-hr	42	53	65	66	77
Max 8-hr concentration (ppm)		0.107	0.108	0.114	0.116	0.122
No. days exceeded: State Federal	> 0.070 ppm/8-hr > 0.075 ppm/8-hr	77 50	88 67	94 77	88 73	98 83
Particulates (PM_{10})						
Max 24-hr concentration (ppm)		51	80	85	1,212	125
No. days exceeded: State Federal	> 50 $\mu g/m^3$ > 150 $\mu g/m^3$	0 0	6 0	8 0	25 2	18 0
Annual arithmetic avg ($\mu g/m^3$)		28.0	34.8	29.6	65.4	44.9
Exceeded: State	> 20 $\mu g/m^3$	Yes	Yes	Yes	Yes	Yes
Particulates ($PM_{2.5}$)						
Max 24-hr concentration (ppm)		NM	NM	NM	NM	NM
No. days exceeded: Federal	> 35 $\mu g/m^3$	NM	NM	NM	NM	NM
Annual arithmetic avg ($\mu g/m^3$)		NM	NM	NM	NM	NM
Exceeded: State Federal	> 12 $\mu g/m^3$ > 15 $\mu g/m^3$	NM NM	NM NM	NM NM	NM NM	NM NM
Nitrogen Dioxide						
Max 1-hr concentration (ppm): State	> 0.25 ppm/1-hr	NM	NM	NM	NM	NM
No. days exceeded		NM	NM	NM	NM	NM
Annual avg concentration: Federal	0.053 ppm annual avg	NM	NM	NM	NM	NM
No. days exceeded		NM	NM	NM	NM	NM

Source: United States Environmental Protection Agency and California Air Resources Board, 2006 to 2010.
$\mu g/m^3$ = micrograms per cubic meter
avg = average
hr = hour
max = maximum
NM = not monitored at this station
ppm = parts per million
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size

Table 3.14.B Ambient Air Quality Monitored at the Lake Elsinore Air Monitoring Station

Pollutant	Standard	2010	2009	2008	2007	2006
Carbon Monoxide						
Max 1-hr concentration (ppm)		NA	NA	1.1	1.6	1.4
No. days exceeded: State Federal	> 20 ppm/1-hr > 35 ppm/1-hr	NA NA	NA NA	0 0	0 0	0 0
Max 8-hr concentration (ppm)		0.67	0.73	0.84	1.40	1.01
No. days exceeded: State Federal	≥ 9 ppm/8-hr ≥ 9 ppm/8-hr	0 0	0 0	0 0	0 0	0 0
Ozone						
Max 1-hr concentration (ppm)		0.107	0.128	0.139	0.129	0.142
No. days exceeded: State	> 0.09 ppm/1-hr	15	24	49	26	42
Max 8-hr concentration (ppm)		0.091	0.105	0.118	0.109	0.109
No. days exceeded: State Federal	> 0.070 ppm/8-hr > 0.075 ppm/8-hr	40 24	65 35	91 69	56 35	71 54
Particulates (PM_{10})						
Max 24-hr concentration (ppm)		NM	NM	NM	NM	NM
No. days exceeded: State Federal	> 50 $\mu g/m^3$ > 150 $\mu g/m^3$	NM	NM	NM	NM	NM
Annual arithmetic avg ($\mu g/m^3$)		NM	NM	NM	NM	NM
Exceeded: State	> 20 $\mu g/m^3$	NM	NM	NM	NM	NM
Particulates ($PM_{2.5}$)						
Max 24-hr concentration (ppm)		NM	NM	NM	NM	NM
No. days exceeded: Federal	> 35 $\mu g/m^3$	NM	NM	NM	NM	NM
Annual arithmetic avg ($\mu g/m^3$)		NM	NM	NM	NM	NM
Exceeded: State Federal	> 12 $\mu g/m^3$ > 15 $\mu g/m^3$	NM NM	NM NM	NM NM	NM NM	NM NM
Nitrogen Dioxide						
Max 1-hr concentration (ppm): State	> 0.25 ppm/1-hr	0.051	0.055	0.055	0.064	0.072
No. days exceeded		0	0	0	0	0
Annual avg concentration: Federal	0.053 ppm annual avg	0.010	0.013	0.013	0.015	0.015
No. days exceeded		0	0	0	0	0

Source: United States Environmental Protection Agency and California Air Resources Board, 2006 to 2010.
$\mu g/m^3$ = micrograms per cubic meter
avg = average
hr = hour
max = maximum
NA = not available
NM = not monitored at this station
ppm = parts per million
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size

Table 3.14.C Ambient Air Quality Monitored at the Riverside-Rubidoux Air Monitoring Station

Pollutant	Standard	2010	2009	2008	2007	2006
Carbon Monoxide						
Max 1-hr concentration (ppm)		NA	NA	2.7	3.8	2.7
No. days exceeded: State Federal	> 20 ppm/1-hr > 35 ppm/1-hr	NA NA	NA NA	0 0	0 0	0 0
Max 8-hr concentration (ppm)		1.84	1.85	1.86	2.93	2.29
No. days exceeded: State Federal	≥ 9 ppm/8-hr ≥ 9 ppm/8-hr	0 0	0 0	0 0	0 0	0 0
Ozone						
Max 1-hr concentration (ppm)		0.128	0.116	0.146	0.131	0.151
No. days exceeded: State	> 0.09 ppm/1-hr	31	25	54	31	45
Max 8-hr concentration (ppm)		0.098	0.100	0.116	0.111	0.117
No. days exceeded: State Federal	> 0.070 ppm/8-hr > 0.075 ppm/8-hr	74 47	57 36	89 64	69 46	75 57
Particulates (PM_{10})						
Max 24-hr concentration (ppm)		75	87	115	559	109
No. days exceeded: State Federal	> 50 $\mu g/m^3$ > 150 $\mu g/m^3$	7 0	27 0	46 0	65 1	69 0
Annual arithmetic avg ($\mu g/m^3$)		33.1	42.5	46.5	59.5	55.1
Exceeded: State	> 20 $\mu g/m^3$	Yes	Yes	Yes	Yes	Yes
Particulates ($PM_{2.5}$)						
Max 24-hr concentration (ppm)		47	62	58	76	68
No. days exceeded: Federal	> 35 $\mu g/m^3$	4	15	14	33	32
Annual arithmetic avg ($\mu g/m^3$)		13.2	15.6	16.3	18.9	19.0
Exceeded: State Federal	> 12 $\mu g/m^3$ > 15 $\mu g/m^3$	No Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Nitrogen Dioxide						
Max 1-hr concentration (ppm): State	> 0.25 ppm/1-hr	0.065	0.078	0.092	0.072	0.076
	No. days exceeded	0	0	0	0	0
Annual avg concentration: Federal	0.053 ppm annual avg	NA	0.017	0.019	0.020	0.020
	No. days exceeded	NA	0	0	0	0
Sulfur Dioxide (SO_2)						
Max 1-hr concentration (ppm):	> 0.075 ppm/1-hr	NA	NA	0.011	0.016	0.012
No. days exceeded: Federal		NA	NA	0	0	0
Max 24-hr concentration (ppm)	> 0.04 ppm/24-hr	0.005	0.003	0.003	0.004	0.003
No. days exceeded: State		0	0	0	0	0

Source: United States Environmental Protection Agency and California Air Resources Board, 2006 to 2010.
$\mu g/m^3$ = micrograms per cubic meter
avg = average
hr = hour
max = maximum
ppm = parts per million
NA = Not Available
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size

Table 3.14.D State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State Standard[10]	Federal Standard[10]	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Ozone (O_3)[2]	1 hour 8 hours 8 hours (conformity process[6])	0.09 ppm 0.070 ppm ---	--- [5] 0.075 ppm[7] 0.08 ppm (4th highest in 3 years)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes.	Federal: Extreme Nonattainment (8-hour) State: Nonattainment (1-hour and 8-hour)
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 ppm 9.0 ppm[1] 6 ppm	35 ppm 9 ppm ---	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Federal: Attainment/ Maintenance State: Attainment
Respirable Particulate Matter (PM_{10})[2]	24 hours Annual	50 $\mu g/m^3$ 20 $\mu g/m^3$	150 $\mu g/m^3$ ---[2]	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources (wind-blown dust, ocean spray).	Federal: Serious Nonattainment State: Nonattainment
Fine Particulate Matter ($PM_{2.5}$)[2]	24 hours Annual 24 hours (conformity process[6])	--- 12 $\mu g/m^3$ ---	35 $\mu g/m^3$ 15.0 $\mu g/m^3$ 65 $\mu g/m^3$ (4th highest in 3 years)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.	Federal: Nonattainment State: Nonattainment
Nitrogen Dioxide (NO_2)	1 hour Annual	0.18 ppm 0.030 ppm	0.100 ppm[8] (98th percentile over 3 years) 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile sources; refineries; industrial operations.	Federal: Attainment/ Maintenance State: Attainment
Sulfur Dioxide (SO_2)[3]	1 hour 3 hours 24 hours Annual	0.25 ppm --- 0.04 ppm ---	0.075 ppm[9] (98th percentile over 3 years) 0.5 ppm 0.14 ppm 0.030 ppm	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Federal: Attainment/ Unclassified State: Attainment/ Unclassified
Lead (Pb) [4]	Monthly Quarterly Rolling 3-month average	1.5 $\mu g/m^3$ --- ---	--- 1.5 $\mu g/m^3$ 0.15 $\mu g/m^3$	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from gasoline may exist in soils along major roads.	Federal: Nonattainment (LA County only) State: Nonattainment (LA County only)

Table 3.14.D State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State Standard[10]	Federal Standard[10]	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Sulfate	24 hours	25 µg/m^3	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	Federal: Attainment/ Unclassified State: Attainment/ Unclassified
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.	Federal: Attainment/ Unclassified State: Attainment/ Unclassified
Visibility Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70%	---	Reduces visibility. Produces haze. NOTE: not related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas.	See particulate matter above.	Federal: Attainment/ Unclassified State: Attainment/ Unclassified
Vinyl Chloride[4]	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes	Federal: Attainment/ Unclassified State: Attainment/ Unclassified

Source: www.arb.ca.gov/research/aaqs/aaqs2.pdf, February 7, 2012; California Air Resources Board, *Area Designations*, accessed April 2012.

