5.8 - AIR QUALITY

5.8.1 - Introduction

This section analyses the potential air quality impacts that would result from the development of the Rich Haven Specific Plan project. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000 et seq.). The methodology follows the CEQA Air Quality Handbook prepared by the South Coast Air Quality Management District (SCAQMD) for quantification of emissions and evaluation of potential impacts to air resources. As recommended by SCAQMD staff, URBEMIS 2002 version 8.7.0 and CALINE4 computer programs, developed and approved by the California Air Resources Control Board (CARB), were used to quantify project-related emissions. The supporting model output is included in Appendix G, Air Quality Impact Analysis, of this EIR. Additionally, a Global Climate Change Analysis is also contained in Appendix G.

The New Model Colony Final EIR Air Quality Evaluation

The New Model Colony (NMC) Final EIR evaluated potential impacts to air quality, which included short-term construction-related and long-term impacts. The NMC Final EIR estimated short-term emissions for Planning Subarea 4. The NMC Final EIR concluded that development of Planning Subarea 4 would result in less than significant impacts to air quality related to short-term construction emissions. However, if subareas are graded simultaneously, construction-related emissions would be substantially higher than those modeled for Planning Subarea 4. The NMC Final EIR stated that this could potentially result in greater construction-related impacts on existing land uses on and in the vicinity of the NMC.

The NMC Final EIR also evaluated potential impacts to air quality that would result from long-term operations, which would result from increased traffic, and increased consumption of natural gas and electricity. Of these, the most substantial contributor to air quality impacts would come from vehicle emissions. Similar to the construction-related impacts, the NMC Final EIR evaluated potential impacts to long-term operations by using Planning Subarea 4 as a representative development. Conservative estimates indicate that all per-day standards would be exceeded with exception of PM_{10}.

Although PM_{10} emissions related to construction activities were estimated to fall below threshold, the City is in a non-attainment area for particulate matter, which means that any release of particulate matter would be considered significant. It is expected that as the agricultural lands in the NMC are converted to urban uses, the amount of PM_{10} released in the City would be considered a significant impact. This evaluation indicated that it is very possible that per-day emission standards under the NMC land uses would be exceeded without the incorporation of mitigation measures. As a result,

The NMC Final EIR concluded that long-term air quality impacts in the NMC are anticipated to be significant and further stated that detailed, project-specific air quality impact analyses would be required for development of each subarea.

5.8.2 - Existing Conditions

The project is located in City of Ontario in San Bernardino County. As discussed in Section 4, Environmental Setting, this region is located within the South Coast Air Basin (basin) which is bounded on the west by the Pacific Ocean and on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains. The predominant wind direction is from the west, or blowing to the east, as shown in Exhibit 5.8-1.

Regional Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections of air quality in the project area are best documented from measurements made near the project site. Existing air quality within the vicinity of the project has been monitored by the SCAQMD. The SCAQMD has an extensive air-monitoring network that measures levels of several air pollutants throughout the Basin. The SCAQMD has subdivided the Basin into 38 Source-Receptor Areas (SRA), each containing one or more monitoring stations. These SRAs provide a general representation of the local meteorological and air quality conditions within the particular area. The project is located within SRA 33, Southwest San Bernardino Valley. During the latest three-year period (2004 to 2006), different pollutant levels were measured in SRA 33, SRA 34 (Fontana), and SRA 32 (Upland). The pollutant levels from these locations were pieced together to comprise a baseline for the regional vicinity of the project. In doing so, the highest concentration of a given pollutant and averaging time from the various monitoring stations was selected.

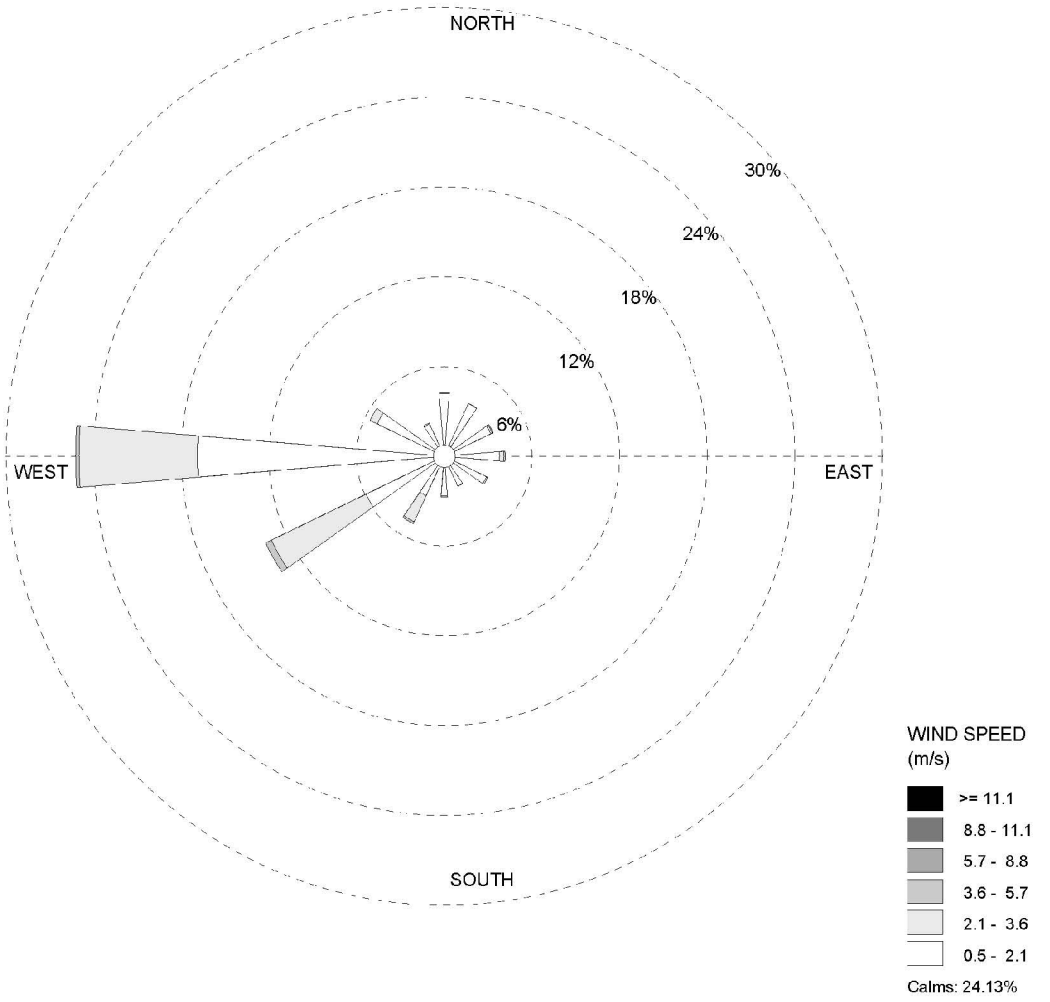
Table 5.8-1 provides the relevant air pollutant concentrations collected within these SRAs based on a three-year summary covering the years 2004 to 2006. Also shown in the table is a comparison with the ambient air quality standards for each air pollutant and number of exceedances of the standard during the years 2004 to 2006. The data shows that the area where the proposed project site is located exceeds the state 1-hour ozone and 24-hour PM_{10} standards as well as the national 8-hour ozone and 24-hour $PM_{2.5}$ standards and generally, the air quality in the region is poor.

WIND ROSE PLOT:

Wind Rose
Pomona - data from SCAQMD

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
Rich Haven Specific Plan	**1981** **Jan 1 - Dec 31** **00:00 - 23:00**	**Michael Brandman Associates**	
		MODELER: **CW**	
	CALM WINDS: **24.13%**	TOTAL COUNT: **8760 hrs.**	
	AVG. WIND SPEED: **1.21 m/s**		PROJECT NO.: **01160021**

WRPLOT View - Lakes Environmental Software

Michael Brandman Associates

Exhibit 5.8-1
Windrose

Table 5.8-1: Regional Ambient Air Quality Data

Air Pollutant, Averaging Time (Units)	2004	2005	2006
Ozone (Fontana)			
Max 1 Hour (ppm)	0.149	0.150	0.159
Days > CAAQS (0.09 ppm)	48	49	48
Max 8 Hour (ppm)	0.123	0.128	0.123
Days > NAAQS (0.08 ppm)	29	23	29
Carbon Monoxide (Upland)			
Max 1 Hour (ppm)*	4	4	ND
Days > CAAQS (20 ppm)	0	0	ND
Days > NAAQS (35 ppm)	0	0	ND
Max 8 Hour (ppm)	2.20	1.85	1.90
Days > CAAQS (9.0 ppm)	0	0	0
Days > NAAQS (9.0 ppm)	0	0	0
Nitrogen Dioxide (Fontana)			
Mean (ppm)	0.027	0.031	0.027
Max 1 Hour (ppm)	0.104	0.101	0.094
Days > CAAQS (0.25 ppm)	0	0	0
Sulfur Dioxide (Fontana)			
Max 24 Hour (ppm)	0.003	0.004	0.003
Days > CAAQS (0.04 ppm)	0	0	0
Days > NAAQS (0.14 ppm)	0	0	0
Particulate Matter (PM_{10}) (Ontario)*			
Mean ($\mu g/m^3$)	42.8	40.8	42.2
24 Hour ($\mu g/m^3$)	93.0	77.0	78.0
Days > CAAQS (50 $\mu g/m^3$)	14	18	14
Days > NAAQS (150 $\mu g/m^3$)	0	0	0
Particulate Matter ($PM_{2.5}$) (Ontario)*			
Mean ($\mu g/m^3$)	20.9	18.8	19
24 Hour ($\mu g/m^3$)	86.4	87.7	53.6
Days > NAAQS (35 $\mu g/m^3$)	2	1	0

Abbreviations:
> = exceed ppm = parts per million $\mu g/m^3$ = micrograms per cubic meter
ID = insufficient data ND = no data max = maximum
CAAQS = California Ambient Air Quality Standard NAAQS = National Ambient Air Quality Standard Mean = Annual Arithmetic Mean
Sources: CARB Air Quality Data/Statistics/Top 4 Summary, Accessed May 15, 2007
*South Coast Air Quality Management District, 2004 and 2005 Air Quality (SCAQMD 2007).

