Appendix B

Air Quality Assessment

Air Quality Assessment For:
Rancho Cucamonga General Plan Update
CITY OF RANCHO CUCAMONGA

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1.0 Existing Air Quality

1.1 Project Description

The City General Plan (G.P.) Update encompasses a total of approximately 14,016 acres. The G.P. Update Target Density will be analyzed since it has the most probable level of development. The Target Density consists of a total of 63,253 residential dwelling units (including mixed-use residential), a total of 2,430,000 square feet of school uses, 445 acres of parks, a total of 25,367,700 square feet of mixed commercial land uses, and a total of 72,000,000 square feet of mixed industrial land uses.

The City's proposed General Plan Update identifies 21 land use designations which are divided into nine categories, including residential, commercial, mixed-use, industrial, public facilities, schools, parks, open space and conservations, and vacant lands. The G.P. Update will be compared with the existing conditions and Existing G.P..

The City of Rancho Cucamonga is located in the Inland Empire in southwestern San Bernardino County, California. The City of surrounded by developed municipalities to the west, south and east, including the cities of Upland, Ontario and Fontana and a large area of unincorporated San Bernardino County to the east. The northernmost portion of the City's Sphere-of-influence is adjacent to the San Bernardino National Forest. The vicinity map is presented in Exhibit 1. The site plan illustrated in Exhibit 2.

This report analyzes the potential air quality impacts associated with this project. Regional air quality impacts from construction and operation of the proposed project are analyzed, as are potential local air quality impacts.

1.2 Local, State, and Federal Air Quality Agencies

The proposed project is located in the South Coast Air Basin (SCAB). The SCAB is comprised of parts of Los Angeles, Riverside and San Bernardino counties and all of Orange County. The basin is bounded on the west by the Pacific Ocean and surrounded on the other sides by mountains. To the north lie the San Gabriel mountains, to the north and east the San Bernardino Mountains, to the southeast the San Jacinto Mountains and to the south the Santa Ana Mountains. The basin forms a low plain and the mountains channel and confine air flow which trap air pollutants.

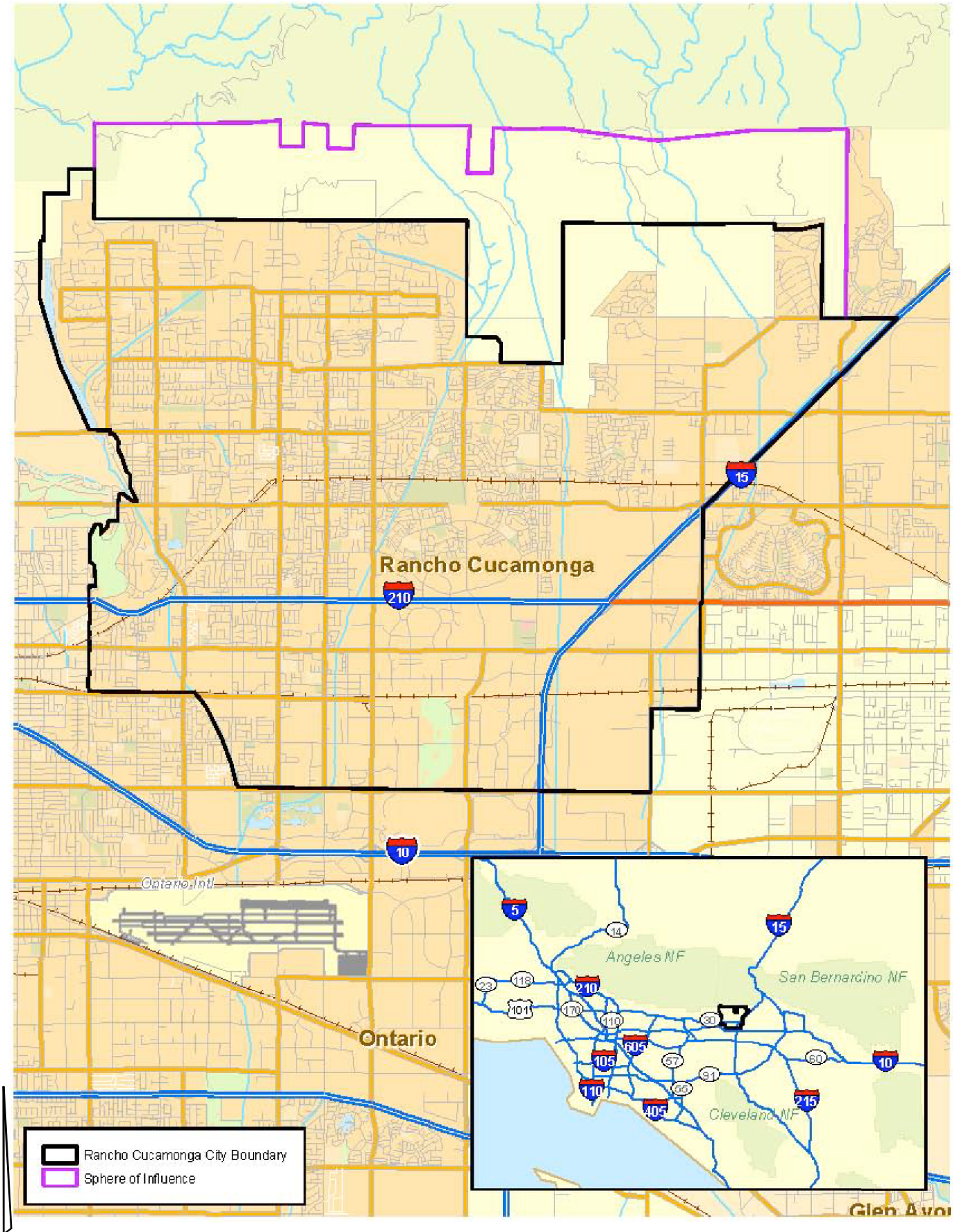
The primary agencies responsible for regulations to improve air quality in the SCAB are the South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB). The Southern California Association of Governments (SCAG) is an important partner to the SCAQMD, as it is the designated metropolitan planning authority for the area and produces estimates of anticipated future growth and vehicular travel in the basin which are used for air quality planning. The SCAQMD sets and enforces regulations for non-vehicular sources of air pollution in the basin and works with SCAG to develop and implement Transportation Control Measures (TCM). TCM measures are intended to reduce and improve vehicular travel and associated pollutant emissions.

CARB was established in 1967 by the California Legislature to attain and maintain healthy air quality, conduct research into the causes and solutions to air pollution, and systematically attack the serious problem caused by motor vehicles, which are the major causes of air pollution in the State. CARB sets and enforces emission standards for motor vehicles, fuels, and consumer products. It sets the health based California Ambient Air Quality Standards (CAAQS) and

monitors air quality levels throughout the state. The board identifies and sets control measures for toxic air contaminants. The board also performs air quality related research, provides compliance assistance for businesses, and produces education and outreach programs and materials. CARB provides assistance for local air quality districts, such as SCAQMD.

The U.S. Environmental Protection Agency (U.S. EPA) is the primary federal agency for regulating air quality. The EPA implements the provisions of the Federal Clean Air Act (FCAA). This Act establishes national ambient air quality standards (NAAQS) that are applicable nationwide. The EPA designates areas with pollutant concentrations that do not meet the NAAQS as non-attainment areas for each criteria pollutant. States are required by the FCAA to prepare State Implementation Plans (SIP) for designated non-attainment areas. The SIP is required to demonstrate how the areas will attain the NAAQS by the prescribed deadlines and what measures will be required to attain the standards. The EPA also oversees implementation of the prescribed measures. Areas that achieve the NAAQS after a non-attainment designation are redesignated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the NAAQS.

The California Clean Air Act (CCAA) required all air pollution control districts in the state to prepare a plan prior to December 31, 1994 to reduce pollutant concentrations exceeding the CAAQS and ultimately achieve the CAAQS. The districts are required to review and revise these plans every three years. The SCAQMD satisfies this requirement through the publication of an Air Quality Management Plan (AQMP). The AQMP is developed by SCAQMD and SCAG in coordination with local governments and the private sector. The AQMP is incorporated into the SIP by CARB to satisfy the FCAA requirements discussed above. The AQMP is discussed further in Section 1.5.



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Mestre Greve Associates

Exhibit 1
Vicinity Map

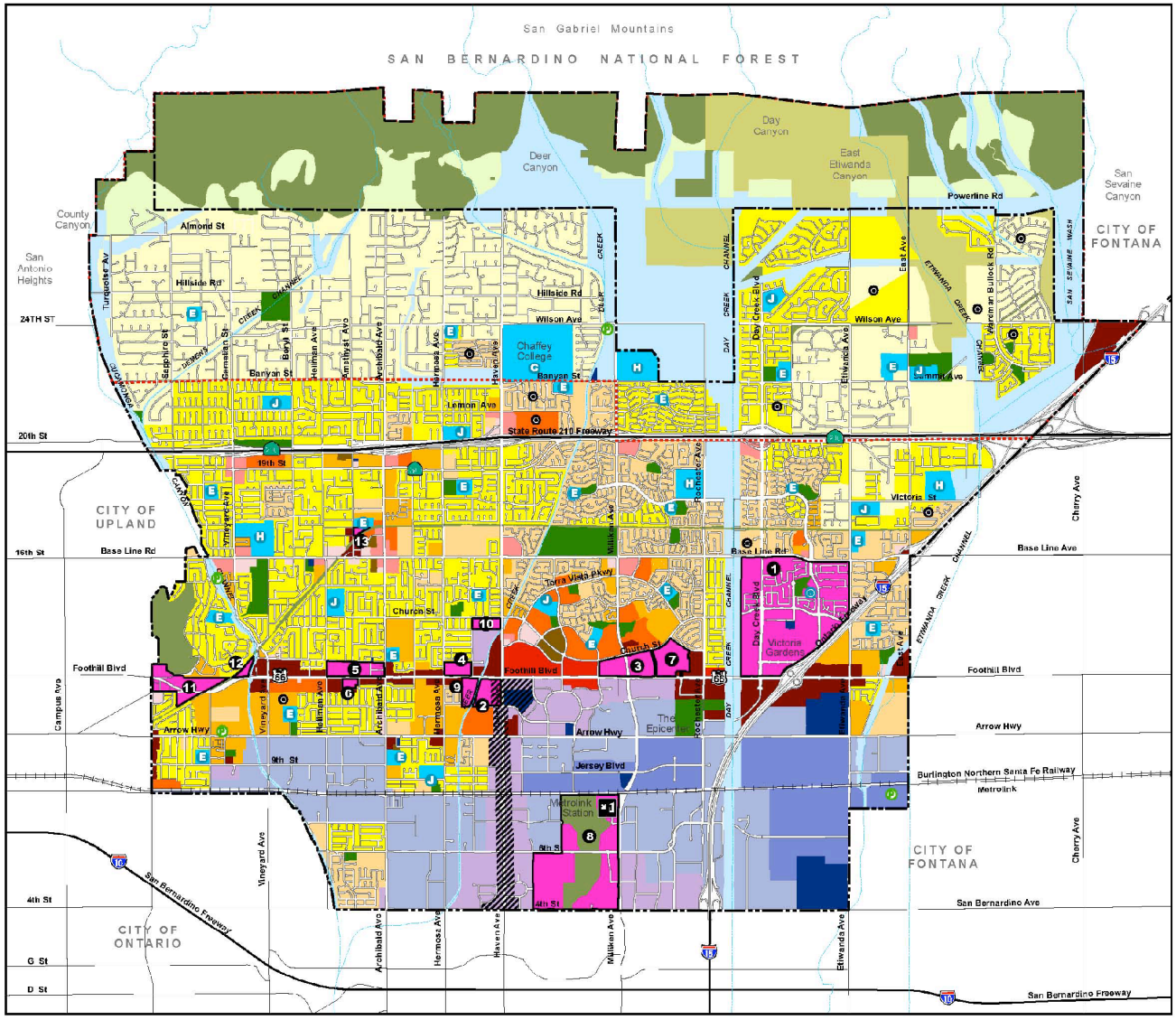

Figure LU-X:

Draft Land Use Plan

RANCHO CUCAMONGA GENERAL PLAN

Exhibit 2

Proposed General Plan Update

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1.3 Criteria Pollutants, Health Effects, and Standards

1.3.1 Criteria Pollutants and Standards

Under the Federal Clean Air Act (FCAA), the U.S. EPA has established National Ambient Air Quality Standards (NAAQS) for six major pollutants; ozone (O_3), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), as well as lead. These six air pollutants are often referred to as the criteria pollutants. The NAAQS are two tiered: primary, to protect public health, and secondary, to prevent degradation to the environment (i.e., impairment of visibility, damage to vegetation and property).

