AIR QUALITY

A. PROJECT DESCRIPTION

The Riverside County Transportation Commission (RCTC) proposes to establish a commuter rail service on the portion of the San Jacinto Branch Line between South Perris and Riverside as an extension of the Metrolink 91 commuter rail service to Los Angeles. This proposed service, to be known as the Perris Valley Line (PVL), would operate on existing rail right of way owned by RCTC, with an additional right of way to be purchased to create the "Citrus Connection" to the Burlington Northern Santa Fe (BNSF) Mainline. There would be five new stations, and the Riverside Station would be used as well.

This technical report updates studies originally prepared for the Perris Valley Line under the National Environmental Policy Act (NEPA), and provides analysis in conformity with the requirements of the California Environmental Quality Act (CEQA).

The Citrus Connection Commuter Rail Alternative was selected the Locally Preferred Alternative. The update of air quality analysis from that which was presented in the Draft EA is thus focused on the impacts of that alternative.

B. ENVIRONMENTAL SETTING

The California Air Resources Board (ARB) has divided the state into air basins that share similar meteorological and topographical features. The project area is in western Riverside County (west of the San Gorgonio Pass), which is located in the South Coast Air Basin (SCAB). The SCAB is a 6,745-square-mile area that comprises of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The air basin's climate and topography are highly conducive to the formation and transport of air pollution. Peak ozone (O_3) concentrations in the last two decades have occurred at the base of the mountains around Azusa and Glendora in Los Angeles County, and at Crestline in the mountain area above the City of San Bernardino. Both peak O_3 concentrations and the number of exceedances have decreased everywhere in the SCAB throughout the 1990s. In addition, carbon monoxide (CO) concentrations have lessened throughout the air basin during the past decade as a result of strict new emission controls and reformulated gasoline sold in winter months.

Regulatory and Planning Agencies

The South Coast Air Quality Management District (SCAQMD) is responsible for air quality conditions in the SCAB. Regionally, the SCAQMD and the Southern California Association of Governments (SCAG) prepare the Air Quality Management Plan (AQMP), which contains measures to meet state and federal requirements. When approved by the ARB and the U.S. Environmental Protection Agency (USEPA), the AQMP becomes part of the State Implementation Plan (SIP).

Federal Standards

The federal Clean Air Act (CAA), enacted in 1970 and amended twice thereafter (including the 1990 amendments), establishes the framework for modern air pollution control. The CAA directs the USEPA to establish ambient air standards for six pollutants: ozone (O_3), carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$), and sulfur dioxide (SO_2). The standards are divided into primary and secondary standards; the former are set to protect human health within an adequate margin of safety and the latter to protect environmental values, such as plant and animal life.

The CAA requires states to submit a SIP for areas designated as nonattainment for federal air quality standards. The SIP, which is reviewed and approved by USEPA, must demonstrate how the federal standards will be achieved. Failure to submit a plan or secure approval could lead to denial of federal funding and permits. In cases where the SIP is submitted by the state but fails to demonstrate achievement of the standards, USEPA is directed to prepare a federal implementation plan.

- Transportation Conformity

The concept of transportation conformity was introduced in the 1977 amendments to the CAA, which includes a provision to ensure that transportation investments conform to the SIP in meeting the National Ambient Air Quality Standards (NAAQS). Conformity requirements were made substantially more rigorous in the federal CAA amendments of 1990, and the transportation conformity regulation that details implementation of the conformity requirements was first issued in November 1993, with a number of subsequent amendments. The most recent complete set of amendments to the Transportation Conformity Rule is found at 40 Code of Federal Regulations (CFR) parts 51 and 93 (August 15, 1997). Additionally, on July 1, 2004, USEPA published a set of the Transportation Conformity Rule Amendments, amending the August 1997 regulations, in Federal Register (FR) Volume 69 No. 26. The new amendments provide regulations for the new 8-hour O_3 and $PM_{2.5}$ NAAQS.

- Mobile-Source Air Toxics

The Clean Air Act identified 188 pollutants as being air toxics, which are also known as hazardous air pollutants (HAP). From this list, the USEPA identified a group of 21 as mobile-source air toxics (MSAT) in its final rule, Control of Emissions of Hazardous Air Pollutants from Mobile Sources (66 FR 17235) in March 2001. From this list of 21 MSATs, the USEPA has identified six MSATs, benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene, as being priority MSATs. To address emissions of MSATs, the USEPA has issued a number of regulations that will dramatically decrease MSATs through cleaner fuels and cleaner engines.

Air toxics analysis is a new and emerging issue and is a continuing area of research. Although much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques available for assessing project-specific health impacts from MSATs continue to be developed. Given the emerging state of the science and of project-level analysis techniques, there are no established criteria for determining when MSAT emissions should be considered a significant issue in the NEPA/CEQA context. The Federal Highway Administration (FHWA) is currently preparing guidance as to how mobile-source health risks should factor into project-level decision making under NEPA. In addition, USEPA has not established regulatory concentration targets for the six relevant MSAT pollutants appropriate for use in the project development process. In light of the evolving discussion regarding MSATs, the FHWA has issued interim guidance for the assessment of on MSATs in NEPA documents. The Federal Transit Administration does not have separate guidance on MSATs and relies upon those of FHWA in assessing environmental impacts.

- State Standards

Responsibility for achieving California's Ambient Air Quality Standards (CAAQS), which are more stringent than federal standards, is placed on the California (ARB) and local air pollution control districts. State standards are to be achieved through district-level air quality management plans that are incorporated into the SIP. The California CAA requires local and regional air pollution control districts that are not attaining one or more of the CAAQS to expeditiously adopt plans specifically designed to attain these standards. Each plan must be designed to achieve an annual 5 percent reduction in district-wide emissions of each nonattainment pollutant or its precursors.

Recently enacted amendments to the California CAA impose additional requirements that are designed to ensure an improvement in air quality within the next 5 years. More specifically, local districts with moderate air pollution that did not achieve "transitional nonattainment" status by December 31, 1997 must implement the more stringent measures applicable to districts with serious air pollution.

- Federal and State Ambient Air Quality Standards

Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards that the State of California and the federal government have established for several different pollutants. For some pollutants, separate standards have been set for different measurement periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). Table 1 shows the 2007 state and federal standards for relevant air pollutants.

Table 1 : Ambient Air Quality Standards 2007				
Pollutant	***Averaging Time***	***State[1]***	***National[2]***	
		Concentration[3]	***Primary[3,4]***	***Secondary[3,5]***
Ozone (O_3)	1 hour 8 hours	0.09 ppm 0.070 ppm	-- 0.075 ppm	Same as Primary Standard
Particulate Matter (PM_{10})	24 hours AAM	50 µg/m³ 20 µg/m³	150 µg/m³ --	Same as Primary Standard
Fine Particulate Matter ($PM_{2.5}$)	24 hours AAM	-- 12 µg/m³	35 µg/m³ 15 µg/m³	Same as Primary Standard
Carbon Monoxide (CO)	8 hours 1 hour	9.0 ppm 20 ppm	9 ppm 35 ppm	None
Nitrogen Dioxide (NO_2)	AAM 1 hour	0.030 ppm 0.18 ppm	0.053 ppm --	Same as Primary Standard
Lead (Pb)[6]	30 days Calendar Quarter	1.5 µg/m³ --	-- 1.5 µg/m³	-- 1.5 µg/m³
Sulfur Dioxide (SO_2)	AAM 24 hours 3 hours 1 hour	-- 0.04 ppm -- 0.25 ppm	0.030 ppm 0.14 ppm -- --	-- -- 0.5 ppm --
Visibility-Reducing Particles	8 hours	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.	N/A	N/A
Sulfates (SO_4)	24 hours	25 µg/m³	N/A	N/A
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	N/A	N/A
continues next page				

Table.1: Ambient Air Quality Standards 2007 continued
Notes: N/A = standard is not applicable ppm = parts per million by volume AAM = annual arithmetic mean µg/m³ = micrograms per cubic meter
Notes: 1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations. 2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies. 3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas. 4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. 5. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. 6. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: Ambient Air Quality Standards, California Air Resources Board, February 22, 2007

- Regional Planning
  - Regional Transportation Improvement Program

The SCAG, as the Metropolitan Planning Organization (MPO) for Southern California, is mandated to comply with federal and state transportation and air quality regulations. SCAG is a six-county region (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) that contains four air basins that are administered by five air districts.

The proposed Perris Valley Line Commuter Rail project is included in SCAG's 2006 Regional Transportation Improvement Plan (RTIP) (Project ID RIV520109), which implies that the project's operational emissions (which, including the O_3 precursor emissions reactive organic compounds [ROC] and NO_2) meet the transportation conformity requirements imposed by USEPA and SCAQMD. As such, the project must undergo a project-level rather than a regional-level air quality analysis.

- Local and Regional Requirements

The air quality management agencies of direct importance to the SCAQMD portion of Riverside County include USEPA, ARB, and the SCAQMD. USEPA has established federal ambient air quality standards for which ARB and the SCAQMD have primary implementation responsibility. ARB and the SCAQMD are also responsible for ensuring that state ambient air quality standards are met. SCAG develops the Regional Transportation Program (RTP) and Regional Transportation Improvement Program (RTIP) in consultation with local air management districts. The RTP includes projects that strive to meet the goals and objectives of the NAAQS. The RTP is also in accord with USEPA's Transportation Conformity Rule as it pertains to air quality standards in Riverside County.

<u>Climate and Meteorological Conditions</u>

- Air Basin

The strength and position of the subtropical high pressure cell over the Pacific Ocean, as with all of Southern California in large part, control the climate in and around the project area. The high pressure maintains moderate temperatures and comfortable humidities, and limits precipitation to a few storms during the winter "wet" season. Temperatures are normally mild, except in the summer months which commonly bring substantially higher temperatures. In all portions of the SCAB, temperatures well above 100 ^oF have been recorded in recent years. The annual average temperature in the SCAB is approximately 62 ^oF.

Although Riverside County generates the lowest emissions of any county in the SCAB, air quality in the county is among the air basin's worst due to onshore winds transporting vast amounts of pollutants from Los Angeles and Orange counties inland.

The dominant land-sea breeze circulation usually drives winds in the project area. Regional wind patterns are dominated by daytime onshore sea breezes. At night, the wind generally slows and reverses direction, traveling towards the sea. Local canyons will alter wind direction, with wind tending to flow parallel to the canyons. During the transition period from one wind pattern to the other, the dominant wind direction rotates into the south and causes a minor southerly wind direction. The frequency of calm winds (less than 2 miles per hour) is less than 10 percent. Therefore, little stagnation occurs in the project vicinity, especially during busy daytime traffic hours.

Southern California frequently has temperature inversions that inhibit the dispersion of pollutants. Inversions may be either ground-based or elevated. Ground-based inversions sometimes referred to as radiation inversions, are most severe during clear, cold, early winter mornings. Under conditions of a ground-based inversion, very little mixing or turbulence occurs, and high concentrations of primary pollutants may occur local to major roadways. A variety of meteorological phenomena can generate elevated inversions. Elevated inversions act as a lid or upper boundary and restrict vertical mixing. Below the elevated inversion, dispersion is not restricted. Mixing heights for elevated inversions are lower in the summer and more persistent. This low summer inversion puts a lid over the SCAB and is responsible for the high levels of O_3 observed during summer months in the air basin.

- Local

Latitude, topography, and the influence of the nearby Pacific Ocean produce a Mediterranean climate in the project area, consisting of warm, dry summers and mild, wet winters. However, at a local level, the project area exhibits substantial climatic variation. Average January high temperatures range from 66 °F in the northwestern project area near Riverside to 63 °F near Perris in the southeastern project area. Nighttime lows in January and February can drop below freezing throughout the project area. Average July high temperatures range from 94 °F in the northwestern project area near Riverside to 97 °F near Perris in the southeastern project area. Low altitude areas, however, have long mid-summer stretches of daily highs exceeding 110 °F. Average annual precipitation ranges from about 10 inches in the Riverside and Moreno Valley areas to 11 inches in the Perris Valley. Annual rainfall in the project area typically ranges from 10 to 15 inches per year. Annual average wind speed in Riverside is 6.0 miles per hour.