Attainment Status

Air basins where ambient air quality standards are exceeded are referred to as "non-attainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or

inconclusive data to make a definitive attainment designation, they are considered "unclassified." Federal non-attainment areas are considered severe, serious, or moderate as a function of deviation from standards. The current attainment designations for the project area are shown in Table 5.8-2.

Table 5.8-2: South Coast Air Basin Attainment Status

Pollutant	Averaging Time	State Status	National Status
Ozone	1-hour	Non-attainment	Not Subject
Ozone	8-hour	No state standard	Severe Non-attainment
Carbon Monoxide	1-hour and 8-hour	Attainment	Serious Non-attainment
Nitrogen Dioxide	1-hour and Annual	Attainment	Attainment
Sulfur Dioxide	24-hour; 1-hour	Attainment	Attainment
PM_{10}	24-hour; Annual	Non-attainment	Serious Non-attainment
$PM_{2.5}$	24-hour; Annual	Non-attainment	Non-attainment
Source: CARB Area Designations Maps, 2004. National Status from EPA, 2005.			

Baseline Emissions

The project site is currently being used for agricultural and dairy operations. Agricultural and dairy operations have fugitive dust emissions from equipment travel on unpaved roads. Dairy operations also have emissions of ROG, NO_x, hydrogen sulfide, ammonia, and methane from manure decomposition. During digestive processes, cattle emit methane. The dairy off-road equipment emits exhaust compounds (ROG, NO_x, CO, and PM_{10}). The project site has approximately fifteen residences currently onsite. Those that occupy the residences likely drive automobiles, which also emit exhaust compounds.

Sensitive Receptors

Those who are sensitive to air pollution include children, the elderly, persons with preexisting respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. The locations that house these persons or places they gather to exercise are defined as sensitive receptors. The sensitive receptors located near the project site are residences and a school. Colony High School is located adjacent to the northern portion of the project site. There are several farming residences located approximately 25 meters from the project boundary. There is also a cluster of residences located north of the project across Riverside Drive.

Regulatory Setting

Air pollutants are regulated at the federal, state, air basin, and local level; each agency has a different degree of control. The United States Environmental Protection Agency (EPA) regulates at the federal

level. The CARB regulates at the state level. The SCAQMD regulates at the air basin level. The City of Ontario regulates at the local level.

Federal and State Regulatory Agencies

The EPA handles global, international, national, and interstate air pollution issues and policies. The EPA sets federal vehicle and stationary source emission standards, oversees approval of all State Implementation Plans (SIP), provide research and guidance in air pollution programs, and sets National Ambient Air Quality Standards (NAAQS), also known as federal standards. There are NAAQS for six common air pollutants, called criteria air pollutants, which were assigned resulting provisions of the Clean Air Act. The six criteria pollutants are ozone, particulate matter (PM_{10} and $PM_{2.5}$), nitrogen dioxide, carbon monoxide (CO), lead, and sulfur dioxide. The EPA is the regulatory authority charged with the enforcing the NAAQS.

The CARB has overall responsibility for statewide air quality maintenance and air pollution prevention. The SIP for the State of California is administered by CARB. A SIP is a document prepared by each state describing existing air quality conditions and measures which will be taken to attain and maintain NAAQS. The CARB also administers California Ambient Air Quality Standards (CAAQS), or state standards, for the ten air pollutants designated in the California Clean Air Act. The ten state air pollutants are visibility reducing particulates (VRP), hydrogen sulfide, sulfates, vinyl chloride, and the six federal criteria pollutants listed above. The criteria pollutants and the applicable CAAQS and NAAQS are displayed in Table 5.8-3. These standards establish the context for local air quality management plans. They are set to protect the health of sensitive individuals.

Table 5.8-3: Air Quality Standards and Relevant Effects

Air Pollutant	Averaging Time	California Standard	National Standard	Most Relevant Effects
Ozone (O_3)	1 Hour 8 Hour	0.09 ppm 0.070 ppm	— 0.08 ppm	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals, and (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage.

Table 5.8-3 (Cont.): Air Quality Standards and Relevant Effects

Air Pollutant	Averaging Time	California Standard	National Standard	Most Relevant Effects
Carbon Monoxide (CO)	1 Hour 8 Hour	20 ppm 9.0 ppm	35 ppm 9 ppm	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO_2)	1 Hour Mean	0.25 ppm —	— 0.053 ppm	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO_2)	1 Hour 24 Hour Mean	0.25 ppm 0.04 ppm —	— 0.14 ppm 0.030 ppm	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Particulate Matter (PM_{10})	24 Hour Mean	50 µg/m^3 20 µg/m^3	150 µg/m^3 —	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children; (c) Increased risk of premature death from heart or lung diseases in elderly.
Particulate Matter ($PM_{2.5}$)	24 Hour Mean	— 12 µg/m^3	35 µg/m^3 15 µg/m^3	
Sulfates	24 Hour	25 µg/m^3	—	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage.
Lead	30-day Quarter	1.5 µg/m^3 —	— 1.5 µg/m^3	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 kilometer - visibility of 10 miles or more due to particles when relative humidity is less than 70 percent.		—	Visibility impairment on days when relative humidity is less than 70 percent.

Abbreviations: ppm = parts per million (concentration); µg/m^3 = micrograms per cubic meter;
Mean = Annual Arithmetic Mean; 30-day = 30-day average; Quarter = Calendar quarter
Sources: SCAQMD, 2003 Air Quality Management Plan (AQMP); CARB, Ambient Air Quality Standards, 2006.

South Coast Air Quality Management District

The air pollution control agency for the South Coast Air Basin (basin) is the South Coast Air Quality Management District (SCAQMD). The SCAQMD is responsible for controlling emissions primarily

from stationary sources. The SCAQMD is also responsible for developing, updating, and implementing the Air Quality Management Plan (AQMP) for the basin.

Air Quality Management Plan

The SCAQMD, in coordination with the Southern California Association of Governments (SCAG), develops the AQMP for the basin. An AQMP is a plan prepared by an air pollution control district for a county or region designated as a non-attainment area for bringing the area into compliance with the requirements of the national and/or state ambient air quality standards. Each of the attainment plans from all the regional air quality management districts and air pollution control districts collectively make up the SIP for California.

In 1977, the basin could not meet the deadline for ozone, nitrogen dioxide, carbon monoxide, or PM_{10}. The SCAQMD and SCAG first adopted an AQMP in 1979 and revised it in 1982 for attainment of the standards by 2000. The SCAQMD has had several AQMPs since then, including one in 1991 and one in 1997. Amendments to the 1997 AQMP were made in 1999 and 2002.

The current AQMP for the SCAQMD is the 2003 AQMP. The purpose of the 2003 AQMP is to "set forth a comprehensive program that will lead [the South Coast Air Basin and portions of the Salton Sea Air Basin under SCAQMD jurisdiction] into compliance with all federal and state air quality planning requirements" (AQMP 2003). The 2003 AQMP updates the 1997 attainment demonstration for the federal CO standard and provides a basis for a maintenance plan for CO for the future, and updates the maintenance plan for the national nitrogen dioxide standard that the basin has meet since 1992 (AQMP 2003). The 2003 AQMP also incorporates new scientific data in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2003 plan is consistent with and builds upon the approaches in the 1997 AQMP and the 1999 amendments to the Ozone SIP. The 2003 AQMP adds new PM_{10} and ozone control strategies.

The AQMP utilizes complex modeling to show that with the control measures, the basin will be in compliance with the national and state standards for all pollutants by 2010 except the state ozone and PM_{10} standards and the state ozone and PM_{10} standard post-2010 or by the earliest practicable date (AQMP 2003), as mandated by the California Health and Safety Code Section 40462. The 2003 AQMP was approved by the CARB on August 1, 2003. EPA's adequacy finding on the emissions budgets for conformity determination in the South Coast Air Basin was published in the Federal Register (69 FR 15325-15326).

The current AQMP for the Basin is the 2007 AQMP, which was adopted June 1, 2007. The 2007 AQMP incorporates significant new emissions inventories, ambient measurements, scientific data, control strategies, and air quality modeling. The AQMP will be forwarded to the EPA for its review and approval.

District Rules Applicable to the Project

As discussed above, the AQMP for the South Coast Air Basin establishes a program of rules and regulations administered by the SCAQMD to obtain attainment of the state and national air quality standards. The rules and regulations that apply to this project include but are not limited to the following:

- SCAQMD Rule 403, which governs emissions of fugitive dust. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour (mph), sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites. Rule 403 also requires projects that disturb over 100 acres of soil or moves 10,000 cubic yards/day of materials to submit to SCAQMD a Fugitive Dust Plan.
- SCAQMD Rule 1108 governs the sale, use, and manufacturing of asphalt and limits the ROG content in asphalt used in the South Coast Air Basin. Although this rule does not directly apply to the project, it does dictate the ROG content of asphalt available for use during the construction.
- SCAQMD Rule 1113 governs the sale, use, and manufacturing of architectural coating and limits the ROG content in paints and paint solvents. Although this rule does not directly apply to the project, it does dictate the ROG content of paints available for the use during the construction of buildings.

City of Ontario

The project lies within the New Colony General Plan Amendment Area; therefore, the policies in the New Colony General Plan Amendment pertain to the proposed project. Objective 25 in the NMC General Plan is to "minimize degradation of air resources." Policy 25.1.1 lists multiple measures that reduce short-term impacts during construction. These measures will be continued to be enforced. The measures are as follows:

- During all construction activities, construction contractors shall use low emission mobile construction equipment where feasible to reduce the release of undesirable emissions.