Under the California Clean Air Act (CCAA), the California Air Resources Board has established California Ambient Air Quality Standards (CAAQS) to protect the health and welfare of Californians. State standards have been established for the six criteria pollutants as well as four additional pollutants; visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride.

Table 1 presents the state and national ambient air quality standards. A brief explanation of each pollutant and their health effects is presented follows.

1.3.2 Ozone (O_3)

Ozone is a secondary pollutant; it is not directly emitted. Ozone is the result of chemical reactions between volatile organic compounds (VOC) (also referred to as reactive organic gasses (ROG)) and nitrogen oxides (NO_x), which occur only in the presence of bright sunlight. Sunlight and hot weather cause ground-level ozone to form in the air. As a result, it is known as a summertime air pollutant. Ground-level ozone is the primary constituent of smog. Because ozone is formed in the atmosphere, high concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when ozone levels are unhealthy. Numerous scientific studies have linked ground-level ozone exposure to a variety of problems, including:

- lung irritation that can cause inflammation much like a sunburn;
- wheezing, coughing, pain when taking a deep breathe, and breathing difficulties during exercise or outdoor activities;
- permanent lung damage to those with repeated exposure to ozone pollution; and
- aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

Ground-level ozone can have detrimental effects on plants and ecosystems. These effects include:

- interfering with the ability of sensitive plants to produce and store food, making them more susceptible to certain diseases, insects, other pollutants, competition and harsh weather;
- damaging the leaves of trees and other plants, negatively impacting the appearance of urban vegetation, national parks, and recreation areas; and
- reducing crop yields and forest growth, potentially impacting species diversity in ecosystems.

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

Particulate matter includes both aerosols and solid particles of a wide range of size and composition. Of particular concern are those particles smaller than 10 microns in size (PM_{10}) and smaller than or equal to 2.5 microns ($PM_{2.5}$). The size of the particulate matter is referenced to the aerodynamic diameter of the particulate. Smaller particulates are of greater concern because they can penetrate deeper into the lungs than large particles.

The principal health effect of airborne particulate matter is on the respiratory system. Short term exposures to high $PM_{2.5}$ levels are associated with premature mortality and increased hospital admissions and emergency room visits. Long term exposures to high $PM_{2.5}$ levels are associated with premature mortality and development of chronic respiratory disease. Short-term exposures to high PM10 levels are associated with hospital admissions for cardiopulmonary diseases, increased respiratory symptoms and possible premature mortality. The EPA has concluded that available evidence does not suggest an association between long-term exposure to PM_{10} at current ambient levels and health effects.

$PM_{2.5}$ is directly emitted in combustion exhaust and formed from atmospheric reactions between of various gaseous pollutants including nitrogen oxides (NO_x) sulfur oxides (SO_x) and volatile organic compounds (VOC). PM_{10} is generally emitted directly as a result of mechanical processes that crush or grind larger particles or the re suspension of dusts most typically through construction activities and vehicular travels. $PM_{2.5}$ can remain suspended in the atmosphere for days and weeks and can be transported long distances. PM_{10} generally settles out of the atmosphere rapidly and are not readily transported over large distances.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	State Standards[1,3]	Federal Standards[2] Primary[3,5]	Federal Standards[2] Secondary[3,6]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 $\mu g/m^3$)	--	--
	8 Hour	0.070 ppm (137 $\mu g/m^3$)	0.075 ppm (147 $\mu g/m^3$)	Same as Primary
Respirable Particulate Matter (PM_{10})[8]	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as Primary
	AAM[6]	20 $\mu g/m^3$	--	Same as Primary
Fine Particulate Matter ($PM_{2.5}$)[8]	24 Hour	--	35 $\mu g/m^3$	Same as Primary
	AAM[6]	12 $\mu g/m^3$	15.0 $\mu g/m^3$	Same as Primary
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	None
	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	None
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	--	--
Nitrogen Dioxide (NO_2)	AAM[6]	0.030 ppm (56 $\mu g/m^3$)	0.053 ppm (100 $\mu g/m^3$)	Same as Primary
	1 Hour	0.18 ppm (338 $\mu g/m^3$)	100 ppb[10]	--
Sulfur Dioxide (SO_2)	AAM[6]	--	0.030 ppm (80 $\mu g/m^3$)	--
	24 Hour	0.04 ppm (105 $\mu g/m^3$)	0.14 ppm (365 $\mu g/m^3$)	--
	3 Hour	--	--	0.5 ppm (1,300 $\mu g/m^3$)
	1 Hour	0.25 ppm (655 $\mu g/m^3$)	--	--
Lead[9]	Rolling 3-Month Average	0.15 $\mu g/m^3$	--	--
	Quarterly Average	--	1.5 $\mu g/m^3$	Same as Primary
Visibility Reducing Particles	8 hour	Extinction coefficient of 0.23 per km -- visibility ≥ 10 miles (0.07 per km -- ≥30 miles for Lake Tahoe)	No Federal Standards	
Sulfates	24 Hour	25 $\mu g/m^3$		
Hydorgen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)		
Vinyl Chloride[7]	24 Hour	0.01 ppm (26 $\mu g/m^3$)		

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, PM_{10}, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded.
2. National standards (other than ozone, PM_{10}, $PM_{2.5}$,, 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 PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, 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. Annual Arithmetic Mean
7. 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.
8. On September 21, 2006 EPA published a final rule revoking the annual 50 $\mu g/m^3$ PM_{10} standard and lowering the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$. On March 12, 2008 EPA lowered the 8-hour Ozone standard to 0.075 ppm from 0.08 ppm. Attainment designations are to be issued in December, 2009by March 2010 with attainment plans due April, 2010by March, 2013.

-- No Standard

9. Final rule signed October 15, 2008.
10. Parts per billion (3 year average of 98th percentile of maximum daily 1-hour concentration, January 22, 2010.

1.3.4 Carbon Monoxide (CO)

Carbon monoxide is a colorless and odorless gas, which in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. Carbon monoxide combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High carbon monoxide concentrations can lead to headaches, aggravation of cardiovascular disease, and impairment of central nervous system functions. Carbon monoxide concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near crowded intersections, along heavily used roadways carrying slow-moving traffic, and at or near ground level. Even under the most severe meteorological and traffic conditions, high concentrations of carbon monoxide are limited to locations within a relatively short distance (i.e., up to 600 feet or 185 meters) of heavily traveled roadways. Overall carbon monoxide emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973.

1.3.5 Nitrogen Dioxide (NO_2)

Nitrogen gas, normally relatively inert (unreactive), comprises about 80% of the air. At high temperatures (i.e., in the combustion process) and under certain other conditions it can combine with oxygen, forming several different gaseous compounds collectively called nitrogen oxides (NO_x). Nitric oxide (NO) and nitrogen dioxide (NO_2) are the two most important compounds. Nitric oxide is converted to nitrogen dioxide in the atmosphere. Nitrogen dioxide (NO_2) is a red-brown pungent gas. Motor vehicle emissions are the main source of NO_x in urban areas.

Nitrogen dioxide is toxic to various animals as well as to humans. Its toxicity relates to its ability to form nitric acid with water in the eye, lung, mucus membrane and skin. In animals, long-term exposure to nitrogen oxides increases susceptibility to respiratory infections lowering their resistance to such diseases as pneumonia and influenza. Laboratory studies show susceptible humans, such as asthmatics, exposed to high concentrations of NO_2 can suffer lung irritation and potentially, lung damage. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes and with hospital admissions for respiratory conditions.

NO_x is a combination of primarily NO and NO_2. While the NAAQS only addresses NO_2, NO and the total group of nitrogen oxides is of concern. NO and NO_2 are both precursors in the formation of ozone and secondary particulate matter as discussed in Sections1.3.2 and 1.3.5. Because of this and that NO emissions largely convert to NO_2, NO_x emissions are typically examined when assessing potential air quality impacts.

1.3.6 Sulfur Dioxide (SO_2)

Sulfur oxides (SO_x) constitute a class of compounds of which sulfur dioxide (SO_2) and sulfur trioxide (SO_3) are of greatest importance. Ninety-five percent of pollution related SO_x emissions are in the form of SO_2. SO_x emissions are typically examined when assessing potential air quality impacts of SO_2. Combustion of fossil fuels for generation of electric power is the primary contributor of SO_x emissions. Industrial processes, such as nonferrous metal smelting, also contribute to SO_x emissions. SO_x is also formed during combustion of motor fuels. However, most of the sulfur has been removed from fuels greatly reducing SO_x emissions from vehicles.

SO_2 combines easily with water vapor, forming aerosols of sulfurous acid (H_2SO_3), a colorless, mildly corrosive liquid. This liquid may then combine with oxygen in the air, forming the even more irritating and corrosive sulfuric acid (H_2SO_4). Peak levels of SO_2 in the air can cause temporary breathing difficulty for people with asthma who are active outdoors. Longer-term

exposures to high levels of SO_2 gas and particles cause respiratory illness and aggravate existing heart disease. SO_2 reacts with other chemicals in the air to form tiny sulfate particles which are measured as $PM_{2.5}$. The heath effects of $PM_{2.5}$ are discussed in Section 1.3.

1.3.7 Lead (Pb)

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

1.3.8 Visibility Reducing Particulates

Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. The Statewide standard is intended to limit the frequency and severity of visibility impairment due to regional haze. A separate standard for visibility-reducing particles that is applicable only in the Lake Tahoe Air Basin is based on reduction in scenic quality.

1.3.9 Sulfates(SO_4^{2-})

Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and / or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The ARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, due to fact that they are usually acidic, can harm ecosystems and damage materials and property.

1.3.10 Hydrogen Sulfide (H_2S)

Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. It can also be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation. Breathing H_2S at levels above the standard will result in exposure to a very disagreeable odor. In 1984, an ARB committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance.

1.3.11 Vinyl Chloride (Chloroethene)

Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure to vinyl chloride through inhalation and oral exposure causes in liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer in humans.

1.4 South Coast Air Basin Air Quality Attainment Designations

Based on monitored air pollutant concentrations, the U.S. EPA and CARB designate areas relative to their status in attaining the NAAQS and CAAQS respectively. Table 2 lists the current attainment designations for the SCAB. For the Federal standards, the required attainment date is also shown. The Unclassified designation indicates that the air quality data for the area does not support a designation of attainment or nonattainment.

Table 2
Designations of Criteria Pollutants for the SCAB

Pollutant	Federal	State
Ozone (O_3) 8-Hour Ozone	Severe-17 Nonattainment Extreme Nonattainment	Nonattainment
Respirable Particulate Matter (PM_{10})	Serious Nonattainment (2006)	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment (2015)	Nonattainment
Carbon Monoxide (CO)	Attainment/Maintenance (2000)	Attainment
Nitrogen Dioxide (NO_2)	Attainment/Maintenance (1995)	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead	Attainment	Attainment
Visibility Reducing Particles	n/a	Unclassified
Sulfates	n/a	Unclassified
Hydrogen Sulfide	n/a	Attainment
Vinyl Chloride	n/a	Attainment

Table 2 shows that the U.S. EPA has designated SCAB as Severe-17 non-attainment for ozone, serious non-attainment for PM_{10}, non-attainment for $PM_{2.5}$, and attainment/maintenance for CO and NO_2. The basin has been designated by the state as non-attainment for ozone, PM_{10}, and $PM_{2.5}$. For the federal designations, the qualifiers, Severe-17 and Serious, affect the required attainment dates as the federal regulations have different requirements for areas that exceed the standards by greater amounts at the time of attainment/non-attainment designation.

The SCAB is designated as in attainment of the Federal SO_2 and lead NAAQS as well as the state CO, NO_2, SO_2, lead, hydrogen sulfide, and vinyl chloride CAAQS.