<u>Existing Local Air Quality</u>

The SCAQMD monitors air quality conditions at 37 source receptor areas throughout the SCAB. The project area extends from the City of Riverside to Perris/Romoland. The closest air basin monitoring stations for this area are located in Rubidoux on Mission Boulevard, Riverside on Magnolia Avenue, and in Perris on North D Street. The Rubidoux monitoring station measures ambient levels of O_3, particulates, CO, nitrogen dioxide, and sulfur dioxide. The Riverside monitoring station measures $PM_{2.5}$ and CO ambient levels. The Perris monitoring station measures O_3 and PM_{10} ambient levels. Data from the three monitoring stations, including two located in receptor areas along the study corridor at Riverside and Perris were used to characterize existing conditions in the vicinity of the proposed project, and establish a baseline for estimating future conditions both with and without the proposed project.

Table 3 summarizes the local levels of these four pollutants for 2005, 2006 and 2007 and compares them to national and state air quality standards. The Rubidoux monitoring station shows exceedances of the Federal and state standards for O_3, PM_{10} and $PM_{2.5}$. At the Riverside monitoring station, the federal standard for $PM_{2.5}$ was exceeded. The Perris Valley monitoring station has exceeded the state standard for PM_{10}, and the federal and state standards for O_3.

If a pollutant concentration is lower than the state or federal standard, the area is classified as being in attainment for that pollutant. If a pollutant exceeds a state or federal, the area is considered a nonattainment area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated unclassified. The ARB has designated the SCAB as nonattainment for O_3, $PM_{2.5}$ and PM_{10}; and the USEPA has designated the SCAB as nonattainment for O_3 (Severe-17 classification for the 8-hour standard); CO (Serious classification), PM_{10} (Serious classification) and $PM_{2.5}$ (refer to Table 3).

Table 2: 2005-2007 Air Quality Summary for Project Area Monitoring System

Air-Pollutant	*Standard Exceedance*	*Rubidoux*			*Riverside*			*Perris Valley*		
		2005	**2006**	**2007**	**2005**	**2006**	**2007**	**2005**	**2006**	**2007**
Ozone (O_3)	Maximum 1-hr. concentration (ppm)	**0.144**	**0.151**	**0.131**	Not Monitored			**0.126**	**0.169**	**0.138**
	Maximum 8-hr. concentration (ppm)	**0.129**	**0.117**	**0.111**				**0.103**	**0.122**	**0.116**
	Days >0.09 ppm (State 1-hr. standard)	46	45	31				11	77	66
	Days >0.12 ppm (National 1-hr. standard)	3	8	2				1	12	4
	Days >0.075 ppm (National 8-hr. standard)	32	30	17				3	53	17
Respirable Particulate Matter (PM_{10})	Maximum State 24-hr concentration (μg/m³)	119.0	106.0	559	Not Monitored			75.0	119.0	1212
	Maximum National 24-hr. concentration (μg/m³)	123.0	109.0	540				80.0	125.0	1155
	Days >50 μg/m³ (State 24-hr. standard)	198	214	204				110	N/A	192
	Days >150 μg/m³ (National 24-hr. standard)	0	0	3				0	0	12
	Calculated >20 μg/m³ (State annual standard)	50.4	52.7	57.1				37.1	N/A	72.2
	Calculated 3-year average 20 μg/m³ (State annual standard)	55	53	57				37	37	72
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-hr. concentration (ug/m³)	98.7	68.4	75.6	94.9	55.3	68.5	Not Monitored		
	Days >65 μg/m³ (National 24-hr. primary std.)[1]	4	N/A	N/A	1	0	1			
	Calculated >15 μg/m³ (National annual std.)	21.0	19.0	19.0	18.0	17.0	18.0			
	Calculated 3-year average 15 μg/m³ (National annual standard)	23	21	20	21	19	18			
Carbon Monoxide (CO)	Maximum 8-hr. concentration (ppm)	2.50	2.3	2.9	2.4	2.4	2.2	Not Monitored		
	Day >9 ppm (State/National 8-hr. standard)	0	0	0	0	0	0			
Nitrogen Dioxide (NO_2)	Maximum 1-hr. concentration (ppm)	0.077	0.076	0.072	Not Monitored			Not Monitored		
	Days >0.25 ppm (State 1-hr. standard)[2]	0	0	0						
	Calculated >0.0534 ppm (National annual std)	0.022	0.020	0.020						
Sulfur Dioxide (SO_2)	Maximum 24-hr. concentration (ppm)	0.011	0.003	0.004	Not Monitored			Not Monitored		
	Days >0.04 ppm (State 24-hr. standard)	0	0	0						
	Days >0.14 ppm (National 24-hr. standard)	0	0	0						
	>0.03 ppm (National annual primary standard)	0.003	0.001	0.002						

N/A = data not available   ppm = parts per million   μg/m³ = micrograms per cubic meter   **bold = exceedance of state or federal standard**

[1] *Exceedances based on applicable standard at time of measurements, 65 μg/m3. The national standard was changed to 35 μg/m3 in November 2006 to be applied to following years.*

[2] *Exceedances based on applicable standard at time of measurements, 0.25 ppm. The state standard was changed to 0.18 ppm in February 2007 to be applied following years.*

Source: SCAQMD Air Quality Data 2005-2007 California Air Quality Data Summaries 2005-2007, California Air Resources Board, 2008

Table 3: Regional Criteria Pollutants Attainment Status 2008		
Pollutant	***Status***	
	Federal	***State***
Ozone (O_3)	1-hour: N/A 8-hour: Severe-17 Nonattainment	1-hour: Nonattainment Note yet rated for 8-hour standard
Carbon Monoxide (CO)	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Attainment/Maintenance	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Particulates (PM_{10})	Serious Nonattainment	Nonattainment
Fine Particulates ($PM_{2.5}$)	Nonattainment	Nonattainment
Lead (Pb)	No Designation	Attainment

Source: Federal Register and ARB, 2008

Description of Relevant Air Pollutants

- Ozone

Ozone (O_3) is a respiratory irritant that increases susceptibility to respiratory infections. It is also an oxidant that can cause substantial damage to vegetation and other materials. O_3, which is a regional pollutant, is not emitted directly into the air but is formed by a photochemical reaction in the atmosphere. O_3 precursors, which include reactive organic compounds (ROC) and NOx, react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone primarily forms in summer when it becomes an air pollution problem. In addition, photochemical reactions take time to occur, so high ozone levels often occur downwind of the emission source. The SCAB is classified as Nonattainment Severe-17. (Severe-17 = has 17 years from 1992 to reach attainment). Unless the SCAB is granted an extension by the USEPA, the region has until 2009 to demonstrate conformity with the NAAQS.

- Inhalable Particulate Matter

Particulates (such as $PM_{2.5}$ and PM_{10}) can damage human health and retard plant growth. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Particulates also reduce visibility and corrode materials. Particulate emissions are generated by a wide variety of sources, including industrial emissions, dust suspended by vehicle traffic and construction equipment, and secondary aerosols formed by reactions in the atmosphere.

- Carbon Monoxide

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

- Nitrogen Dioxide

Nitrogen oxides (NOx) are a family of highly reactive gases that are primary precursors to the formation of ground-level ozone, reacting in the atmosphere to form acid rain. NOx is emitted from the use of solvents and combustion processes in which fuel is burned at high temperatures, principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. A brownish gas, nitrogen dioxide is a strong oxidizing agent that reacts in the air to form corrosive nitric acid, as well as toxic organic nitrates.

NOx can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. The effects of short-term exposure are still unclear, but continued or frequent exposure to concentrations that are typically much higher than those normally found in the ambient air may cause increased incidence of acute respiratory illness in children. Health effects associated with NOx are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to nitrogen dioxide (NO_2) may lead to eye and mucus membrane aggravation along with pulmonary dysfunction. NOx can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to production of particulate nitrates. Airborne NOx can also impair visibility. NOx is a major component of acid deposition in California. NOx may affect both terrestrial and aquatic ecosystems. NOx in the air is a potentially significant contributor to a number of environmental effects such as acid rain and eutrophication in coastal waters. Eutrophication occurs when a body of water suffers an increase in nutrients that reduce the amount of oxygen in the water, producing an environment that is destructive to fish and other animal life.

- Sulfur Oxides

Sulfur oxide gases (SOx) are a family of colorless, pungent gases, which include sulfur dioxide (SO_2), and are formed primarily by combustion of sulfur-containing fossil fuels (mainly coal and oil), metal smelting, and other industrial processes. Sulfur oxides can react to form sulfates, which significantly reduce visibility. SOx are a precursor to particulate matter formation, for which the project area is in non-attainment.

The major health concerns associated with exposure to high concentrations of SOx include effects related to breathing, respiratory illness, alterations in pulmonary defenses, and aggravation of existing cardiovascular disease. Major subgroups of the population that are most sensitive to SOx include individuals with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema), as well as children and the elderly. Emissions of SOx also can damage the foliage of trees and agricultural crops. Together, SOx, and NOx are the major precursors to acid rain, which is associated with the acidification of lakes and streams and accelerated corrosion of buildings and monuments.

- Lead

Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead was used several decades ago to increase the octane rating in automotive fuel. Since gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels and the use of leaded fuel has been mostly phased out, the ambient concentrations of lead have dropped dramatically.

Short-term exposure to high levels of lead can cause vomiting, diarrhea, convulsions, coma, or even death. However, even small amounts of lead can be harmful, especially to infants, young children, and pregnant women. Symptoms of long-term exposure to lower lead levels may be less noticeable but are still serious. Anemia is common, and damage to the nervous system may cause impaired mental function. Other symptoms are appetite loss, abdominal pain, constipation, fatigue, sleeplessness, irritability, and headache. Continued excessive exposure, as in an industrial setting, can affect the kidneys.

Lead exposure is most serious for young children because they absorb lead more easily than adults and are more susceptible to its harmful effects. Even low-level exposure may harm the intellectual development, behavior, size, and hearing of infants. During pregnancy, especially in the last trimester, lead can cross the placenta and affect the fetus. Female workers exposed to high levels of lead have more miscarriages and stillbirths.

- Toxic Air Contaminants

Although ambient air quality standards exist for criteria pollutants, no ambient standards exist for toxic air contaminants (TACs). Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, the ARB has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risk each presents. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health risks, a similar factor, called a Hazard Index, is used to evaluate risk.

In the early 1980s, the ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the types of population groups exposed and the activities involved. According to ARB, air pollution adversely affects primarily four groups of people: (1) children under 14 years of age, (2) the elderly over 65 years of age, (3) athletes, and (4) people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include hospitals, daycare facilities, elder care facilities, elementary schools, and parks.

The identification of sensitive receptors is normally performed in circumstances where CO pollution could be expected to occur, such as parking facilities where extensive idling of automobiles could occur. The proposed locations for station/park and ride facilities along I-215 are the facilities that have the most potential for idling to occur. However, the proposed parking areas would not be located adjacent to sensitive receptors. These potential sites are vacant tracts in currently undeveloped areas. The potential commuter rail stations at Palmyrita Street and at Downtown Perris are located near residences. However, these potential stations would not be expected to generate CO concentrations because of the relatively small amount of parking that would be provided (currently set at 400 to 872 spaces for planning purposes), and the fact that extensive idling is not expected. The potential for idling is limited because not all patrons arrive and depart at the same time, thus spreading out traffic. The traffic technical report indicates that traffic bound to and from stations would have little impact on local traffic flows, and impacts would be less than significant with mitigation.

C. EVALUATION METHODOLOGY

The fundamental approach to evaluating potential for air quality impacts was to determine documented air quality conditions for the study area and assess the anticipated air quality impacts associated with the project alternatives. The net increases and decreases in construction and operational air emissions were compared for a no-build alternative and the locally-preferred Citrus Connection Alternative for the opening year of 2011. The No Build Alternative includes air quality impacts of proposed I-215 highway improvements, as defined in the September 2001 *Final Environmental Impact Statement/Report for Interstate I-215 Improvements* prepared by Caltrans and FHWA.

The air quality analysis was prepared to conform to FTA, ARB, SCAQMD, and SCAG criteria. Investigation methods, modeling protocols, and conformity issues relating to air quality were developed, discussed, and reviewed with the responsible agencies as needed.

The methodology used to evaluate construction and operational effects is of the Perris Valley Line described below.

Construction-Period Impacts Methodology

Construction is a source of fugitive dust and exhaust emissions that can have substantial temporary impacts on local air quality causing exceedance of CAAQS for PM_{10} and/or $PM_{2.5}$). Such emissions would result from earthmoving and use of heavy equipment, as well as land clearing, ground excavation, and cut-and-fill operations. Dust emissions can vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing weather. A major portion of dust emissions for the proposed project would likely be caused by construction traffic on temporary construction roadways.