- During all construction activities, construction contractors shall encourage rideshare and transit programs for project construction personnel to reduce automobile emission.
- During all grading and site disturbance activities, construction contractors shall water active sites at least twice a day, and clean construction equipment in the morning and/or evening to reduce particulate emissions and fugitive dust.
- During all construction activities, construction contractors shall, as necessary, wash truck tires leaving the site to reduce the amount of particulate matter transferred to paved streets as required by SCAQMD Rule 403.
- During all construction activities, construction contractors shall sweep on and offsite streets if silt is carried to adjacent public thoroughfares, as determined by the City Engineer to reduce the amount of particulate matter on public streets.
- During all construction activities, construction contractors shall limit traffic speeds on all unpaved road surfaces to 15 miles per hour or less to reduce fugitive dust.
- During grading and all site disturbance activities, at the discretion of the City Planner, construction contractors shall suspend grading operations during first and second stage smog alerts to reduce fugitive dust.
- During grading and all site disturbance activities, at the discretion of the City Planner, construction contractors shall suspend all grading operations when wind speeds (including instantaneous gusts) exceed 25 miles per hour to reduce fugitive dust.
- During all construction activities, the construction contractors shall maintain construction equipment engines by keeping them tuned.
- During all construction activities, the construction contractors shall use low sulfur fuel for stationary construction equipment as required by AQMD Rules 431.1 and 431.2 to reduce the release of undesirable emissions.
- During all construction activities, the construction contractors shall use existing onsite electrical power sources to the maximum extent practicable. Where such power is not available, the Contractor shall use clean fuel generators during the early stages of construction to minimize or eliminate the use of portable generators and reduce the release of undesirable emissions.
- During all construction activities, the construction contractors shall use low emission, onsite stationary equipment (e.g., clean fuels) to the maximum extent practicable to reduce emissions, as determined by the City Engineer.
- During all construction activities, the construction contractors, in conjunction with the City Engineer, shall locate construction parking to minimize traffic interference on local roads.

- During all construction activities, the construction contractors shall ensure that all trucks hauling dirt, sand, soil, or other loose materials are covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer) in accordance with the requirements of the California Vehicle Code Section 23114 to reduce spilling of material on area roads.

Pollutant Characteristics

Various health effects result from exposure to the criteria pollutants. Pollutant characteristics, mechanisms of pollutant origination, and health effects for the criteria pollutants and other pollutants of concern are described below.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless toxic gas produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, biomass). CO levels tend to be highest during the winter months when the meteorological conditions favor the accumulation of the pollutants. Levels of CO in urban air are generally 2 to 10 ppm and can rise to more than 100 ppm around freeways and in tunnels. Inside automobiles in urban areas, levels can range from 9 to 56 ppm. Indoors when a natural gas stove is on, levels can be 6 to 12 ppm. Exposure to CO at 300 ppm for one hour can cause headaches, and exposure to 700 ppm of CO for one hour causes death.

CO gas enters the body through the lungs, dissolves in the blood, and replaces oxygen as an attachment to hemoglobin, an iron-containing compound. This binding reduces available oxygen in the blood and therefore reduces oxygen delivery to the body's organs and tissues causing suffocation. People who experience cardiovascular disease such as angina pectoris can be more sensitive to common levels of CO in ambient air. Elevated levels of CO can also cause visual impairments, reduced manual dexterity, poor learning ability, reduced work capacity, and trouble performing complex tasks. Infants whose mothers experienced chronic, elevated concentrations of CO can have lower birth weights.

Ozone

Ozone is a photochemical oxidant that is formed when reactive organic compounds (ROC) and oxides of nitrogen (NO_x), which are both byproducts of internal combustion engines, react in the presence of ultraviolet sunlight. High concentrations of ozone can occur during the summer resulting from longer periods of daylight. Thermal inversions can also trap ozone from dispersing vertically creating elevated levels of ozone.

Ozone is a very energetic combination of three oxygen atoms that releases its force as chemical energy when it encounters a surface. This energy can cause damage to biological systems (i.e., respiratory tract or vegetation). Ozone can cause headaches at levels greater than 0.15 ppm, chest pains at levels greater than 0.25 ppm, and cough and sore throat at levels greater than 0.30 ppm. Health effects of ozone can include the following: respiratory system irritation, reduction of lung function, asthma aggravation, inflammation and damage to lung cells, aggravation of chronic lung diseases, and permanent lung damage. Symptoms of ozone damage are not always present; therefore, caution should be taken when participating in outdoor activities requiring moderate or heavy exertion when ozone levels are high.

Oxides of Nitrogen

During combustion, oxygen reacts with nitrogen to produce nitrous oxides, or NO_x (NO, NO_2, NO_3, N_2O, N_2O_3, N_2O_4, and N_2O_5). This occurs primarily in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. Natural sources of NO_x include lightning, soils, wildfires, stratospheric intrusion, and the oceans. Natural sources accounted for approximately seven percent of 1990 emissions of NO_x for the United States. Atmospheric deposition of NO_x occurs when atmospheric or airborne nitrogen is transferred to water, vegetation, soil, or other materials. Acid deposition involves the deposition of nitrogen and/or sulfur acidic compounds that can harm natural resources and materials.

The EPA has concluded that the only form of NO_x that exists at a level to cause public health concerns is nitrogen dioxide (NO_2). NO_2 is a brown gas with a strong odor. The major source of NO_2 is oxidation of NO. Minor sources are fossil fuel combustion and biomass burning. As seen in Table 5.8-3, the California standard for NO_2 is 0.25 ppm. In urban regions, NO_2 levels range from 0.1 to 0.25 ppm. Those that may be more susceptible to NO_2 are people with pre-existing respiratory disease and children 5 to 12 years old. The health effects of greatest concern are mild changes in airway responsiveness and pulmonary function. At unrealistic levels of NO_2, acute bronchitis (25 to 100 ppm) or death (150 ppm) can occur.

NO_x is also an ozone precursor, which is defined as "chemicals such as hydrocarbons and oxides of nitrogen, occurring either naturally or as a result of human activities, which contribute to the formation of ozone, a major component of smog." In the case of NO_x and ROGs, once these pollutants are released into the atmosphere, they chemically react with one another in the presence of sunlight to form ozone.

Sulfur Dioxide

Sulfur dioxide (SO_2) is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor. Sulfuric acid is formed from sulfur dioxide, which is an aerosol particle component that affects acid deposition. Anthropogenic, or human caused, sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethylsulfide and hydrogen sulfide. SO_2 is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. Although SO_2 concentrations have been reduced to levels well below state and federal standards, further reductions are needed because SO_2 is a precursor to sulfate and PM_{10}. Sulfates are a particulate formed through the photochemical oxidation of SO_2.

Sulfur dioxide is a soluble gas; therefore, it can be absorbed in the mucous membranes of the respiratory tract and nose. Sensitive populations are those with heart or lung disease, the elderly, and children. Long-term exposure of high levels of SO_2 can cause irritation of existing cardiovascular disease, respiratory illness, and changes in the defenses in the lungs. When people with asthma are exposed to high levels of SO_2 for a short time during moderate activity, effects may include wheezing, chest tightness, or shortness of breath. At levels greater than 1.5 ppm, respiratory infections and bronchiolar constrictions can occur.

Lead

Lead (Pb) is a solid heavy metal that can exist in air pollution as an aerosol particle component. An aerosol is a collection of solid, liquid, or mixed-phase particles suspended in the air. It was first regulated as an air pollutant in 1976. Leaded gasoline was first marketed in 1923 and was used in motor vehicles until around 1970. The exclusion of lead from gasoline helped to decrease emissions of lead in the United States from 219,000 to 4,000 short tons per year between 1970 and 1997. Even though leaded gasoline has been phased out in most countries, some still use leaded gasoline. Lead-ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources are from dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering. Lead can be removed from the atmosphere by way of sinks, i.e., deposition to soils, ice caps, oceans, and thorough inhalation.

Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. The more serious effects of lead poisoning include behavior disorders, mental retardation, and neurological impairment. Low levels of lead in fetuses and young children can result in nervous system damage, which can cause learning deficiencies and low intelligence quotients (IQs). Lead may also contribute to high blood pressure and heart disease.

Lead concentrations once exceeded the state and federal air quality standards by a wide margin, but have not exceeded the standards at any regular monitoring station since 1982. Lead is no longer an additive to normal gasoline, which is the main reason the concentration of lead in the air is low.

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

Particulate matter is a generic term that defines a broad group of chemically and physically different particles (either liquid droplets or solids) that can exist over a wide range of sizes. Examples of atmospheric particles include those produced from combustion (diesel soot or fly ash), light produced (urban haze), sea spray produced (salt particles), and soil-like particles from re-suspended dust. Particulate matter can be divided up into two size categories: PM_{10} and $PM_{2.5}$. PM_{10} refers to particulate matter that is 10 microns or less in diameter (1 micron is one-millionth of a meter, also known as micrometer [µm]). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter. Soil dust consists of the minerals and organic material found in soil being lifted up into the air by winds. Fugitive dust is defined as "any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of any person."

Particulate matter originates from a variety of stationary and mobile sources. Stationary sources include fuel combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal and recycling. Mobile or transportation-related sources include particulate matter from highway vehicles and non-road vehicles and fugitive dust from paved and unpaved roads.

Pathophysiological effects from PM or its constituents could include the following: direct pulmonary effects; cardiovascular and other systemic effects secondary to lung injury; direct effects on the heart; and mutagenic or genotoxic effects. Some components of PM are more toxic than other components. Studies imply that some metals, diesel exhaust particles, ultra-fine particles, and bioaerosols contribute to harmful health effects.

Diesel Particulate Matter

Diesel exhaust is a mixture of many particles and gases that is produced when an engine burns diesel fuel. Many compounds found in diesel exhaust are carcinogenic, including sixteen that are classified as possibly carcinogenic by the International Agency for Research on Cancer. Diesel particulate matter (DPM) includes the particle-phase particles in diesel exhaust. Components of DPM include elemental and organic carbon. Elemental carbon is carbon that has had hydrogen taken from it. Organic carbon contains molecules containing carbon and hydrogen, and can contain oxygen, sulfur, and nitrogen.

Exposure to diesel exhaust can cause immediate health effects. Some of the health effects include eye, nose, and throat irritation as well as cough, nausea, and phlegm. The elderly, children, people with allergies, and those with asthma, emphysema, and chronic heart and lung disease are more susceptible to the effects of DPM.

Visibility Reducing Particles

Visibility reducing particles (VRP) are suspended particulates that reduce visibility. Visibility is the distance through the air that can be seen without the use of instrumental assistance. The distance that can be seen is limited by the amount of gases and aerosol particles in the way. Looking up vertically into the sky, one can see a greater distance compared with looking across the horizon because there are fewer particles blocking the view. Without pollution effects in the western United States, a natural visual range is 140 miles, and in the eastern United States, the range would be 90 miles. In 1999, the visibility range in the West was 33 to 90 miles and in the East 14 to 24 miles. The EPA implemented a Regional Haze Rule in 1999 to attempt to protect visibility in 156 Class I national parks and wilderness areas in the United States. The regulation requires States to establish goals for improving their areas and work together with other States as the pollution is often transported over long distances.