In July 1997, U.S. EPA issued a new ozone NAAQS of 0.08 ppm using an 8-hour averaging time. Implementation of this standard was delayed by several lawsuits. Attainment/non-attainment designations for the new 8-hour ozone standard were issued on April 15, 2004 and became effective on June 15, 2005. The SCAB was designated severe-17 non-attainment, which

requires attainment of the Federal Standard by June 15, 2021. As a part of the designation, the EPA announced that the 1-hour ozone standard would be revoked in June of 2005. Thus, the 8-hour ozone standard attainment deadline of 2021 supercedes and replaces the previous 1-hour ozone standard attainment deadline of 2010.

The SCAQMD and CARB requested that U.S. EPA change the nonattainment status of the 8-hour ozone standard to extreme and this request was granted in August 2009. This change of classifications extends the attainment date by three years to 2024 but also requires the SCAQMD to incorporate more stringent air quality regulations such as lower permitting thresholds and implementing reasonably available control technologies at more sources. This change also allows for the use of undefined reductions (i.e. "black box") based on the anticipated development of new control technologies or improvement of existing technologies in the attainment plan.

On March 12, 2008, U.S. EPA announced that it was lowering the 8-hour average NAAQS for ozone to 0.075 ppm. Attainment/non-attainment designations for the revised standard are to be issued in 2009 with attainment plans due four years later. Non-attainment areas will be required to meet the standards by deadlines that may vary based on the severity of the problem in the area that will be determined at time of attainment/non-attainment designation.

On April 28, 2005, CARB adopted an 8-hour ozone standard of 0.070 ppm. The California Office of Administrative Law approved the rulemaking and filed it with the Secretary of State on April 17, 2006. The standard became effective on May 17, 2006. California has retained the 1-hour concentration standard of 0.09 ppm. To be redesignated as attainment by the state the basin will need to achieve both the 1-hour and 8-hour ozone standards.

The SCAB was designated as moderate non-attainment of the PM_{10} standards when the designations were initially made in 1990 with a required attainment date of 1994. In 1993, the basin was redesignated as serious non-attainment with a required attainment date of 2006 because it was apparent that the basin could not meet the PM_{10} standard by the 1994 deadline. At this time, the Basin has met the PM_{10} standards at all monitoring stations except the western Riverside where the annual PM_{10} standard has not been met. However, on September 21, 2006, the U.S. EPA announced that it was revoking the annual PM_{10} standard as research had indicated that there were no considerable health effects associated with long-term exposure to PM_{10}. With this change, the basin is technically in attainment of the federal PM_{10} standards although the redesignation process has not yet begun.

In July 1997, U.S. EPA issued NAAQS for fine particulate matter ($PM_{2.5}$). The $PM_{2.5}$ standards include an annual standard set at 15 micrograms per cubic meter ($\mu g/m^3$), based on the three-year average of annual mean $PM_{2.5}$ concentrations and a 24-hour standard of 65 $\mu g/m^3$, based on the three-year average of the 98th percentile of 24-hour concentrations. Implementation of these standards was delayed by several lawsuits. On January 5, 2005, EPA took final action to designate attainment and nonattainment areas under the NAAQS for $PM_{2.5}$ effective April 5, 2005. The SCAB was designated as non-attainment with an attainment required as soon as possible but no later than 2010. EPA may grant attainment date extensions of up to five years in areas with more severe $PM_{2.5}$ problems and where emissions control measures are not available or feasible. It is likely that the SCAB will need this additional time to attain the standard

On September 21, 2006, the U.S. EPA announced that the 24-hour $PM_{2.5}$ standard was lowered to 35 $\mu g/m^3$. The EPA announced attainment/non-attainment designations for the revised $PM_{2.5}$ standard on November 13, 2009 with an effective date of December 14, 2009. The SCAB was found to be in non-attainment of the standard. The SCAQMD has three years from the effective date to submit a plan demonstrating attainment of the standard by April 2015, although an extension of up to five years could be granted by the U.S. EPA.

The Federal attainment deadline for CO was to be December 31, 2000 but at that time the basin still had measured exceedances of the CO NAAQS. The basin was granted an extension to attain the standard and has not had any violations of the federal CO standards since 2002. In March 2005, the South Coast AQMD adopted a CO Redesignation Request and Maintenance Plan. On May 11, 2007, the U.S. EPA announced approval of the Redesignation Request and Maintenance Plan and that, effective June 11, 2007, the SCAB would be re-designated as attainment/maintenance for the federal CO NAAQS. The plan provides for maintenance of the federal CO air quality standard until at least 2015 and commits to revising the Plan in 2013 to ensure maintenance through 2025.

The federal annual NO_2 standard was met for the first time in 1992 and has not been exceeded since. The SCAB was redesignated as attainment for NO_2 in 1998.On January 22, 2010, the EPA announced a new 1-hour NO2 standard of 100 ppb (3 year average of 98th percentile of maximum daily 1 hour concentration). The existing annual 53 ppm standard will remain.

Currently there is only one county (Cook County Illinois) with measured levels that exceed the standard. However, the new standard requires new monitors to be located within 50 meters of the busiest roadways. These monitors are to be operating by January 1, 2013.

Initial attainment designations are to be issued by January 2012. However, EPA expects that most areas will be designated unclassifiable until three years of monitoring conforming with the new monitoring requirements is completed in 2016 or 2017. As that data comes in areas will be redesignated attainment or non-attainment.

Table 2 shows that SCAB is designated as in attainment of the SO_2 and lead NAAQS as well as the state CO, NO_2, SO_2, lead, hydrogen sulfide, and vinyl chloride CAAQS.

1.5 Air Quality Management Plan (AQMP)

As, discussed above, the CAA requires plans to demonstrate attainment of the NAAQS for which an area is designated as nonattainment. Further, the CCAA requires SCAQMD to revise its plan to reduce pollutant concentrations exceeding the CAAQS every three years. In the SCAB, SCAQMD and SCAG, in coordination with local governments and the private sector, develop the Air Quality Management Plan (AQMP) for the air basin to satisfy these requirements. The AQMP is the most important air management document for the basin because it provides the blueprint for meeting state and federal ambient air quality standards.

The 2003 AQMP is the current Federally approved applicable air plan for ozone. The 2003 AQMP was adopted locally on August 1, 2003, by the governing board of the SCAQMD. CARB adopted the plan as part of the California State Implementation Plan on October 23, 2003. The PM_{10} attainment plan from the 2003 AQMP received final approval from the U.S. EPA on November 14, 2005 with an effective date of December 14, 2005. As of February 14, 2007 the U.S. EPA had not acted on the ozone attainment plan of the 2003 AQMP. On this date, CARB announced that it was rescinding the ozone attainment plan from the 2003 AQMP with the intention to expedite approval of the 2007 AQMP. However, on March 10, 2009 the U.S. EPA announced partial approval and partial disapproval of the ozone attainment plan of the 2003 AQMP effective April 9, 2009. The portions disapproved by the U.S. EPA were determined to not be required by the FCAA because they represented revisions to previously approved AQMP elements. Even with the disapproved elements the 2003 AQMP satisfied the requirements of the EPA and did not trigger sanction clocks. The 2007 AQMP was adopted by the SCAQMD on June 1, 2007. CARB adopted the plan as a part of the California State Implementation Plan on

September 27, 2007. The State Implementation Plan was submitted to the U.S. EPA on November 16, 2007. The U.S. EPA has not taken action on the 2007 AQMP at this time.

The 2007 AQMP was prepared in response to the implementation of the federal $PM_{2.5}$ and 8-hour ozone NAAQS. The implementation of the new standards required completion of plan addressing attainment of the 8-hour ozone standard by June of 2007 and completion of a plan addressing the $PM_{2.5}$ standard one year later, in April of 2008. SCAQMD determined that it was most prudent to prepare an integrated plan to address both pollutants. The attainment date for the $PM_{2.5}$ NAAQS is earlier (i.e., 2015) than the attainment date for the ozone NAAQS (i.e., 2021) and the district felt that delaying a plan for $PM_{2.5}$ by a year could jeopardize the basin's ability to attain the standard. Further, development of a plan for ozone would have likely focused on lowering VOC emissions, which would have no effect on $PM_{2.5}$ levels. Reductions in NO_x emissions result in reductions in both ozone and $PM_{2.5}$ levels.

The 2007 AQMP demonstrates attainment of the 65 $\mu g/m^3$ 24-hour average and 15$\mu g/m^3$ annual average $PM_{2.5}$ standards by the 2015 deadline. However, it should be noted that in September of 2006, the U.S. EPA lowered the 24-hour $PM_{2.5}$ NAAQS to 35 $\mu g/m^3$. An attainment plan for the revised standard will need to be completed by December 14, 2013. The deadline for meeting the revised standard will not change (i.e., April 2015) but five year extensions to attain the standard may be granted by the U.S. EPA.

The 2007 AQMP determined that the basin would not be able to achieve the 0.08-ppm 8-hour ozone standard by the 2021 deadline without the use of "black box" measures. "Black box" measures anticipate the development of new technologies or improving existing control technologies that are not well defined at the time the plan is prepared. However, the use of "black box" measures is not allowed for areas with a Severe-17 non-attainment designation. Because of this the SCAQMD and CARB requested to the U.S. EPA to "bump up" the basin's classification to Extreme with the submittal of the 2007 AQMP. This request was granted in August 2009 and will extend the required attainment date to 2024 and allow the use of "black box" measures. The "black box:" reductions needed for ozone attainment are estimated to be 190 tons per day (tpd) of NO_x and 27 tpd of VOC. These reductions represent a 17% reduction in 2002 average daily NO_x emissions and a 3% reduction in 2002 average daily VOC emissions.

It should be noted that on March 12, 2008, the U.S. EPA lowered the 8-hour ozone standard to 0.075 ppm. This effectively lowers the standard 0.009 ppm as 0.084 ppm is considered meeting the 0.08 ppm standard. A plan to attain the revised standard will need to be completed by 2013. Attainment deadlines for the revised standard have not been established and may vary depending on the severity of the exceedances.

Implementation of the 2007 AQMP is based on a series of control measures and strategies that vary by source type (i.e., stationary or mobile) as well as by the pollutant that is being targeted. Short-term and mid-term control measures are defined to achieve the $PM_{2.5}$ standard by 2015. These measures are designed to also contribute to reductions in ozone levels. Additional, long-term measures are defined to attain the 8-hour ozone standard by 2024. The measures rely on actions to be taken by several agencies that have statutory authority to implement such measures. Each control measure will be brought for regulatory consideration in a specified time frame. Control measures deemed infeasible will be substituted by other measures to achieve the total emission reduction target for each agency.

The plan focuses on control of sulfur oxides (SO_x), directly emitted $PM_{2.5}$, and nitrogen oxides (NO_x) to achieve the $PM_{2.5}$ standard. Achieving the 8-hour ozone standard builds upon the $PM_{2.5}$ attainment strategy with additional NO_x and VOC reductions. The control measures in the 2007 AQMP are based on facility modernization, energy efficiency and conservation, good management practices, market incentives/compliance flexibility, area source programs, emission growth management and mobile source programs. In addition, CARB has developed a plan of

control strategies for sources controlled by CARB (i.e. on-road and off-road motor vehicles and consumer products). Further, Transportation Control Measures (TCM) defined in SCAG's Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) are needed to attain the standards.

The 2007 AQMP includes 30 short-term and mid-term stationary and 7 mobile source control measures proposed for implementation by the district that are applicable to sources under their jurisdiction. Nine of these measures were included in the 2003 AQMP and have been updated or revised. Twenty-eight new measures are proposed based on replacement of the District's long-term reduction measures from the 2003 AQMP with more defined control measures or development of new control measures. Measures include; regulations to reduce VOC emissions from coatings, solvents, petroleum operations, and cutback asphalt; measures to reduce emissions from industrial combustion sources as well as residential and commercial space heaters; a measure to offset potential emission increases due to changes in natural gas specifications; localized control of PM emission hot spots; regulation of wood burning fireplaces and wood stoves; reductions from under-fired char broilers; reducing urban heat island through lighter colored roofing, and paving materials and tree planting programs; energy efficiency and conservation programs; and emission reduction from new or redevelopment projects through regulations that will establish mitigation options to be implemented in such project. The specific measures are discussed in Chapter 4 and presented in detail in Appendix IV-A of the 2007 AQMP.