Construction-period emission estimates have not been included in this report because FTA policy is to require implementation of effective and comprehensive control measures rather than detailed quantification of construction-period emissions. Experience has shown that several feasible control measures can be reasonably implemented to reduce exhaust and fugitive PM_{10} and $PM_{2.5}$ emissions during construction. These measures, approved by FTA for construction of other rail projects, are defined in Section 3.2.5 and will be included in RCTC construction contracts.

Operational-Period Impacts Methodology

The operational-period emissions of concern associated with the project are CO, particulates ($PM_{2.5}$ and PM_{10}) and O_3 precursors (ROC and NO_X) emitted via vehicle exhaust. The effects of CO emissions were evaluated through an analysis that involved using the CO Protocol (Garza et al. 1997). The effects of $PM_{2.5}$, PM_{10}, and O_3 precursors were evaluated through the conformity process described below.

Carbon Monoxide Modeling Protocol—Screening Procedure

The California Department of Transportation, in coordination with the University of California, Davis, Institute of Transportation Studies, has developed a transportation project-level CO Protocol (Garza et al. 1997). This CO Protocol details a qualitative step-by-step screening procedure to determine whether project-related CO concentrations have a potential to generate new air quality violations, worsen existing violations, or delay attainment of NAAQS for CO. If the screening procedure reveals that such a potential may exist, then the CO Protocol details a quantitative method to ascertain project-related CO impacts. FTA has no separate guidance for assessing CO impacts.

PM2.5 and PM10 Evaluation Protocol—Screening Procedure

In March 2006, EPA issued a guidance document titled *Transportation Conformity Guidance for Qualitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas*. This guidance details a qualitative step-by-step screening procedure to determine whether project-related particulate emissions have a potential to generate new air quality violations, worsen existing violations, or delay attainment of NAAQS for $PM_{2.5}$ or PM_{10}.

Mobile-Source Air Toxics—Screening Procedure

The FHWA has issued interim guidance on how MSATs should be addressed in NEPA documents for highway projects and has developed a tiered approach for analyzing MSATs in NEPA documents. FTA has no separate guidance. Depending on the specific project circumstances, FHWA has identified three levels of analysis:

1) no analysis for exempt projects or projects with no potential for meaningful MSAT effects,

2) qualitative analysis for projects with low-potential MSAT effects, or

3) quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Based on this guidance document, the proposed project falls under category (2) above, projects with low potential MSAT effects. As such, a qualitative MSAT analysis is provided.

D. SIGNIFICANCE CRITERIA

A project's air quality impacts can be separated into short-term impacts, arising from construction, and long-term permanent impacts resulting from project operations. Determination of significant impact is the responsibility of the lead agency, which is the FTA for the NEPA document and RCTC for the CEQA document. Much of FTA's concern under NEPA is with the long-term impacts of proposed projects, to assess whether air quality benefits arise from the investment of federal funds. Short-term impacts from construction of the proposed Perris Valley Line were calculated as described above. Unless construction period impacts are shown to exceed defined regional thresholds, they are usually considered as temporary by FTA and addressed through compliance with local and regional construction regulations. Because of the required specific focus on construction-period air quality under CEQA, RCTC also evaluates short-term air quality impacts, and potential mitigation for those impacts.

For evaluating the air quality impacts for the operation of this project, air quality screening tables and significance thresholds appearing in the SCAQMD's *CEQA Air Quality Handbook* are applied. Based on the emission thresholds of significance in Chapter 6 of the SCAQMD's handbook, projects that have potential for significant air quality impacts were further assessed against the thresholds replicated in Table 3-2.4 below. If operational emissions exceed the thresholds listed in Table 3-2.4, both SCAQMD and FTA would consider the emissions significant. The SCAQMD emission thresholds apply to all federally regulated air pollutants except lead, which is not exceeded in the SCAB.

For the Perris Valley Line, air emission quantities and quality concentrations were predicted to determine operational impacts. The air quality analyses address three aspects of potential air quality impacts as follows:

1. Reduction in regional emissions associated with a reduction in vehicle miles travelled (VMT)

2. Increase in regional emissions associated with diesel locomotive emissions

3. Comparison of Numbers 1 and 2 above to determine net impact of project on regional emissions.

Because of commuter movement away from private vehicle driving and changes in VMT with the proposed project, the transportation-related air emissions will change in the region. SCAG prepared the ridership analysis establishing transit passenger patronage and VMT during the opening (2011) year. Due to riders switching modes of travel, changes in mesoscale air emissions generated were calculated and compared in the opening and forecast years. The ARB's EMFAC2007 emission factor program estimated air emissions per vehicle mile traveled. Available data from the state vehicle emissions inventory provided the vehicular emission factors during the appropriate years. The operational air quality impacts analysis of the Build Alternatives considers the diesel locomotive emissions including idle time.

Table 4: Criteria for Assessing Long Term Air Quality Impacts	
Pollutant	***Operations***
	Pounds/day
Reactive Organic Compounds (ROC)	55
Nitrogen Oxides (NO_x)	55
Carbon Monoxide (CO)	550[1]
Particulate Matter (PM_{10})	150 [2]
Sulfur Oxides (SO_x)	150

1. In addition, CO concentrations resulting from the project operations must not exceed the 1-hour and 8-hour CAAQS.
2. In addition, PM_{10} and $PM_{2.5}$ concentrations resulting from project operations must not exceed their respective CAAQS.

Source: South Coast Air Quality Management District, CEQA Air Quality Handbook (revised), 1993

E. ENVIRONMENTAL IMPACTS

Impact Assessment

- Regional Emissions

Table 5 shows the air quality impacts that would occur during operation of the commuter rail alternative, based on the following assumptions. The proposed project would begin operations with 12 one-way trains (4 from Perris to Los Angeles and 1 from Los Angeles to Perris in the morning peak period; one reverse peak period roundtrip between Perris and Los Angeles; one roundtrip from Perris to Los Angeles to Perris midday; and 4 from Los Angeles to Perris in the afternoon/evening peak period.) The analysis focuses on the incremental increase in train service over the 39-mile round trip route between Perris and Riverside. The analysis included the six new stations (exclusive of Fair Isle and Riverside Downtown, which is already in service; and including Ramona, although it will not be put into service until ridership and funding are determined to be adequate) anticipated to be in service during the initial operation. Daily diesel emissions were estimated based on regional Metrolink operational emissions prepared by the SCAQMD in 2002 and on estimates of idle time prepared for the Metrolink's Santa Ana project. Each round trip is assumed to take 1 hour running time and 30 minutes of idle time.

Table 5: Net Change in Operational Emissions (in pounds per day)					
	Pollutant				
Source Category	*Carbon Monoxide (CO)*	*Reactive Organic Compounds (ROC)*	*Oxides of Nitrogen (NOx)*	*Particulate Matter (PM_{10})*	*Fine Particulates ($PM_{2.5}$)*[1]
Train Emissions	10	2	90	2	2
Vehicular Emissions Reduced	694	43	51	6	5
NET PROJECT EMISSIONS	-684	-41	39	-4	-3
SCAQMD Significance Thresholds for Operation	550	55	55	150	55
Significant?	NO	NO	NO	NO	NO

Note: Vehicular Emissions assessed with EMFAC2002, V2.2, September 23, 2002 for summertime.

1. $PM_{2.5}$ emissions calculated consistent with methodology provided in the SCAQMD guidance document *Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology* (2006).

Source: JHA Environmental Consultants, LLC, 2003 and Jones & Stokes, April 2007, STV Incorporated.

The proposed Perris Valley Line commuter rail project would result in decreased emissions of carbon monoxide, volatile organic compounds, $PM_{2.5}$and PM_{10}. Nitrogen oxide emissions would increase, but the increase would be less than significant. With the reductions in CO and ROC, and the modest increase in NOx, the proposed project would produce a cumulative net benefit to the region's air quality. As rail passenger ridership increases over time, there will be ongoing and increasing cumulative air quality benefits.

It is also important to note that the proposed project is included in SCAG's 2006 Adopted RTIP (Project ID RIV520109), which implies that the project's operational emissions meet the transportation conformity requirements imposed by USEPA and SCAQMD.

Localized Emissions

- Carbon Monoxide - Intersection Analysis

Within an urban setting, vehicle exhaust is the primary source of CO emissions. Consequently, the highest CO concentrations are generally found within close proximity to congested intersection locations. Under typical meteorological conditions, CO concentrations tend to decrease as the distance from the emissions source (i.e., the congested intersection) increases. For purposes of providing a conservative, worst-case impact analysis, CO concentrations are typically analyzed at congested intersection locations, because if impacts are less than significant in close proximity of the congested intersections, impacts will also be less than significant at more distant sensitive receptor locations.

The SCAQMD recommends a hot-spot evaluation of potential localized CO impacts when volumes to capacity ratios are increased by two percent at intersections with a level of service (LOS) of C or worse. Based on these criteria, four intersections were selected for analysis based on information provided in the updated Traffic Study (STV Inc. August 2008). The selected locations were at the South Perris Station, where the largest amount of parking is expected to be located, and thus, the greatest potential number of vehicles through intersections are expected.

Local area CO concentrations were projected using the CALINE 4 line-source dispersion model. The analysis of CO impacts followed the protocol recommended by Caltrans, as detailed in their publication *Transportation Project-Level Carbon Monoxide Protocol* (December 1997). It is also consistent with procedures identified through the SCAQMD's CO modeling protocol, with all four corners of each intersection analyzed to determine whether project development would result in a CO concentration that exceeds federal or state CO standards.

The project's CO concentrations for a.m. and p.m. peak-hour periods (1- and 8-hour) are provided in Table 6. As shown therein, the project would not have a significant impact upon 1-hour or 8-hour local CO concentrations due to mobile source emissions.

Because significant impacts would not occur at the intersections with the highest traffic volumes located adjacent to sensitive receptors, no significant impacts are anticipated to occur at any other locations in the study area because the conditions yielding CO hotspots would not be worse than those occurring at the analyzed intersections. Consequently, the sensitive receptors that are included in this analysis would not be significantly affected by CO emissions generated by the net changes in traffic that would occur with the project. Because the project does not cause an exceedance or exacerbate an existing exceedance of an AAQS, the project's localized operational air quality impacts would therefore be less than significant. No mitigation measures are necessary.

Table 6: Local Area Carbon Monoxide Dispersion Analysis (2011)							
		2008					
Intersection	Peak Period [a]	Maximum 1-Hour Base Concentration (ppm) [b]	Maximum 1-Hour With-Project Concentration (ppm) [c]	Significant 1-Hour Concentration Impact? [d]	Maximum 8-Hour Base Concentration (ppm) [e]	Maximum 8-Hour With-Project Concentration (ppm) [f]	Significant 8-Hour Concentration Impact? [d]
D St. @ 4th St.	AM	5.5	7.0	No	3.5	4.5	No
	PM	5.5	8.1	No	3.5	5.3	No
D St. @ 6th St.	AM	5.4	6.4	No	3.4	4.1	No
	PM	5.4	6.7	No	3.4	4.3	No
Perris Blvd @ 4th St.	AM	5.4	7.4	No	3.4	4.8	No
	PM	5.4	9.0	No	3.4	5.9	No
Perris Blvd @ 6th St.	AM	5.4	7.6	No	3.4	4.9	No
	PM	5.5	8.4	No	3.5	5.5	No

Notes:
CALINE4 dispersion model output sheets and EMFAC 2007 emission factors
ppm = parts per million
[a] Peak hour traffic volumes are based on the Traffic Study prepared by STV Incorporated, 2008.
[b] SCAQMD 2008 1-hour ambient background concentration (5.4 ppm) + 2008 base traffic CO 1-hour contribution.
[c] SCAQMD 2008 1-hour ambient background concentration (5.4 ppm) + 2008 with-project traffic CO 1-hour contribution.
[d] The State standard for the 1-hour average CO concentration is 20 ppm, and the 8-hour average concentration is 9.0 ppm.
[e] SCAQMD 2008 8-hour ambient background concentration (3.4 ppm) + 2008 base traffic CO 8-hour contribution.
[f] SCAQMD 2008 8-hour ambient background concentration (3.4 ppm) + 2008 with-project traffic CO 8-hour contribution.

- Parking Lot Analysis

In addition to congested intersection locations, proposed parking lot locations were also evaluated for CO hot spots. There would be five stations with parking lots. Lot size would range from 400 spaces (Moreno Valley/March Field Station) to 872 spaces (South Perris Station). For purposes of providing a conservative, worst-case impact analysis, CO concentrations were evaluated for the largest parking lot (872 spaces), because if impacts are less than significant at the largest parking lot location, impacts will also be less than significant at each of the smaller parking lot locations.