Footnotes:

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

2 Annual PM_{10} NAAQS revoked October 2006; was 50 µg/m^3. 24-hr. $PM_{2.5}$ NAAQS tightened October 2006; was 65 µg/m^3. In 9/09 U.S. EPA began reconsidering the $PM_{2.5}$ NAAQS; the 2006 action was partially vacated by a court decision.

3 On June 2, 2010, the new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. The 24-hour and annual standards do not apply to the project area. Note that the new standard is in units of ppb. California standards are in units of ppm. To directly compare the new primary national standard to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

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

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

6 The 65 µg/m^3 $PM_{2.5}$ (24-hr) NAAQS was not revoked when the 35 µg/m^3 NAAQS was promulgated in 2006. Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for the newer NAAQS are found adequate or SIP amendments for the newer NAAQS are completed.

7 As of September 16, 2009, U.S. EPA is reconsidering the 2008 8-hour ozone NAAQS (0.075 ppm); U.S. EPA is expected to tighten the primary NAAQS to somewhere in the range of 60-70 ppb and to add a secondary NAAQS. U.S. EPA plans to finalize reconsideration and promulgate a revised standard by August 2010.

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

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

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

µg/m^3 = micrograms per cubic meter
CARB = California Air Resources Board
EPA = United States Environmental Protection Agency
ppm = parts per million
ppb = parts per billion
mg/m^3 = milligrams per cubic meter

extreme, are used to classify each air basin in the state on a pollutant-by-pollutant basis. The classifications are used as a foundation to create air quality management strategies to improve air quality and comply with the NAAQS. The attainment status for each of the criteria pollutants in the Basin is listed in Table 3.14.D.

3.14.3 Environmental Consequences

3.14.3.1 Permanent Impacts

This section addresses the following concerns related to air quality:

- Regional Air Quality Conformity;
- Project-level Air Quality Conformity with the FCAA related to CO, $PM_{2.5}$, and PM_{10};
- Mobile Source Air Toxics; and
- Regional Emissions.

Build Alternatives

Alternative 4 Modified

Regional Air Quality Conformity

The MCP project is listed in the 2012 RTP, which was found to conform to the State Implementation Plan (SIP) by the Southern California Association of Governments (SCAG) on April 4, 2012, and the FHWA and the FTA made a regional conformity finding in June 2012. The project is also included in the financially constrained 2011 FTIP. The 2011 FTIP was determined to conform to the SIP by the FHWA and the FTA on December 14, 2010 (Project ID: RIV031218, "CONS 6 THRU LN (3 LNS IN EA DIR) APPROX 16-MI BTWN I-215 IN PERRIS EAST TO SR-79 IN SAN JACINTO, INC CONS/RECONS OF APPROX 10 ICS, ADD OF AUX LN REDLANDS – EVANS AND EB AUXILIARY LN EVANS – ANTELOPE. I-215 IMP: ADD 1 MF LN IN EA DIR NUEVO RD – VAN BUREN BLVD, & ONE AUX LN IN EA DIR MID CO PKWY – CAJALCO/RAMONA EXP AND FROM MID CO PKWY – NUEVO."). The design concept and scope of the MCP project is consistent with the project description in the 2012 RTP and the 2011 FTIP, and the open to traffic assumptions of SCAG's regional emissions analysis.

Project Level Conformity

Because the MCP project is within an attainment/maintenance area for CO and a nonattainment area for federal $PM_{2.5}$ and PM_{10} standards, local hot-spot analyses for CO, $PM_{2.5}$, and PM_{10} are required for conformity purposes. The results of these hot-spot analyses are provided below.

Carbon Monoxide

The methodology required for a CO local analysis is summarized in the Caltrans Transportation Project-Level Carbon Monoxide Protocol (Protocol), Section 3 (Determination of Project Requirements) and Section 4 (Local Analysis). In Section 3, the Protocol provides two conformity requirement decision flowcharts that are designed to assist the project sponsors in evaluating the requirements that apply to specific projects. The flowchart in Figure 1 (CO Protocol flowchart Appendix B of the Air Quality Analysis) of the Protocol applies to new projects and was used in this local analysis conformity decision. Below is a step-by-step explanation of the flow chart. Each level cited is followed by a response, which in turn determines the next applicable level of the flowchart for the project. The flowchart begins with Section 3.1.1:

- **3.1.1. Is this project exempt from all emissions analyses?**
  NO.

  Table 1 of the Protocol is Table 2 of Section 93.126 of 40 Code of Federal Regulations (CFR). Section 3.1.1 is inquiring if the project is exempt. Such projects appear in Table 1 of the Protocol. Alternative 4 Modified does not appear in Table 1. Therefore, it is not exempt from all emissions analyses.

- **3.1.2. Is the project exempt from regional emissions analyses?**
  NO.

  Table 2 of the Protocol is Table 3 of Section 93.127. The question is attempting to determine whether the project is listed in Table 2. As the MCP project will be constructing a new roadway, it is not exempt from regional emissions analyses.

- **3.1.3. Is the project locally defined as regionally significant?**
  YES.

As mentioned above, the MCP project will be constructing a new roadway. Therefore, the project is potentially regionally significant.

- **3.1.4. Is the project in a federal attainment area?**
  NO.

  The project is located within an attainment/maintenance area for the federal CO standard.

- **3.1.5. Are there a currently conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP)?**
  YES.

- **3.1.6. Is the project included in the regional emissions analysis supporting the currently conforming RTP and TIP?**
  YES.

  The project is included in the SCAG 2012 RTP and the 2011 FTIP (Project ID: RIV031218, "CONS 6 THRU LN (3 LNS IN EA DIR) APPROX 16-MI BTWN I-215 IN PERRIS EAST TO SR-79 IN SAN JACINTO, INC CONS/RECONS OF APPROX 10 ICS, ADD OF AUX LN REDLANDS – EVANS AND EB AUXILIARY LN EVANS – ANTELOPE. I-215 IMP: ADD 1 MF LN IN EA DIR NUEVO RD – VAN BUREN BLVD, & ONE AUX LN IN EA DIR MID CO PKWY – CAJALCO/RAMONA EXP AND FROM MID CO PKWY – NUEVO."). Copies of the 2012 RTP and 2011 FTIP listings are included in Appendix K.

- **3.1.7. Has the project design concept and/or scope changed significantly from that in the regional analysis?**
  NO.

- **3.1.9. Examine local impacts.**
  Section 3.1.9 of the flowchart directs the project evaluation to Section 4 (Local Analysis) of the Protocol. This includes Figure 1.

Section 4 contains Figure 3 (Local CO Analysis). This flowchart is used to determine the type of CO analysis required for Alternative 4 Modified. Below is a step-by-step explanation of the flowchart. Each level cited is followed by a response, which in turn determines the next applicable level of the flowchart for Alternative 4 Modified. The flowchart begins at level 1:

- **Level 1. Is the project in a CO non-attainment area?**
  NO.

  The project site is located in an area that has demonstrated attainment with the federal CO standard.

- **Level 1 (cont.). Was the area redesignated as "attainment" after the 1990 Clean Air Act?**
  YES.

- **Level 1 (cont.). Has "continued attainment" been verified with the local Air District, if appropriate?**
  YES.

  The South Coast Air Basin (Basin) was designated as attainment/maintenance by the EPA on June 11, 2007. (Proceed to Level 7.)

- **Level 7. Does the project worsen air quality?**
  YES.

  As the MCP project would add a new roadway to the project area, it would potentially worsen air quality.

- **Level 7 (cont.). Is the project suspected of resulting in higher CO concentrations than those existing within the region at the time of attainment demonstration?**
  NO.

  CO concentrations at the intersections under study for the MCP project will be lower than those reported for the maximum of the intersections analyzed in the CO attainment plan because all of the following conditions, listed in Section 4.7.2 of the CO Protocol, are satisfied:

  - The receptor locations at the intersections under study for the MCP project are at the same distance or farther from the traveled roadway than the receptor locations used in the intersection in the attainment plan. The attainment plan evaluates the CO concentrations at a distance of 10 feet (ft) from the edge of the roadways. The Protocol does not permit the modeling of receptor locations closer than this distance.

- The project intersection traffic volumes and geometries are not substantially different from those included in the attainment plan. Also, the intersections under study for the MCP project have less total traffic and the same number of lanes or fewer than the intersections in the attainment plan. Geometries for intersections in the project area are included in Appendix B of the Air Quality Analysis.
- The assumed meteorology for the intersections under study for the MCP project is the same as the assumed meteorology for the intersections in the attainment plan. Both use the worst-case scenario meteorology settings in the CALINE4 and/or CAL3QHC models.
- As shown in Table 3.14.E, traffic lane volumes for all approach and departure segments are lower for the intersections under study for the MCP project than those assumed for the intersections in the attainment plan. The intersections in the attainment plan include Wilshire Boulevard/Veteran Avenue, Sunset Boulevard/Highland Avenue, La Cienega Boulevard/Century Boulevard, and Long Beach Boulevard/Imperial Highway. The intersections under study were selected based on their level of service (LOS) and the MCP project's contribution to the total traffic volumes.
- The percentages of vehicles operating in cold start mode are the same or lower for the intersections under study compared to those used for the intersections in the attainment plan. It is assumed that all vehicles in the intersections are operating in fully warmed-up mode.
- The percentages of heavy-duty gas trucks in the intersections under study are the same or lower than the percentages used for the intersections in the attainment plan analysis. It is assumed that traffic distribution at the intersections under study does not vary from the EMFAC2007 standards.
- Average delay and queue length for each approach are the same or less for the intersections under study compared to those found in the intersections in the attainment plan. The predicted LOS for the intersections under study range from A to F. The LOS for the intersections in the attainment plan are not listed; however, the traffic counts and intersection geometries correspond to an LOS F for three of the four intersections in the attainment plan.

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Table 3.14.E Traffic Volume Comparison

Attainment Plan Maximum Values	Intersection 1		Intersection 2		Intersection 3		Intersection 4	
	AM	PM	AM	PM	AM	PM	AM	PM
Attainment Plan Volumes	Wilshire Boulevard/ Veteran Avenue		Sunset Boulevard/ Highland Avenue		La Cienega Boulevard/Century Boulevard		Long Beach Boulevard/Imperial Highway	
Intersection Total	8,062	7,719	6,614	7,374	6,635	8,674	4,212	5,514
Turn Maximum	384	780	200	263	700	1,187	176	202

Source: Transportation Project-level Carbon Monoxide Protocol User Workbook, University of California, Davis, 1998.