The TCMs defined in the RTP and RTIP fall into three categories, High Occupancy Vehicle measures, Transit and System Management Measures and Information-based Transportation Strategies. The High Occupancy Vehicle (HOV) Strategy attempts to reduce the proportion of commute trips made by single occupancy vehicles which constitute 72% of all home work trips according to the 200 U.S. Census. Specific measures include new HOV lanes on existing and new facilities, HOV to HOV bypasses and High Occupancy Toll (HOT) lanes. The Transit and Systems Management Strategy incentivize the use of transit, alternative transportation modes (e.g., pedestrian and bicycles), and increases in average vehicle occupancy by facilitating vanpools, smart shuttles and similar strategies. Systems management measures include grade separation and traffic signal synchronization projects. The information-based Transportation Strategy relies primarily on the innovative provision of information in a manner that successfully influences the ways in which individuals use the regional transportation system. Providing ride matching to increase ride-sharing and carpool trips and providing near real-time estimates of congestion in an effort to influence persons to defer traveling to a less congested period are examples of the strategy.

In addition to District's measures and SCAG's TCMs, the Final 2007 AQMP includes additional short- and mid-term control measures aimed at reducing emissions from sources that are primarily under state and federal jurisdiction including on-road and off-road mobile sources, and consumer products. Measures committed to be enacted by CARB include (1) improvements to the smog check program, (2) cleaner in-use heavy duty truck emission regulations, (3) increased regulations on goods movement sources including ships, harbor craft, and port trucks, (4) regulations for cleaner in-use off-road equipment including agricultural equipment, (5) various measures to reduce evaporative VOC emissions from fuel storage and dispensing, (6) tightened emission standards and product reformulation for consumer products that emit VOC's, and (7) reductions in emissions from pesticide applications.

Four long-term "black box" control approaches are presented in the 2007 AQMP. These measures include (1) further reductions from on-road sources by retiring or retrofitting older high-emitting vehicles and accelerated penetration of very low and zero emission vehicles, (2) increased inspection and maintenance (I/M) programs for heavy-duty diesel trucks, (3) further reductions from off-road mobile sources through accelerated turn-over of existing equipment,

retrofitting existing equipment and new engine emission standards, and (4) further reductions from consumer product VOC emissions.

The 2007 AQMP identifies four contingency measures that would need to be implemented if milestone emission targets are not met or if the standards are not attained by the required date. While implementation of these measures is expected to reduce emissions, there are issues that limit the viability of these measures as AQMP control measures. These issues include the availability of District resources to implement and enforce the measure, cost-effectiveness of the measure, potential adverse environmental impacts, effectiveness of emission reductions, and availability of methods to quantify emission reductions.

1.6 Climate

The climate in and around the project area, as with all of Southern California, is controlled largely by the strength and position of the subtropical high pressure cell over the Pacific Ocean. It maintains moderate temperatures and comfortable humidity, and limits precipitation to a few storms during the winter "wet" season. Temperatures are normally mild, excepting the summer months, which commonly bring substantially higher temperatures. In all portions of the basin, temperatures well above 100 degrees F. have been recorded in recent years. The annual average temperature in the basin is approximately 62 degrees Fahrenheit.

Winds in the project area are usually driven by the dominant land/sea breeze circulation system. Regional wind patterns are dominated by daytime onshore sea breezes. At night the wind generally slows and reverses direction traveling towards the sea. Wind direction will be altered by local canyons, 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 wind direction maximum from the south. The frequency of calm winds (less than 2 miles per hour) is less than 10 percent. Therefore, there is little stagnation in the project vicinity, especially during busy daytime traffic hours.

Southern California frequently has temperature inversions which 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. Elevated inversions can be generated by a variety of meteorological phenomena. 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 South Coast Air Basin (SCAB) and is responsible for the high levels of ozone observed during summer months in the air basin.

1.7 Monitored Air Quality

Air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the air basin. Estimates for the SCAB have been made for existing emissions ("2007 Air Quality Management Plan", June 2007). The data indicate that on-road (e.g.; automobiles, busses and trucks) and off-road (e.g.; trains, ships, and construction equipment) mobile sources are the major source of current emissions in the SCAB. Mobile sources account for approximately 64% of VOC emissions, 92% of NO_X emissions, 39% of direct $PM_{2.5}$ emissions, 59% of SO_X emissions and 98% of CO emissions. Area sources (e.g., architectural coatings, residential water heaters, and

consumer products) account for approximately 30% of VOC emissions and 32% of direct $PM_{2.5}$ emissions. Point sources (e.g., chemical manufacturing, petroleum production, and electric utilities) account for approximately 38% of SO_X emissions. Entrained road dust account for approximately 20% of direct $PM_{2.5}$ emissions.

The SCAQMD has divided the SCAB into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project is in the area represented by measurements made at the Upland monitoring station. The Upland station is located approximately 4 miles west of the project site. The pollutants measured at the Upland include ozone, carbon monoxide (CO), $PM_{2.5}$, and nitrogen dioxide (NO_2). The air quality data monitored from 2006 to 2008 are presented in Table 3.

PM_{10} and sulfur dioxide (SO_2) are not monitored at the Upland station. The next nearest monitoring site to the project is the Fontana-Arrow Highway monitoring site located in the approximately 11 miles east of the project site. The air quality data monitored from 2006 to 2008 for the Fontana-Arrow Highway station is presented in Table 3.

The monitoring data presented in Table 3 were obtained from the CARB air quality data website (www.arb.ca.gov/adam/). Federal and State air quality standards are also presented in the Tables.

Table 3
Air Quality Levels Measured at the Upland/Fontana-Arrow Highway Monitoring Stations

Pollutant	California Standard	National Standard	Year	% Msrd.[1]	Max. Level	Days State Standard. Exceeded[2]	Days National Standard. Exceeded[2]
Ozone	0.09 ppm	0.12 ppm[4]	2008	94	0.155	51	9
1 Hour			2007	96	0.145	32	7
Average			2006	99	0.166	52	14
Ozone	0.070 ppm	0.08 ppm	2008	94	0.122	65	50
8 Hour			2007	96	0.115	55	35
Average			2006	99	0.131	64	50
Respirable	50 $\mu g/m^3$	150 $\mu g/m^3$	2008	99	75.0	73	0
Particulates			2007	98	276	209	13.2
PM_{10}			2006	99	142	176	0
24 Hour Average							
Respirable	20 $\mu g/m^3$	None	2008	99	40.2	Yes	n/a
Particulates			2007	98	60.7	Yes	n/a
PM_{10}[5]			2006	99	53.7	Yes	n/a
AAM[3]							
Fine	None	65 $\mu g/m^3$	2008	66	49.0	n/a	-
Particulates			2007	90	77.5	n/a	-
$PM_{2.5}$[5]			2006	88	52.6	n/a	27
24 Hour Average							
Fine	12 $\mu g/m^3$	15 $\mu g/m^3$	2008	66	15.4	Yes	Yes
Particulates			2007	90	18.8	Yes	Yes
$PM_{2.5}$			2006	88	17.5	Yes	Yes
AAM[3]							
CO	20 ppm	35 ppm	2008	97	-	0	0
1 Hour			2007	97	-	0	0
Average			2006	98	-	0	0
CO	9.0 ppm	9 ppm	2008	97	1.59	0	0
8 Hour			2007	97	1.65	0	0
Average			2006	98	1.90	0	0
NO_2	0.18 ppm	100 ppb[6]	2008	95	0.094	0	--
1 Hour			2007	78	0.095	0	--
Average			2006	90	0.100	0	--
NO_2	0.030 ppm	0.053 ppm	2008	95	0.023	No	0
AAM[3]			2007	78	0.027	No	0
			2006	90	0.031	Yes	0
SO_2	0.04 ppm	0.14 ppm	2008	96	0.003	No	No
24 Hour			2007	95	0.004	No	No
Average			2006	98	0.003	No	No
SO_2	None	0.030 ppm	2008	96	0.001	n/a	No
AAM[3]			2007	95	0.001	n/a	No
			2006	98	0.001	n/a	No

1. Percent of year where high pollutant levels were expected that measurements were made
2. For annual averaging times a yes or no response is given if the annual average concentration exceeded the applicable standard. For the PM_{10}24 hour standard, daily monitoring is not performed. The number shown in Days State Standard Exceeded if measurements were taken every day.
3. Annual Arithmetic Mean
4. With the implementation of the federal 8-hour ozone standard, the 1-hour standard was revoked as of June 15, 2005. The previous standard is provided for informational purposes.
5. On September 21, 2006 U.S. EPA announced that it was revoking the annual average PM_{10} standard and lowering the 24-hour $PM_{2.5}$ standard to 35 $\mu g/m^3$. The previous standards are presented as the new standards are not fully implemented at this time.
6. Parts per billion (3 year average of 98th percentile of maximum daily 1-hour concentration, January 22, 2010.

2. For annual averaging times a yes or no response is given if the annual average concentration exceeded the applicable standard. For the PM_{10}24 hour standard, daily monitoring is not performed. The number shown in Days State Standard Exceeded if measurements were taken every day.

The monitoring data presented in Table 3 show that ozone and particulate matter (PM_{10} and $PM_{2.5}$) are the air pollutants of primary concern in the project area.

The State 1-hour ozone standard was exceeded 51 days in 2008, 32 days in 2007, and 52 days in 2008 at the Upland station. The Federal 1-hour ozone standard was exceeded 9 days in 2008, 7 days in 2007, and 14 days in 2008. The State 8-hour ozone standard was exceeded between 55 and 65 days each year over the past three years. The Federal 8-hour ozone standard was exceeded between 35 and 50 days in each of the past three years. There does not appear to be a distinct trend in either maximum ozone concentrations or days of exceedances in the area.

The State 24-hour concentration standards for PM_{10} was exceeded 73 days in 2008, 209 days in 2007, and 176 days in 2008 at the Fontana station. The Federal 24-hour PM_{10} standard was exceeded 13 days in 2007, but has not been exceeded in 2006 and 2008. The State annual average standard has been exceeded each of the past three years. There does not appear to be a noticeable trend in either maximum particulate concentrations or days of exceedances in the area. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

The Federal 24 hour standard for $PM_{2.5}$ was exceeded 27 days in 2007 at the Fontana Station. Complete $PM_{2.5}$ data for 2007 and 2008 were not accorded at the Fontana Station. Note that on September 21, 2006 U.S. EPA revised the standard to 35 $\mu g/m^3$. However, since designations for the revised standards will not be made until April 2010 only the number of days exceeding the original standard of 65 $\mu g/m^3$ are reported here.

The annual average $PM_{2.5}$ concentration has exceeded both the State and Federal standards for the past three years at the Fontana Station. There does not appear to be a noticeable trend in either maximum particulate concentrations or days of exceedances in the area.

The annual average NO_2 concentration has exceeded the State standard in 2006, but not in 2007 and 2008.

The monitored data shown in Table 3 show that other than ozone, NO_2, PM_{10} and $PM_{2.5}$ exceedances as mentioned above, no State or Federal standards were exceeded for the remaining criteria pollutants.

2.0 Potential Air Quality Impacts

Air quality impacts are usually divided into short term and long term. Short-term impacts are usually the result of construction or grading operations. Long-term impacts are associated with the buildout condition for the proposed General Plan.

2.1 Thresholds of Significance

2.1.1 Regional Air Quality

In their "1993 CEQA Air Quality Handbook", the SCAQMD has established significance thresholds to assess the impact of project related air pollutant emissions. Table 4 presents these significance thresholds. There are separate thresholds for short-term construction and long-term

operational emissions. A project with daily emission rates below these thresholds are considered to have a less than significant effect on air quality. It should be noted the thresholds recommended by the SCAQMD are very small and subject to controversy. It is up to the individual lead agencies to determine if the SCAQMD thresholds are appropriate for their projects. The project will comply with the SCAQMD significant thresholds. These thresholds are summarized in Table 5 below.

Table 4
SCAQMD Regional Pollutant Emission Thresholds of Significance

	Pollutant Emissions (lbs/day)					
	CO	**VOC**	**NOx**	**PM10**	**PM2.5**	**SOx**
Construction	*550*	*75*	*100*	*150*	*55*	*150*
Operation	*550*	*55*	*55*	*150*	*55*	*150*

2.2 Short-Term Impacts

The General Plan update does not involve specific construction activity. However, construction activities that implement land use policies over the long term will produce air pollutant emissions. Air pollutants will primarily be emitted by construction equipment and fugitive dust will be generated during demolition of the existing improvements as well as during grading and excavation of the site.