The parking lot CO hot spot analysis considered emissions from all three vehicular emissions categories: engine start, idle time, and vehicle miles of travel. Emissions factors were ascertained using EMFAC2007 emissions model. Dispersion modeling was conducted using the ISC-ST3 dispersion model, using EMFAC2007-generated emissions factors and SCAQMD-supplied meteorology data collected from their Riverside wind monitoring station. EMFAC2007 emissions factors, ISC dispersion modeling output, and detailed emissions calculation worksheets are provided in the appendix to this report.

In carrying out the analysis, a key modeling assumption was to place sensitive receptors around the 842-space parking lot perimeter, setback at a distance of 25 meters. This assumption is conservative, as actual locations where individuals would likely have a 1-hour exposure duration to parking lot CO emissions would be greater than 25 meters from any of the five parking lot locations. Based on the above-described approach, the maximum off-site CO concentration at any sensitive receptor location would be 12.0 parts per million and 8.4 parts per million for the 1-hour and 8-hour averaging periods, respectively. These worst-case concentrations are below the NAAQS of 35 parts per million and 9 parts per million for the 1-hour and 8-hour averaging periods, respectively. They are also below the CAAQS one-hour concentration not exceeding 20 ppm, and the 8-hour concentration of 9 ppm. Accordingly, the project's localized operational air quality impacts would be less than significant. No mitigation measures are necessary.

- PM_{10} and $PM_{2.5}$

The proposed project is in an area designated as nonattainment for PM_{10} and $PM_{2.5}$. According to the most recent EPA Transportation Conformity Guidance, a $PM_{10}/PM_{2.5}$ hot-spot analysis is required for Projects of Air Quality Concern (POAQC) in non-attainment areas (40 CFR 93.123 (b) (1)). Projects that are exempt under 40 CFR 93.126 or not POAQC do not require hot-spot analysis.

The proposed project does not meet the criteria of an exempt project under 40 CFR 93.126. However, EPA specifies in 40 CFR 93.123(b) (1) that only projects considered POAQC are required to undergo a $PM_{10}/PM_{2.5}$ hot-spot analysis. USEPA defines projects of air quality concern as certain highway and transit projects that involve significant levels of diesel traffic or any other project that is identified by the $PM_{2.5}$ SIP as a localized air quality concern. A discussion of the proposed Perris Valley Line compared to POAQC, as defined by 40 CFR 93.123(b) (1), is provided below:

1) New or expanded highway projects with greater than 125,000 annual average daily traffic (AADT) and 8 percent or more of such AADT is diesel truck traffic.

   The proposed project is not a new or expanded highway project.

2) New or expanded highway projects affecting intersections that are at Level of Service (LOS) D, E, or F with a significant number of diesel vehicles or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.

   The proposed project is not a new or expanded highway project.

3) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.

Although the proposed project has a rail terminal component, it would not alter travel patterns to/from any existing bus or rail terminal. The rail terminal at Downtown Perris, a multi-modal facility, was evaluated as part of the CEQA documentation on that project and it was determined that the operations of that multi-modal facility would not result in significant adverse impacts.

4) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.

   Although the proposed project would expand an existing commuter rail terminal, it would not increase the number of diesel vehicles congregating at any single location.

5) Projects in or affecting locations, areas, or categories of sites that are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

   The project site is not in or affecting an area or location identified in any $PM_{2.5}$ or PM_{10} implementation plan. The immediate project area is not considered to be a site of violation or possible violation.

Based on the discussion provided above, the proposed project would not be considered a project of air quality concern with respect to PM_{10} or $PM_{2.5}$ emissions as defined by 40 CFR 93.123(b) (1). Therefore, a qualitative $PM_{10}/PM_{2.5}$ hot-spot evaluation is not required, and the proposed project can be screened from further analysis.

An Interagency Consultation project review form for $PM_{2.5}$ and PM_{10} hot spot concurrence is required to be submitted to the SCAG Transportation Conformity Working Group (TCWG) for concurrence with this finding prior to final project approval. Once TCWG concurrence is given, Clean Air Act 40 CFR 93.116 requirements are met without an explicit hot-spot analysis.

- Mobile-source Air Toxics

For the proposed PVL, the amount of MSATs emitted would be proportional to the amount of rail activity, assuming that other variables (such as travel not associated with the intermodal center) are the same for each alternative. The rail activity estimated for the proposed project is higher than that for the No Build Alternative, because of the additional activity associated with the proposed rail line extension. This increase in rail activity would lead to the proposed project to have higher MSAT emissions (particularly diesel particulate matter) in the vicinity of the Downtown Perris intermodal center and along the alignment extension. The higher emissions could be offset somewhat by two factors: 1) the decrease in regional automobile commute traffic due to increased use of commuter rail; and 2) increased speeds on area highways due to the decrease in automobile traffic (according to EPA's MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases). The extent to which these emissions decreases will offset intermodal center-related emissions increases is not known.

With the Perris Valley Line in place, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the EPA-projected reductions are so significant (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future as well.

The additional commuter rail activity contemplated with the Perris Valley Line will have the effect of increasing diesel emissions in the vicinity of nearby homes, schools and businesses; therefore, there may be localized areas where ambient concentrations of MSATs would be higher than without the proposed project. However, as discussed above, the magnitude and the duration of these potential differences cannot be accurately quantified because of current limitations in modeling. Even though there may be differences among the Alternatives, on a region-wide basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions over time that in almost all cases the MSAT levels in the future will be significantly lower than today.

In sum, the Perris Valley Line is expected to be associated with higher levels of MSAT emissions in the project area, relative to conditions without the proposed project, along with some benefit from improvements in speeds and reductions in region-wide vehicular traffic. There could be slightly elevated but unquantifiable differences in MSATs in a few localized areas where commuter rail activity occurs closer to homes, schools and businesses, which may be important particularly to any members of sensitive populations. Under all alternatives, MSAT levels are likely to decrease over time due to nationally mandated cleaner vehicles and fuels.

E. MITIGATION MEASURES

Mitigation for Air Quality Impacts During Construction

During construction, contractors will be required to implement Best Management Practices (BMP) and to control fugitive dust emissions in accordance with AQMD Rule 403. In addition to these regulatory requirements, the following construction-phase air quality mitigation measures will also apply and be included in RCTC contract documents:

All land clearing/earth-moving activity areas shall be watered to control dust as necessary to remain visibly moist during active operations.

All construction roads internal to a construction site that have a traffic volume of more than 50 daily trips by construction equipment, or 150 total daily trips for all vehicles, shall be surfaced with base material or decomposed granite.

Streets shall be swept as needed during construction, but not more frequently than hourly, if visible soil material has been carried onto adjacent public paved roads.

Construction equipment shall be visually inspected prior to leaving the site and loose dirt shall be washed off with wheel washers as necessary.

Water three times daily or non-toxic soil stabilizers shall be applied, according to manufacturers' specifications, as needed to reduce off-site transport of fugitive dust from all unpaved staging areas and unpaved road surfaces.

Traffic speeds on all unpaved roads shall not exceed 15 mph.

All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.

General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would have their engines turned off when not in use, to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.

Establish an on-site construction equipment staging area and construction worker parking lots, located on either paved surfaces or unpaved surfaces subject to soil stabilization.

Use electricity from power poles, rather than temporary diesel or gasoline powered generators if or where feasible.

Use on-site mobile equipment powered by alternative fuel sources (i.e., methanol, natural gas, propane or butane) as feasible.

Develop a construction traffic management plan that includes, but is not limited to: (1) consolidating truck deliveries; (2) providing a rideshare or shuttle service for construction workers; and (3) providing dedicated turn lanes for movement of construction trucks and equipment on-and off-site.

Because there would be no exceedances of the impact thresholds for any of the criteria pollutants arising from the operation of the proposed commuter rail service, no mitigation of long-term impacts is necessary.

Prior to construction, RCTC will submit a project review form for the $PM_{2.5}$ and PM_{10} hot spot analysis to the SCAG Transportation Conformity Working Group (TCWG) for concurrence with the finding that the proposed project would not be considered a project of air quality concern with respect to PM_{10} or $PM_{2.5}$ emissions as defined by 40 CFR 93.123(b) (1).

F. IMPACTS WITH MITIGATION

Long-Term Impacts

The proposed Commuter Rail Alternative would reduce some long-distance trip-making that now occurs via automobile, resulting in a corresponding improvement in air quality. Although the total amount of air quality improvement is small compared to the region, the introduction of commuter rail service provides an ongoing opportunity for reducing trips. The proposed rail service would result in a net decrease in CO and ROC emissions and the amount of NOx emissions from current train engines is below the threshold of impact. In addition, Metrolink will be replacing engines over time and the next generation will meet EPA Stage III requirements, which have lower emission characteristics than the current fleet. As these new engines are incorporated into the fleet, air quality benefits will increase.

Riverside County and the study corridor are forecasted to have substantial increases in population and employment over the coming decades. The general result of such growth would be increased travel on the existing roadway network, demand for additional capacity on those existing facilities, demand for new roadways, as well as additional demand for transit services. The cumulative impacts of increased transportation demands would likely be degradation of air quality as the volume of travel continues to expand, conversion of land use from agriculture/vacant to residential and commercial development, a corresponding reduction of habitats as land uses change, and increased demands on public facilities.

Construction-Period Impacts

The overall potential for air quality impacts to be cumulatively significant is reduced because the proposed project would comply with state and regional air quality requirements that construction projects mitigate their individual impacts to less than significant levels, based on their forecasted construction schedule and levels of activity. In addition, RCTC will include construction contract requirements for Best Management Practices that meet or exceed the requirements of the SCAQMD.

Construction of the proposed Perris commuter rail station could occur simultaneously with the construction of other proposed downtown revitalization projects, which could result in cumulative construction impacts. There is also the potential for the commuter rail station to be constructed at the same time as the Perris Multimodal Facility. The extent of the potential impacts would depend on the location, magnitude, and duration of construction activities for each of the projects. CEQA analysis conducted for this proposed project indicates that measures to control fugitive dust will be necessary to avoid violation of the SCAQMD PM_{10} criterion. By compliance with these mitigation measures, the proposed project would avoid exceeding SCAQMD criteria and reduce the potential for cumulative construction period impacts. It is assumed that other construction projects in Perris would also be conducted with similar mitigation measures in place. Development projects, such as the March Business Center or the Sycamore Canyon Industrial Center, would also be required to impose mitigation measure to address fugitive dust or exceedances of other criteria pollutants during construction. Since construction of each element of these master planned developments would also have to include mitigation measures, the overall potential for cumulative air quality impacts would be reduced. It is assumed that traffic management plans would also be implemented, so that the overall potential for cumulative traffic impacts would be reduced.

Air Quality Appendix
San Jacinto Branch Line

- Local Climate and Meteorology Data
- Ambient Air Monitoring Data
- Year 2008 Intersection CO Hotspot Analysis
- Year 2025 Intersection CO Hotspot Analysis
- 842-Space Parking Lot CO Hotspot Analysis

PERRIS 1 WSW, CALIFORNIA (046818)

Period of Record Monthly Climate Summary

Period of Record : 11/1/1951 to 5/31/1957

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	63.1	67.1	69.4	73.7	80.5	87.3	96.5	95.8	95.7	86.7	74.2	66.4	79.7
Average Min. Temperature (F)	36.1	37.0	38.8	43.3	47.0	50.3	57.3	56.7	55.1	46.4	40.8	36.7	45.5
Average Total Precipitation (in.)	3.82	0.87	1.63	0.94	0.42	0.00	0.06	0.01	0.18	0.04	1.23	1.48	10.68
Average Total SnowFall (in.)	0.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 98.3% Min. Temp.: 99.7% Precipitation: 99.7% Snowfall: 99.7% Snow Depth: 99.7%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

RIVERSIDE FIRE STN 3, CALIFORNIA (047470)

Period of Record Monthly Climate Summary

Period of Record : 12/1/1927 to 12/31/2006

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	66.7	68.3	71.4	75.8	80.4	86.8	94.3	94.5	91.0	82.9	74.3	67.9	79.5
Average Min. Temperature (F)	39.7	41.5	43.5	47.1	51.8	55.7	60.4	60.6	57.5	51.1	43.5	39.7	49.3
Average Total Precipitation (in.)	2.01	2.32	1.72	0.81	0.23	0.05	0.05	0.15	0.20	0.42	0.87	1.51	10.33
Average Total SnowFall (in.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 99.4% Min. Temp.: 99.3% Precipitation: 99.5% Snowfall: 97% Snow Depth: 97%
Check Station Metadata or Metadata graphics for more detail about data completeness.