Reactive Organic Gases

Reactive organic gases (ROGs), also known as reactive organic compounds (ROCs) and volatile organic compounds (VOCs), consist of non-methane hydrocarbons and oxygenated hydrocarbons. Hydrocarbons are organic compounds that contain only hydrogen and carbon atoms. Non-methane hydrocarbons are hydrocarbons that do not contain the unreactive hydrocarbon, methane. Oxygenated hydrocarbons are hydrocarbons with oxygenated functional groups attached.

It should be noted that there are no state or national ambient air quality standards for ROGs because they are not classified as criteria pollutants. They are regulated, however, as ROGs are ozone precursors; therefore, a reduction in ROG emissions reduces certain chemical reactions that contribute to the formulation of ozone. ROGs are also transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility. Although health-based standards have not been established for ROGs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. Concentrations of many VOCs are consistently higher indoors (up to ten times higher) than outdoors. In general, high ROG concentrations can cause coughing, sneezing, headaches, weakness, laryngitis, and bronchitis.

Some hydrocarbon components classified as VOCs/ROGs are hazardous. Benzene, which is a ROG found in low concentrations in gasoline, has been classified by the EPA as a carcinogen. Short-term

exposure of high doses from inhalation of benzene may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation, and at higher levels, unconsciousness can occur. Long-term occupational exposure of high doses by inhalation of benzene has caused blood disorders, including aplastic anemia and lower levels of red blood cells. Perchloroethylene (perc) is the solvent most commonly used by the dry cleaning industry to clean clothes or other materials. The CARB and other public health agencies have identified perc as a potential cancer-causing compound. In addition to the potential cancer risk, the effects of long-term exposure to perc include dizziness, impaired judgment and perception, and damage to the liver and kidneys.

Vinyl Chloride

Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and 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. In 1978, CARB established the state ambient air quality standard for vinyl chloride because it is a known carcinogen. As a carcinogen, CARB could not recommend any safe level of exposure to vinyl chloride, other than zero. The standard was set at 0.01 ppm for a 24-hour duration because that was the lowest level that could be detected at that time. In 1990, CARB identified vinyl chloride as a toxic air contaminant. Vinyl Chloride is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloroethylene are broken down. This can occur when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride is also formed in manufacturing of PVC. PVC is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

The project is not expected to generate or be exposed to vinyl chloride because its uses do not use the chemicals processes that create this pollutant. Therefore, it is not assessed in this report.

Hydrogen Sulfide

Hydrogen sulfide (H_2S) is a flammable, colorless, poisonous gas that smells like rotten eggs. Hydrogen sulfide and other reduced sulfur compounds form by the anaerobic decomposition of manure. Some types of bacteria found in animal and human by-products produce hydrogen sulfide during reduction of sulfur-containing compounds, such as proteins. Manure storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide emissions where sulfur is present in manure. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal) and organic matter that undergoes putrefaction. It is used in the production of heavy water for nuclear reactors, the manufacture of chemicals, in metallurgy, and as an analytical reagent. High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause symptoms like headache, nausea, vomiting, and cough. Long exposure to hydrogen sulfide can cause pulmonary edema.

The project is not expected to generate or be exposed to hydrogen sulfide because its uses do not typically generate this pollutant in any substantial quantity. Therefore, hydrogen sulfide is not assessed in this report.

Greenhouse Gases

Gases that trap heat in the atmosphere are called greenhouse gases (GHG), analogous to the way a greenhouse retains heat. GHG include water vapor, carbon dioxide, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Natural processes and human activities emit GHG. A detailed description of each of the greenhouse gases is contained in the Global Climate Change Analysis (Appendix G).

NOP Comments

One comment letter was received regarding air quality by the SCAQMD. The SCAQMD indicated the air quality analysis should include the following items:

- An analysis of short-term construction and long-term operational air quality impacts.
- Use of localized significance thresholds in addition to regional thresholds.
- A Health Risk Assessment if the project is to attract heavy-duty diesel vehicles.
- Inclusion of all feasible mitigation measures.

This air quality analysis intends to do the following: assess short-term and long-term impacts; use regional and localized significance thresholds; and implement all feasible mitigation measures. The project is not anticipated to attract heavy-duty diesel fueled vehicles; therefore, a Health Risk Assessment was not performed.

5.8.3 - Thresholds of Significance

The following criteria for establishing the significance of potential impacts on air quality were derived from Appendix G of the CEQA guidelines. A significant impact would occur if the proposed project would:

a) Conflict with or obstruct implementation of the applicable air quality plan.

b) Violate any air quality standard or contribute substantially to an existing or protected air quality violation.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non attainment under an applicable federal or state ambient air quality

standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

d) Expose sensitive receptors to substantial pollutant concentrations.

e) Create objectionable odors affecting a substantial number of people.

According to the Initial Study, the project would have no impact regarding objectionable odors.

SCAQMD Regional Thresholds

While the final determination of whether or not a project is significant is within the purview of the lead agency pursuant to section 15064(b) of the CEQA Guidelines, the SCAQMD recommends that regional air pollution thresholds be used by the lead agencies in determining whether the proposed project could result in a significant impact. The regional significance thresholds for the basin are identified in Table 5.8-4. If the lead agency finds that the project has the potential to exceed these regional air pollution thresholds, then the project would have a significant impact on regional air quality. These regional thresholds have been defined by SCAQMD for the basin based on scientific data the SCAQMD has obtained and factual data within the national and state Clean Air Acts. Since the project is located within the basin and current air quality in the project area is typical of the air basin as a whole, these thresholds are considered valid and reasonable.

Table 5.8-4: SCAQMD Regional Significance Thresholds

Pollutant	Construction (lbs/day)	Operation (lbs/day)
Oxides of Nitrogen (NO_x)	100	55
Volatile Organic Compounds (VOC)	75	55
Particulate Matter (PM_{10})	150	150
Particulate Matter ($PM_{2.5}$)	55	55
Oxides of Sulfur (SO_x)	150	150
Carbon Monoxide (CO)	550	550
Source: SCAQMD Air Quality Significance Thresholds. August 2006.		

SCAQMD Localized Significance Thresholds

The SCAQMD Governing Board adopted a methodology for calculating localized air quality impacts through localized significance thresholds (LSTs), which is consistent with the SCAQMD's Environmental Justice Enhancement Initiative I-4. LSTs were approved by the SCAQMD Mobile Source Committee in February 2005. Localized significance thresholds (LSTs) represent the

maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable state or national ambient air quality standards. The LSTs are developed based on the ambient concentrations of that pollutant for each source receptor area and are applicable only to NO_x, CO, PM_{10}, and more recently, $PM_{2.5}$.

The LST for PM_{10} is the concentration threshold presented in SCAQMD Rule 403 and shown in the SCAQMD Air Quality Significance Thresholds in its CEQA Handbook www.aqmd.gov/ceqa/hdbk.html. The LST for PM_{10} during construction is 10.4 µg/m^3. The LST for $PM_{2.5}$ during construction is 2.2 µg/m^3.

LSTs for operational NO_2 and CO are derived using the equation:

$$T_{project} = C_{AAQS} - C_B$$

Where: $T_{project}$ is the localized threshold for the project in micrograms per cubic meter; C_{AAQS} is the most stringent state or federal standard in micrograms per cubic meter; and C_B is the maximum background concentration that occurred in the past three years at the closest air quality monitoring station in micrograms per cubic meter. The LST for NO_2 is computed as follows: the 1-hour state standard is 0.25 ppm; the maximum 1-hour NO_2 concentration in the last three years (see Table 5.8-1) is 0.12 ppm. Therefore, the difference between the two concentrations is 0.13 ppm.

The LST for 1-hour CO is computed as follows: the 1-hour state standard is 20 ppm; the maximum 1-hour concentration in the last three years (from Table 5.8-1) is 6 ppm. Therefore, the difference between the two concentrations is 14 ppm. The LST for 8-hour CO is computed as follows: the 8-hour standard is 9 ppm; the 8-hour maximum concentration in the last 3 years (from Table 5.8-1) is 4.4 ppm. Therefore, the difference between the two concentrations is 4.6 ppm. The LSTs are summarized in Table 5.8-5.

Table 5.8-5: Localized Significance Thresholds

Pollutant	Localized Significance Threshold for Construction
NO_2 (1 Hour)	0.13 ppm
CO (1 Hour)	14 ppm
CO (8 Hour)	4.6 ppm
PM_{10} (24 Hour)	10.4 µg/m^3
$PM_{2.5}$ (24 Hour)	2.2 µg/m^3
Source: South Coast Air Quality Management District. Final Localized Significance Methodology, June 2003.	

5.8.4 - Project Impact Analysis

Air quality impacts can be described in a short-term and long-term perspective. Short-term impacts will occur during site grading and project construction. Long-term air quality impacts will occur once the project is in operation.

Construction Impacts (Short-Term)

Short-term impacts will include fugitive dust and other particulate matter, as well as exhaust emissions generated by earthmoving activities and operation of grading equipment during site preparation including the exporting of manure laden soils and the import of engineered fill. Construction emissions can be caused by onsite or offsite emissions. Onsite emissions principally consist of exhaust emissions (NO_x, SO_x, CO, ROG, PM_{10}, and $PM_{2.5}$) from heavy-duty construction equipment, motor vehicle operation, and fugitive dust (PM_{10}) from disturbed soil. Offsite emissions are principally caused by motor vehicle exhaust from delivery vehicles, as well as worker traffic, but also include road dust (PM_{10} and $PM_{2.5}$).

The project is split into two phases, with the first phase being the largest. Therefore, to estimate impacts from construction of the project, emissions from Phase I are considered as the worst-case scenario. The assumed construction schedule for Phase I is shown in Table 5.8-6 below. As shown in the table, major construction-related activities include the following: demolition; grading/clearing, including the excavation; soil export; excavation and earth moving for infrastructure construction of the utilities, both on and offsite, and dwelling unit foundations and footings; building construction; asphalt paving of access roads throughout the development; and application of architectural coatings for things such as dwelling stucco and interior painting.