Proposed Project Maximum Volumes	Intersection 1		Intersection 2		Intersection 3		Intersection 4		Intersection 5	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
2020 No Project/No Action	Perris Boulevard/ Markham Street		Perris Boulevard/ Ramona Expressway		Perris Boulevard/ Morgan Street		Town Center Boulevard/Ramona Expressway		SR-79/Ramona Expressway	
Intersection Total	2,804	3,152	6,400	7,194	3,380	2,927	5,152	5,295	3,397	3,073
Turn Maximum	180	199	494	620	266	302	499	561	544	609

Proposed Project Maximum Volumes	Intersection 1		Intersection 2		Intersection 3		Intersection 4		Intersection 5		Intersection 6		Intersection 7		Intersection 8		Intersection 9	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
2020 Alternative 4 Modified	Perris Boulevard/ Markham Street		Perris Boulevard/MCP WB ramps		Perris Boulevard/ MCP EB ramps		Perris Boulevard/ Ramona Expressway		Perris Boulevard/ Morgan Street		Town Center Boulevard/MCP WB ramps		MCP/Sanderson Avenue		MCP/SR-79		MCP/Ramona Expressway	
Intersection Total	6,497	7,849	2,078	2,348	2,023	2,278	8,242	9,443	2,677	3,003	1,350	1,534	2,349	3,075	2,628	3,036	3,256	3,701
Turn Maximum	386	439	193	223	726	938	613	532	194	220	465	450	299	460	388	435	1,099	1,235

Proposed Project Maximum Volumes	Intersection 1		Intersection 2		Intersection 3		Intersection 4		Intersection 5		Intersection 6		Intersection 7		Intersection 8		Intersection 9	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
2020 Alternative 5 Modified	Perris Boulevard/ Markham Street		Perris Boulevard/ Ramona Expressway		Perris Boulevard/ Morgan Street		Perris Boulevard/ MCP WB ramps		Perris Boulevard/ MCP EB ramps		Town Center Boulevard/MCP WB ramps		MCP/Sanderson Avenue		MCP/SR-79		MCP/Ramona Expressway	
Intersection Total	1,435	1,614	2,920	3,291	2,542	2,871	2,325	2,275	2,215	2,320	1,403	1,582	2,349	3,075	2,649	3,070	3,256	3,701
Turn Maximum	95	105	284	329	188	213	236	217	193	266	495	475	299	460	390	437	1,099	1,235

Proposed Project Maximum Volumes	Intersection 1		Intersection 2		Intersection 3		Intersection 4		Intersection 5		Intersection 6		Intersection 7	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
2020 Alternative 9 Modified	Perris Boulevard/ Markham Street		Perris Boulevard/ Ramona Expressway		Perris Boulevard/ Morgan Street		Town Center Boulevard/MCP WB ramps		MCP/Sanderson Avenue		MCP/SR-79		MCP/Ramona Expressway	
Intersection Total	1,381	1,554	2,903	3,269	2,457	2,768	1,411	1,737	2,349	3,075	2,635	3,056	2,772	2,981
Turn Maximum	93	103	278	321	182	207	722	803	299	460	392	440	875	934

Table 3.14.E Traffic Volume Comparison (continued)

Proposed Project Maximum Volumes	Intersection 1		Intersection 2		Intersection 3		Intersection 4		Intersection 5	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
2040 No Project/No Action	Perris Boulevard/ Markham Street		Perris Boulevard/ Ramona Expressway		Perris Boulevard/ Morgan Street		Town Center Boulevard/Ramona Expressway		SR-79/Ramona Expressway	
Intersection Total	6,497	7,849	6,495	7,320	5,560	6,378	5,152	5,295	4,912	5,256
Turn Maximum	386	439	504	632	472	535	499	561	1,128	1,329

Proposed Project Maximum Volumes	Intersection 1		Intersection 2		Intersection 3		Intersection 4		Intersection 5		Intersection 6		Intersection 7		Intersection 8		Intersection 9	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
2040 Alternative 4 Modified	Perris Boulevard/ Markham Street		Perris Boulevard/MCP WB ramps		Perris Boulevard/ MCP EB ramps		Perris Boulevard/ Ramona Expressway		Perris Boulevard/ Morgan Street		Town Center Boulevard/MCP WB ramps		MCP/Sanderson Avenue		MCP/SR-79		MCP/Ramona Expressway	
Intersection Total	6,497	7,849	6,378	7,706	6,045	7,545	8,242	9,443	2,677	3,003	2,121	2,575	4,648	6,536	4,591	6,171	4,436	5,582
Turn Maximum	386	439	780	806	631	789	613	532	194	220	680	616	519	798	674	919	1,381	1,552

Proposed Project Maximum Volumes	Intersection 1		Intersection 2		Intersection 3		Intersection 4		Intersection 5		Intersection 6		Intersection 7		Intersection 8		Intersection 9	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
2040 Alternative 5 Modified	Perris Boulevard/ Markham Street		Perris Boulevard/ Ramona Expressway		Perris Boulevard/ Morgan Street		Perris Boulevard/ MCP WB ramps		Perris Boulevard/ MCP EB ramps		Town Center Boulevard/MCP WB ramps		MCP/Sanderson Avenue		MCP/SR-79		MCP/Ramona Expressway	
Intersection Total	6,497	7,849	6,495	7,320	5,560	6,378	5,139	5,776	4,945	5,689	2,098	2,669	5,001	6,398	6,140	7,847	6,011	6,807
Turn Maximum	386	439	504	632	472	535	592	546	437	590	450	618	519	798	1,338	1,696	3,118	3,285

Proposed Project Maximum Volumes	Intersection 1		Intersection 2		Intersection 3		Intersection 4		Intersection 5		Intersection 6		Intersection 7	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
2040 Alternative 9 Modified	Perris Boulevard/ Markham Street		Perris Boulevard/ Ramona Expressway		Perris Boulevard/ Morgan Street		Town Center Boulevard/MCP WB ramps		MCP/Sanderson Avenue		MCP/SR-79		MCP/Ramona Expressway	
Intersection Total	6,497	7,849	6,495	7,320	5,560	6,378	2,260	2,703	4,465	5,280	4,591	5,303	4,079	5,138
Turn Maximum	386	439	504	632	472	535	688	619	519	528	674	923	1,381	1,552

Source: VRPA, April 2011.
EB = eastbound
MCP = Mid County Parkway
SR-79 = State Route 79
WB = westbound

- The background CO concentrations in the area of the intersections under study are 3.7 parts per million (ppm) for 1 hour and 2.3 ppm for 8 hours, which is lower than the background concentrations for the intersections in the attainment plan. These varied from 5.3 to 13.2 ppm for 1 hour and 3.7 to 9.9 ppm for 8 hours.

Because the background CO concentrations are lower at the MCP study area intersection than for the intersections in the attainment plan[1], the project is not expected to result in any concentrations exceeding the 1-hour or 8-hour CO standards. Therefore, a detailed CALINE4 CO hot-spot analysis was not conducted.

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

The MCP project is within a nonattainment area for federal $PM_{2.5}$ and PM_{10} standards. Therefore, per 40 CFR Part 93, analyses are required for conformity purposes. However, the EPA does not require hot-spot analyses, qualitative or quantitative, for projects that are not listed in Section 93.123(b)(1) as an air quality concern. As the MCP project will be constructing a new roadway, it is potentially a project of air quality concern.

A detailed $PM_{2.5}$ and PM_{10} hot-spot analysis was submitted to and reviewed by the Transportation Conformity Working Group[2] on June 14, 2011, and June 28, 2011, respectively. A copy of the hot-spot analysis is included in Appendix C of the *Air Quality Analysis* (March 2012).

It is not expected that changes to $PM_{2.5}$ and PM_{10} emissions levels associated with the MCP project would result in new violations of the federal air quality standards for the following reasons:

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1 South Coast Air Quality Management District (SCAQMD), *Carbon Monoxide Attainment Demonstration,* 1997.

2 The Transportation Conformity Working (TCWG) is a forum to support interagency coordination to help improve air quality and maintain transportation conformity in Southern California. www.scag.ca.gov/tcwg.

- The future truck traffic volumes along the MCP project would not exceed 10,000 average daily traffic (ADT). The existing, 2020 No Build, and 2040 No Build traffic volumes are listed in Table 3.14.F. The 2020 and 2040 traffic volumes for each of the Build Alternatives are listed in Tables 3.14.G and 3.14.H, respectively.
- With the exception of 2007, the ambient PM_{10} concentrations have not exceeded the 24-hour or annual federal standard.
- Based on the projected PM_{10} concentrations listed in the 2007 AQMP, the 24-hour PM_{10} concentrations would be 59 percent of the federal standard by 2015 and below 50 percent of the federal standard by 2020.
- Based on the local monitoring data, the 24-hour $PM_{2.5}$ concentrations within the project area would be reduced to 88 percent of the federal standard by 2020 and 37 percent of the federal standard by 2040.
- Based on the local monitoring data, the annual average $PM_{2.5}$ concentrations within the project area would be reduced to 46 percent of the federal standard by 2020 and 10 percent of the federal standard by 2040.
- The project-related 0.15 to 0.37 percent increase in regional $PM_{2.5}$ and PM_{10} emissions would not result in any new exceedances of the federal standards in 2020 or 2040. The proposed project's contribution to the regional $PM_{2.5}$ and PM_{10} emissions are listed in Tables 3.14.I and 3.14.J.
- As shown in Tables 3.14.I and 3.14.J, when compared to the existing conditions, the existing plus MCP project conditions would result in a 5 to 6 percent reduction in regional $PM_{2.5}$ and PM_{10} emissions.
- Tables 3.14.K and 3.14.O show the 2020 and 2040 No Build/County General Plan LOS and delay in the project area for the a.m. and p.m. peak hours. Tables 3.14.L, 3.14.M, and 3.14.N show the 2020 LOS and delay in the project area for Alternatives 4 Modified, 5 Modified, and 9 Modified, respectively. Tables 3.14.P, 3.14.Q, and 3.14.R show the 2040 LOS and delay in the project area for Alternatives 4 Modified, 5 Modified, and 9 Modified, respectively. As shown, the MCP project would improve the LOS and reduce the delay at some intersections in the project area while worsening the LOS and increasing the delay at other intersections within the project area.