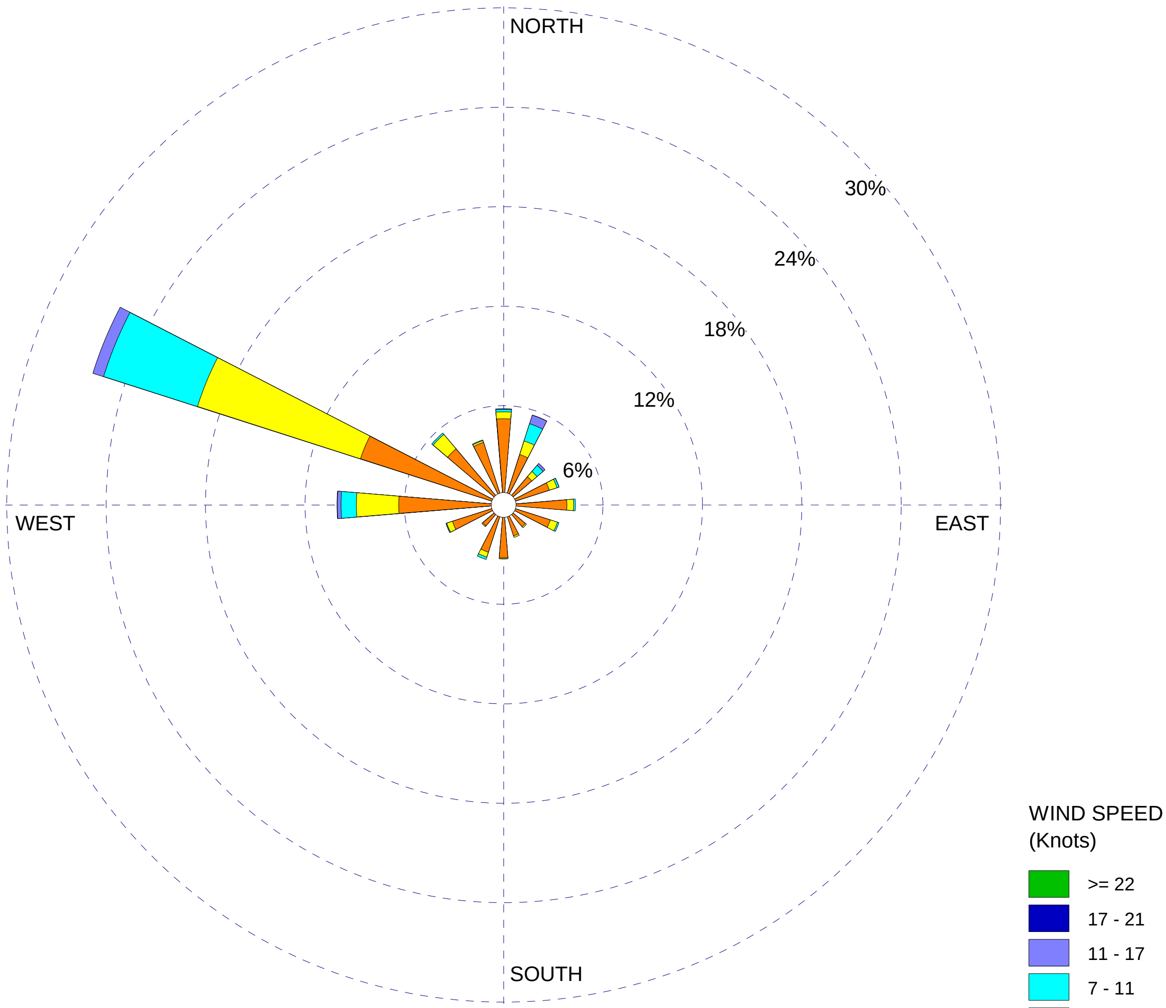
Western Regional Climate Center, wrcc@dri.edu

WIND ROSE PLOT:

Station #54139

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **1981** **Jan 1 - Dec 31** **00:00 - 23:00**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **12.12%**	TOTAL COUNT: **8760 hrs.**	
	AVG. WIND SPEED: **3.36 Knots**	DATE: **5/11/2007**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Riverside-Rubidoux Site Information

This page updated November 1, 2005

AIRS Number	ARB Number	Site Start Date	Reporting Agency and Agency Code
060658001	33144	9/1/79	South Coast AQMD (061)

Site Address	County	Air Basin	Latitude	Longitude	Elevation
5888 Mission Bl, Riverside CA 92509	Riverside	South Coast	34º 0' 2"	117º 24' 55"	250

Pollutants Monitored (click on parameter link for real-time data)
CO, SO_2, NO_2, O_3, PM_{10}, $TEOM_{PM10}$, $BAM_{PM2.5}$, $PM_{2.5}$, TSP, Toxics, Cr^{6+}, Dioxin, Outdoor Temperature, Relative Humidity, Wind Direction, Horizontal Wind Speed, Barometric Pressure, Solar Radiation

Site Photos	Photo Sequences	Site Surveys
--Select Photos--	--Select Position And Direction--	--Select Survey--

Other ARB Database Information	Real-Time Met Data	Aerial Photos and Topo Maps Of Site
--Select Database--	--Select Data Server--	--Select External Map--

Welcome to California

Air Resources Board

iADAM

Highest 4 Daily Maximum Hourly Ozone Measurements

Riverside-Rubidoux

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Sep 21	0.169	Jul 25	0.141	May 22	0.144
Second High:	Jul 10	0.159	Jun 5	0.131	Jul 17	0.134
Third High:	Jul 11	0.157	Sep 1	0.130	Jul 16	0.130
Fourth High:	Aug 17	0.157	Sep 26	0.128	May 15	0.123
# Days Above Nat'l Standard:		18		8		3
# Days Above State Standard:		80		59		46
Year Coverage:		99		98		96

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All concentrations are expressed in parts per million.
State exceedances are shown in **yellow** . National exceedances are shown in **orange** .
National exceedances are also state exceedances.
An exceedance is not necessarily a violation.
Year Coverage indicates how complete monitoring was during the time of the year when concentrations are highest. 0 means there was no coverage; 100 means there was complete coverage.
* There was insufficient (or no) data available to determine the value.

Switch: 8-Hour Ozone | PM10 | PM2.5 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

Go to: Data Statistics Home Page | Top 4 Summaries Start Page

Highest 4 Daily Maximum 8-Hour Ozone Averages

Riverside-Rubidoux

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Aug 17	0.140	Jun 5	0.114	May 22	0.129
Second High:	Jul 10	0.133	Jul 25	0.114	May 15	0.107
Third High:	Sep 21	0.125	Sep 1	0.113	Jul 17	0.107
Fourth High:	Jun 29	0.120	Jun 26	0.111	Aug 21	0.106
# Days Above Nat'l Standard:		62		35		32
Year Coverage:		99		98		96

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All averages are expressed in parts per million.
National exceedances are shown in **orange** . An exceedance is not necessarily a violation.
Year Coverage indicates how complete monitoring was during the time of the year when concentrations are highest. 0 means there was no coverage; 100 means there was complete coverage.
* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | PM10 | PM2.5 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

Go to: Data Statistics Home Page | Top 4 Summaries Start Page

Highest 4 Daily PM10 Measurements

Riverside-Rubidoux

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Oct 27	164.0	Mar 19	137.0	Oct 22	123.0
Second High:	Jul 5	159.0	Jul 5	131.0	Nov 30	98.0
Third High:	Oct 9	134.0	Oct 6	122.0	Apr 16	96.0
Fourth High:	Oct 24	133.0	Mar 22	119.0	Oct 7	92.0
California:						
First High:	Oct 27	159.0	Mar 19	133.0	Oct 22	119.0
Second High:	Jul 5	154.0	Jul 5	127.0	Nov 30	95.0
Third High:	Oct 9	129.0	Oct 6	118.0	Apr 16	93.0
Fourth High:	Oct 24	129.0	Mar 22	115.0	Oct 7	89.0
Measured:						
# Days Above Nat'l Standard:		2		0		0
# Days Above State Standard:		59		70		67
Estimated:						
3-Yr Avg # Days Above Nat'l Std:		2.0		2.0		2.0
# Days Above Nat'l Standard:		6.2		0.0		0.0
# Days Above State Standard:		201.4		210.1		198.2
National 3-Year Average:		59		56		54
National Annual Average:		55.6		54.8		51.8
State 3-Yr Maximum Average:		56		56		55
State Annual Average:		55.1		53.5		50.4
Year Coverage:		100		100		100

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All concentrations are expressed in micrograms per cubic meter.
State exceedances are shown in **yellow** . National exceedances are shown in **orange** .
An exceedance is not necessarily a violation.
State and national statistics may differ for the following reasons:
State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods.
State and national statistics may therefore be based on different samplers.
State statistics for 1998 and later are based on *local* conditions (except for sites in the South Coast Air Basin, where State statistics for 2002 and later are based on *local* conditions).
National statistics are based on *standard* conditions.
State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.
Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.
3-Year statistics represent the listed year and the 2 years before the listed year.
Year Coverage indicates how complete monitoring was during the time of the year when concentrations are highest. 0 means there was no coverage; 100 means there was complete coverage.
* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM2.5 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

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Highest 4 Daily PM2.5 Measurements

Riverside-Rubidoux

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Oct 26	104.3	Mar 19	91.7	Oct 22	98.7
Second High:	Oct 29	89.2	Jul 5	77.1	Oct 23	95.9
Third High:	Oct 7	86.9	Mar 21	74.5	Oct 21	82.1
Fourth High:	Oct 8	79.1	Mar 20	73.6	Jul 5	79.8
California:						
First High:	Oct 26	104.3	Mar 19	91.7	Oct 22	98.7
Second High:	Oct 29	89.2	Jul 5	77.1	Oct 23	95.9
Third High:	Oct 7	86.9	Mar 21	74.5	Oct 21	82.1
Fourth High:	Oct 8	79.1	Mar 20	73.6	Jul 5	79.8
# Days Above Nat'l Standard:		8		5		4
3-Year Average 98th Percentile:		72		67		65
1-Year 98th Percentile:		76.6		59.5		58.3
National 3-Year Average:		27		24		22
National Annual Average:		24.8		22.1		21.0
State 3-Yr Maximum Average:		25		25		25
State Annual Average:		24.8		*		21.0

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All concentrations are expressed in micrograms per cubic meter.
State exceedances are shown in **yellow** . National exceedances are shown in **orange** .
An exceedance is not necessarily a violation.
State and national statistics may differ for the following reasons:
State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods.
State and national statistics may therefore be based on different samplers.
State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.
3-Year statistics represent the listed year and the 2 years before the listed year.
* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM10 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

Go to: Data Statistics Home Page | Top 4 Summaries Start Page

Highest 4 Daily Maximum 8-Hour Carbon Monoxide Averages

Riverside-Rubidoux

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Oct 29	3.67	Oct 9	2.97	Dec 14	2.50
Second High:	Oct 29	3.63	Oct 6	2.77	Dec 1	2.31
Third High:	Dec 6	3.39	Oct 8	2.77	Dec 22	2.30
Fourth High:	Dec 6	2.98	Oct 9	2.74	Dec 1	2.28
California:						
First High:	Oct 29	3.67	Oct 9	2.97	Dec 14	2.50
Second High:	Oct 28	3.41	Oct 6	2.77	Nov 30	2.38
Third High:	Dec 6	3.39	Oct 8	2.77	Dec 22	2.30
Fourth High:	Dec 5	2.93	Jan 1	2.73	Dec 21	2.15
# Days Above Nat'l Standard:		0		0		0
# Days Above State Standard:		0		0		0
Year Coverage:		96		93		94

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All averages are expressed in parts per million.
State exceedances are shown in **yellow**. National exceedances are shown in **orange**.
An exceedance is not necessarily a violation.
Year Coverage indicates how complete monitoring was during the time of the year when concentrations are highest. 0 means there was no coverage; 100 means there was complete coverage.
* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM10 | PM2.5 | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

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Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements

Riverside-Rubidoux

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Oct 21	0.099	Feb 17	0.092	Nov 14	0.077
Second High:	Oct 24	0.093	Oct 8	0.091	Oct 1	0.071
Third High:	Oct 27	0.087	Sep 1	0.082	Oct 14	0.071
Fourth High:	Oct 28	0.084	Sep 2	0.078	Oct 20	0.071
# Days Above State Standard:		0		0		0
Annual Average:		0.021		0.017		0.022
Year Coverage:		98		96		99

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All concentrations are expressed in parts per million.
State exceedances are shown in yellow . National exceedances are shown in orange .
An exceedance is not necessarily a violation.
Year Coverage indicates how complete monitoring was during the time of the year when concentrations are highest. 0 means there was no coverage; 100 means there was complete coverage.
* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM10 | PM2.5 | Carbon Monoxide | Sulfur Dioxide | Hydrogen Sulfide

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Highest 4 Daily Maximum 24-Hour Sulfur Dioxide Averages

Riverside-Rubidoux

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Jul 14	0.012	Jun 18	0.015	Sep 27	0.011
Second High:	Jul 19	0.011	Jun 17	0.014	Sep 25	0.011
Third High:	Jul 20	0.010	Jun 20	0.014	Sep 22	0.011
Fourth High:	Jul 15	0.010	Jun 19	0.014	Aug 26	0.011
# Days Above Nat'l Standard:		0		0		0
# Days Above State Standard:		0		0		0
Annual Average:		0.002		0.003		0.003
Year Coverage:		96		81		96

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All averages are expressed in parts per million.
State exceedances are shown in **yellow** . National exceedances are shown in **orange** .
National exceedances are also state exceedances.
An exceedance is not necessarily a violation.
Year Coverage indicates how complete monitoring was during the time of the year when concentrations are highest. 0 means there was no coverage; 100 means there was complete coverage.
* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM10 | PM2.5 | Carbon Monoxide | Nitrogen Dioxide | Hydrogen Sulfide

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Riverside-Magnolia Site Information

This page updated November 1, 2005

AIRS Number	ARB Number	Site Start Date	Reporting Agency and Agency Code
060651003	33146	6/1/76	South Coast AQMD (061)

Site Address	County	Air Basin	Latitude	Longitude	Elevation
7002 Magnolia Av, Riverside CA 92506	Riverside	South Coast	33^{o} 56' 47"	117^{o} 24' 4"	258

Pollutants Monitored (click on parameter link for real-time data)
CO, $PM_{2.5}$, TSP

Site Photos	Photo Sequences	Site Surveys
--Select Photos--	--Select Position And Direction--	--Select Survey--

Other ARB Database Information	Aerial Photos and Topo Maps Of Site
--Select Database--	--Select External Map--

Highest 4 Daily PM2.5 Measurements

Riverside-Magnolia

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Oct 9	73.3	Mar 19	93.8	Oct 22	94.9
Second High:	Mar 13	59.5	Mar 22	67.1	Nov 6	49.1
Third High:	Sep 30	56.2	Apr 9	53.7	Nov 12	41.0
Fourth High:	Oct 27	55.5	Jul 5	51.0	Mar 11	39.4
California:						
First High:	Oct 9	73.3	Mar 19	93.8	Oct 22	94.9
Second High:	Mar 13	59.5	Mar 22	67.1	Nov 6	49.1
Third High:	Sep 30	56.2	Apr 9	53.7	Nov 12	41.0
Fourth High:	Oct 27	55.5	Jul 5	51.0	Mar 11	39.4
# Days Above Nat'l Standard:		1		2		1
3-Year Average 98th Percentile:		62		58		*
1-Year 98th Percentile:		56.2		53.7		*
National 3-Year Average:		25		23		20
National Annual Average:		22.6		20.8		18.0
State 3-Yr Maximum Average:		23		23		23
State Annual Average:		22.6		*		*

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All concentrations are expressed in micrograms per cubic meter.
State exceedances are shown in **yellow** . National exceedances are shown in **orange** .
An exceedance is not necessarily a violation.
State and national statistics may differ for the following reasons:
State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.
State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.
3-Year statistics represent the listed year and the 2 years before the listed year.
* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM10 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

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Air Resources Board

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Highest 4 Daily Maximum 8-Hour Carbon Monoxide Averages

Riverside-Magnolia

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Oct 29	3.33	Jan 9	2.15	Dec 22	2.39
Second High:	Dec 6	2.91	Jan 13	2.14	Dec 22	2.24
Third High:	Jan 23	2.86	Dec 14	2.14	Nov 23	2.23
Fourth High:	Dec 5	2.73	Dec 7	2.11	Dec 19	2.23
California:						
First High:	Oct 28	3.33	Jan 1	2.46	Dec 22	2.39
Second High:	Dec 5	2.91	Jan 9	2.15	Dec 21	2.24
Third High:	Jan 23	2.86	Jan 12	2.14	Nov 23	2.23
Fourth High:	Dec 4	2.73	Dec 13	2.14	Dec 19	2.23
# Days Above Nat'l Standard:		0		0		0
# Days Above State Standard:		0		0		0
Year Coverage:		94		97		95

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All averages are expressed in parts per million.
State exceedances are shown in **yellow** . National exceedances are shown in **orange** .
An exceedance is not necessarily a violation.
Year Coverage indicates how complete monitoring was during the time of the year when concentrations are highest. 0 means there was no coverage; 100 means there was complete coverage.
* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM10 | PM2.5 | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

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Perris Site Information

This page updated November 1, 2005

AIRS Number	ARB Number	Site Start Date	Reporting Agency and Agency Code
060656001	33149	5/1/73	South Coast AQMD (061)

Site Address	County	Air Basin	Latitude	Longitude	Elevation
237 1/2 N. D St., Perris CA 92570	Riverside	South Coast	33° 47' 20"	117° 13' 40"	442

Pollutants Monitored (click on parameter link for real-time data)
O_3, PM_{10}, Wind Direction, Horizontal Wind Speed

Site Photos	Photo Sequences	Site Surveys
--Select Photos--	--Select Position And Direction--	--Select Survey--

Other ARB Database Information	Real-Time Met Data	Aerial Photos and Topo Maps Of Site
--Select Database--	--Select Data Server--	--Select External Map--

Highest 4 Daily Maximum Hourly Ozone Measurements

Perris

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Jul 10	0.155	Jun 5	0.128	Jul 16	0.126
Second High:	Sep 27	0.143	Jun 4	0.125	May 19	0.107
Third High:	Aug 17	0.136	Aug 7	0.121	Jul 30	0.106
Fourth High:	Jul 14	0.135	Sep 16	0.114	Jul 18	0.104
# Days Above Nat'l Standard:		7		2		1
# Days Above State Standard:		67		36		11
Year Coverage:		100		99		98

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All concentrations are expressed in parts per million.
State exceedances are shown in **yellow** . National exceedances are shown in **orange** .
National exceedances are also state exceedances.
An exceedance is not necessarily a violation.
Year Coverage indicates how complete monitoring was during the time of the year when concentrations are highest. 0 means there was no coverage; 100 means there was complete coverage.
* There was insufficient (or no) data available to determine the value.

Switch: 8-Hour Ozone | PM10 | PM2.5 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

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Highest 4 Daily Maximum 8-Hour Ozone Averages

Perris

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
First High:	Jul 14	0.121	Aug 7	0.104	Jul 16	0.103
Second High:	Sep 27	0.119	Jun 5	0.100	Jul 17	0.096
Third High:	Jul 10	0.118	Jun 4	0.099	Jul 18	0.092
Fourth High:	Aug 17	0.116	Jul 24	0.095	May 22	0.083
# Days Above Nat'l Standard:		46		20		3
Year Coverage:		100		99		98

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All averages are expressed in parts per million.
National exceedances are shown in **orange** . An exceedance is not necessarily a violation.
Year Coverage indicates how complete monitoring was during the time of the year when concentrations are highest. 0 means there was no coverage; 100 means there was complete coverage.
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Switch: Hourly Ozone | PM10 | PM2.5 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

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Air Resources Board

iADAM

Highest 4 Daily PM10 Measurements

Perris

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Feb 2	142.0	Jun 26	83.0	Oct 7	80.0
Second High:	Jul 8	116.0	May 15	79.0	Sep 19	70.0
Third High:	Oct 24	116.0	Oct 6	72.0	Nov 6	69.0
Fourth High:	Jul 14	80.0	Mar 22	69.0	Sep 1	66.0
California:						
First High:	Feb 2	135.0	Jun 26	79.0	Oct 7	75.0
Second High:	Oct 24	111.0	May 15	75.0	Sep 19	66.0
Third High:	Jul 8	110.0	Oct 6	69.0	Nov 6	66.0
Fourth High:	Jul 14	76.0	Mar 22	66.0	Sep 1	63.0
Measured:						
# Days Above Nat'l Standard:		0		0		0
# Days Above State Standard:		17		15		18
Estimated:						
3-Yr Avg # Days Above Nat'l Std:		0.0		0.0		0.0
# Days Above Nat'l Standard:		0.0		0.0		0.0
# Days Above State Standard:		*		*		110.1
National 3-Year Average:		43		43		41
National Annual Average:		43.9		41.4		39.1
State 3-Yr Maximum Average:		43		43		37
State Annual Average:		*		*		37.1
Year Coverage:		88		97		99

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All concentrations are expressed in micrograms per cubic meter.
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National statistics are based on *standard* conditions.
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Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.
3-Year statistics represent the listed year and the 2 years before the listed year.
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* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM2.5 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

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Title   : Riverside County Avg Annual CYr 2008 Default Title
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2007/04/09 10:46:50
Scen Year: 2008 -- All model years in the range 1965 to 2008 selected
Season   : Annual
Area   : Riverside
****

Year: 2008 -- Model Years 1965 to 2008 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

Riverside County Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Carbon Monoxide
Temperature: 60F
Relative Humidity: 50%