Table 5.8-6: Phase I - Construction Schedule

Construction Phase/Activity	Construction Equipment	Start Date	Duration
Demolition	Other Equipment - water truck (1) Rough Terrain Forklifts (2) Rubber Tired bulldozers (2) Rubber Tired loaders (2) Tractor/Loaders/Backhoes (8) Worker Vehicles	June 2008	2 weeks
Site Preparation Grading	Other Equipment (2) Rubber Tired Dozers (2) Tractors/Loaders/Backhoes (20) Scrapers (4) Worker Vehicles Export of unsuitable soil: 258,135 yds^3	June 2008	6.5 months

Table 5.8-6 (Cont.): Phase I - Construction Schedule

Construction Phase/Activity	Construction Equipment	Start Date	Duration
Building/Finishing Infrastructure; dwelling unit construction; utilities, etc	Other equipment (35) Unmitigated Other equipment (4) Mitigated* Forklifts (17) Concrete/Industrial saws(4) Worker Vehicles	Unmitigated: Jan. 2009; Mitigated: Feb. 2009**	9 months
Architectural Coating	Worker Vehicles	June 2009	4 months
Paving of Roads	Graders (3) Off Highway Trucks (3) Paving Equipment (3) Pavers (3) Rollers (6) Worker Vehicles	Jan. 2009	2 weeks
Total Construction Period			**15 months**
* Mitigation AQ-5; ** See mitigation AQ-7.			

During demolition, several structures onsite will need to be demolished, in an estimated 710,841 cubic feet of building debris volume. Assuming approximately 10 working days of demolition, the maximum building volume to be exported would be 71,042 cubic feet. Assuming a truck capacity of 20 cubic yards per load and 30 miles round trip distance, this would require on-road truck travel of approximately 3,951 total vehicle miles traveled.

During grading, it is anticipated that manure laden soil will be exported. It was assumed that a maximum of 4,000 cubic yards of soil would be exported in one day using single load dump trucks at 20 cubic yards per load and approximately 90 truck trips per day. It is assumed that the entire site would be mass graded, with approximately 89 acres being graded at any one-time.

Construction equipment as listed in Table 5.8-6 will result in emissions of CO, NO_x, ROG, SO_x, PM_{10}, and $PM_{2.5}$. Paving operations and application of architectural coatings will release ROG emissions. Construction emission can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions.

Table 5.8-7 summarizes construction emissions without mitigation. The emissions were estimated using URBEMIS2002; additional details regarding the assumptions used in the model are contained in Appendix G, Air Quality Impact Analysis. When emissions projections are compared with the SCAQMD regional thresholds for significance, it is shown that emissions exceed the thresholds for ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$. The unmitigated short-term impacts to air quality are considered significant (Threshold b).

Table 5.8-7: Construction-Related Emissions (Unmitigated)

Phase	Emissions (pounds per day)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Demolition	23.75	220.54	168.16	0.18	38.04	6.27
Grading	41.73	325.45	326.96	0.09	495.04	112.97
Building Construction, Architectural Coatings, and Asphalt	3215.60	877.77	1077.51	0.14	37.15	33.26
Maximum Daily Emissions	**3215.60**	**877.77**	**1077.51**	0.14	**495.04**	**112.97**
Regional Threshold	75	100	550	150	150	55
Exceed Regional Threshold?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Note: The maximum daily emissions refer to the maximum emissions that would occur in one day; demolition, grading, and construction do not occur at the same time; therefore, their emissions are not summed.
Source: URBEMIS Data, MBA, 2006.

Localized Significance Analysis - Construction

The evaluation of localized impacts determines the potential of the project to violate any air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. To evaluate localized impacts for construction and operational emissions, an air dispersion model is used to simulate the movement of project related pollutants through the air and compare the concentration of those pollutants to the applicable thresholds. The localized significance thresholds (LSTs) are identified in Table 5.8-5

Methodology

Modeling the dispersion of estimated project emissions attempts to predict how those pollutants will move through the atmosphere and gives predictions of the concentration of the pollutants in the area surrounding the project site. This is accomplished by computing the emissions from the source (i.e., emissions from construction equipment). The emissions are then input into a dispersion model, which tracks how the pollutants move through the air. To measure the pollutant concentration over time, theoretical receptors are placed near the sources and at sensitive receptors (i.e., houses located near the project site). The maximum pollutant concentration at each receptor is recorded. The "maximum" location is the receptor at which the maximum level of a pollutant occurred over the theoretical time period. The predicted concentrations are estimates based on model input. The predicted concentrations do not represent actual occurrences nor do they necessarily predict future levels.

Concentrations were estimated by the EPA dispersion model, ISCST3, which is the model recommended by the SCAQMD for detailed analyses (SCAQMD 2003). The modeling methodology

follows the Final Localized Significance Threshold Methodology (SCAQMD 2003). A variable emission rate assumed the emissions would be generated during the hours of 8:00 am to 4:00 pm. For additional details regarding the modeling methodology, please refer to Appendix G.

Fuel combustion produces NO_x, which contains primarily NO and NO_2. Typically, NO_x produced from combustion is comprised of 90 to 95percent NO. NO_2 is formed in the atmosphere involving atmospheric chemical reactions involving NO, ozone, and reactive hydrocarbons. Health effects are observed from NO_2, not NO; therefore, ambient air quality standards are set for NO_2. The ratio of NO_2 to NO_x is a function of downwind distance. Initially, it is assumed that only five percent of the emitted NO_x is NO_2, and 5,000 meters from the source, it is assumed that the entire quantity of NO has been converted to NO_2. Therefore, the concentrations of NO_x as estimated by the dispersion model are converted to NO_2 based on the receptor's distance from the source. (SCAQMD 2003)

The grading estimates in the construction Regional Significance Analysis generated by URBEMIS were used for PM_{10}, NO_x, and CO because mitigated emissions are greatest during grading activities. Only the onsite emissions were used in the analysis, which included off-road equipment emissions and fugitive dust. The maximum amount of acreage that would be disturbed per day is approximately 89 acres. To represent fugitive dust, an area source covering approximately 89 acres was placed on the project. To represent exhaust emission sources (CO and NO_x), 100 volume sources each 60 meters long were placed onsite.

Results

The dispersion modeling results at the maximum receptor locations are presented in Table 5.8-8. As shown in the table, the PM_{10} and $PM_{2.5}$ concentrations exceed the localized significance thresholds at the nearest sensitive receptors. Therefore, PM_{10} and $PM_{2.5}$ emitted during grading has the potential to exceed the 24-hour California ambient air quality standard. The PM_{10} and $PM_{2.5}$ concentrations are greatest near the boundary of the project site, immediately adjacent to the area being graded and disperse rapidly. As shown in the windrose presented in Exhibit 5.8-1, the primary wind direction is to the east (or from the west). Therefore, the impacts are greatest to the east of the project site.

The 1-hour CO, 8-hour CO, and 1-hour nitrogen dioxide concentrations do not exceed the localized significance thresholds and therefore project emissions during construction are not anticipated to exceed the ambient air quality standards for nitrogen dioxide or CO.

Table 5.8-8: Construction Localized Significance Analysis

	Dispersion Modeling Results - Maximum Concentration				
	24-hour PM_{10} ($\mu g/m^3$)	24-hour $PM_{2.5}$ ($\mu g/m^3$)	1-hour NO_2 (ppm)	1-hour CO (ppm)	8-hour CO (ppm)
Unmitigated Grading	**228**	**51**	0.04	0.4	0.3
Mitigated Grading	**73**	**17**	0.04	0.4	0.3
Localized Significance Threshold	10.4	2.2	0.13	14	4.6
Exceed threshold?	**Yes**	**Yes**	No	No	No

Items in bold exceed the significance threshold.
Source: URBEMIS Data, MBA, 2006.

Project Occupancy (Long-Term Impacts)

Long-term emissions from occupancy or buildout of the proposed project include mobile and stationary emissions. Mobile emissions are mainly from motor vehicle traffic, while area sources include consumer products, water and area heaters and other products that consume natural gas, as well as gasoline-powered landscaping equipment. Mobile emissions from motor vehicles are the largest single long-term source of air pollutants from the project, based on an estimated 46,792 daily trips.

Emissions during summer associated with buildout of the project are shown in Table 5.8-9. Emissions during winter are shown in Table 5.8-10. Emissions for both seasons are shown because emissions from mobile, landscaping, and fireplace sources differ between the seasons. A comparison of the URBEMIS2002 outputs for operational emissions and the SCAQMD thresholds shows that during both seasons, the SCAQMD thresholds for ROGs, NO_x, CO, PM_{10}, and $PM_{2.5}$ are expected to be exceeded as a result of the operation of the project at buildout.

Table 5.8-9: Estimated Daily Summer Operational Emissions

Activity	Operational Emissions (pounds per day)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Mobile Emissions	233.97	222.98	2457.37	3.00	457.40	452.83
Natural Gas	3.42	44.68	21.47	0.00	0.08	0.08
Landscaping	5.59	0.72	44.35	0.27	0.14	0.14
Consumer Products	208.31	—	—	—	—	—
Architectural Coatings	104.85	—	—	—	—	—

Table 5.8-9 (Cont.): Estimated Daily Summer Operational Emissions

Activity	Operational Emissions (pounds per day)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Total Daily Emissions	556.14	268.38	2523.19	3.27	457.62	453.04
SCAQMD Regional Threshold	55	55	550	150	150	55
Exceeds Threshold?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Notes:
$PM_{2.5}$: calculated as 99% of PM_{10} pursuant to SCAQMD Draft $PM_{2.5}$ Methodology, August 2006.
Source: URBEMIS Data, MBA, 2006.