Table 3.14.F Existing (2010) and No Build (2020 and 2040) Average Daily Traffic Volumes (Average Daily Truck Volumes)

Roadway Link	Existing (2010)	2020 No Build	2040 No Build
Ramona Expressway from I-215 to Perris Boulevard	24,400 (1,220)	42,600 (2,130)	79,000 (3,950)
Ramona Expressway from Perris Boulevard to Evans Road	21,300 (1,065)	33,600 (1,680)	58,200 (2,910)
Ramona Expressway from Evans Road to Bernasconi Road	14,800 (740)	30,000 (1,500)	60,500 (3,025)
Ramona Expressway from Bernasconi Road to Reservoir Avenue	10,100 (505)	27,900 (1,395)	63,500 (3,175)
Ramona Expressway from Reservoir Avenue to Town Center Boulevard	10,300 (515)	27,000 (1,350)	60,500 (3,025)
Ramona Expressway from Town Center Boulevard to Park Center Boulevard	10,200 (510)	18,700 (935)	35,800 (1,790)
Ramona Expressway from Park Center Boulevard to Warren Road	10,400 (520)	20,600 (1,030)	40,900 (2,045)
Ramona Expressway from Warren Road to SR-79	12,100 (605)	20,100 (1,005)	36,000 (1,800)

Source: *Traffic Technical Report,* February 2012.
I-215 = Interstate 215
SR-79 = State Route 79

Table 3.14.G 2020 Project Alternative Average Daily Traffic Volumes (Average Daily Truck Volumes)

Roadway Link	Alternative 4 Modified	Alternative 5 Modified	Alternative 9 Modified
MCP from I-215 to Perris Boulevard	58,800 (2,940)	57,200 (2,860)	51,400 (2,570)
MCP from Perris Boulevard to Evans Road	53,600 (2,680)	55,600 (2,780)	51,600 (2,580)
MCP from Evans Road to Ramona Expressway	57,200 (2,860)	57,600 (2,880)	52,800 (2,640)
MCP from Ramona Expressway to Bernasconi Road	63,200 (3,160)	63,800 (3,190)	63,600 (3,180)
MCP from Bernasconi Road to Reservoir Avenue	62,400 (3,120)	63,000 (3,150)	63,600 (3,180)
MCP from Reservoir Avenue to Town Center Boulevard	59,800 (2,990)	60,400 (3,020)	62,600 (3,130)
MCP from Town Center Boulevard to Park Center Boulevard	52,800 (2,640)	53,200 (2,660)	48,000 (2,400)
MCP from Park Center Boulevard to Warren Road	51,400 (2,570)	52,000 (2,600)	52,600 (2,630)
MCP from Warren Road to SR-79	44,000 (2,200)	44,400 (2,220)	43,800 (2,190)

Source: *Traffic Technical Report,* February 2012.
I-215 = Interstate 215 SR-79 = State Route 79
MCP = Mid County Parkway

Table 3.14.H 2040 Project Alternative Average Daily Traffic Volumes (Average Daily Truck Volumes)

Roadway Link	Alternative 4 Modified	Alternative 5 Modified	Alternative 9 Modified
MCP from I-215 to Perris Boulevard	69,600 (3,480)	77,200 (3,860)	76,200 (3,810)
MCP from Perris Boulevard to Evans Road	84,600 (4,230)	83,200 (4,160)	81,800 (4,090)
MCP from Evans Road to Ramona Expressway	84,000 (4,200)	82,800 (4,140)	79,600 (3,980)
MCP from Ramona Expressway to Bernasconi Road	93,600 (4,680)	93,400 (4,670)	93,800 (4,690)
MCP from Bernasconi Road to Reservoir Avenue	93,600 (4,380)	93,400 (4,670)	93,800 (4,690)
MCP from Reservoir Avenue to Town Center Boulevard	88,800 (4,440)	88,600 (4,430)	88,800 (4,440)
MCP from Town Center Boulevard to Park Center Boulevard	68,200 (3,410)	68,400 (3,420)	68,200 (3,410)
MCP from Park Center Boulevard to Warren Road	72,800 (3,640)	72,800 (3,640)	72,600 (3,630)
MCP from Warren Road to SR-79	59,200 (2,960)	55,600 (2,780)	55,000 (2,750)

Source: *Traffic Technical Report,* February 2012.
I-215 = Interstate 215 SR-79 = State Route 79
MCP = Mid County Parkway

Table 3.14.I Daily $PM_{2.5}$ Emissions (lbs/day)

Traffic Condition	Exhaust Emissions	Tire Wear	Brake Wear	Road Dust	Total	Change from Existing	Change from No Build	% Change from No Build
Existing	3,724	258	775	23,951	28,708	-	-	-
Existing + Alt 4 Mod	3,545	244	732	22,622	27,143	-1,565	-1,565	-5%
Existing + Alt 5 Mod	3,536	243	730	22,573	27,083	-1,625	-1,625	-6%
Existing + Alt 9 Mod	3,539	244	731	22,586	27,100	-1,608	-1,608	-6%
2020 No Build	4,079	389	1,166	36,049	41,683	12,975	-	-
2020 Alt 4 Mod	4,089	389	1,168	36,110	41,756	13,048	73	0.18%
2020 Alt 5 Mod	4,087	389	1,168	36,102	41,746	13,038	63	0.15%
2020 Alt 9 Mod	4,091	389	1,168	36,106	41,756	13,048	73	0.17%
2040 No Build	5,075	549	1,648	50,938	58,210	29,502	-	-
2040 Alt 4 Mod	5,097	551	1,653	51,086	58,387	29,679	177	0.30%
2040 Alt 5 Mod	5,096	551	1,653	51,083	58,382	29,674	172	0.30%
2040 Alt 9 Mod	5,101	551	1,654	51,119	58,425	29,717	215	0.37%

Source: *Air Quality Analysis,* March 2012.
Alt = Alternative
lbs/day = pounds per day
Mod = Modified
$PM_{2.5}$ = particulate matter less than 2.5 microns in size

Table 3.14.J Daily PM_{10} Emissions (lbs/day)

Traffic Condition	Exhaust Emissions	Tire Wear	Brake Wear	Road Dust	Total	Change from Existing	Change from No Build	% Change from No Build
Existing	4,036	1,162	1,679	52,495	59,372	-	-	-
Existing + Alt 4 Mod	3,842	1,098	1,586	49,582	56,108	-3,264	-3,264	-5%
Existing + Alt 5 Mod	3,833	1,096	1,583	49,475	55,986	-3,386	-3,386	-6%
Existing + Alt 9 Mod	3,836	1,096	1,583	49,503	56,019	-3,353	-3,353	-6%
2020 No Build	4,398	1,750	2,527	79,012	87,687	28,315	-	-
2020 Alt 4 Mod	4,411	1,753	2,532	79,144	87,839	28,467	152	0.17%
2020 Alt 5 Mod	4,409	1,752	2,531	79,127	87,819	28,447	132	0.15%
2020 Alt 9 Mod	4,413	1,752	2,531	79,137	87,834	28,462	147	0.17%
2040 No Build	5,538	2,472	3,571	111,644	123,226	63,854	-	-
2040 Alt 4 Mod	5,563	2,479	3,581	111,969	123,592	64,220	366	0.30%
2040 Alt 5 Mod	5,562	2,479	3,581	111,962	123,584	64,212	358	0.29%
2040 Alt 9 Mod	5,568	2,481	3,584	112,041	123,674	64,302	448	0.36%

Source: *Air Quality Analysis,* March 2012.
Alt = Alternative
lbs/day = pounds per day
Mod = Modified
$PM_{2.5}$ = particulate matter less than 2.5 microns in size

Table 3.14.K 2020 No Project/County General Plan Intersection LOS

Intersection		AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec)	LOS	Delay (sec)
1.	Alessandro Boulevard and Meridian Parkway	D	38.9	F	>80.0
2.	Alessandro Boulevard and I-215 southbound ramps	B	11.7	C	25.7
3.	Alessandro Boulevard and I-215 northbound ramps	C	27.5	D	53.3
4.	Alessandro Boulevard and Valley Springs Parkway	E	56.2	F	>80.0
5.	Cactus Avenue and Innovation Drive	B	18.2	B	19.1
6.	Cactus Avenue and Ellsworth Street	D	47.1	C	25.7
7.	Van Buren Boulevard and I-215 northbound ramps	B	10.8	B	10.6
8.	Nuevo Road and Old Nuevo Road	C	27.3	C	28.2
9.	Perris Boulevard and Markham Street	C	24.0	C	26.7
10.	Perris Boulevard and Ramona Expressway	D	43.6	D	40.8
11.	Perris Boulevard and Morgan Street	C	24.1	C	26.4
12.	Ramona Expressway and Town Center Boulevard	E	75.5	E	60.2
13.	Ramona Expressway and SR-79	C	20.9	B	19.5

Source: *Traffic Technical Report,* February 2012.
I-215 = Interstate 215
LOS = level of service
sec = seconds
SR-79 = State Route 79

Table 3.14.L 2020 Alternative 4 Modified Intersection LOS

Intersection		AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec)	LOS	Delay (sec)
1.	Alessandro Boulevard and Meridian Parkway	C	26.2	E	68.3
2.	Alessandro Boulevard and I-215 southbound ramps	A	8.6	D	37.0
3.	Alessandro Boulevard and I-215 northbound ramps	B	14.6	E	72.7
4.	Alessandro Boulevard and Valley Springs Parkway	C	23.5	F	>80.0
5.	Cactus Avenue and Ellsworth Street	D	46.7	C	25.6
6.	Cactus Avenue and Innovation Drive	B	18.3	B	19.2
7.	Van Buren Boulevard and I-215 northbound ramps	B	10.8	A	9.4
8.	Nuevo Road and Old Nuevo Road	C	26.7	C	26.2
9.	Perris Boulevard and Markham Street	B	15.0	B	16.6
10.	Perris Boulevard and MCP westbound ramps	A	7.4	A	8.6
11.	Perris Boulevard and MCP eastbound ramps	A	8.7	A	9.7
12.	Perris Boulevard and Ramona Expressway	C	21.7	C	23.2
13.	Perris Boulevard and Morgan Street	B	19.7	C	20.7
14.	Town Center Boulevard and MCP westbound ramps	B	11.8	A	4.2
15.	Sanderson Avenue and MCP	C	31.7	D	38.4
16.	MCP and SR-79	B	19.0	B	19.0
17.	Ramona Expressway and MCP	C	25.4	C	27.9