The City General Plan (G.P.) Update encompasses a total of approximately 14,016 acres. The proposed G.P. Update Target Density has the most probable level of development, and therefore, will be addressed. The Target Density entails a total of 63,253 residential dwelling units (including mixed-use residential), a total of 2,430,000 square feet of school uses, 445 acres of parks, a total of 25,367,700 square feet of mixed commercial land uses, and a total of 72,000,000 square feet of mixed industrial land uses.

Construction activities that implement land use policies associated with the G.P. Update over the long term will produce air quality emissions. No specific project development are proposed at this time and specific details regarding the scheduling of grading activities are unknown, and therefore, the construction emissions cannot be quantified. Construction emissions will need to be evaluated on a project-by-project basis, when more construction details are developed.

2.3 Long-Term Impacts

2.3.1 Project Emissions Calculation Methodology

The proposed G.P. Update GHG emissions were calculated using the URBEMIS2007 program (version 9.2.4). The program was set to calculate emissions for the entire proposed G.P. Update. Default URBEMIS2007 variables were used for the calculations including the trip generation rates. Hearth emissions were also estimated using URBEMIS default assumptions. The project's land uses were obtained from the City of Rancho Cucamonga, revised December 2009. The Target Density scenario was analyzed because it has the most probable level of development.

The proposed G.P. Update (Target Density) comprises a total of 63,253 residential dwelling units (including mixed-use residential), a total of 2,430,000 square feet of school uses, 445 acres of

parks, a total of 25,367,700 square feet of mixed commercial land uses, and a total of 72,000,000 square feet of mixed industrial land uses.

URBEMIS2007 calculates summer and winter average emissions in pounds per day. The land uses in terms of dwelling units and square footages as well as default emission factors utilized in calculating the emissions are provided in the appendix.

2.3.2 Project Operational Emissions

The primary source of GHG emissions generated will be from motor vehicles. Other emissions from the project will be generated from the combustion of natural gas for space and water heating, as well as off-site GHG emissions from the generation of electricity consumed by the project over the long term.

The project emissions were analyzed for the Target Density scenario for buildout year 2030. For the purpose of comparison, the 2009 Existing Conditions and 2030 Existing G.P. were also calculated. Based on the land use data, there will be a decrease of 213 residential units when comparing Existing G.P. to Existing Conditions. However, the number of residential units in the proposed G.P. Update exceeds the Existing Conditions by 7,584 units, and the current G.P. forecast by 7,797 units. The results of the project emissions are presented in Table 5. The project net changes in emissions are also presented relative to Existing Conditions and Existing G.P. The data utilized in calculating the emissions are provided in the appendix.

Table 5 presents the results of the URBEMIS2007 model showing the maximum daily air pollutant emissions. The primary source of regional emissions generated by the proposed project will be from motor vehicles. Hearth emissions from wood burning stoves and fireplaces would also be significant. While hearth emissions calculated utilizing the URBEMIS default assumptions are very high, it is the best methodology available to use. Hearth URBEMIS default assumptions were adjusted to account for an increase of 7,797 new residential units over Existing G.P. assuming all new residences would utilize natural gas fireplaces. In general, emissions are substantially higher than it would be without hearth emissions, specifically for CO, VOC, PM_{10} and $PM_{2.5}$. For example, of the total G.P. Update emissions, hearth emissions represent 32% of CO, 48% for VOC, 73% for PM_{10} and 81% for $PM_{2.5}$. Other emissions will be generated from the combustion of natural gas for water and space heating, the use of landscaping equipment, and architectural coatings during maintenance; these emissions will be secondary. The specific data utilized in calculating the emissions are provided in the appendix.

Table 5
Total Daily Emissions (Pounds Per Day)

Source	CO	VOC	NOx	PM_{10}	$PM_{2.5}$	SOx
Existing 2009						
Vehicular Emissions	174,696	16,741	29,123	1,646	1,137	130
Natural Gas Combustion	458	71	930	2	2	0
Hearth	24,192	8,724	747	3,752	3,612	68
Landscaping	0	0	0	0	0	0
Consumer Products	0	2,856	0	0	0	0
Architectural Coatings	0	632	0	0	0	0
Total Emissions:	**199,345**	**29,024**	**30,799**	**5,400**	**4,750**	**198**
Existing G.P. (2030)						
Vehicular Emissions	57,118	6,610	7,435	1,507	965	148
Natural Gas Combustion	516	75	990	2	2	0
Hearth	24,097	8,691	739	3,737	3,597	68
Landscaping	0	0	0	0	0	0
Consumer Products	0	2,845	0	0	0	0
Architectural Coatings	0	762	0	0	0	0
Total Emissions:	**81,731**	**18,984**	**9,164**	**5,245**	**4,564**	**215**
Proposed G.P. Update (2030)						
Vehicular Emissions	58,725	6,795	7,640	1,548	991	152
Natural Gas Combustion	562	84	1,103	2	2	0
Hearth	26,451	8,973	838	4,121	3,967	76
Landscaping	0	0	0	0	0	0
Consumer Products	0	3,245	0	0	0	0
Architectural Coatings	0	768	0	0	0	0
Total Emissions	**85,739**	**19,865**	**9,581**	**5,671**	**4,960**	**227**
Significance Threshold	*550*	*55*	*55*	*150*	*55*	*150*
Net Change in Emissions over Existing G.P. (2030):						
	4,008	881	416	426	396	12
Net Change in Emissions over (2009) Existing Conditions:						
	-113,607	-9,159	-21,218	271	210	30

Table 5 shows that the total project net change in emissions will increase relative to the Existing G.P. (2030), but will decrease significantly for CO, VOC, and NOx relative to the 2009 Existing conditions. In general, the future emissions primarily due to vehicular emissions are projected to be less in 2030 when compared to 2009. This is primarily due to the anticipated decrease in the future emission rates for vehicular sources as projected by the EMFAC2007 program. The number of vehicles actually will increase in the future but is more than offset by the decrease in the emission factors. However, the net increases in 2030 emissions associated with implementation of the G.P. Update when compared to Existing G.P. are above the SCAQMD Thresholds for most criterion pollutants. Since the project net increases in emissions are above

the significance thresholds, the project will result in a significant regional air quality impact. Long-term mitigation measures are recommended in Section 3.0.

Table 6 compares the project net increase in emissions to the projected basin wide emissions from the 2007 AQMP. This comparison shows that the project represents a very small fraction of the total regional emissions. The project net increase in emissions represent approximately less than half of a percent of the total regional emissions.

Table 6
Comparison of Project Net Increase in Emissions with SCAB Emissions

	Pollutant Emissions (tons/day)					
	CO	VOC	NO_x	PM_{10}	$PM_{2.5}$	SO_x
G.P. Update Net Increase in Emissions	2.00	0.44	0.21	0.21	0.20	0.01
2023 South Coast Air Basin*	2,147	95	539	508	318	102
Project as Percentage of Basin	0.093%	0.464%	0.039%	0.042%	0.062%	0.006%

* Source: 2007 AQMP Table 3-5A except PM_{10} from 2003 AQMP Tables 3-5A and 3-5B

2.3.3 Diesel Particulate Matter Emissions

In 1998, the California Air Resources Board (ARB) identified particulate matter from diesel-fueled engines (Diesel Particulate Matter or DPM) as a Toxic Air Contaminant (TAC). Diesel fueled vehicles emit DPM from nearby freeways or rail yards could be a problem for any residential areas within 500 feet of freeways and 1,000 feet of rail yards or related distribution centers. TAC impacts from toxic substances are related to cumulative exposure and are assessed over a 70-year period. Cancer risk is expressed as the maximum number of new cases of cancer projected to occur in a population of one million people due to exposure to the cancer-causing substance over a 70-year lifetime (California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Guide to Health Risk Assessment.)

There are no rail yards in the City of Rancho Cucamonga. Additionally, there are no new residential areas proposed next to freeways. As a result, no new TAC impacts are anticipated for the project.

2.4 Compliance with Air Quality Planning

The following sections deal with the major air planning requirements for this project. Specifically, consistency of the project with the AQMP is addressed. As discussed below, consistency with the AQMP is an issue to address for significant air quality impact contained in CEQA Guidelines and the SCAQMD CEQA Air Quality Handbook.

2.4.1 Consistency with AQMP

An EIR must discuss any inconsistencies between the proposed project and applicable GPs and regional plans (California Environmental Quality Act (CEQA) guidelines (Section 15125)). Regional plans that apply to the proposed project include the South Coast Air Quality Management Plan (AQMP). In this regard, this section will discuss any inconsistencies between the proposed project with the AQMP.

The purpose of the consistency discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the project would interfere with

the region's ability to comply with Federal and State air quality standards. If the decision-maker determines that the project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD's CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the plan if it furthers one or more policies and does not obstruct other policies. The Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP (except as provided for CO in Section 9.4 for relocating CO hot spots).

(2) Whether the project will exceed the assumptions in the AQMP in 2010 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 - Increase in the Frequency or Severity of Violations?

The proposed project will increase regional emissions, and will increase regional emissions by an amount greater than the SCAQMD thresholds (Refer to Section 2.3.2). However, the consistency criteria pertains to local air quality impacts, rather than regional emissions, as defined by the SCAQMD. The SCAQMD has identified CO as the best indicator pollutant for determining whether air quality violations would occur, as CO hot-spot is most directly related to increase in traffic. Nevertheless, the air basin is now in attainment for the CO standards and exccedances of the CO standards are not expected, and local air quality impact modeling is no longer performed. Local air pollutant concentrations would not be expected to exceed the ambient air quality concentration standards due to local traffic, with or without the project. Because the project is not projected to impact the local air quality, the project is found to be <u>consistent</u> with the AQMP for the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the project with the assumptions in the AQMP. Thus, the emphasis of this criterion is to insure that the analyses conducted for the project are based on the same forecasts as the AQMP. The Regional Comprehensive Plan and Guide (RCP&G) consists of three sections: Core Chapters, Ancillary Chapters, and Bridge Chapters. The Growth Management, Regional Mobility, Air Quality, Water Quality, and Hazardous Waste Management chapters constitute the Core Chapters of the document. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA.

Since the SCAG forecasts are not detailed, the test for consistency of this project is not specific. The AQMP assumptions are based upon projections from local general plans. Projects that are consistent with the local general plan are consistent with the AQMP assumptions. Although the proposed G.P. Update land use designations have not changed significantly from the 2009

Existing Conditions and the existing G.P., the proposed land uses are more intensive. There will be a decrease of 213 residential units when comparing Existing G.P. to Existing Conditions. However, the number of residential units in the proposed G.P. Update exceeds the Existing Conditions by 7,584 units, and the current G.P. forecast by 7,797 units. Utilizing URBEMIS default assumptions and the proposed land use data, the average daily trips are projected to be 1,412,574 for the Existing Conditions, 1,582,731 for the Existing G.P, and 1,627,907 for the proposed G.P. Update. As a result, the proposed G.P. Update will generate net increase of 215,333 daily trips over the 2009 Existing Conditions, and 45,177 daily trips (less than 3% increase) over existing G.P. As such, the change in the project traffic is not accounted for in the existing G.P., and thus the AQMP. The project must be considered inconsistent with the AQMP because of this increase in traffic. Therefore, the second criterion is not met for consistency with the AQMP.

3.0 Mitigation Measures

3.1 Long Term Impacts

3.1.1 Regional Emissions

Air pollutant net increase in emissions associated with the proposed G.P. Update was shown to exceed the threshold of significance. Mitigation is required.