Table 5.8-10: Estimated Daily Winter Operational Emissions

Activity	Operational Emissions (pounds per day)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Mobile Emissions	199.40	320.40	2308.56	2.43	457.40	452.83
Natural Gas	3.42	44.68	21.47	0.00	0.08	0.08
Hearth (fire place)	2416.69	79.20	4418.64	10.49	658.59	652.00
Consumer Products	208.31	—	—	—	—	—
Architectural Coatings	104.85	—	—	—	—	—
Total Daily Emissions	2932.67	444.28	6748.67	12.92	1116.07	1104.91
SCAQMD Regional Threshold	55	55	550	150	150	55
Exceeds Threshold?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Notes:
$PM_{2.5}$: calculated as 99% of PM_{10} pursuant to SCAQMD Draft $PM_{2.5}$ Methodology , August 2006.
Source: SCAQMD Draft $PM_{2.5}$ Methodology , August 2006.

CO Hotspot Analysis

A CO hot spot is a localized concentration of CO that is above the State or Federal 1-hour or 8-hour ambient air standards. Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. To provide a worst-case scenario, CO concentrations are estimated at project-impacted intersections, where the concentrations would be the greatest. Intersections with the highest potential for CO hotspots were selected based on their average delay, traffic volumes (obtained from the traffic study prepared for this project), and proximity to sensitive receptors. This analysis follows guidelines recommended by Caltrans CO Protocol (California Department of Transpiration December 1997) and the SCAQMD. According to the CO Protocol, intersections with Level of Service (LOS) E or F require detailed analysis. In addition, intersections that operate under

LOS D conditions in areas that experience meteorological conditions favorable to CO accumulation require a detailed analysis.

The CARB emission factor model, EMFAC2002, was used to estimate the emission factors for the year 2015, which is the year the project specific traffic study used in estimating the future traffic volumes. Additional assumptions include approach/departure speed of 5 miles per hour; travel speed of 28 miles per hour; temperature of 40 degrees Fahrenheit; winter; and South Coast Air Basin as the geographical area -.

Using the CALINE4 model, potential CO hotspots were analyzed at the intersections listed in Table 5.8-11. As shown in Table 5.8-11, the estimated 1-hour and 8-hour average CO concentrations in combination with background concentrations are below the State and Federal ambient air quality standards. No CO hotspots are anticipated as a result of traffic-generated emissions by the proposed project in combination with other anticipated development in the area. Therefore, even though CO operational emissions are over the SCAQMD regional significance daily threshold (as shown in Table 5.8-9 and Table 5.8-10), the emissions from the project are not anticipated to contribute substantially to an existing or projected air quality violation.

Table 5.8-11: Estimated CO Concentrations

Intersection	1 Hour Estimated CO Concentration (ppm)*	8 Hour Estimated CO Concentration (ppm)**	Significant Impact?***
Archibald Avenue at Edison Avenue	6.2	3.7	No
Haven Avenue at SR-60 EB Ramps	5.1	3.0	No
Haven Avenue at Riverside Drive	5.3	3.1	No
Haven Avenue at Edison Avenue	5.3	3.1	No
Milliken Avenue at SR-60 WB Ramps	5.2	3.0	No
Milliken Avenue at SR-60 EB Ramps	5.2	3.0	No
Milliken Avenue at Riverside Drive	5.7	3.4	No
Milliken Avenue at Edison Avenue	6.2	3.7	No

* Caline4 output plus background concentration of 4 ppm (from Table 5.8-1).
** The Caline4 output is the 1-hour concentration; therefore, the 8-hour project increment was calculated by multiplying the 1-hour estimated concentration by 0.7 (persistence factor), then adding a background concentration of 2.2 ppm (from Table 5.8-1).
*** Comparison of the 1-hour concentration to the state standard of 20 ppm and comparison of the 8-hour concentration to the state/federal standard of 9 ppm.
Source: Caline4 model, MBA, 2006.

Health Effects from Non-Project Sources

The project will introduce sensitive receptors into the area because residential development will include children within the households. Therefore, this qualitative assessment of local non-project sources is provided to estimate whether the sensitive receptors in the project will be exposed to substantial pollutant concentrations.

One local source of air pollution is emissions from non-project related vehicle traffic on the roads that surround the project site. The primary pollutants associated with vehicle travel are CO, ROG, NO_x, PM_{10}, and $PM_{2.5}$. The air pollution generated from these vehicles will be dispersed over the roadways. The CO hotspot analysis demonstrated that CO emissions from project and non-project vehicles would not create a CO hotspot in excess of the ambient air quality standards. Therefore, health effects from non-project emissions of CO are anticipated to be less than significant.

There are several warehouses located off Milliken Avenue. Warehouses can be a source of localized diesel particulate matter. The project design includes placement of commercial uses off Milliken Avenue. Therefore, the distance from the residential overlay and the existing warehouses is approximately 1,000 feet. Considering the prevailing winds (to the west) and the distance of the sensitive land uses (residences) to the warehouses, health effects from this pollutant source is considered to be less than significant.

The Mira Loma Southern California Edison substation is located adjacent to a portion of the eastern boundary of the project site at 13568 Milliken Avenue in Ontario. A substation is "a high-voltage electric system facility. It is used to switch generators, equipment, and circuits or lines in and out of a system. It also is used to change AC voltages from one level to another, and/or change alternating current to direct current or direct current to alternating current" (U.S. Department of Labor 2006). The substation has several air pollutant sources.

One such source is from the substation's emergency generators. The site has one emergency ICE 370 bhp used approximately 20 hours per year for non-emergency use and one emergency ICE 1490 bhp used approximately 20 hours per year for non-emergency use. The health impact from the emergency generators is anticipated to be less than significant due to the limited use of the machines. Additionally, as the substation is located to the east of the project site, and the wind primarily blows to the east, it is not likely that the project site would be subjected to substantial pollutants from this source.

The substation also has one 4,000-gallon gasoline tank with phase I and II emission controls and one 4,000-gallon diesel tank (Ledwitz 2006). The emissions from fueling stations include VOCs and benzene. There are other toxic components in gasoline such as xylene, toluene, methyl tertiary butyl ether (MTBE), and ethyl benzene; however, the risk associated with those compounds is much lower than that of benzene (CAPCOA 1997). As discussed in the Pollutant Characteristics section, benzene is carcinogenic. However, it is anticipated that the cancer risk associated with the fueling stations is less than the 10 in one million cancer-risk threshold. This assumption is based on the look-up tables for a fueling station with one million gallons per year throughput, which has an estimated 3.9 in one million cancer-risk 20 meters from the fueling station (Appendix E of CAPCOA 1997, Table 2B).

In summary, health risks from local sources are anticipated to be less than significant.

Health Effects from Project Emissions

This section correlates project short-term and long-term emissions with health effects and determines the significance (**threshold d**). A brief description of some of the health effects for the pollutants discussed below is located in the Air Pollutant section. Note that health effects vary from individual to individual as well as from exposure duration and concentration of the pollutant. Therefore, even if it is determined that there may be a significant health impact from project emissions of a certain pollutant, it does not mean that everyone in the vicinity of the project would experience health effects.

Short-term Health Effects

Unmitigated, short-term emissions of ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$ during construction would result in significant regional short-term impacts to air quality. A localized significance threshold analysis for CO, NO_x, PM_{10}, and $PM_{2.5}$ was conducted to determine if concentrations during construction would exceed the ambient air quality standards. The analysis showed that concentrations of CO and nitrogen dioxide during construction would not exceed the ambient air quality standards and therefore would not result in significant health impacts at sensitive receptors. The localized analysis also showed that concentrations of PM_{10} and $PM_{2.5}$ generated during grading would exceed the localized threshold. Therefore, it is possible that sensitive receptors near the project boundary could experience short-term health effects related to PM_{10} and $PM_{2.5}$, including sneezing, coughing, irritation of mucous membranes, and perhaps asthma attacks. Those most susceptible to effects of PM_{10}/$PM_{2.5}$ are the elderly, people with pre-existing respiratory and/or cardiovascular disease and children (SCAQMD AQMP 2003). There is no air quality standard for ROGs as a whole. Typically, high concentrations of ROGs only occur indoors. The main sources of ROGs during construction are from asphalt paving and from building construction (the use of tar, paint, and other volatile compounds). These ROG emissions are anticipated to dissipate rapidly from the project site and will not result in significant health impacts.

The construction equipment on the project site would emit diesel particulate matter, which is a carcinogen (see description on page 4.2-5). However, the diesel particulate matter emissions from the project site are short-term in nature. Determination of risk from diesel particulate matter is considered over a 70-year exposure time. Therefore, it is unlikely that emissions from the project would result in substantial health impacts to the surrounding residents. However, to ensure that project emissions of diesel do not result in short-term health effects, especially to the neighboring school, mitigation is imposed to require the use of aqueous diesel fuel, which reduces exhaust emissions by approximately 60 percent. Therefore, the exposure to diesel particulate matter is less than significant.

Long-Term Health Effects

Long-term operational impacts from the project will result in significant regional impacts to ROG, CO, NO_x, and PM_{10} because the District's regional significance thresholds are exceeded. This is because the project is large scale in nature and increases the quantity of motor vehicles in the area from the proposed land uses.

The project will not expose sensitive receptors to substantial CO concentrations. The greatest potential for an exceedance of CO would be at project-impacted intersections. A CO hotspot analysis determined that the levels of CO at impacted intersections are below the state and federal ambient air quality standards. Therefore, localized concentrations of CO from the project would not result in localized health effects. The main source of operational CO emissions is from motor vehicles (see Table 5.8-9 and Table 5.8-10); therefore, a CO hotspot analysis is the best tool to determine if CO emissions from the project would contribute to a health impact, and it was shown that it does not.

Long-term emissions of NO_x and ROG are above the regional significance thresholds. However, health effects are not anticipated from direct exposure to NO_x and ROG. There is no ambient air quality standard for ROG. Health effects from ROG are only observed in high concentrations, such as in a factory. The main emissions of ROG are from architectural coatings and mobile vehicles. In a residential development, painting occurs throughout the year. Therefore, concentrations from architectural coatings would not be great enough to induce substantial health impacts. ROG emissions from automobiles are distributed over miles and miles of roadway. Such emissions will not be at concentrations to induce substantial health impacts. Benzene is emitted from motor vehicles and from gasoline stations. The California Air Resources Board published an Air Quality and Land Use Handbook (California Air Resources Board 2005), which has voluntary recommendations that will "help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution" (California Air Resources Board 2005, page ES-1). The CARB recommends avoiding placing sensitive receptors within 300 feet of a large gasoline station and

within 50 feet of a typical gasoline station. Although the tenants for the commercial land uses are currently unknown, mitigation is proposed that recommends a buffer of 300 feet. Some dry cleaners use perchloroethylene (perc), which is a carcinogen. The CARB recommends a 300-foot buffer between a dry cleaner with one machine, a 500-foot buffer for a dry cleaner with two machines, and a dry cleaner with three or more machines must contact the SJVAPCD. Mitigation is required in accordance with these suggestions. With mitigation, emissions of ROG are not at a level to result in a significant health risk to sensitive receptors.