Source: *Traffic Technical Report,* February 2012.
I-215 = Interstate 215
LOS = level of service
MCP = Mid County Parkway
sec = seconds
SR-79 = State Route 79

Table 3.14.M 2020 Alternative 5 Modified Intersection LOS

	Intersection	AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec)	LOS	Delay (sec)
1.	Alessandro Boulevard and Meridian Parkway	D	41.4	F	>80.0
2.	Alessandro Boulevard and I-215 southbound ramps	B	10.2	E	65.6
3.	Alessandro Boulevard and I-215 northbound ramps	B	15.7	E	75.3
4.	Alessandro Boulevard and Valley Springs Parkway	C	21.8	D	38.2
5.	Cactus Avenue and Innovation Drive	B	18.3	B	19.3
6.	Cactus Avenue and Ellsworth Street	D	46.7	C	25.6
7.	Van Buren Boulevard and I-215 northbound ramps	A	4.6	A	9.8
8.	Nuevo Road and Old Nuevo Road	C	26.5	C	26.2
9.	Perris Boulevard and Morgan Street	B	19.2	C	20.2
10.	Perris Boulevard and MCP westbound ramps	A	9.6	B	10.2
11.	Perris Boulevard and MCP eastbound ramps	A	9.5	A	9.3
12.	Perris Boulevard and Ramona Expressway	C	20.8	C	21.6
13.	Perris Boulevard and Markham Street	B	13.9	B	15.0
14.	Town Center Boulevard and MCP westbound ramps	A	5.6	A	6.1
15.	Sanderson Avenue and MCP	C	31.7	D	38.4
16.	MCP and SR-79	C	32.2	C	30.9
17.	Ramona Expressway and MCP	C	29.5	C	28.0

Source: *Traffic Technical Report,* February 2012.
I-215 = Interstate 215
LOS = level of service
MCP = Mid County Parkway
sec = seconds
SR-79 = State Route 79

Table 3.14.N 2020 Alternative 9 Modified Intersection LOS

	Intersection	AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec)	LOS	Delay (sec)
1.	Alessandro Boulevard and Meridian Parkway	D	39.8	F	>80.0
2.	Alessandro Boulevard and I-215 southbound ramps	B	10.6	D	43.4
3.	Alessandro Boulevard and I-215 northbound ramps	C	28.3	D	47.1
4.	Alessandro Boulevard and Valley Springs Parkway	D	46.1	F	>80.0
5.	Cactus Avenue and Innovation Drive	B	18.4	B	19.2
6.	Cactus Avenue and Ellsworth Street	D	44.5	C	26.0
7.	Van Buren Boulevard and I-215 northbound ramps	A	7.8	A	8.4
8.	Nuevo Road and Old Nuevo Road	C	26.3	C	26.2
9.	Perris Boulevard and Markham Street	B	16.6	B	17.1
10.	Perris Boulevard and Ramona Expressway	C	28.4	C	27.3
11.	Perris Boulevard and Morgan Street	C	24.4	C	24.1
12.	Town Center Boulevard and MCP westbound ramps	B	18.0	D	38.7
13.	Sanderson Avenue and MCP	C	31.7	D	38.4
14.	MCP and SR-79	B	19.1	B	19.2
15.	Ramona Expressway and MCP	C	26.6	C	27.9

Source: *Traffic Technical Report,* February 2012.
I-215 = Interstate 215
LOS = level of service
MCP = Mid County Parkway
sec = seconds
SR-79 = State Route 79

Table 3.14.O 2040 No Project/County General Plan Intersection LOS

Intersection		AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec)	LOS	Delay (sec)
1.	Alessandro Boulevard and Meridian Parkway	F	>80.0	F	>80.0
2.	Alessandro Boulevard and I-215 southbound ramps	E	72.1	F	>80.0
3.	Alessandro Boulevard and I-215 northbound ramps	F	>80.0	F	>80.0
4.	Alessandro Boulevard and Valley Springs Parkway	E	72.8	F	>80.0
5.	Cactus Avenue and Innovation Drive	C	29.1	F	>80.0
6.	Cactus Avenue and Ellsworth Street	F	>80.0	D	41.1
7.	Van Buren Boulevard and I-215 northbound ramps	B	18.0	B	13.1
8.	Nuevo Road and Old Nuevo Road	D	42.7	D	38.4
9.	Perris Boulevard and Markham Street	B	20.0	C	20.9
10.	Perris Boulevard and Ramona Expressway	D	41.5	D	42.2
11.	Perris Boulevard and Morgan Street	C	28.0	C	29.8
12.	Ramona Expressway and Town Center Boulevard	D	48.7	D	43.5
13.	Ramona Expressway and SR-79	F	>80.0	F	>80.0

Source: *Traffic Technical Report,* February 2012.
I-215 = Interstate 215
LOS = level of service
sec = seconds
SR-79 = State Route 79

Table 3.14.P 2040 Alternative 4 Modified Intersection LOS

Intersection		AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec)	LOS	Delay (sec)
1.	Alessandro Boulevard and Meridian Parkway	F	>80.0	F	>80.0
2.	Alessandro Boulevard and I-215 southbound ramps	E	79.5	F	>80.0
3.	Alessandro Boulevard and I-215 northbound ramps	D	50.6	F	>80.0
4.	Alessandro Boulevard and Valley Springs Parkway	D	51.8	F	>80.0
5.	Cactus Avenue and Ellsworth Street	F	>80.0	D	40.4
6.	Cactus Avenue and Innovation Drive	D	51.6	F	>80.0
7.	Van Buren Boulevard and I-215 northbound ramps	C	31.1	C	20.0
8.	Nuevo Road and Old Nuevo Road	C	34.7	D	38.4
9.	Perris Boulevard and Markham Street	E	69.0	F	>80.0
10.	Perris Boulevard and MCP westbound ramps	F	>80.0	F	>80.0
11.	Perris Boulevard and MCP eastbound ramps	B	19.9	D	53.4
12.	Perris Boulevard and Ramona Expressway	F	>80.0	F	>80.0
13.	Perris Boulevard and Morgan Street	D	39.5	D	47.5
14.	Town Center Boulevard and MCP westbound ramps	E	55.4	B	17.0
15.	Sanderson Avenue and MCP	D	40.2	F	>80.0
16.	MCP and SR-79	C	25.8	C	30.3
17.	Ramona Expressway and MCP	D	36.6	F	>80.0

Source: *Traffic Technical Report,* February 2012.
I-215 = Interstate 215
LOS = level of service
MCP = Mid County Parkway
sec = seconds
SR-79 = State Route 79

Table 3.14.Q 2040 Alternative 5 Modified Intersection LOS

	Intersection	AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec)	LOS	Delay (sec)
1.	Alessandro Boulevard and Meridian Parkway	F	>80.0	F	>80.0
2.	Alessandro Boulevard and I-215 southbound ramps	E	77.5	F	>80.0
3.	Alessandro Boulevard and I-215 northbound ramps	D	51.4	F	>80.0
4.	Alessandro Boulevard and Valley Springs Parkway	D	50.7	F	>80.0
5.	Cactus Avenue and Innovation Drive	D	54.7	F	>80.0
6.	Cactus Avenue and Ellsworth Street	B	16	C	20.1
7.	Van Buren Boulevard and I-215 northbound ramps	C	20.1	C	20.4
8.	Nuevo Road and Old Nuevo Road	D	35.5	D	40.8
9.	Perris Boulevard and Morgan Street	D	51.9	F	>80.0
10.	Perris Boulevard and MCP westbound ramps	B	17.3	B	13.6
11.	Perris Boulevard and MCP eastbound ramps	B	13.1	B	16.0
12.	Perris Boulevard and Placentia Street	C	31.4	E	56.6
13.	Perris Boulevard and Markham Street	B	18.6	C	20.4
14.	Town Center Boulevard and MCP westbound ramps	C	22.7	C	20.3
15.	Sanderson Avenue and MCP	C	33.8	F	>80.0
16.	MCP and SR-79	F	>80.0	F	>80.0
17.	Ramona Expressway and MCP	F	>80.0	F	>80.0

Source: *Traffic Technical Report,* February 2012.
I-215 = Interstate 215
LOS = level of service
MCP = Mid County Parkway
sec = seconds
SR-79 = State Route 79

Table 3.14.R 2040 Alternative 9 Modified Intersection LOS

	Intersection	AM Peak Hour		PM Peak Hour	
		LOS	Delay (sec)	LOS	Delay (sec)
1.	Alessandro Boulevard and Meridian Parkway	F	>80.0	F	>80.0
2.	Alessandro Boulevard and I-215 southbound ramps	F	>80.0	F	>80.0
3.	Alessandro Boulevard and I-215 northbound ramps	E	79.8	F	>80.0
4.	Alessandro Boulevard and Valley Springs Parkway	F	>80.0	F	>80.0
5.	Cactus Avenue and Innovation Drive	F	>80.0	F	>80.0
6.	Cactus Avenue and Ellsworth Street	F	>80.0	F	>80.0
7.	Van Buren Boulevard and I-215 northbound ramps	E	79.8	F	>80.0
8.	Nuevo Road and Old Nuevo Road	C	33.6	D	39.3
9.	Perris Boulevard and Markham Street	C	20.2	C	22.1
10.	Perris Boulevard and Ramona Expressway	C	30.0	C	31.0
11.	Perris Boulevard and Morgan Street	E	79.1	E	61.6
12.	Town Center Boulevard and MCP westbound ramps	E	62.9	B	19.5
13.	Sanderson Avenue and MCP	C	34.8	D	51.9
14.	MCP and SR-79	C	25.9	C	33.9
15.	Ramona Expressway and MCP	D	36.6	D	48.8

Source: *Traffic Technical Report,* February 2012.
I-215 = Interstate 215
LOS = level of service
MCP = Mid County Parkway
sec = seconds
SR-79 = State Route 79

For these reasons, future new or worsened $PM_{2.5}$ and PM_{10} violations of any standards are not anticipated. Therefore, the project meets the conformity hot-spot requirements in 40 CFR 93-116 and 93-123 for both $PM_{2.5}$ and PM_{10}. This project was approved and concurred upon by Interagency Consultation by the Transportation Conformity Working Group as a project not having adverse impacts on air quality and that meets the requirements of the Clean Air Act (CAA) and 40 CFR 93.116. As a result of Interagency Coordination on June 28, 2011, the project air quality analysis was deemed acceptable for NEPA circulation (see Appendix C of the Air Quality Analysis). Therefore, Alternative 4 Modified meets the CAA requirements and 40 CFR 93.116 without any explicit hot-spot analysis. Alternative 4 Modified would not create a new, or worsen an existing, PM_{10} or $PM_{2.5}$ violation.