The most significant reductions in regional and local air pollutant emissions are attainable through programs which reduce the vehicular travel associated with the project. Support and compliance with the AQMP for the basin is the most important measure to achieve this goal. The AQMP includes improvement of mass transit facilities and implementation of vehicular usage reduction programs and energy conservation measures. These measures have not been included in the emissions calculations, but if implemented, would result in emission reductions which are not accounted for; however, it is not feasible at this stage to quantify them. It is recommended that all feasible and relevant mitigation measures be incorporated in the project to the greatest extent feasible:

Transportation Demand Management (TDM) Measures

1. Provide adequate ingress and egress at all entrances to public facilities to minimize vehicle idling at curbsides. Presumably, this measure would improve traffic flow into and out of the parking lot. The air quality benefits are incalculable because more specific data is required.
2. Provide dedicated turn lanes as appropriate and provide roadway improvements at heavily congested roadways. Again, the areas where this measure would be applicable are intersections in the City Presumably, these measures would improve traffic flow. Emissions would drop as a result of the higher traffic speeds, but to an unknown extent.
3. Provide on-site services. Provide incentives such as on-site ATMs and other similar measures that address lifestyle needs. These measures reduce the vehicle mile traveled (VMT), but the air quality benefit can not be quantified because more specific data is required.
4. Provide local shuttle and transit shelters, and ridematching services. This measure is recommended, but no information is available regarding its effectiveness in improving air quality. Such a program might reduce the VMT associated with the project. No evidence is available that VMT will be reduced by any significant amount, however.
5. Provide bicycle lanes, storage areas, and amenities, and ensure efficient parking management. This measure includes implementing the formation of bike clubs and providing additional bike racks, lockers, showers, bike repair areas, and loaner bikes. Also, provide lockers, showers, safe walk path

maps, walk clubs and free walking shoes. These measures are essential, but no data is available regarding the effectiveness of this package of measures. Quantification of air quality benefits is not possible because of this fact.

6. Synchronize traffic signals. The areas where this measure would be applicable are roadway intersections within the project area. This measure would be more effective if the roadways beyond the project limits are synchronized as well. The air quality benefits are incalculable because more specific data is required.

7. Encourage the use of alternative fuel or low emission vehicles to comply with the AQMP On-Road Mobile M2 measure, and Off-Road Mobile Sources M9 and M10 measures. The technology required for this measure is slow in progress, and may not be practically applied to the project at this time. The air quality benefits are incalculable because more specific data is required.

8. Employers should provide ridematching, guaranteed ride home, or car pool or vanpool to employees as a part of the TDM program and to comply with the AQMP Transportation Improvements TCM-01 measure. This measure is applicable to commercial uses of the project.

9. Introduce window glazing, wall insulation, and efficient ventilation methods. The Uniform Building Code already requires the construction of buildings with features that minimize energy use.

10. Employers should provide compensation, prizes or awards to ridesharers. This measure is applicable to commercial uses, which are a minimal part of the project.

11. Provide preferential parking to high occupancy vehicles and shuttle services. Also, designate additional car pool or vanpool parking. This measure is applicable to commercial uses, which are a minimal part of the project.

12. Employers should provide variable work hours and telecommuting to employees to comply with the AQMP Advanced Transportation Technology ATT-01 and ATT-02 measures. These measures allow employees to have compressed work weeks, flex-time, staggered work hours, or work out of their homes. This measure is applicable to commercial uses, which are a minimal part of the project.

13. Provide dedicated parking spaces with electrical outlets for electrical vehicles. This measure would accommodate electric car charging if any electric cars are driven by employees or customers. This measure is applicable to commercial uses, which are a minimal part of the project.

14. Develop a trip reduction plan to comply with SCAQMD Rule 2202. SCAQMD Rule 2202 has revamped the requirements for carpooling. In general, mandatory carpooling is no longer required. Compliance with Rule 2202 will be mandatory. This measure is applicable to commercial uses, which are a minimal part of the project.

15. Schedule truck deliveries and pickups during off-peak hour. This will alleviate traffic congestion, therefore, emissions during the peak hour. This measure is applicable to commercial uses, which are a minimal part of the project.

Energy Efficient Measures

16. Improve thermal integrity of the buildings and reduce thermal load with automated time clocks or occupant sensors. Reducing the need to heat or cool structures by improving thermal integrity will result in a reduced expenditure of energy and a reduction in pollutant emissions. The air quality benefit depends upon the extent of the reduction of energy expenditure which is unknown in this case. The air quality benefit is also unknown, therefore.

17. Install energy efficient street lighting. Implementation of this measure is not feasible because of varying definitions of the phrase "energy efficient."

18. Landscape with native drought-resistant species to reduce water consumption and to provide passive solar benefits. The connection between reducing water consumption and improving air quality is

non-existent in the context of this analysis. A measure designed to reduce water consumption has no place in an air quality mitigation package. The assertion that such vegetation would provide "passive solar benefits" is false because drought resistant vegetation lacks both the height and the fullness to shade the building structures. No air quality benefit will occur as a result of the implementation of this measure.

19. Provide lighter color roofing and road materials and tree planning programs to comply with the AQMP Miscellaneous Sources MSC-01 measure. This measure reduces the need for cooling energy in the summer.
20. Comply with the AQMP Miscellaneous Sources PRC-03, and Stationary Sources Operations Enhanced Inspection and Maintenance and ADV-MISC to reduce emissions of restaurant operations.
21. Provide incentives for solid waste recycling. The connection between solid waste recycling and air quality is a tenuous one at best. There will be no air quality benefit resulting from the encouragement or coercion to recycle solid waste. Provisions of AB 939 are still relative as a required waste reduction measure.
22. Implement energy conservation measures beyond state and local requirements. This measure is simply too vague to be implemented.
23. Use devices that minimize the combustion of fossil fuels. This is another measure that is lacking specifics, such as a definition for the terms "devices" and "minimize."
24. Capture waste heat and reemploy it in nonresidential buildings. This measure is applicable to commercial buildings which are a minimal part of the project.
25. Introduce window glazing, wall insulation, and efficient ventilation methods. The construction of buildings with features that minimize energy use is already required by the Uniform Building Code.
26. Encourage the use of double paned windows to reduce thermal loss, and/or provide high performance glass and window coverings at residential and commercial buildings reduce HVAC loads.
27. Eliminate wood burning stoves/fireplaces and replace with natural gas hearth options.

4.0 Unavoidable Significant Impacts

4.1 Short-Term Impacts

Construction activities that implement land use policies associated with the G.P. Update over the long term will produce air quality emissions. No specific project development are proposed at this time and specific details regarding the scheduling of grading activities are unknown. Construction emissions will need to be evaluated on a project-by-project basis, when more construction details are developed to determine whether there is a significant impact. If a short-term air quality impact is determined to be significant, then mitigation measures are required by SCAQMD Rules to reduced construction emissions and should be implemented on a project-by-project basis.

4.2 Long-Term Impacts

The analysis demonstrates that the long term net increase in emissions associated with the G.P. Update will exceed the SCAQMD thresholds, and therefore, mitigation measures required by SCAQMD should be implemented to the greatest extent possible. The project emissions with the recommended measures will be reduced to an extent. Based on URBEMIS calculations, the

reduction in emissions with mitigation would generally be marginal between 5% and 10% at best. However, the net increase in emissions would continue to exceed the SCAQMD thresholds and be considered significant and unavoidable.

Appendix A

URBEMIS Output Files

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Environmental Svcs\Desktop\EnvSrvcShare\RnchCucamongaEX.urb924

Project Name: Rancho Cucamonga Existing Conditions

Project Location: San Bernadino County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3,863.05	945.70	2,151.09	0.09	6.27	6.21	1,178,010.25

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	15,234.85	24,594.39	178,563.13	153.18	1,646.36	1,136.95	15,014,959.18

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	19,097.90	25,540.09	180,714.22	153.27	1,652.63	1,143.16	16,192,969.43

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	71.11	929.73	457.79	0.01	1.76	1.74	1,175,404.81
Hearth - No Summer Emissions							
Landscape	303.93	15.97	1,693.30	0.08	4.51	4.47	2,605.44
Consumer Products	2,855.82						
Architectural Coatings	632.19						
TOTALS (lbs/day, unmitigated)	3,863.05	945.70	2,151.09	0.09	6.27	6.21	1,178,010.25

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	3,867.24	6,136.47	45,281.70	38.34	411.52	284.46	3,755,796.73
Apartments low rise	268.43	414.61	3,059.42	2.59	27.80	19.22	253,756.92
Condo/townhouse general	1,286.80	1,987.55	14,666.38	12.42	133.29	92.14	1,216,472.10
High school	303.33	499.90	3,563.82	3.09	33.31	22.98	303,519.13
City park	7.37	8.50	60.36	0.05	0.57	0.39	5,151.63
Free-standing discount superstore	755.63	1,305.29	9,250.84	8.06	86.79	59.87	790,579.29
Regnl shop. center	1,982.92	3,416.93	24,216.47	21.09	227.21	156.73	2,069,547.30
Strip mall	453.65	781.73	5,540.28	4.83	51.98	35.86	473,474.25
General office building	473.32	771.21	5,587.37	4.81	51.69	35.69	471,416.62
Goverment office building	791.39	1,370.35	9,769.28	8.48	91.31	63.00	832,019.07
Government (civic center)	605.81	1,031.34	7,352.49	6.38	68.72	47.42	626,188.25
General light industry	4,085.98	6,430.78	46,979.04	40.26	432.35	298.60	3,944,700.70
General heavy industry	352.98	439.73	3,235.68	2.78	29.82	20.59	272,337.19
TOTALS (lbs/day, unmitigated)	15,234.85	24,594.39	178,563.13	153.18	1,646.36	1,136.95	15,014,959.18

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT

Single family housing	12,026.67	9.57	dwelling units	36,080.00	345,285.59	3,488,351.24
Apartments low rise	211.31	6.90	dwelling units	3,381.00	23,328.90	235,687.21
Condo/townhouse general	1,013.00	6.90	dwelling units	16,208.00	111,835.20	1,129,848.67
High school		12.89	1000 sq ft	2,378.00	30,652.42	283,994.67
City park		1.59	acres	334.00	531.06	4,823.35
Free-standing discount superstore		49.21	1000 sq ft	1,677.00	82,525.17	740,498.31
Regnl shop. center		42.94	1000 sq ft	5,031.00	216,031.13	1,938,447.28
Strip mall		42.94	1000 sq ft	1,151.00	49,423.94	443,480.98
General office building		11.01	1000 sq ft	3,925.10	43,215.35	439,824.25
Goverment office building		68.93	1000 sq ft	1,219.00	84,025.67	778,497.81
Government (civic center)		27.92	1000 sq ft	2,265.00	63,238.80	585,907.46
General light industry		6.97	1000 sq ft	49,160.00	342,645.19	3,674,869.67
General heavy industry		1.50	1000 sq ft	13,224.00	19,836.00	253,603.26
					1,412,574.42	13,997,834.16

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.2	1.7	98.1	0.2
Light Truck < 3750 lbs	10.0	4.0	91.0	5.0
Light Truck 3751-5750 lbs	20.7	1.0	99.0	0.0
Med Truck 5751-8500 lbs	11.2	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.9	0.0	78.9	21.1
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	1.8	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.1	70.7	29.3	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.3	7.7	84.6	7.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)			
High school	10.0	5.0	85.0
City park	5.0	2.5	92.5
Free-standing discount superstore	2.0	1.0	97.0
Regnl shop. center	2.0	1.0	97.0
Strip mall	2.0	1.0	97.0
General office building	35.0	17.5	47.5
Goverment office building	10.0	5.0	85.0
Government (civic center)	10.0	5.0	85.0
General light industry	50.0	25.0	25.0
General heavy industry	90.0	5.0	5.0

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Environmental Svcs\Desktop\EnvSrvcShare\RnchCucamongaEX.urb924

Project Name: Rancho Cucamonga Existing Conditions

Project Location: San Bernadino County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	12,283.43	1,676.27	24,649.75	67.90	3,753.31	3,613.28	2,175,943.20

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	16,740.72	29,122.88	174,695.65	130.00	1,646.36	1,136.95	13,709,152.59

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	29,024.15	30,799.15	199,345.40	197.90	5,399.67	4,750.23	15,885,095.79

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	71.11	929.73	457.79	0.01	1.76	1.74	1,175,404.81
Hearth	8,724.31	746.54	24,191.96	67.89	3,751.55	3,611.54	1,000,538.39
Landscaping - No Winter Emissions							
Consumer Products	2,855.82						
Architectural Coatings	632.19						
TOTALS (lbs/day, unmitigated)	12,283.43	1,676.27	24,649.75	67.90	3,753.31	3,613.28	2,175,943.20

