4.5 AIR QUALITY

The air quality impacts of the proposed project are evaluated in detail in the Santa Paula East Area 1 Air Quality Report (ENSR, July 2007). The findings of the air quality study are summarized in this section. The complete Air Quality Report is provided in Appendix E of this DEIR.

4.5.1 EXISTING CONDITIONS

4.5.1.1 Regulatory Setting

The project site is located in the South Central Coast Air Basin (SCCAB) in Ventura County. The Ventura County Air Pollution Control District (VCAPCD) is the lead regional air quality regulatory agency for the air basin, which also includes Santa Barbara and San Luis Obispo Counties. Most federal programs to monitor and regulate stationary source emissions are delegated to regional air quality management districts, such as the VCAPCD, in California. State programs administered through the California Air Resources Board (ARB) primarily control air quality pollutants from the operation of mobile sources.

Federal, state and local authorities have adopted various rules and regulations requiring evaluation of the impact on air quality of a planned project and appropriate mitigation for air pollutant emissions. The following section discusses the current air quality regulatory setting and planning efforts for responsible management of air quality resources, and the programs of agencies involved in these efforts. This section also provides a discussion of current attainment status of State and Federal ambient air quality standards.

4.5.1.2 Authority for Current Air Quality Planning

A number of plans and policies have been adopted by various governing agencies which address air quality. Plans and policies relevant to the proposed project are discussed in the following sections.

<u>Federal Clean Air Act</u>

The Federal Clean Air Act (CAA) establishes federal air quality standards, known as National Ambient Air Quality Standards (NAAQS), and specifies future dates for achieving compliance with these standards. The CAA also mandates that the state submit and implement a State Implementation Plan (SIP) for local areas not meeting the NAAQS. SIPs must include pollution control measures and demonstrate how the NAAQS will be met.

The 1990 Amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These CAA Amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA which would most substantially affect the implementation of the proposed project are Titles I (Nonattainment Provisions) and II (Mobile Source Provisions).

The Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants: ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), fine particulates (PM_{10}, comprised of particles less or equal to than 2.5 microns in diameter), carbon monoxide (CO), fine particulate matter ($PM_{2.5}$, comprised of particles less than or equal to 2.5 microns in diameter) and lead (Pb). Table 4.5-1 shows the federal and state AAQS for these criteria pollutants.

TABLE 4.5-1
AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS [A]	NATIONAL STANDARDS [A]	POLLUTANT HEALTH EFFECTS	MAJOR POLLUTANT SOURCES
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	-	High concentrations can directly affect lungs, causing irritation. Common effects are damage to vegetation and cracking of untreated rubber.	Motor vehicles.
	8 Hour	0.070 ppm (137 µg/m^3)	0.08 (157 µg/m^3)		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)		
Nitrogen Dioxide (NO_2)	Annual Average	- -	0.053 ppm (100 µg/m^3)	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, railroads.
	1 Hour	0.25 ppm (470 µg/m^3)	- -		
Sulfur Dioxide (SO_2)	Annual Average		0.030 ppm (80 µg/m^3)	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants and metal processing.
	24 Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)		
	1 Hour	0.25 ppm (655 µg/m^3)	- -		
Visibility Reducing Particulates	8 Hour	Extinction coefficient of 0.23 per kilometer visibility of ten miles or more (0.07 – 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent.			
Sulfates	24 Hour	25 µg/m^3	-	Some people, especially asthmatics, are sensitive to sulfites and can experience severe allergic reactions.	decay of plants, animals, and some industrial processes
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	-	Inhalation of low concentrations may cause headache, dizziness and upset stomach. At higher concentrations hydrogen sulfide may cause loss of consciousness and death.	Refinery operation, natural gases, volcanic gases and swamp.
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)	-	Central nervous system depressant, similar to alcohol intoxication. In severe cases may progress to hallucination, unconsciousness, and death by respiratory failure.	Landfill
Lead	30-Day Average	1.5 µg/m^3	-	Damage nervous connections and cause blood and brain disorders. Long term exposure to lead can cause nephropathy, and colic-like abdominal pains.	Leaded paint, coatings, fuel and batteries.
	Calendar Quarter	-	1.5 µg/m^3		
Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	150 µg/m^3	May irritate eyes and respiratory tract. Absorbs sunlight, reducing amount of solar energy reaching the earth. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities such as wind-raised dust and ocean spray.
	AAM	20 µg/m^3	[Revoked effective December 17, 2006]		
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m^3	15 µg/m^3	May increase respiratory symptoms and diseases and decrease lung function.	Vehicle exhaust, industrial combustion.
	24 Hour	-	35 µg/m^3		

[a] ppm = parts per million, µg/m^3 = micrograms per cubic meter, mg/m^3 = milligrams per cubic meter, AAM = annual arithmetic mean.
Source: California Air Resources Board (2007) and the United States Environmental Protection Agency (2007).