Mobile Source Air Toxics

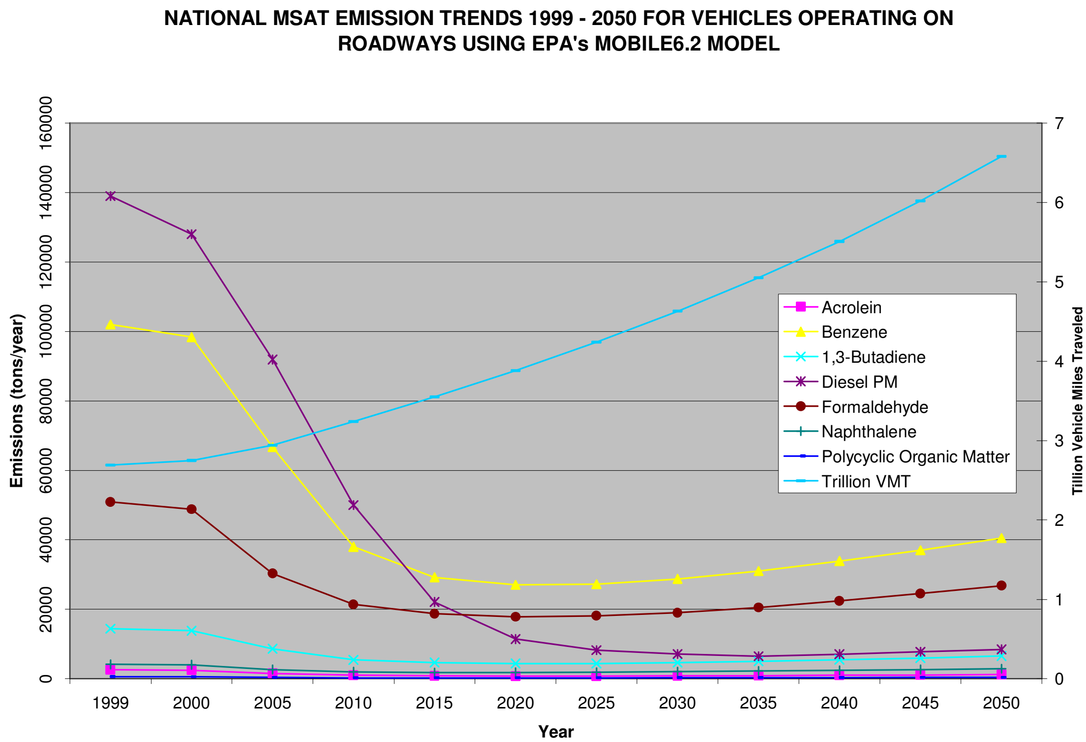
In addition to the criteria air pollutants for which there are federal AAQS, the EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, nonroad mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

Controlling air toxic emissions became a national priority with the passage of the FCAA Amendments of 1990, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in its 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 its Integrated Risk Information System. In addition, the EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from its 1999 National Air Toxics Assessment. These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While the 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 described above requires controls that will dramatically decrease Mobile Source Air Toxics (MSAT) emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2

model, even if vehicle activity (vehicle miles travelled [VMT]) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050, as shown in Figure 3.14.1. The projected reduction in MSAT emissions would be slightly different in California due to the use of the EMFAC2007 emission model in place of the MOBILE6.2 model.

Figure 3.14.1 National MSAT Emission Trends



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 NEPA.[1]

[1] For CEQA purposes, the health risks associated with the diesel vehicles operating within the MCP study area are evaluated in Section 4.4 of this Recirculated Draft EIR/Supplemental Draft EIS.

In September 2009, the FHWA issued guidance[1] to advise FHWA division offices as to when and how to analyze MSATs in the NEPA process for highways. This document is an update to the guidance released in February 2006.

The guidance is described as interim because MSAT science is still evolving. As the science progresses, it is expected that FHWA will update the guidance. This analysis follows the FHWA guidance.

Information that is Unavailable or Incomplete

In the 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[2]. 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 EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. It is the lead authority for administering the CAA and its amendments and has 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 and maintains the Integrated Risk Information System, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects." Each report contains assessments of noncancerous 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. Two Health Effects Institute studies are summarized in Appendix D of FHWA's Interim

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1 http://www.fhwa.dot.gov/environment/airtoxic/100109guidmem.htm.

2 In Section 4.4 of this Recirculated Draft EIR/Supplemental Draft EIS, RCTC determined that there would be no long-term health risks associated with the proposed project under CEQA.

Guidance Update on MSAT 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 are the adverse human health effects of MSAT compounds at current environmental concentrations or in the future as vehicle emissions substantially decrease.

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 builds 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, because such information is unavailable. The results produced by the EPA's MOBILE 6.2 model, the California EPA's EMFAC2007 model, and the EPA's Draft MOVES 2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE 6.2 significantly underestimates diesel PM emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of the EPA's guideline CAL3QHC model was conducted in a National Cooperative Highway Research Program study, which documents poor model performance at 10 sites across the country: 3 where intensive monitoring was conducted plus an additional 7 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 NAAQS 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 forecast MSAT exposure near roadways reliably 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 the Health Effects Institute. 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 and the Health Effects Institute 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 CAA 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 the 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 the 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, which are better suited for quantitative analysis, such as reducing traffic congestion, accident rates, and fatalities, plus improved access for emergency response.

Qualitative Project Level MSAT Analysis

Depending on the specific project circumstances, the FHWA has identified three levels of analysis:

- **Exempt Projects or Projects with No Meaningful MSAT Impacts:** Exempt projects typically include those with no effects on traffic volume or vehicle mix. Projects qualifying as categorical exclusions under 23 CFR 771.117I or that are exempt from CAA conformity under 40 CFR 93.126 are also considered projects with no meaningful MSAT impacts.
- **Projects with Low Potential MSAT Effects:** These projects have annual average daily trips (AADT) less than 140,000 per day. In California, the corresponding AADT thresholds are 100,000 on urban nonfreeways and 50,000 on rural nonfreeways. In addition, California has a third criterion, which states that if freeway modifications are to be completed more than 500 to 1,000 ft from a sensitive land use (e.g., residences, schools, day-care centers, playgrounds, and medical facilities), the project will result in low potential MSAT effects (Brady personal communication; California ARB 2005). These projects are usually evaluated qualitatively.
- **Projects with Higher Potential MSAT Effects:** These projects typically are those that have AADT exceeding 140,000 per day and that have the potential to significantly increase diesel PM exhaust. In California, the corresponding AADT thresholds are 100,000 on urban nonfreeways and 50,000 on rural nonfreeways. In addition, California considers a project to have a higher potential MSAT effect if modifications to freeways are proposed to take place within 500 to 1,000 ft of sensitive land uses (Brady personal communication; California ARB 2005). These projects require a quantitative evaluation.

Table 3.14.H summarizes the ADTs on the MCP facility. As indicated, the volumes would be less than 100,000. However, the project would construct a new highway facility within 500 to 1000 ft of sensitive land uses. Consequently, this project is considered to have higher potential for MSAT effects, and a quantitative analysis of MSAT emissions is required (FHWA 2009; California ARB 2005). The results of this analysis are summarized below.

MSAT Analysis Methodology

The basic procedure for analyzing emissions for on-road MSATs is to calculate emission factors using EMFAC2007 and apply the emission factors to speed and VMT data specific to the project. EMFAC2007 is the emission inventory model developed by the ARB that calculates emission inventories for motor vehicles operating on roads in California. The emission factor information used in this analysis is from EMFAC2007 and is specific to the Basin.

This analysis focuses on seven MSAT pollutants identified by the EPA as being the highest-priority MSATs. The seven pollutants are: acrolein, benzene, 1,3-butadiene, diesel PM, formaldehyde, naphthalene, and polycyclic organic matter. EMFAC2007 provides emission factor information for diesel PM, but does not provide emission factors for the remaining six MSATs. Each of the remaining six MSATs, however, is a constituent of motor vehicle total organic gas emissions, and EMFAC2007 provides emission factors for total organic gas. The ARB has supplied Caltrans with “speciation factors” for four of the remaining six MSATs not directly estimated by EMFAC2007. As of June 2011, speciation factors are not available for naphthalene and polycyclic organic matter. Each speciation factor represents the portion of total organic gas emissions estimated to be a given MSAT. For example, if a speciation factor of 0.03 is provided for benzene, its emissions level is estimated to be 3 percent of total organic gas emissions, utilizing the speciation factor as a multiplier once total organic gas emissions are known. This analysis used the ARB-supplied speciation factors to estimate emissions of the aforementioned six MSATs as a function of total organic gas emissions.

The University of California, Davis, in cooperation with Caltrans, developed a spreadsheet tool that incorporates EMFAC2007 emission factors, ARB speciation factors, and project-specific traffic activity data such as peak- and off-peak-hour VMT, speed, travel times, and traffic volumes. The spreadsheet tool applies the traffic activity data to the emission factors and estimates MSAT emissions for base-case (with “No Build” Alternative) and Build Alternative scenarios. Results for the MCP Project were produced for the opening year (2020) and the horizon year (2040). The 2020 and 2040 analyses compared “No Build” conditions to expected conditions resulting from implementation of the project. The spreadsheet used in this analysis is based on the FHWA’s 2006 MSAT guidance. Once speciation factors for naphthalene and polycyclic organic matter have been established, a new spreadsheet will be developed that is capable of calculating a project’s emissions for all seven MSATs.

MSAT Analysis Results

As described above, emissions factors for diesel PM and total organic gas have been obtained for the Basin using EMFAC2007. The spreadsheet tool developed by University of California, Davis, was then utilized in applying the emission factors, speciation factors from ARB, and the traffic activity data for the MCP project. The results of the analyses are tabulated in Table 3.14.S. As speciation factors are not available for naphthalene and polycyclic organic matter, emissions for these pollutants are not included in Table 3.14.S. However, as with benzene, 1,3-butadiene, and formaldehyde, these pollutants are a subset of total organic gas. Therefore, the future with and without project naphthalene and polycyclic organic matter emissions would have a similar increase or decrease as the other MSATs.