Although there is an ambient air quality standard for nitrogen dioxide (a component of NO_x), background levels of nitrogen dioxide are not such that the project would contribute to an exceedance of the pollutant. As discussed above, the main operational source of NO_x is from motor vehicles. These emissions will be distributed over miles of roadway and will not be at a level to result in a significant health effect from exposure of nitrogen dioxide.

ROG and NO_x are precursors to ozone formation. However, it is not anticipated project emissions alone would contribute enough ozone to exceed the ambient air quality standard. For cumulative impacts of ozone, please refer to the cumulative section. Similar to ozone, project emissions of PM_{10} and $PM_{2.5}$ alone are not anticipated to exceed the ambient air quality standards. For cumulative impacts of PM_{10}, please refer to the cumulative section.

Summary

In summary, during grading, emissions of PM_{10} and $PM_{2.5}$ may cause health effects to the surrounding residents.

Consistency with the Air Quality Management Plan

This assessment will use three criteria for determining project consistency with the 2003 Air Quality Management Plan (AQMP), as discussed below. According to the SCAQMD (1993), there are two key indicators of AQMP consistency: 1) whether the project will not 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; and 2) whether the project will exceed the assumptions in the AQMP based on the year of project buildout and phase (SCAQMD 1993). The third criterion is compliance with the control measures in the AQMP.

Project's Contribution to Air Quality Violations

It was determined that the project may contribute to air quality violations because it exceeds the SCAQMD thresholds for long-term and short-term emissions. Because the project exceeds the

SCAQMD thresholds, the emissions from the project may contribute to new violations or a delay in timely attainment of air quality standards. Therefore, the project fails to meet the first indicator.

AQMP Assumptions

The first way to assess project compliance with the AQMP assumptions is to ensure that the population density and land use are consistent with the growth assumptions used in the air plans for the air basin. According to CARB transportation performance standards, the rate of growth in vehicle miles traveled (VMT) and trips should be held to the rate of population growth (SCAQMD 1993, page 9-12). Compliance with this performance standard is one way of showing compliance with the growth assumptions used in the AQMP. If the total VMT generated by the proposed project at build-out is at or below that predicted by the AQMP, then the proposed project's mobile emissions is consistent with the AQMP. It is assumed that the existing and future pollutant emissions computed in the AQMP was based on land uses from area general plans.

A comparison of project and NMC variables is presented in Table 5.8-12. As shown in the table, the project will result in approximately the same amount of vehicle miles traveled as the NMC. Therefore, the project complies with this criterion.

Table 5.8-12: Comparison of Project and General Plan Variables

Variables	NMC	Proposed Project at Buildout
Residential Dwelling Units	1,268	4,259
Community Commercial (sq ft of gross floor space)	1,306,800	848,400
Vehicle Trips per Day	49,162	46,797
Vehicle Miles Traveled (VMT) per Day	302,611	302,260
Source: URBEMIS Data, MBA, 2006.		

Control Measures

The third criterion is compliance with the control measures in the AQMP. The AQMP contains a number of land use and transportation control measures including the following: the District's Stationary and Mobile Source Control Measures; State Control Measures proposed by CARB; and Transportation Control Measures provided by SCAG (AQMP 2003, page 4-3). CARB's strategy for reducing mobile source emissions include the following approaches: new engine standards; reduce emissions from in-use fleet, require clean fuels, support alternative fuels and reduce petroleum dependency, work with EPA to reduce emissions from federal and state sources, and pursue long-term advanced technology measures (AQMP 2003, page 4-25). Transportation control measures

provided by SCAG include those contained in the Regional Transportation Plans (RTP), the current of which is the 2004 RTP (SCAG 2004). The RTP has control measures to reduce emissions from on-road sources by incorporating strategies such as high occupancy vehicle interventions, transit, and information-based technology interventions (AQMP 2003, page 4-19). The measures implemented by CARB and SCAG effect the project indirectly by regulating the vehicles that the residents may use and regulating public transportation. The project indirectly will comply with the control measures set by CARB and SCAG.

As discussed in the section above, District Rules Applicable to the Project, the project will comply with all of the District's applicable rules and regulations. Therefore, the project complies with this criterion.

Overall Compliance with the AQMP

The project exceeds the SCAQMD thresholds for short-term and long-term operations; therefore, may contribute to an air quality violation. Considering that criterion, the project is not consistent with the AQMP. The project complies with the vehicle miles traveled assumptions in the AQMP. The project will comply with applicable control measures in the AQMP. Therefore, the project is not consistent with one of the three criteria. Therefore, the project does not comply with the AQMP.

Odors

Diesel exhaust will be emitted during construction of the project. Diesel exhaust is an objectionable odor to some; however, the emissions will disperse rapidly from the project site and therefore, should not be at a level to induce a negative response from the surrounding residents. The odors will be such that they will be rapidly dispersed by the prevailing winds; therefore, are anticipated to be less than significant. The project does not contain land uses typically associated with emitting objectionable odors.

Cumulative Impacts

Section 15130(b) of the CEQA Guidelines states the following:

> The following elements are necessary to an adequate discussion of significant cumulative impacts: 1) Either: (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact.

In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts incorporates a summary of projections. The following three-tiered approach is to assess cumulative air quality impacts. This approach includes the analysis of the following:

- Consistency with the SCAQMD project specific thresholds for construction and operation.
- Consistency with existing air quality plans.
- A cumulative assessment of the health effects of the pollutants.
- An assessment of cumulative impacts of global climate change.

Project Specific Thresholds

After implementation of mitigation measures, during construction, emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$ may exceed the SCAQMD regional significance thresholds. In addition, after the implementation of mitigation measures, during operation, the proposed project will exceed the established regional emission thresholds for ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$. The SCAQMD considers construction or operational emissions that exceed the project specific thresholds will result in a cumulative impact. Feasible mitigation measures are identified in this EIR. In addition, the project includes the incorporation of mixed residential and commercial uses; thereby potentially reducing the quantity of vehicle trips and vehicle miles traveled. There is no further feasible mitigation to reduce emissions of ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$; thus, the project will result in a cumulative significant and unavoidable cumulative air quality impact in relation to the first criterion in the three-tiered approach to cumulative analysis.

Air Quality Plans

The South Coast Air Basin, in which the project is located, is in non-attainment for ozone, PM_{10}, $PM_{2.5}$, and CO. As such, the SCAQMD is required to prepare and maintain an AQMP and a SIP to document the strategies and measures to be undertaken to reach attainment of ambient air quality standards. While the SCAQMD does not have direct authority over land use decisions, it was recognized that changes in land use and circulation planning were necessary to maintain clean air. As discussed above, the project is not compliant with the AQMP. Hence, this is considered a significant and unavoidable cumulative impact of the proposed project.

Cumulative Health Effects

The basin is in non-attainment for ozone, PM_{10}, $PM_{2.5}$, and CO, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect the health of sensitive individuals (i.e., elderly, children, and the sick). Therefore, when the concentration of those pollutants exceed the standard, it is likely that some sensitive individuals in the population experience health effects as described above in the section, Pollutant Characteristics.

Cumulative Health Effects during Construction

A localized significance analysis demonstrated that during grading activities, emissions of PM_{10} and $PM_{2.5}$ would exceed the localized significance threshold. The emissions of particulate matter, primarily in the form of fugitive dust, would result in a significant cumulative health impact as it would add to the background concentration of PM_{10} and $PM_{2.5}$ and may result in an exceedance of the ambient air quality standards.

Cumulative Health Effects during Operation

Long-term operational emissions of ROG and NO_x are over the District's significance thresholds. ROG and NO_x are precursors to ozone. Because ozone is a secondary pollutant (it is not emitted directly but formed by chemical reactions in the air), it can be formed miles downwind of the project site. Project emissions of ROG and NO_x may contribute to the background concentration of ozone and cumulatively cause health effects as identified earlier in Table 5.8-3 and in the section, Pollutant Characteristics. Short-term exposure can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (SCAQMD AQMP 2003). Children who live in high ozone communities and who participate in multiple sports have been observed to have a higher asthma risk. This is a significant cumulative health impact associated with ground-level ozone concentrations.

Operational emissions of PM_{10}, and $PM_{2.5}$ are above the regional significance threshold. The combination of ozone and PM_{10} can aggravate health effects. $PM_{2.5}$ is a component of PM_{10}. The ambient air quality standard for both PM_{10} and $PM_{2.5}$ are exceeded in the basin. Therefore, project emissions may contribute to the background of those pollutants and cause an exceedance of the ambient air quality standards. This may result in cumulative health impacts from exposure to PM_{10} and $PM_{2.5}$.

As discussed earlier in this section, the health effects associated with project specific emissions of ROG and NO_x are less than significant. The same is true for cumulative health effects of those pollutants. In addition, although CO is in federal non-attainment, it is in state attainment although the state standards are more stringent than the federal standards. As shown in Table 5.8-1, levels of CO in the project area have not been exceeded. Therefore, the project will not result in a significant cumulative health impact from CO exposure.

Global Climate Change

The project will emit greenhouse gases during construction and operation of the project. During construction, the project would emit approximately 0.002 teragrams of carbon dioxide equivalent (Tg CO_2 Eq.) in the first year of construction and 0.014 Tg CO_2 Eq. in the second year of construction.

The proposed project will replace the existing cattle and hog operations with residential and commercial uses. The existing emissions were estimated to be 0.035 Tg CO_2 Eq. A net increase of greenhouse gases is anticipated with project implementation from motor vehicle emissions and indirect electricity use during operation. The proposed project is anticipated to emit approximately 0.079 Tg CO_2 Eq. per year, resulting in a net increase of approximately 0.04 Tg CO_2 Eq. compared with existing emissions. The net increase is 0.008 percent of California's 2004 emissions (0.04 Tg CO2 Eq. divided by 492 Tg CO2 Eq. multiplied by 100), 0.0006 percent of 2005 U.S. emissions (7260.4 Tg CO2 Eq.), and 0.0002 percent of reported 2004 global emissions (20,135 Tg CO2 Eq.).