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	4,227.70	7,267.65	44,252.67	32.57	411.52	284.46	3,430,381.24
Apartments low rise	288.79	491.03	2,989.89	2.20	27.80	19.22	231,770.52
Condo/townhouse general	1,384.40	2,353.93	14,333.08	10.55	133.29	92.14	1,111,072.66
High school	336.17	591.74	3,502.12	2.62	33.31	22.98	277,026.31
City park	6.69	10.06	59.40	0.04	0.57	0.39	4,701.67
Free-standing discount superstore	861.14	1,544.83	9,111.77	6.83	86.79	59.87	721,500.92
Regnl shop. center	2,256.40	4,044.01	23,852.42	17.89	227.21	156.73	1,888,716.66
Strip mall	516.22	925.19	5,456.99	4.09	51.98	35.86	432,103.53
General office building	521.96	913.28	5,456.13	4.08	51.69	35.69	430,387.03
Goverment office building	903.85	1,622.09	9,600.15	7.19	91.31	63.00	759,395.87
Government (civic center)	684.74	1,220.81	7,225.19	5.41	68.72	47.42	571,531.10
General light industry	4,417.94	7,617.17	45,727.88	34.17	432.35	298.60	3,601,885.60
General heavy industry	334.72	521.09	3,127.96	2.36	29.82	20.59	248,679.48
TOTALS (lbs/day, unmitigated)	16,740.72	29,122.88	174,695.65	130.00	1,646.36	1,136.95	13,709,152.59

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
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High school	12.89	1000 sq ft	2,378.00	30,652.42	283,994.67
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Strip mall	42.94	1000 sq ft	1,151.00	49,423.94	443,480.98
General office building	11.01	1000 sq ft	3,925.10	43,215.35	439,824.25
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General heavy industry	1.50	1000 sq ft	13,224.00	19,836.00	253,603.26
				1,412,574.42	13,997,834.16

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.2	1.7	98.1	0.2
Light Truck < 3750 lbs	10.0	4.0	91.0	5.0
Light Truck 3751-5750 lbs	20.7	1.0	99.0	0.0
Med Truck 5751-8500 lbs	11.2	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.9	0.0	78.9	21.1
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	1.8	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.1	70.7	29.3	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.3	7.7	84.6	7.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)			
High school	10.0	5.0	85.0
City park	5.0	2.5	92.5
Free-standing discount superstore	2.0	1.0	97.0
Regnl shop. center	2.0	1.0	97.0
Strip mall	2.0	1.0	97.0
General office building	35.0	17.5	47.5
Goverment office building	10.0	5.0	85.0
Government (civic center)	10.0	5.0	85.0
General light industry	50.0	25.0	25.0
General heavy industry	90.0	5.0	5.0

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Environmental Svcs\Desktop\EnvSrvcShare\RnchCucamonga ExGP-Target.urb924

Project Name: Rancho Cucamonga Existing General Plan-Target

Project Location: San Bernadino County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3,958.21	1,007.80	2,054.08	0.08	5.96	5.91	1,249,442.06

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	6,143.92	6,254.74	59,786.51	174.11	1,506.75	964.62	17,112,537.01

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	10,102.13	7,262.54	61,840.59	174.19	1,512.71	970.53	18,361,979.07

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	75.44	990.41	515.54	0.01	1.87	1.85	1,246,966.11
Hearth - No Summer Emissions							
Landscape	275.41	17.39	1,538.54	0.07	4.09	4.06	2,475.95
Consumer Products	2,844.89						
Architectural Coatings	762.47						
TOTALS (lbs/day, unmitigated)	3,958.21	1,007.80	2,054.08	0.08	5.96	5.91	1,249,442.06

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	1,293.43	1,301.65	12,658.83	36.35	314.73	201.90	3,571,335.65
Apartments low rise	108.20	105.02	1,021.36	2.93	25.39	16.29	288,148.71
Condo/townhouse general	507.71	492.78	4,792.40	13.76	119.15	76.44	1,352,041.49
Elementary school	38.81	40.82	385.48	1.13	9.80	6.26	111,303.47
Junior high school	28.73	30.12	284.40	0.84	7.23	4.62	82,119.79
High school	23.47	24.45	229.14	0.68	5.85	3.74	66,445.80
Junior college (2 yrs)	76.13	82.84	773.16	2.28	19.77	12.63	224,713.00
City park	3.23	2.14	19.94	0.06	0.51	0.33	5,795.64
Racquetball/health	10.67	11.69	109.09	0.32	2.79	1.78	31,706.47
Free-standing discount superstore	289.31	320.52	2,983.99	8.83	76.40	48.79	868,508.49
Regnl shop. center	800.67	884.10	8,230.78	24.35	210.75	134.59	2,395,619.73
Strip mall	165.29	182.51	1,699.12	5.03	43.51	27.78	494,539.24
General office building	511.53	527.73	5,035.26	14.71	127.25	81.43	1,445,485.31
Office park	103.50	107.27	1,031.79	3.00	25.96	16.63	294,867.46
Government (civic center)	273.77	297.99	2,792.51	8.23	71.25	45.53	809,776.52
General light industry	1,313.74	1,297.47	12,494.86	36.32	314.21	201.24	3,568,460.98
General heavy industry	161.80	118.14	1,148.54	3.35	28.92	18.52	328,570.63
Industrial park	433.93	427.50	4,095.86	11.94	103.28	66.12	1,173,098.63
TOTALS (lbs/day, unmitigated)	6,143.92	6,254.74	59,786.51	174.11	1,506.75	964.62	17,112,537.01

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

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Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	11,292.33	9.57	dwelling units	33,877.00	324,202.88	3,275,356.85
Apartments low rise	236.94	6.90	dwelling units	3,791.00	26,157.90	264,268.04
Condo/townhouse general	1,111.75	6.90	dwelling units	17,788.00	122,737.20	1,239,989.40
Elementary school		14.49	1000 sq ft	736.00	10,664.64	102,700.48
Junior high school		13.78	1000 sq ft	571.00	7,868.38	75,772.50
High school		12.89	1000 sq ft	514.00	6,625.46	61,384.89
Junior college (2 yrs)		27.49	1000 sq ft	832.00	22,871.68	207,732.02
City park		1.59	acres	371.00	589.89	5,357.68
Racquetball/health		32.93	1000 sq ft	98.00	3,227.14	29,310.50
Free-standing discount superstore		49.21	1000 sq ft	1,819.00	89,512.99	803,200.01
Regnl shop. center		42.94	1000 sq ft	5,750.00	246,904.99	2,215,478.40
Strip mall		42.94	1000 sq ft	1,187.00	50,969.78	457,351.80
General office building		11.01	1000 sq ft	11,883.00	130,831.83	1,331,540.96
Office park		11.42	1000 sq ft	2,230.00	25,466.60	271,270.23
Government (civic center)		27.92	1000 sq ft	2,892.00	80,744.64	748,099.07
General light industry		6.97	1000 sq ft	43,908.00	306,038.75	3,282,265.61
General heavy industry		1.50	1000 sq ft	15,751.00	23,626.50	302,064.81
Industrial park		6.96	1000 sq ft	14,898.00	103,690.08	1,079,906.26
					1,582,731.33	15,753,049.51

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.2	0.0	100.0	0.0
Light Truck < 3750 lbs	9.9	0.0	99.0	1.0
Light Truck 3751-5750 lbs	21.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.3	0.0	82.6	17.4
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	57.1	42.9
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	18.2	81.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.1	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	0.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.0	32.5	67.5	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.7	0.0	88.2	11.8

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)			
Elementary school	20.0	10.0	70.0
Junior high school	20.0	10.0	70.0
High school	10.0	5.0	85.0
Junior college (2 yrs)	5.0	2.5	92.5
City park	5.0	2.5	92.5
Racquetball/health	5.0	2.5	92.5
Free-standing discount superstore	2.0	1.0	97.0
Regnl shop. center	2.0	1.0	97.0
Strip mall	2.0	1.0	97.0
General office building	35.0	17.5	47.5
Office park	48.0	24.0	28.0
Government (civic center)	10.0	5.0	85.0
General light industry	50.0	25.0	25.0
General heavy industry	90.0	5.0	5.0
Industrial park	41.5	20.8	37.8

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Environmental Svcs\Desktop\EnvSrvcShare\RnchCucamonga ExGP-Target.urb924

Project Name: Rancho Cucamonga Existing General Plan-Target

Project Location: San Bernadino County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	12,373.44	1,729.24	24,612.87	67.61	3,738.67	3,599.19	2,237,481.40

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	6,610.18	7,435.10	57,118.00	147.83	1,506.75	964.62	15,597,804.13

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	18,983.62	9,164.34	81,730.87	215.44	5,245.42	4,563.81	17,835,285.53

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	75.44	990.41	515.54	0.01	1.87	1.85	1,246,966.11
Hearth	8,690.64	738.83	24,097.33	67.60	3,736.80	3,597.34	990,515.29
Landscaping - No Winter Emissions							
Consumer Products	2,844.89						
Architectural Coatings	762.47						
TOTALS (lbs/day, unmitigated)	12,373.44	1,729.24	24,612.87	67.61	3,738.67	3,599.19	2,237,481.40

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	1,388.29	1,547.47	12,092.62	30.89	314.73	201.90	3,256,394.04
Apartments low rise	113.95	124.86	975.68	2.49	25.39	16.29	262,738.05
Condo/townhouse general	534.67	585.84	4,578.04	11.69	119.15	76.44	1,232,810.43
Elementary school	42.40	48.52	368.82	0.96	9.80	6.26	101,428.32
Junior high school	31.33	35.80	272.11	0.71	7.23	4.62	74,833.89
High school	25.49	29.05	219.73	0.57	5.85	3.74	60,543.34
Junior college (2 yrs)	84.60	98.42	742.30	1.94	19.77	12.63	204,738.55
City park	2.82	2.54	19.14	0.05	0.51	0.33	5,280.47
Racquetball/health	11.90	13.89	104.74	0.27	2.79	1.78	28,888.13
Free-standing discount superstore	324.60	380.79	2,867.06	7.49	76.40	48.79	791,276.87
Regnl shop. center	896.68	1,050.33	7,908.25	20.66	210.75	134.59	2,182,590.63
Strip mall	185.11	216.82	1,632.54	4.26	43.51	27.78	450,562.62
General office building	553.68	627.39	4,802.98	12.49	127.25	81.43	1,317,451.12
Office park	112.40	127.55	981.87	2.55	25.96	16.63	268,783.50
Government (civic center)	304.42	354.08	2,677.85	6.99	71.25	45.53	737,843.13
General light industry	1,390.95	1,542.88	11,886.26	30.84	314.21	201.24	3,252,855.06
General heavy industry	148.31	140.58	1,085.82	2.84	28.92	18.52	299,525.62
Industrial park	458.58	508.29	3,902.19	10.14	103.28	66.12	1,069,260.36
TOTALS (lbs/day, unmitigated)	6,610.18	7,435.10	57,118.00	147.83	1,506.75	964.62	15,597,804.13

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 60 Season: Winter

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Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	11,292.33	9.57	dwelling units	33,877.00	324,202.88	3,275,356.85
Apartments low rise	236.94	6.90	dwelling units	3,791.00	26,157.90	264,268.04
Condo/townhouse general	1,111.75	6.90	dwelling units	17,788.00	122,737.20	1,239,989.40
Elementary school		14.49	1000 sq ft	736.00	10,664.64	102,700.48
Junior high school		13.78	1000 sq ft	571.00	7,868.38	75,772.50
High school		12.89	1000 sq ft	514.00	6,625.46	61,384.89
Junior college (2 yrs)		27.49	1000 sq ft	832.00	22,871.68	207,732.02
City park		1.59	acres	371.00	589.89	5,357.68
Racquetball/health		32.93	1000 sq ft	98.00	3,227.14	29,310.50
Free-standing discount superstore		49.21	1000 sq ft	1,819.00	89,512.99	803,200.01
Regnl shop. center		42.94	1000 sq ft	5,750.00	246,904.99	2,215,478.40
Strip mall		42.94	1000 sq ft	1,187.00	50,969.78	457,351.80
General office building		11.01	1000 sq ft	11,883.00	130,831.83	1,331,540.96
Office park		11.42	1000 sq ft	2,230.00	25,466.60	271,270.23
Government (civic center)		27.92	1000 sq ft	2,892.00	80,744.64	748,099.07
General light industry		6.97	1000 sq ft	43,908.00	306,038.75	3,282,265.61
General heavy industry		1.50	1000 sq ft	15,751.00	23,626.50	302,064.81
Industrial park		6.96	1000 sq ft	14,898.00	103,690.08	1,079,906.26
					1,582,731.33	15,753,049.51