Table 3.14.S MSAT Emissions for the MCP Study Area (lbs/day)

Alternative	Diesel PM	Benzene	1,3-Butadiene	Naphthalene	Polycyclic Organic Matter	Acrolein	Formaldehyde
Existing	574.3	656.6	120.5	NA	NA	27.4	514.4
Existing + Alt 4 Mod	542.5	621.1	113.8	NA	NA	25.9	485.9
Existing + Alt 5 Mod	541.3	619.7	113.6	NA	NA	25.8	484.8
Existing + Alt 9 Mod	541.6	620.1	113.7	NA	NA	25.8	485.1
2020 No Build	372.1	377.7	52.7	NA	NA	12.1	285.3
2020 Alt 4 Mod	372.8	377.7	52.8	NA	NA	12.1	285.8
2020 Alt 5 Mod	372.7	378.1	52.8	NA	NA	12.1	285.7
2020 Alt 9 Mod	372.7	378.3	52.8	NA	NA	12.1	285.8
2040 No Build	298.4	292.5	36.9	NA	NA	8.4	220.1
2040 Alt 4 Mod	299.2	293.6	37.1	NA	NA	8.4	220.8
2040 Alt 5 Mod	299.2	293.3	37.1	NA	NA	8.4	220.7
2040 Alt 9 Mod	299.4	293.0	37.1	NA	NA	8.4	220.9

Source: *Air Quality Analysis,* March 2012.
Alt = Alternative
lbs/day = pounds per day
MCP = Mid County Parkway
Mod = Modified
MSAT = Mobile Source Air Toxics
NA = Not Available
PM = particulate matter

The analysis indicates that a substantial decrease in MSAT emissions can be expected between the existing (2008) and future (2020 and 2040) No Build conditions. This decrease is prevalent throughout the highest-priority MSATs and the analyzed alternatives. This decrease is also consistent with the aforementioned EPA study that projects a substantial reduction in on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde between 2000 and 2050. Based on the analysis for this project, reductions in MSATs expected by 2040 are: 48 percent of diesel PM, 55 percent of benzene, 69 percent of 1,3-butadiene, 69 percent of acrolein, and 57 percent of formaldehyde. These projected reductions are achieved while total VMTs increase by 113 percent between 2008 and 2040.

As shown in Table 3.14.S, in 2020 and 2040, implementation of the proposed MCP Build Alternatives would result in a slight increase in MSAT emissions within the MCP project vicinity compared to the No Build conditions. However, the MCP project's increase in MSAT emissions would be negligible with no increase higher than 1.1 pounds per day, for benzene, an increase of 0.4 percent. In addition, when compared to the existing conditions, the existing plus MCP project conditions would result in a small decrease in regional MSAT emissions.

In summary, while Alternative 4 Modified would result in a small increase in localized MSAT emissions compared to the No Build conditions, the EPA's vehicle and fuel regulations, coupled with fleet turnover, will result in substantial reductions over time that will result in regionwide MSAT levels to be substantially lower than they are today.

Regional Emissions

The purpose of the proposed action is to provide a transportation facility that would effectively and efficiently accommodate regional west-east movement of people, goods, and services between and through the cities of Perris and San Jacinto. The Build Alternatives would not generate new vehicular traffic trips because they would not construct new homes or businesses. However, there is a possibility that some traffic currently using other routes would be attracted to use the improved facility, thus resulting in increased VMT. Therefore, the potential impact of the Build Alternatives on regional vehicle emissions was calculated using traffic data for the project region and emission rates from the EMFAC2007 emission model.

The California Court of Appeal granted a peremptory writ of mandate in December 2010 in *Sunnyvale West Neighborhood Association, et al. versus City of Sunnyvale City Council*. The Court indicated that traffic studies for environmental analyses must use baseline conditions defined as the existing "...on the ground..." conditions at the time the Notice of Preparation (NOP) is published or the environmental analyses are initiated if no NOP is published. As a result, the Baseline/Existing (2008) traffic data for the project was used in the traffic analysis to represent existing conditions for the project. Because the traffic studies include existing conditions, the air quality analyses in this section also include existing conditions related to air quality, based on the Baseline/Existing (2008) traffic volumes.

A supplemental traffic analysis (Iteris, May 2012) estimated the effect that the Build Alternatives would have on regional VMT and vehicle hours traveled (VHT). This VMT and VHT data, along with the EMFAC2007 emission rates, were used to calculate the CO, reactive organic gases (ROGs), NO_x, oxides of sulfur (SO_x), PM_{10}, and $PM_{2.5}$ emissions for the 2008, 2020, and 2040 regional conditions. The results of the modeling are summarized in Tables 3.14.T, 3.14.U, and 3.14.V. As shown in Table 3.14.T, when compared to the 2008 Baseline, all of the Build Alternatives would reduce the vehicle emissions within the region. As shown in Tables 3.14.U and 3.14.V, the Build Alternatives would result in an increase in emissions when compared to the 2020 and 2040 No Build conditions. However, these increases are very small, less than 1 percent. Therefore, the project would not contribute substantially to regional vehicle emissions.

Table 3.14.T 2008 Regional Vehicle Emissions (lbs/day)

Alternative	CO	ROG	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2
No Build	465,705	25,676	143,299	558	6,878	4,641	57,051,890
Alt 4 Mod	442,079	24,468	136,292	530	6,526	4,412	54,185,822
Change from No Build	-23,626	-1,208	-7,007	-27	-351	-229	-2,866,069
Alt 5 Mod	441,100	24,404	136,049	529	6,511	4,401	54,045,450
Change from No Build	-24,605	-1,272	-7,250	-29	-367	-240	-3,006,440
Alt 9 Mod	441,454	24,427	136,165	529	6,516	4,405	54,091,127
Change from No Build	-24,250	-1,249	-7,134	-29	-362	-236	-2,960,763

Source: Iteris and LSA Associates, Inc., May 2012.
CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROG = reactive organic gases
SO_X = sulfur oxides

Table 3.14.U 2020 Regional Vehicle Emissions (lbs/day)

Alternative	CO	ROG	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2
2008 Existing	465,705	25,676	143,299	558	6,878	4,641	57,051,890
2020 No Build	266,465	14,067	78,654	844	8,675	5634	87,631,280
Alt 4 Mod	266,858	14,107	78,935	846	895	5647	87,885,919
Change from Existing	-198,847	-11,569	-64,364	288	1,818	1006	30,834,029
Change from No Build	393	40	280	2	20	13	254,639
Alt 5 Mod	266,801	14,100	78,905	846	8,692	5645	87,853,255
Change from Existing	-198,904	-11,576	-64,397	288	1,815	1004	30,801,365
Change from No Build	336	34	248	2	17	11	221,975
Alt 9 Mod	266,952	14,115	78,930	847	8,697	5649	87,906,784
Change from Existing	-198,753	-11,561	-64,368	289	1,819	1008	30,854,894
Change from No Build	487	48	276	3	22	15	275,504

Source: Iteris and LSA Associates, Inc., May 2012.
CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROG = reactive organic gases
SO_X = sulfur oxides

Table 3.14.V 2040 Regional Vehicle Emissions (lbs/day)

Alternative	CO	ROG	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2
2008 Existing	465,705	25,676	143,299	558	6,878	4,641	57,051,890
2040 No Build	201,123	11,003	52,130	1,196	11,582	7,272	125,539,130
Alt 4 Mod	201,720	11,057	52,327	1,200	11,623	7,301	126,057,775
Change from Existing	-263,985	-14,619	-90,972	642	4,746	2,660	69,005,884
Change from No Build	597	54	197	5	42	29	518,645
Alt 5 Mod	201,720	11,056	52,323	1,200	11,623	7,300	126,043,848
Change from Existing	-263,985	-14,620	-90,975	642	4,745	2,659	68,991,958
Change from No Build	598	53	194	4	41	27	504,719
Alt 9 Mod	201,914	11,066	52,365	1,201	11,633	7,306	126,150,645
Change from Existing	-263,790	-14,610	-90,934	643	4,755	2,665	69,098,755
Change from No Build	792	63	235	6	51	34	611,515

Source: Iteris and LSA Associates, Inc., May 2012.
CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROG = reactive organic gases
SO_X = sulfur oxides

Alternative 5 Modified

Regional Air Quality Conformity

The Regional Air Quality Conformity discussion for Alternative 4 Modified, above, is also applicable to Alternative 5 Modified. The design concept and scope of the MCP project are consistent with the project description in the 2008 RTP and the 2011 FTIP and the open to traffic assumptions of SCAG's regional emissions analysis.

Project Level Conformity

Carbon Monoxide

The CO hot-spot discussion for Alternative 4 Modified, above, is also applicable to Alternative 5 Modified. The project is not expected to result in any concentrations exceeding the 1-hour or 8-hour CO standards. Therefore, a detailed CALINE4 CO hot-spot analysis is not required.

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

The PM discussion for Alternative 4 Modified, above, is also applicable to Alternative 5 Modified. Alternative 5 Modified meets the CAA requirements and 40 CFR 93.116 without any explicit hot-spot analysis. Alternative 5 Modified would not create a new, or worsen, an existing, $PM_{2.5}$ or PM_{10} violation.

Mobile-Source Air Toxics

The MSAT discussion for Alternative 4 Modified, above, is also applicable to Alternative 5 Modified. Implementation of Alternative 5 Modified would result in a slight increase in MSAT emissions within the MCP project vicinity compared to the No Build conditions. However, the MCP project's increase in MSAT emissions would be negligible with no increase higher than 0.8 pounds per day, for benzene, an increase of 0.3 percent. On a regional basis, the EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time result in substantial reductions that, in almost all cases, will result in regionwide MSAT levels to be substantially lower than they are today.

Regional Emissions

The regional emissions analysis discussion for Alternative 5 Modified, above, is also applicable to Alternative 5 Modified. When compared to the 2008 Baseline, Alternative 5 Modified would reduce the vehicle emissions within the region. When compared to the 2020 and 2040 No Build conditions, Alternative 5

Modified would result in an increase in emissions. However, these increases are very small, less than 1 percent. Therefore, Alternative 5 Modified would not contribute substantially to regional vehicle emissions.