Speed MPH	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	ALL
3	6.172	9.848	7.074	7.608	9.654	7.164	14.429	22.232	29.867	59.718	39.137	27.078	52.158	8.703
4	5.951	9.395	6.84	7.312	9.654	7.164	14.429	22.232	29.867	59.718	39.137	27.078	52.158	8.473
5	5.745	8.979	6.62	7.038	9.654	7.164	14.429	22.232	29.867	59.718	39.137	27.078	52.158	8.259
6	5.552	8.585	6.414	6.783	8.864	6.586	13.288	20.939	27.43	54.735	37.5	24.899	47.868	7.902
7	5.371	8.221	6.219	6.545	8.157	6.068	12.262	19.716	25.246	50.28	36.005	22.944	44.028	7.572
8	5.202	7.886	6.035	6.323	7.523	5.602	11.339	18.559	23.286	46.291	34.638	21.187	40.584	7.264
9	5.044	7.575	5.862	6.116	6.953	5.184	10.507	17.465	21.525	42.714	33.39	19.606	37.493	6.977
10	4.895	7.287	5.698	5.922	6.44	4.806	9.755	16.433	19.941	39.502	32.252	18.182	34.713	6.709
11	4.755	7.02	5.543	5.74	5.978	4.466	9.076	15.46	18.513	36.612	31.214	16.896	32.21	6.459
12	4.622	6.772	5.396	5.569	5.561	4.158	8.461	14.544	17.225	34.01	30.27	15.734	29.953	6.226
13	4.498	6.54	5.257	5.409	5.185	3.88	7.904	13.683	16.061	31.663	29.413	14.684	27.915	6.008
14	4.38	6.325	5.125	5.257	4.844	3.628	7.399	12.876	15.008	29.544	28.637	13.732	26.073	5.804
15	4.268	6.124	4.999	5.115	4.536	3.4	6.94	12.122	14.054	27.628	27.937	12.869	24.407	5.613
16	4.162	5.937	4.879	4.981	4.256	3.193	6.522	11.419	13.19	25.894	27.308	12.086	22.897	5.434
17	4.062	5.762	4.765	4.854	4.003	3.004	6.143	10.767	12.405	24.323	26.746	11.374	21.527	5.267
18	3.967	5.598	4.656	4.734	3.773	2.833	5.797	10.164	11.693	22.898	26.248	10.726	20.285	5.111
19	3.876	5.444	4.552	4.621	3.563	2.677	5.481	9.592	11.045	21.604	25.809	10.137	19.156	4.964
20	3.79	5.301	4.453	4.514	3.373	2.535	5.194	9.25	10.456	20.43	25.428	9.6	18.129	4.838
21	3.708	5.166	4.359	4.412	3.2	2.406	4.931	8.921	9.919	19.362	25.103	9.111	17.195	4.718
22	3.631	5.04	4.268	4.315	3.042	2.288	4.691	8.605	9.431	18.39	24.83	8.665	16.346	4.606
23	3.556	4.921	4.182	4.224	2.898	2.181	4.472	8.301	8.985	17.507	24.609	8.258	15.572	4.499
24	3.486	4.81	4.099	4.137	2.767	2.082	4.272	8.01	8.58	16.703	24.439	7.887	14.868	4.399
25	3.418	4.706	4.02	4.055	2.648	1.993	4.089	7.73	8.21	15.971	24.317	7.548	14.226	4.304
26	3.354	4.608	3.945	3.977	2.54	1.911	3.922	7.461	7.874	15.305	24.245	7.239	13.642	4.214
27	3.293	4.516	3.872	3.902	2.441	1.837	3.769	7.204	7.567	14.7	24.22	6.957	13.111	4.13
28	3.234	4.431	3.803	3.832	2.351	1.769	3.63	6.957	7.288	14.15	24.244	6.7	12.629	4.05
29	3.178	4.35	3.737	3.765	2.269	1.707	3.502	6.721	7.035	13.651	24.317	6.466	12.191	3.975
30	3.125	4.275	3.673	3.702	2.195	1.651	3.386	6.495	6.805	13.199	24.438	6.254	11.794	3.904
31	3.075	4.205	3.613	3.641	2.128	1.6	3.281	6.279	6.597	12.79	24.609	6.061	11.435	3.838
32	3.026	4.14	3.555	3.584	2.067	1.554	3.185	6.072	6.409	12.422	24.832	5.886	11.111	3.776
33	2.98	4.079	3.499	3.531	2.013	1.513	3.099	5.876	6.24	12.09	25.107	5.728	10.82	3.718
34	2.937	4.023	3.446	3.48	1.964	1.476	3.02	5.689	6.088	11.794	25.436	5.587	10.56	3.663
35	2.895	3.971	3.395	3.431	1.921	1.442	2.95	5.512	5.953	11.531	25.822	5.46	10.329	3.613
36	2.856	3.924	3.347	3.386	1.883	1.413	2.887	5.344	5.834	11.298	26.267	5.348	10.125	3.567
37	2.818	3.88	3.301	3.344	1.849	1.387	2.832	5.186	5.729	11.095	26.775	5.248	9.947	3.524
38	2.783	3.841	3.257	3.304	1.82	1.364	2.783	5.037	5.639	10.92	27.347	5.162	9.794	3.485
39	2.75	3.806	3.215	3.266	1.795	1.344	2.74	4.897	5.562	10.771	27.99	5.087	9.664	3.45
40	2.718	3.775	3.175	3.232	1.775	1.328	2.704	4.766	5.497	10.648	28.706	5.025	9.557	3.419

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

              JOB:   D STREET AND 4TH STREET   AMNP
              RUN: Hour 1           (WORST CASE ANGLE)
        POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

        U=    .5 M/S             Z0= 100. CM           ALT=     0. (M)
      BRG= WORST CASE            VD=   .0 CM/S
     CLAS=     7 (G)             VS=   .0 CM/S
     MIXH= 1000. M              AMB=   .0 PPM
    SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

     LINK      *  LINK COORDINATES (M)   *              EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ----------------*------------------------*-----------------------------
 A. NF          *     5  -450     5  -150 *  AG     22   3.9     .0  10.5
 B. NA          *     5  -150     5     0 *  AG     19   7.3     .0   9.9
 C. ND          *     5     0     5   150 *  AG     32   4.6     .0   9.9
 D. NE          *     5   150     5   450 *  AG     32   3.9     .0  10.5
 E. SF          *    -5   450    -5   150 *  AG     13   3.9     .0  10.5
 F. SA          *    -5   150    -5     0 *  AG     12   7.3     .0   9.9
 G. SD          *    -5     0    -5  -150 *  AG     50   4.6     .0   9.9
 H. SE          *    -5  -150    -5  -450 *  AG     50   3.9     .0  10.5
 I. WF          *   450     7   150     7 *  AG     61   3.9     .0  15.0
 J. WA          *   150     7     0     7 *  AG     26   5.4     .0  13.5
 K. WD          *     0     7  -150     7 *  AG     17   4.1     .0   9.9
 L. WE          *  -150     7  -450     7 *  AG     17   3.9     .0  15.0
 M. EF          *  -450    -7  -150    -7 *  AG      9   3.9     .0  15.0
 N. EA          *  -150    -7     0    -7 *  AG      6   5.4     .0  13.5
 O. ED          *     0    -7   150    -7 *  AG      6   4.1     .0   9.9
 P. EE          *   150    -7   450    -7 *  AG      6   3.9     .0  15.0
 Q. NL          *     0     0     5  -150 *  AG      3   7.3     .0   9.9
 R. SL          *     0     0    -5   150 *  AG      1   7.3     .0   9.9
 S. WL          *     0     0   150     5 *  AG     35   5.4     .0   9.9
 T. EL          *     0     0  -150    -5 *  AG      3   5.4     .0   9.9

 III.  RECEPTOR LOCATIONS

            *    COORDINATES (M)
  RECEPTOR  *    X      Y      Z
 ------------*---------------------
 1. NE3      *     10     14   1.8
 2. SE3      *     10    -14   1.8
 3. SW3      *    -10    -14   1.8
 4. NW3      *    -10     14   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

            *       * PRED  *                CONC/LINK
            *  BRG  * CONC  *                  (PPM)
  RECEPTOR  * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 ------------*-------*-------*----------------------------------------
 1. NE3      *  184. *    .1 *   .0   .0   .0   .0   .0   .0   .0   .0
 2. SE3      *  357. *    .0 *   .0   .0   .0   .0   .0   .0   .0   .0
 3. SW3      *   82. *    .0 *   .0   .0   .0   .0   .0   .0   .0   .0
 4. NW3      *  176. *    .1 *   .0   .0   .0   .0   .0   .0   .0   .0

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE)     (CONT.)

            *                          CONC/LINK
            *                            (PPM)
  RECEPTOR  *   I    J    K    L    M    N    O    P    Q    R    S    T
 ------------*------------------------------------------------------------
 1. NE3      *   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0
 2. SE3      *   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0
 3. SW3      *   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0
 4. NW3      *   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0   .0
```

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

JOB: D STREET AND 4TH STREET AMWP
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

```
   U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
 BRG= WORST CASE            VD=   .0 CM/S
CLAS=     7 (G)             VS=   .0 CM/S
MIXH= 1000. M              AMB=   .0 PPM
SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NF	5	-450	5	-150	AG	445	3.9	.0	10.5
B. NA	5	-150	5	0	AG	408	7.3	.0	9.9
C. ND	5	0	5	150	AG	520	6.0	.0	9.9
D. NE	5	150	5	450	AG	520	3.9	.0	10.5
E. SF	-5	450	-5	150	AG	528	3.9	.0	10.5
F. SA	-5	150	-5	0	AG	492	7.3	.0	9.9
G. SD	-5	0	-5	-150	AG	408	5.0	.0	9.9
H. SE	-5	-150	-5	-450	AG	408	3.9	.0	10.5
I. WF	450	7	150	7	AG	886	3.9	.0	15.0
J. WA	150	7	0	7	AG	854	5.6	.0	13.5
K. WD	0	7	-150	7	AG	1049	4.2	.0	9.9
L. WE	-150	7	-450	7	AG	1049	3.9	.0	15.0
M. EF	-450	-7	-150	-7	AG	1043	3.9	.0	15.0
N. EA	-150	-7	0	-7	AG	904	5.6	.0	13.5
O. ED	0	-7	150	-7	AG	925	4.2	.0	9.9
P. EE	150	-7	450	-7	AG	925	3.9	.0	15.0
Q. NL	0	0	5	-150	AG	37	7.3	.0	9.9
R. SL	0	0	-5	150	AG	36	7.3	.0	9.9
S. WL	0	0	150	5	AG	32	5.4	.0	9.9
T. EL	0	0	-150	-5	AG	139	5.4	.0	9.9

III. RECEPTOR LOCATIONS

RECEPTOR	X	Y	Z
1. NE3	10	14	1.8
2. SE3	10	-14	1.8
3. SW3	-10	-14	1.8
4. NW3	-10	14	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	A	B	C	D	E	F	G	H
1. NE3	262.	1.6	.0	.0	.2	.0	.0	.2	.0	.0
2. SE3	355.	1.6	.0	.2	.6	.0	.1	.2	.0	.0
3. SW3	5.	1.7	.0	.0	.2	.1	.0	.7	.1	.0
4. NW3	174.	1.4	.0	.2	.0	.0	.0	.2	.4	.0

CONC/LINK (PPM) for columns A–H.

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CONC/LINK (PPM)

RECEPTOR	I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	.0	.0	.6	.0	.1	.2	.0	.0	.0	.0	.0	.0
2. SE3	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
3. SW3	.0	.0	.2	.0	.0	.3	.0	.0	.0	.0	.0	.0
4. NW3	.0	.0	.3	.0	.0	.2	.0	.0	.0	.0	.0	.0

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

JOB: D STREET AND 4TH STREET PMNP
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

```
        U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
      BRG= WORST CASE            VD=   .0 CM/S
     CLAS=     7 (G)             VS=   .0 CM/S
     MIXH= 1000. M              AMB=   .0 PPM
    SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NF	5	-450	5	-150	AG	50	3.9	.0	10.5
B. NA	5	-150	5	0	AG	45	5.3	.0	9.9
C. ND	5	0	5	150	AG	13	4.1	.0	9.9
D. NE	5	150	5	450	AG	13	3.9	.0	10.5
E. SF	-5	450	-5	150	AG	32	3.9	.0	10.5
F. SA	-5	150	-5	0	AG	18	5.3	.0	9.9
G. SD	-5	0	-5	-150	AG	22	4.1	.0	9.9
H. SE	-5	-150	-5	-450	AG	22	3.9	.0	10.5
I. WF	450	7	150	7	AG	6	3.9	.0	15.0
J. WA	150	7	0	7	AG	2	7.9	.0	13.5
K. WD	0	7	-150	7	AG	9	5.0	.0	9.9
L. WE	-150	7	-450	7	AG	9	3.9	.0	15.0
M. EF	-450	-7	-150	-7	AG	17	3.9	.0	15.0
N. EA	-150	-7	0	-7	AG	15	7.9	.0	13.5
O. ED	0	-7	150	-7	AG	61	5.0	.0	9.9
P. EE	150	-7	450	-7	AG	61	3.9	.0	15.0
Q. NL	0	0	5	-150	AG	5	5.3	.0	9.9
R. SL	0	0	-5	150	AG	14	5.3	.0	9.9
S. WL	0	0	150	5	AG	4	7.9	.0	9.9
T. EL	0	0	-150	-5	AG	2	7.9	.0	9.9

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. NE3	10	14	1.8
2. SE3	10	-14	1.8
3. SW3	-10	-14	1.8
4. NW3	-10	14	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	183.	.1	.0	.0	.0	.0	.0	.0	.0	.0
2. SE3	355.	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW3	86.	.1	.0	.0	.0	.0	.0	.0	.0	.0
4. NW3	176.	.0	.0	.0	.0	.0	.0	.0	.0	.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. SE3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NW3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

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

               JOB:   D STREET AND 4TH STREET   PMWP
               RUN: Hour 1           (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide

   I.  SITE VARIABLES

         U=    .5 M/S             Z0= 100. CM            ALT=     0. (M)
       BRG= WORST CASE            VD=   .0 CM/S
      CLAS=     7 (G)             VS=   .0 CM/S
      MIXH= 1000. M              AMB=   .0 PPM
     SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)

  II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (M)   *                EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (M)   (M)
 ---------------*-------------------------*-----------------------------
 A. NF          *     5  -450     5  -150 *  AG    657   3.9     .0  10.5
 B. NA          *     5  -150     5     0 *  AG    535   7.3     .0   9.9
 C. ND          *     5     0     5   150 *  AG    747   7.9     .0   9.9
 D. NE          *     5   150     5   450 *  AG    747   3.9     .0  10.5
 E. SF          *    -5   450    -5   150 *  AG    833   3.9     .0  10.5
 F. SA          *    -5   150    -5     0 *  AG    741   7.9     .0   9.9
 G. SD          *    -5     0    -5  -150 *  AG    627   6.7     .0   9.9
 H. SE          *    -5  -150    -5  -450 *  AG    627   3.9     .0  10.5
 I. WF          *   450     7   150     7 *  AG   1230   3.9     .0  15.0
 J. WA          *   150     7     0     7 *  AG   1170   5.8     .0  13.5
 K. WD          *     0     7  -150     7 *  AG   1437   4.4     .0   9.9
 L. WE          *  -150     7  -450     7 *  AG   1437   3.9     .0  15.0
 M. EF          *  -450    -7  -150    -7 *  AG   1546   3.9     .0  15.0
 N. EA          *  -150    -7     0    -7 *  AG   1343   5.8     .0  13.5
 O. ED          *     0    -7   150    -7 *  AG   1455   4.4     .0   9.9
 P. EE          *   150    -7   450    -7 *  AG   1455   3.9     .0  15.0
 Q. NL          *     0     0     5  -150 *  AG    122   7.3     .0   9.9
 R. SL          *     0     0    -5   150 *  AG     92   7.3     .0   9.9
 S. WL          *     0     0   150     5 *  AG     60   5.6     .0   9.9
 T. EL          *     0     0  -150    -5 *  AG    203   5.6     .0   9.9

 III.  RECEPTOR LOCATIONS

            *    COORDINATES (M)
  RECEPTOR  *    X      Y      Z
 -----------*---------------------
 1. NE3     *     10     14   1.8
 2. SE3     *     10    -14   1.8
 3. SW3     *    -10    -14   1.8
 4. NW3     *    -10     14   1.8

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE )

            *       * PRED  *                CONC/LINK
            *  BRG  * CONC  *                  (PPM)
  RECEPTOR  * (DEG) * (PPM) *   A    B    C    D    E    F    G    H
 -----------*-------*-------*----------------------------------------
 1. NE3     *  262. *   2.3 *   .0   .0   .4   .0   .0   .3   .0   .0
 2. SE3     *  355. *   2.5 *   .0   .2  1.0   .0   .2   .3   .0   .0
 3. SW3     *    5. *   2.7 *   .0   .0   .3   .1   .0  1.0   .2   .0
 4. NW3     *  174. *   2.3 *   .0   .3   .0   .0   .0   .4   .7   .0

  IV.  MODEL RESULTS (WORST CASE WIND ANGLE)     (CONT.)

            *                         CONC/LINK
            *                           (PPM)
  RECEPTOR  *   I    J    K    L    M    N    O    P    Q    R    S    T
 -----------*------------------------------------------------------------
 1. NE3     *   .0   .1   .8   .0   .2   .3   .0   .0   .0   .0   .0   .0
 2. SE3     *   .0   .3   .0   .0   .0   .0   .4   .0   .0   .0   .0   .0
 3. SW3     *   .0   .0   .2   .0   .0   .5   .0   .0   .0   .1   .0   .0
 4. NW3     *   .0   .0   .4   .0   .0   .3   .0   .0   .1   .0   .0   .0
```