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.2	0.0	100.0	0.0
Light Truck < 3750 lbs	9.9	0.0	99.0	1.0
Light Truck 3751-5750 lbs	21.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.3	0.0	82.6	17.4
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	57.1	42.9
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	18.2	81.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.1	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	0.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.0	32.5	67.5	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.7	0.0	88.2	11.8

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
Junior high school				20.0	10.0	70.0
High school				10.0	5.0	85.0
Junior college (2 yrs)				5.0	2.5	92.5
City park				5.0	2.5	92.5
Racquetball/health				5.0	2.5	92.5
Free-standing discount superstore				2.0	1.0	97.0
Regnl shop. center				2.0	1.0	97.0
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5
Office park				48.0	24.0	28.0
Government (civic center)				10.0	5.0	85.0
General light industry				50.0	25.0	25.0
General heavy industry				90.0	5.0	5.0
Industrial park				41.5	20.8	37.8

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Environmental Svcs\Desktop\EnvSrvcShare\URBEMIS_PROJECTS\RnchCucamonga2030GP-2Target.urb924

Project Name: Rancho Cucamonga Proposed General Plan-Target

Project Location: San Bernadino County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	4,421.52	1,123.68	2,368.27	0.09	6.89	6.81	1,394,194.84

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	6,316.17	6,426.76	61,462.78	178.86	1,548.21	991.22	17,582,938.76

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	10,737.69	7,550.44	63,831.05	178.95	1,555.10	998.03	18,977,133.60

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	84.17	1,103.28	562.29	0.01	2.09	2.06	1,391,290.44
Hearth - No Summer Emissions							
Landscape	324.22	20.40	1,805.98	0.08	4.80	4.75	2,904.40
Consumer Products	3,244.88						
Architectural Coatings	768.25						
TOTALS (lbs/day, unmitigated)	4,421.52	1,123.68	2,368.27	0.09	6.89	6.81	1,394,194.84

Area Source Changes to Defaults

Percentage of residences with wood fireplaces changed from 5% to 4.4%

Percentage of residences with natural gas fireplaces changed from 85% to 85.6%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	1,517.51	1,527.15	14,851.90	42.64	369.26	236.88	4,190,049.50
Apartments low rise	152.56	148.07	1,440.04	4.13	35.80	22.97	406,266.12
Condo/townhouse general	511.93	496.88	4,832.27	13.87	120.14	77.07	1,363,290.77
Mobile home park	4.89	4.53	44.03	0.13	1.09	0.70	12,422.89
High school	110.96	115.60	1,083.28	3.19	27.64	17.66	314,130.92
City park	3.88	2.56	23.92	0.07	0.61	0.39	6,951.64
Free-standing discount superstore	283.90	314.53	2,928.21	8.66	74.98	47.88	852,274.68
Regnl shop. center	912.76	1,007.87	9,383.09	27.76	240.25	153.43	2,731,006.49
Strip mall	179.91	198.65	1,849.42	5.47	47.35	30.24	538,285.34
General office building	515.40	531.73	5,073.39	14.82	128.21	82.05	1,456,433.19
Office park	69.48	72.01	692.64	2.01	17.43	11.16	197,944.66
Government (civic center)	214.41	233.38	2,187.08	6.45	55.80	35.66	634,212.94
General light industry	1,286.37	1,270.44	12,234.48	35.56	307.67	197.04	3,494,097.72
General heavy industry	159.46	116.43	1,131.91	3.30	28.50	18.25	323,814.48
Industrial park	392.75	386.93	3,707.12	10.80	93.48	59.84	1,061,757.42
TOTALS (lbs/day, unmitigated)	6,316.17	6,426.76	61,462.78	178.86	1,548.21	991.22	17,582,938.76

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	13,248.67	9.57	dwelling units	39,746.00	380,369.21	3,842,794.03
Apartments low rise	334.06	6.90	dwelling units	5,345.00	36,880.50	372,596.32
Condo/townhouse general	1,121.00	6.90	dwelling units	17,936.00	123,758.40	1,250,306.38

Mobile home park	37.67	4.99	dwelling units	226.00	1,127.74	11,393.33
High school		12.89	1000 sq ft	2,430.00	31,322.70	290,204.81
City park		1.59	acres	445.00	707.55	6,426.32
Free-standing discount superstore		49.21	1000 sq ft	1,785.00	87,839.85	788,186.93
Regnl shop. center		42.94	1000 sq ft	6,555.00	281,471.69	2,525,645.38
Strip mall		42.94	1000 sq ft	1,292.00	55,478.48	497,808.36
General office building		11.01	1000 sq ft	11,973.00	131,822.73	1,341,625.85
Office park		11.42	1000 sq ft	1,497.00	17,095.74	182,103.82
Government (civic center)		27.92	1000 sq ft	2,265.00	63,238.80	585,907.46
General light industry		6.97	1000 sq ft	42,993.00	299,661.20	3,213,866.39
General heavy industry		1.50	1000 sq ft	15,523.00	23,284.50	297,692.34
Industrial park		6.96	1000 sq ft	13,484.00	93,848.64	977,410.12
					1,627,907.73	16,183,967.84

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.2	0.0	100.0	0.0
Light Truck < 3750 lbs	9.9	0.0	99.0	1.0
Light Truck 3751-5750 lbs	21.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.3	0.0	82.6	17.4
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	57.1	42.9
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	18.2	81.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.1	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	0.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.0	32.5	67.5	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.7	0.0	88.2	11.8

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
High school				10.0	5.0	85.0
City park				5.0	2.5	92.5
Free-standing discount superstore				2.0	1.0	97.0
Regnl shop. center				2.0	1.0	97.0
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5
Office park				48.0	24.0	28.0
Government (civic center)				10.0	5.0	85.0
General light industry				50.0	25.0	25.0
General heavy industry				90.0	5.0	5.0
Industrial park				41.5	20.8	37.8

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Environmental Svcs\Desktop\EnvSrvcShare\URBEMIS_PROJECTS\RnchCucamonga2030GP-2Target.urb924

Project Name: Rancho Cucamonga Proposed General Plan-Target

Project Location: San Bernadino County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	13,070.23	1,941.20	27,013.35	75.51	4,122.74	3,968.97	2,514,635.93

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	6,794.64	7,639.55	58,725.27	151.89	1,548.21	991.22	16,026,770.94

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	19,864.87	9,580.75	85,738.62	227.40	5,670.95	4,960.19	18,541,406.87

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	84.17	1,103.28	562.29	0.01	2.09	2.06	1,391,290.44
Hearth	8,972.93	837.92	26,451.06	75.50	4,120.65	3,966.91	1,123,345.49
Landscaping - No Winter Emissions							
Consumer Products	3,244.88						
Architectural Coatings	768.25						
TOTALS (lbs/day, unmitigated)	13,070.23	1,941.20	27,013.35	75.51	4,122.74	3,968.97	2,514,635.93

Area Source Changes to Defaults

Percentage of residences with wood fireplaces changed from 5% to 4.4%

Percentage of residences with natural gas fireplaces changed from 85% to 85.6%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	1,628.81	1,815.56	14,187.60	36.24	369.26	236.88	3,820,546.02
Apartments low rise	160.66	176.04	1,375.63	3.51	35.80	22.97	370,439.16
Condo/townhouse general	539.11	590.72	4,616.13	11.79	120.14	77.07	1,243,067.68
Mobile home park	5.03	5.38	42.06	0.11	1.09	0.70	11,327.37
High school	120.49	137.36	1,038.80	2.71	27.64	17.66	286,226.30
City park	3.38	3.04	22.96	0.06	0.61	0.39	6,333.72
Free-standing discount superstore	318.53	373.67	2,813.47	7.35	74.98	47.88	776,486.65
Regnl shop. center	1,022.21	1,197.37	9,015.40	23.55	240.25	153.43	2,488,153.31
Strip mall	201.48	236.00	1,776.95	4.64	47.35	30.24	490,418.62
General office building	557.87	632.14	4,839.36	12.58	128.21	82.05	1,327,429.29
Office park	75.46	85.63	659.13	1.71	17.43	11.16	180,434.48
Government (civic center)	238.42	277.32	2,097.28	5.47	55.80	35.66	577,875.07
General light industry	1,361.97	1,510.73	11,638.56	30.20	307.67	197.04	3,185,068.72
General heavy industry	146.16	138.54	1,070.11	2.80	28.50	18.25	295,189.91
Industrial park	415.06	460.05	3,531.83	9.17	93.48	59.84	967,774.64
TOTALS (lbs/day, unmitigated)	6,794.64	7,639.55	58,725.27	151.89	1,548.21	991.22	16,026,770.94

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	13,248.67	9.57	dwelling units	39,746.00	380,369.21	3,842,794.03
Apartments low rise	334.06	6.90	dwelling units	5,345.00	36,880.50	372,596.32
Condo/townhouse general	1,121.00	6.90	dwelling units	17,936.00	123,758.40	1,250,306.38

Mobile home park	37.67	4.99	dwelling units	226.00	1,127.74	11,393.33
High school		12.89	1000 sq ft	2,430.00	31,322.70	290,204.81
City park		1.59	acres	445.00	707.55	6,426.32
Free-standing discount superstore		49.21	1000 sq ft	1,785.00	87,839.85	788,186.93
Regnl shop. center		42.94	1000 sq ft	6,555.00	281,471.69	2,525,645.38
Strip mall		42.94	1000 sq ft	1,292.00	55,478.48	497,808.36
General office building		11.01	1000 sq ft	11,973.00	131,822.73	1,341,625.85
Office park		11.42	1000 sq ft	1,497.00	17,095.74	182,103.82
Government (civic center)		27.92	1000 sq ft	2,265.00	63,238.80	585,907.46
General light industry		6.97	1000 sq ft	42,993.00	299,661.20	3,213,866.39
General heavy industry		1.50	1000 sq ft	15,523.00	23,284.50	297,692.34
Industrial park		6.96	1000 sq ft	13,484.00	93,848.64	977,410.12
					1,627,907.73	16,183,967.84

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.2	0.0	100.0	0.0
Light Truck < 3750 lbs	9.9	0.0	99.0	1.0
Light Truck 3751-5750 lbs	21.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.3	0.0	82.6	17.4
Lite-Heavy Truck 10,001-14,000 lbs	0.7	0.0	57.1	42.9
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	18.2	81.8
Heavy-Heavy Truck 33,001-60,000 lbs	2.1	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	0.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.0	32.5	67.5	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.7	0.0	88.2	11.8

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
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Industrial park				41.5	20.8	37.8

M E M O R A N D U M

Mestre Greve Associates

Date : February 9, 2010

To : Laura R. Stetson, Hogle-Ireland, Inc

From : Tanya Moon
Mestre Greve Associates
A Division of Landrum-Brown Inc.

Subject: Rancho Cucamonga General Plan Update Air Quality Addendum.
Report # 500701

Dear Laura,

The Rancho Cucamonga air quality analysis was performed in December 2009 before there was any traffic information. As a result, the air quality modeling utilized URMEMIS default assumption in trip rates and trip lengths. The product of the trip generation and trip length would result in vehicle mile travel (VMT), and thus, the project air quality emissions. The air quality analysis indicates that there would be an increase in trip generation associated with the 2030 General Plan (G.P.) Update when compared to the Existing (2001) G.P. Therefore, the G.P. Update would not be consistent with the AQMP Criterion 2 (Section 2.4.1).

A traffic study was prepared for the project subsequent to the run of the air quality model. The traffic report identifies a decrease in project traffic trip generation relative to the Existing G.P. It should be noted that the traffic study did provide data for trip rates but not total VMT. The traffic study was completed using a refined, more detailed approach to trip generation. However, the number of trips is only a part of the equation. The traffic report shows lower trip rates, and thus implies lower air quality emissions for the project. In this case, because the project traffic volumes fall below the volumes and assumptions inherent in the 2003 AQMP, and based on the trip generation data in the traffic study, the project would likely be consistent with the AQMP Criterion 2.

If you have any questions, please do not hesitate to email or call.

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