Alternative 9 Modified

Regional Air Quality Conformity

The Regional Air Quality Conformity discussion for Alternative 4 Modified, above, is also applicable to Alternative 9 Modified. The design concept and scope of the MCP project are consistent with the project description in the 2008 RTP and the 2011 FTIP and the open to traffic assumptions of SCAG's regional emissions analysis.

Project Level Conformity

Carbon Monoxide

The CO hot-spot discussion for Alternative 4 Modified, above, is also applicable to Alternative 9 Modified. The project is not expected to result in any concentrations exceeding the 1-hour or 8-hour CO standards. Therefore, a detailed CALINE4 CO hot-spot analysis is not required.

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

The PM discussion for Alternative 4 Modified, above, is also applicable to Alternative 9 Modified. Alternative 9 Modified meets the CAA requirements and 40 CFR 93.116 without any explicit hot-spot analysis. Alternative 9 Modified would not create a new, or worsen, an existing, PM_{10} or $PM_{2.5}$ violation.

Mobile-Source Air Toxics

The MSAT discussion for Alternative 4 Modified, above, is also applicable to Alternative 9 Modified. Implementation of Alternative 9 Modified would result in a slight increase in MSAT emissions within the MCP project vicinity compared to the No Build conditions. However, the MCP project's increase in MSAT emissions would be negligible with no increase higher than 1.0 pounds per day, for diesel PM, an increase of 0.3 percent. On a regional basis, the EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time result in substantial reductions that, in almost all cases, will cause regionwide MSAT levels to be substantially lower than they are today.

Regional Emissions

The regional emissions analysis discussion for Alternative 9 Modified, above, is also applicable to Alternative 9 Modified. When compared to the 2008 Baseline, Alternative 9 Modified would reduce the vehicle emissions within the region. When compared to the 2020 and 2040 No Build conditions, Alternative 9 Modified would result in an increase in emissions. However, these increases are very small, less than 1 percent. Therefore, Alternative 9 Modified would not contribute substantially to regional vehicle emissions.

No Build Alternatives

The No Build Alternatives would not result in the construction of any of the proposed MCP project improvements and, therefore, would not result in permanent impacts related to $PM_{2.5}$, PM_{10}, MSATs, or regional emissions described above for the Build Alternatives.

3.14.3.2 Temporary Impacts

Build Alternatives

Construction Emissions

During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment would include CO, NO_x, volatile organic compounds (VOCs), directly-emitted particulate matter ($PM_{2.5}$ and PM_{10}), and toxic air contaminants such as diesel exhaust PM.

Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, and paving roadway surfaces. Construction-related effects on air quality from most highway projects is greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. If not properly controlled, these activities would temporarily generate PM_{10}, $PM_{2.5}$, and small amounts of CO, SO_2, NO_X, and VOCs. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

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

SO_2 is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting federal standards can contain up to 5,000 ppm of sulfur, whereas on-road diesel is restricted to less than 15 ppm of sulfur. However, under California law and ARB regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel, so SO_2-related issues due to diesel exhaust will be minimal. Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site. Such odors would be quickly dispersed below detectable thresholds as distance from the site increases.

The proposed construction schedule for all improvements is approximately 48 months and is anticipated to be completed by 2020. The construction emissions were estimated for the project using the Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model, Version 6.3.2, which can also be used for projects in the Basin. Construction-related emissions are presented in Table 3.14.T. The model inputs used in the Sacramento model are included in Appendix F of the *Air Quality Analysis* (March 2012). The emissions are based on the best information available at the time of calculations and assume that the project construction begins in 2016. Default equipment assumptions for the Road Construction Emissions Model were used in developing the emissions estimates. The emissions listed in Table 3.14.W represent the worst-case, peak daily construction emissions that would be generated by any of the proposed Build Alternatives.

Table 3.14.W Maximum Project Construction Emissions (lbs/day)

Project Phases	ROGs	CO	NO_X	Total PM_{10}	Total $PM_{2.5}$
Grubbing/Land Clearing	23.5	101.3	146.1	157.2	37.7
Grading/Excavation	45.8	282.7	321.0	164.3	43.9
Drainage/Utilities/Sub-Grade	20.9	110.1	137.7	156.8	37.3
Paving	14.3	79.3	76.9	5.5	5.0
Maximum (pounds/day)	45.8	282.7	321.0	164.3	43.9
SCAQMD Thresholds[1]	**75**	**550**	**100**	**150**	**55**
Total (tons/construction project)	**16.7**	**96.8**	**112.9**	**72.7**	**18.8**

Source: *Air Quality Analysis,* March 2012.

[1] The SCAQMD thresholds are included for reference purposes only. Caltrans has not endorsed or adopted the SCAQMD thresholds for comparison of construction emissions and compliance. It is Caltrans strategy to use standard construction control measures as approved in the Air Quality Report (March 2012) in conjunction with Caltrans Standard Specifications 2010 and Rule 403 to minimize the impacts of construction emissions substantially.

CO = carbon monoxide

lbs/day = pounds per day

NO_X = oxides of nitrogen

PM_{10} = particulate matter less than 10 microns in size

$PM_{2.5}$ = particulate matter less than 2.5 microns in size

ROGs = reactive organic gases

SCAQMD = South Coast Air Quality Management District

As each phase of the project construction is expected to last less than 5 years, construction-related emissions were not considered in the conformity analysis.[1]

Caltrans Standard Specifications for construction (Sections 14.9.03 and 18 for dust control and Section 39-3.06 for asphalt concrete plants) will be adhered to in order to reduce emissions generated by construction equipment.

Additionally, the South Coast Air Quality Management District has established Rule 403 for reducing fugitive dust emissions. The best available control measures, as specified in South Coast Air Quality Management District Rule 403, shall be incorporated into the project commitments. The total PM_{10} and $PM_{2.5}$ emissions listed in Table 3.14.W include the reductions in fugitive dust provided by the standard SCAQMD construction measures. Implementing Measures AQ-1 and AQ-4 would further reduce the fugitive dust emissions. By restricting operations and requiring that newer construction equipment be used on site, Measures AQ-2 and AQ-4 would reduce the stationary and mobile source emissions to below those listed in Table 3.14.W. Therefore, with implementation of standard construction measures (providing 50 percent effectiveness) such as frequent watering (e.g., minimum twice per day) and Measures AQ-1 through AQ-5, fugitive dust and exhaust emissions from

[1] EPA, Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas, March 2006.

construction activities would not result in any adverse air quality impacts with implementation of the MCP Build Alternatives.

Naturally Occurring Asbestos

The project is located in Riverside County, which is not among the counties listed as containing serpentine and ultramafic rock. Therefore, the impact from naturally occurring asbestos during project construction would be minimal to none.

No Build Alternatives

The No Build Alternatives would not result in the construction of any of the proposed MCP improvements and, therefore, would not result in temporary impacts to air quality as described above for the Build Alternatives.

3.14.4 Avoidance, Minimization, and/or Mitigation Measures

The following South Coast Air Quality Management District and Caltrans standard measures shall be implemented to avoid and/or minimize project impacts to air quality during construction.

AQ-1 **Fugitive Dust Source Controls.** During all site preparation, grading, excavation, and construction, the Riverside County Transportation Commission (RCTC) will require the Construction Contractor to:

- Stabilize open storage piles and disturbed areas by covering them and/or applying water or chemical/organic dust palliative to the disturbed surfaces. This applies to inactive and active sites during workdays, weekends, holidays, and windy conditions.
- Install wind fencing, phase grading operations, and operate water trucks for stabilization of surfaces under windy conditions.
- Limit vehicle speeds to 15 miles per hour (mph) within the project limits.
- Cover loads when hauling material to prevent spillage.
- Limit speed of earthmoving equipment to 10 mph.

AQ-2 **Mobile and Stationary Source Controls.** During all site preparation, grading, excavation, and construction, the RCTC Resident Engineer will require the Construction Contractor to:

- Reduce the use of trips by and unnecessary idling from heavy equipment.

- Use solar-powered, instead of diesel-powered, changeable message signs.
- Use electricity from power poles, rather than from generators, when electricity can be acquired from existing power poles in proximity to the construction areas.
- Maintain and tune engines per manufacturers' specifications to perform at United States Environmental Protection Agency (EPA) certification levels and verified standards applicable to retrofit technologies. The RCTC Resident Engineer will conduct periodic, unscheduled inspections to ensure that there is no unnecessary idling and that construction equipment is properly maintained, tuned, and modified consistent with established specifications.
- Prohibit any tampering with engines and require continuing adherence to manufacturers' recommendations.
- Use new, clean (diesel or retrofitted diesel) equipment meeting the most stringent applicable federal or state standards and commit to the best available emissions control technology. Use Tier 2, or higher, engines for construction equipment. If nonroad construction equipment that meets or exceeds Tier 2 engine standards is not available, the Construction Contractor will be required to use the best available emissions control technologies on all equipment.
- Use EPA-registered particulate traps and other controls to reduce emissions of diesel particulate matter (PM) and other pollutants at the construction site

AQ-3 **Administrative Controls.** During final design, the RCTC Project Engineer will identify sensitive receptors adjacent to the project disturbance limits and along the primary access routes to/from the construction areas. These will include residential uses, schools, and individuals, such as children, the elderly, and the infirm. The Project Engineer will provide figures showing the locations of these sensitive receptors to the Construction Contractor.

Prior to any site disturbance, the RCTC Resident Engineer will require the Construction Contractor to:

- Provide documentation indicating all areas of sensitive receptors and how construction equipment, travel routes, and other activities that could emit air pollutants are located away from those sensitive populations; for example, locating construction equipment and staging zones away from sensitive receptors and away from fresh air intakes to buildings and air conditioners.
- Prepare an inventory of all equipment and identify the compliance of each piece of mobile and stationary equipment with the mobile and stationary source control requirements listed in Measure AQ-2.

AQ-4 **California Department of Transportation (Caltrans) Standard Specifications for Construction.** During all site preparation, grading, excavation, and construction, the RCTC Resident Engineer will require the Construction Contractor to adhere to Caltrans Standard Specifications for Construction (Sections 14.9.03 and 18 [Dust Control] and Section 39-3.06 [Asphalt Concrete Plant Emissions]).

AQ-5 **Asbestos-Containing Materials.** Should the project geologist determine that asbestos-containing materials are present at the project study area during final inspection prior to construction, the RCTC shall implement the appropriate methods to remove asbestos-containing materials.

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