Without mitigation, the project could potentially result in a cumulatively significant impact to global climate change. However, with mitigation and project design features, the proposed project complies with identified California strategies to reduce greenhouse gas emissions to the levels contained in AB 32 and Executive Order S-3-05. After mitigation, the project complies with the following measures: diesel anti-idling; building energy efficiency measures; appliance energy efficiency standards; green buildings initiative; and the California solar initiative. The project complies with the following measures through the incorporation of project design features: water use efficiency; smart land use; and urban forestry. The project incorporates all feasible mitigation and project design features to reduce greenhouse gases through vehicle miles traveled reductions and increased energy efficiency.

It is anticipated that the project will not be significantly impacted from rising sea levels or other secondary effects of global climate change. Thus, because the project's incremental contribution to emissions is not cumulatively considerable, because the project will not interfere with California's efforts to reduce state-wide emissions, and because the project incorporates all feasible mitigation and project design features to reduce greenhouse gases, the project's impacts are less than significant with mitigation.

Summary of Cumulative Impacts

The project exceeds the SCAQMD regional significance thresholds during construction and operation; therefore, the project fails to meet the first criterion in the three-tiered cumulative approach. The project does not comply with the AQMP; therefore, the project fails to meet the second criterion. The project results in a cumulative health impact from PM_{10} and $PM_{2.5}$ during grading activities and from ozone, PM_{10}, and $PM_{2.5}$ during operation and therefore fails to meet the third criterion. The project does not result in a significant impact in regards to global climate change with mitigation. The project fails three criteria and therefore results in a significant cumulative air quality impact.

5.8.5 - Standard Conditions and Uniform Codes

As indicated in the above discussion under the heading District Rules Applicable to the Project, the project shall comply with the following SCAQMD rules:

- Rule 403 governs the emissions of fugitive dust.
- Rule 1108 governs the sale, use, and manufacture of asphalt.
- Rule 1113 governs the sale, use, and manufacture of architectural coatings.

5.8.6 - Mitigation Measures

Construction

In addition to the policies contained in the Specific Plan and the New Colony General Plan, the following are additional construction mitigation measures.

AQ-1 During construction of the project, the developer shall require painting contractors to use only zero-VOC paints (assumes no more than 100 grams/liter of VOC) and coatings. All paints shall be applied using either high-volume low-pressure (HVLP) spray equipment or by hand application. For a listing of paints, see www.aqmd.gov/prdas/brochures/paintguide.html.

AQ-2 Prior to construction of the proposed improvements, the project proponent will provide a traffic control plan that will describe in detail safe detours around the project construction site and provide temporary traffic control (i.e. flag person) during concrete transport and other construction related truck hauling activities. This suggested condition is a standard procedural requirement imposed on projects by the City of Ontario and is implemented during the plan check process.

AQ-3 During construction of the proposed improvements, all contractors will be advised not to idle construction equipment onsite for more than five minutes.

AQ-4 Construction equipment "run-time" shall be limited to no more than a total of 8 hours of work every day.

AQ-5 During construction of the project, onsite electrical hook ups shall be provided for electric construction tools including saws, drills, and compressors to eliminate the need for diesel powered electric generators.

AQ-6 Prior to the issuance of a grading permit, the developer will provide documentation to the City indicating that a carpool incentive plan has been developed to the satisfaction of the City. The incentive must include a method to educate workers about the benefits of carpooling and additional incentives for workers who carpool. In addition, to reduce

worker trips during the lunch hour, workers shall carpool to lunch and/or a lunch wagon shall be provided.

AQ-7 During the construction of the proposed project, asphalt operations shall not occur at the same time as building operations.

AQ-8 To reduce emissions of NO_x and diesel particulate matter, during all phases of construction, the off-road construction equipment shall be fueled with aqueous diesel fuel.

AQ-9 Prior to construction of the project, the project proponent will provide a Dust Control Plan that will describe the application of standard best management practices to control dust during construction. Best management practices will include application of water on disturbed soils a minimum of three times per day, covering haul vehicles, replanting disturbed areas as soon as practical, and restricting vehicle speeds on unpaved roads to 15 mph, and other measures, as deemed appropriate to the site, to control fugitive dust. The Fugitive Dust Control Plan shall be submitted to the City and SCAQMD for approval and approved prior to construction.

AQ-10 Fireplaces and wood-burning stoves shall be prohibited from the development.

AQ-11 To reduce fugitive dust emissions on the roads within the project site, the project shall contribute a fair share amount to the City of Ontario for its procurement of a street sweeper that meets the requirements of the South Coast Air Quality Management District Rule 1186. The main roads within the project site shall be cleaned a minimum of once per month or more frequently if the road is shown to have visible accumulation of road debris.

AQ-12 Sensitive land uses (residences, schools, parks) shall not be placed within 300 feet of any dry cleaning operation or gasoline station.

GCC-1 To encourage recycling, there shall be areas designated for recycling incorporated into the project design in the multi-family housing and the commercial/retail uses.

GCC-2 To increase energy efficiency, the following measures shall be implemented to the satisfaction of the City of Ontario: a) there shall be a 20 percent reduction in all buildings combined space heating, cooling, and water heating energy compared to the current Title 24 Standards; b) the project shall incorporate light roof colors; c) each appliance (i.e., washer/dryers, refrigerators, stoves, etc.) provided by the builder must be Energy Star qualified if an Energy Star designation is applicable for that appliance; photovoltaic cells (solar panels); low flow appliances (i.e., toilets, dishwashers, shower heads, washing machines) shall be installed if provided by the builder/applicant and; d) solar powered water heaters shall be offered to the homebuyers as an option.

GCC-3 To reduce idling emissions at commercial loading docks, the following shall be implemented to the satisfaction of the City of Ontario: all dock and delivery areas shall be posted with signs informing truck drivers of the California Air Resources Board (CARB) regulations; truck drivers shall turn off engines when not in use; all diesel delivery trucks servicing the project shall not idle for more than five minutes per truck trip per day; and electricity shall be provided in any major loading dock areas that anticipate transportation refrigeration units visiting the site.

Implementation of measures AQ-1 through AQ-9 will substantially reduce construction-related emissions of ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$ during project construction. However, emission levels of ROG, NO_x, and PM_{10} will still exceed significance levels as shown in Table 5.8-13. CO and $PM_{2.5}$ emissions will be reduced to less than significant levels. Measures GCC-1 through GCC-3 will reduce emissions of greenhouse gases and global climate change to less than significant.

Table 5.8-13: Construction-Related Emissions (Mitigated)

Phase	Emissions (pounds per day)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Demolition	22.79	195.52	160.52	0.18	34.30	10.24
Grading	39.74	278.63	310.83	0.09	159.58	37.19
Building Construction and Architectural Coatings	1129.13	147.71	412.58	0.04	7.25	5.49
Asphalt Paving	46.52	203.95	241.14	0.12	3.53	3.14
Maximum Daily Emissions	**1129.13**	**278.63**	412.58	0.18	**159.58**	**37.19**
Regional Threshold	75	100	550	150	150	55
Exceed Regional Threshold?	**Yes**	**Yes**	**No**	**No**	**Yes**	No

Note: The maximum daily emissions refer to the maximum emissions that would occur in one day; demolition, grading, and construction do not occur at the same time; therefore, their emissions are not summed.
Source: URBEMIS Data, MBA, 2006.

Implementation of mitigations AQ-10, AQ-11, and AQ-12 will reduce operation-related emissions; however, they will still not reduce the anticipated amount of air pollutants from project operation to less than significant levels, as shown in Table 5.8-14 and Table 5.8-15

Table 5.8-14: Operation-Related Summer Emissions (Mitigated)

Activity	Operational Emissions (pounds per day)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Mobile Emissions	230.43	218.52	2408.22	2.94	448.25	443.77
Natural Gas	2.74	35.74	17.17	0.00	0.07	0.07
Landscaping	5.59	0.72	44.35	0.27	0.14	0.14
Consumer Products	208.31	—	—	—	—	—
Architectural Coatings	104.85	—	—	—	—	—
Total Daily Emissions	551.92	254.98	2469.74	3.21	448.46	443.98
SCAQMD Regional Threshold	55	55	550	150	150	55
Exceeds Threshold?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Notes: $PM_{2.5}$: calculated as 99% of PM_{10} pursuant to SCAQMD Draft $PM_{2.5}$ Methodology, August 2006.
Source: URBEMIS Data, MBA, 2006.

Table 5.8-15: Operation-Related Winter Emissions (Mitigated)

Activity	Operational Emissions (pounds per day)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Mobile Emissions	195.47	314.00	2262.39	2.38	448.25	443.77
Area Sources:						
Natural Gas	2.74	35.74	17.17	0.00	0.07	0.07
Fireplace	1.59	27.22	11.58	0.17	2.20	2.18
Consumer Products	208.31	—	—	—	—	—
Architectural Coatings	104.85	—	—	—	—	—
Total Daily Emissions	512.96	376.96	2291.14	2.55	450.52	446.02
SCAQMD Regional Threshold	55	55	550	150	150	55
Exceeds Threshold?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Notes: $PM_{2.5}$: calculated as 99% of PM_{10} pursuant to SCAQMD Draft $PM_{2.5}$ Methodology, August 2006.
Source: URBEMIS Data, MBA, 2006.

5.8.7 - Level of Significance After Mitigation

The following is a summary of the significant impacts. A Statement of Overriding Considerations will therefore be required for these impacts prior to project approval.

- Significant regional short-term air quality impacts during construction from ROG, NO_x, and PM_{10} emissions.
- Significant localized short-term air quality impacts during grading from PM_{10} and $PM_{2.5}$.
- Significant operational impacts during project occupancy from ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$ emissions.
- Cumulative health impacts during grading from localized emissions of PM_{10} and $PM_{2.5}$.
- Cumulative health impacts during operation for ground-level ozone, PM_{10}, and $PM_{2.5}$.
- The project is not consistent with the 2003 AQMP.
- The project is cumulatively considerable.