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

JOB: D STREET AND 6TH STREET AMNP
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S	Z0= 100. CM	ALT= 0. (M)
BRG= WORST CASE	VD= .0 CM/S	
CLAS= 7 (G)	VS= .0 CM/S	
MIXH= 1000. M	AMB= .0 PPM	
SIGTH= 5. DEGREES	TEMP= 15.6 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NF	2	-450	2	-150	AG	9	3.9	.0	10.5
B. NA	2	-150	2	0	AG	7	7.6	.0	9.9
C. ND	2	0	2	150	AG	40	4.8	.0	9.9
D. NE	2	150	2	450	AG	40	3.9	.0	10.5
E. SF	-2	450	-2	150	AG	4	3.9	.0	10.5
F. SA	-2	150	-2	0	AG	1	7.6	.0	9.9
G. SD	-2	0	-2	-150	AG	1	4.8	.0	9.9
H. SE	-2	-150	-2	-450	AG	1	3.9	.0	10.5
I. WF	450	2	150	2	AG	35	3.9	.0	10.5
J. WA	150	2	0	2	AG	35	5.3	.0	9.9
K. WD	0	2	-150	2	AG	6	4.1	.0	9.9
L. WE	-150	2	-450	2	AG	6	3.9	.0	10.5
M. EF	-450	-2	-150	-2	AG	2	3.9	.0	10.5
N. EA	-150	-2	0	-2	AG	0	5.3	.0	9.9
O. ED	0	-2	150	-2	AG	3	4.1	.0	9.9
P. EE	150	-2	450	-2	AG	3	3.9	.0	10.5
Q. NL	0	0	2	-150	AG	2	7.6	.0	9.9
R. SL	0	0	-2	150	AG	3	7.6	.0	9.9
S. WL	0	0	150	2	AG	0	5.3	.0	9.9
T. EL	0	0	-150	-2	AG	2	5.3	.0	9.9

III. RECEPTOR LOCATIONS

RECEPTOR	X	Y	Z
1. NE3	8	8	1.8
2. SE3	8	-8	1.8
3. SW3	-8	-8	1.8
4. NW3	-8	8	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	A	B	C	D	E	F	G	H
1. NE3	357.	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. SE3	357.	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW3	4.	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NW3	93.	.0	.0	.0	.0	.0	.0	.0	.0	.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

CONC/LINK (PPM)

RECEPTOR	I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. SE3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. SW3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. NW3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

FARE POLICIES, FARE MEDIA AND SUBSIDIES TO TRANSIT

SCAG recommends an analysis be conducted to identify and recommend appropriate adjustments to transit fares to maximize transit usage, including fare free concepts. Utilize new automated fare media to allow for ease of transit use. Increase subsidy levels to maximize transit usage. Analyze regional transit fare policies to assess the proper level of fares, optimal fare media to allow for ease of connectivity among transit systems, appropriate subsidy policies, and appropriate mechanisms to assure stable operational funding to maximize transit use in the Region. SCAG will seek funding in next OWP (FY08-09) to conduct this assessment.

INCREASE TRANSIT SERVICE CONNECTIVITY

SCAG recommends that transit operators assess how to better restructure transit services, as needed, to more effectively connect different urban centers and activities. SCAG also recommends that transit operators assess ways to enhance connectivity and ease of transfer between transit modes. In consultation with transit operators, SCAG seeks to conduct an analysis of transit operations, identify existing and emerging hubs and centers, and analyze how to more effectively ensure optimal coverage, access, and connectivity to regional centers. Work with transit operators to develop service policies and route structures that support the RTP land use concepts, facilitate intermodal transit connectivity, and maximize transit usage. SCAG will seek funding in next OWP (FY08-09) to conduct this assessment.

Regional Transit Projects

PROJECTS IN THE PIPELINE

The transit projects that are programmed in the Regional Transportation Improvement Program (RTIP) and ready for implementation include expansions to the Bus Rapid Transit (BRT) system, commuter rail, and light rail. Refer to Table 2 for a list of these projects. See Exhibit 5 for a map depicting bus transit projects, and Exhibit 6 for rail projects that are included in the 2008 RTP.

TABLE 2 MAJOR PROGRAMMED TRANSIT PROJECTS

Capital Projects	Destinations	Status
Bus Rapid Transit Projects		
Metro Rapid Bus Expansion (to 28 lines) in LA County	Various	Planned
San Fernando Valley North-South in LA County	Reseda/Sepulveda & Canoga Corridor	Planned
Wilshire Blvd/Mid-City Transit Corridor in LA County	Vermont to Santa Monica	Planned
Harbor Blvd BRT in Orange County	Fullerton to Costa Mesa	Planned
Westminster/17th BRT in Orange County	Santa Ana to Long Beach	Planned
28-Mile BRT in Orange County	Brea Mall to Irvine Transportation Center	Planned
OmniTrans - E Street BRT	San Bernardino	Planned/EIR
Light Rail Transit Projects		
Metro Gold Line Eastside Extension in LA County	Union Station - Atlantic	Under Construction
Metro Exposition Corridor Phase I in LA County	Downtown LA to Washington/National	Under Construction
Metro Exposition Corridor Phase II in LA County	Washington/National to Santa Monica	Planned/EIR
Metro Gold Line Foothill Extension Phase I in LA County	Pasadena to Azusa-Citrus	Planned/EIR
Crenshaw Corridor in LA County (may be BRT or LRT)	TBD	Planned
Metrolink Projects		
Metrolink: Perris Valley Line in Riverside County	Riverside to Perris	Project Development

RIVERSIDE COUNTY RTIP PROJECTS				
SYS-TEM*	RTP ID	ROUTE	DESCRIPTION	PROJECT COST ($1,000'S)
T	RIV061147	0	IN THE COACHELLA VALLEY AREA FOR ANGEL VIEW CRIPPLED CHILDREN'S FOUNDATION - PURCHASE 1 REPLACEMENT MEDIUM BUS (APPROX 12 PASSENGERS, GAS/DIESEL) (FY 06/07 5310 CYCLE)	$61
T	RIV061148	0	IN THE COACHELLA VALLEY AREA - PURCHASE 1 REPLACEMENT MEDIUM BUS (APPROX 12 PASSENGER, GAS/DIESEL), MOBILE RADIO, & COMPUTER EQUIPMENT (FY 06/07 5310 CYCLE)	$67
T	RIV061149	0	IN WESTERN RIVERSIDE COUNTY FOR PEPPERMINT RIDGE - PURCHASE 2 EXPANSION MODIFIED VANS (APPROX 8 PASS EACH, GAS/DIE-SEL) (FY 06/07 5310 CYCLE)	$108
T	RIV061150	0	IN COACHELLA VALLEY AREA FOR FOUNDATION FOR THE RETARDED OF THE DESERT - PURCHASE EXPANSION 1 LARGE BUS & 1 MODI-FIED VAN (APPROX 16 & 8 PASS., GAS/DIESEL) (FY 06/07 5310 CYCLE)	$119
T	RIV061151	0	IN THE COACHELLA VALLEY AREA - PURCHASE10 REPLACEMENT ALT-FUEL BUSES (RANGES 30'-40', APPROX 30-43 PASS., CNG) (FY 07 5307) (UZA: INCCPS) (SAFETEA LU EARMARK #45, E-2006-BUSP-148)	$4,096
T	RIV061152	0	PURCHASE TRANSIT ENHANCE. BUS STOP AMENITIES (E.G. BENCHES, TRASH CONTAINERS, KIOSK LEXANS & SCHEDULES, SHELTERS, SUPPLIES, ETC.) FOR VARIOUS STOPS (FY 07 5307) UZA: INCCPS) (TE)	$411
T	RIV061153	0	PURCHASE REPLACEMENT MAINTENANCE TOOLS, EQUIPMENT, & PARTS (E.G. MULTI-METERS, TORQUE WRENCHES, IMPACT SOCKETS, SERVICE JACKS, AIR & HAND TOOLS, ETC.) (FY 07 5307) (UZA: INCCPS)	$205
T	RIV061154	0	IN THE COACHELLA VALLEY FOR SUNLINE - FIXED ROUTE AND DIAL-A-RIDE OPERATING ASSISTANCE FOR FISCAL YEAR 2007/08	$18,287
T	RIV061155	0	IN THE COACHELLA VALLEY AREA FOR SUNLINE - CAPITALIZED PREVENTATIVE MAINTENANCE (FY 08 5307)	$1,582
T	RIV061157	0	PURCHASE TRANSIT ENHANCE. BUST STOP AMENITIES (E.G. BENCHES, TRASH CONTAINERS, KIOSK LEXANS & SCHEDULES, SHELTERS, SUPPLIES, ETC.) FOR VARIOUS STOPS (FY 08 5307) (TE)	$400
T	RIV061158	0	PURCHASE REPLACEMENT MAINTENANCE TOOLS, EQUIPMENT, & PARTS (E.G. MULTI-METERS, TORQUE WRENCHES, IMPACT SOCKETS, SERVICE JACKS, AIR & HAND TOOLS, ETC.) (FY 08 5307)	$216
T	RIV32420	0	IN COACHELLA VALLEY AREA PURCHASE 12 REPLACEMENT ALT FUEL PARATRANSIT VEHICLES DURING FY 2003/04 - 04/05 (6 IN 03/04 AND 6 IN 04/05)	$753
T	RIV520109	0	RECONSTRUCT & UPGRADE SAN JACINTO BRANCH LINE FOR RAIL PASSENGER SERVICE (RIVERSIDE TO PERRIS) (PERRIS VALLEY LINE)	$193,378
T	RIV520111	0	REGIONAL RIDESHARE	$10,123

* S=State Highway, L=Local Highway, T=Transit