Mobile source emissions are regulated under Title II provisions of the 1990 CAA Amendments. These provisions require use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of non-methane hydrocarbons and nitrogen oxides (NO_x).

California Clean Air Act

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the state to achieve and maintain the California AAQS by the earliest practical date.

Standards for most of the criteria and other pollutants have been set by the State. The California AAQS tend to be more restrictive than the NAAQS and are based on even greater health and welfare concerns. California has also set AAQS for sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles. Table 4.5-1 shows the California AAQS currently in effect for criteria pollutants.

Air pollution from commercial and industrial facilities is regulated by local air quality management districts. All air pollution control districts have been formally designated as attainment or non-attainment for each state AAQS. Table 4.5-2 lists the criteria pollutants and their relevant attainment status. Serious or worse non-attainment areas are required to prepare air quality management plans to include specified emission reduction strategies in an effort to meet clean air goals. The Basin's criteria pollutant designations are based on the following criteria:

Area Designations

A pollutant is designated as in attainment of the NAAQS and CAAQS if the standard was not violated at any site in the area more than twice during a 3-year period. A pollutant is designated as in non-attainment of the NAAQS and CAAQS if the standard was violated (exceeded) more than twice during a 3-year period.

All air basins in the state have been formally designated as attainment or non-attainment for each standard. Federal non-attainment designations for O_3 are categorized into four levels of severity: moderate, serious, severe, and extreme. The SCCAB is classified as a moderate non-attainment for 8-hour O_3 standard and must attain the standard by 2010. The following are descriptions of the California attainment classifications:

- Unclassified: a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
- Attainment: a pollutant is designated attainment if the state AAQS for that pollutant was not violated at any site in the area during a three year period.
- Nonattainment: a pollutant is designated nonattainment if there was at least one violation of a state AAQS for that pollutant in the area.
- Nonattainment/Transitional: is a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

Table 4.5-2 lists the criteria pollutants and their relative attainment status in the SCCAB. As shown in the table, the Basin is currently in non-attainment for the National O_3 (ozone) standard and is therefore considered a federal non-attainment area for this pollutant.

TABLE 4.5-2
SOUTH CENTRAL COAST AIR BASIN ATTAINMENT STATUS

POLLUTANT	NATIONAL STANDARDS	CALIFORNIA STANDARDS
Ozone (O_3) 1-hour	Not Applicable	Nonattainment
Ozone (O_3) 8-hour	Moderate Nonattainment[1]	Nonattainment[1]
Carbon Monoxide (CO)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
PM_{10} 24-hour	Not Designated	Nonattainment
PM_{10} Annual Average	Not Designated	Nonattainment
$PM_{2.5}$ 24-hour	Not Designated	Not Applicable
$PM_{2.5}$ Annual Average	Not Designated	Nonattainment
Hydrogen Sulfide	Not Designated	Unclassified (1 hour Standard)
Sulfates	Not Designated	Attainment (24 hour Standard)
Visibility Reducing Particles	Not Designated	Unclassified
Lead	Attainment (Calendar Quarter)	Attainment (30 Day Standard)

Source: California Air Resources Board, http://www.arb.ca.gov/desig/adm/adm.htm (July 2007).

4.5.1.3 Relevant Federal and State Plans and Policies

Clean Air Act Transportation Conformity Rule

The United States Environmental Protection Agency (EPA) Conformity Rule consists of transportation conformity requirements. The Transportation Conformity Rule is a set of criteria and procedures for determining conformity to the SIP for transportation plans, programs and projects funded or approved under Title 23 U.S.C., or the Federal Transit Act. The Transportation Conformity Rule is only applicable to investments in projects for on-road mobile sources and the associated emissions caused by related transportation activities.

Conformity with State Implementation Plan

Areas of the state and country that do not currently meet the NAAQS must develop a SIP to provide a roadmap outlining how the standards will be attained. Projects are required to demonstrate conformity with the approved SIP to receive financial assistance for, license or permit, or approve any action. If a project significantly exceeds the thresholds set in the SIP, a separate report on the general conformity analysis and determination would be prepared and issued for public comments in connection with this environmental review process.

State Requirements

Responsibility for achieving California's ambient air quality standards (CAAQS), which are more stringent than federal standards for certain pollutants and averaging periods, is placed on the California Air Resources Board (ARB) and local air pollution control districts. State standards are to be achieved through district-level air quality management plans that are incorporated into the SIP. In California, the EPA has delegated authority to prepare SIP to ARB, which, in turn, has delegated that authority to individual air districts. The ARB has traditionally established state air quality standards, maintained oversight authority in air quality planning, developed programs for reducing emissions from motor vehicles, developed air emission inventories, collected air quality and meteorological data, and approved SIPs. Responsibilities of air districts include overseeing stationary source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality related sections of environmental documents required by CEQA.

Toxic Air Contaminants

In addition to pollutants that have a designated ambient standard, or criteria pollutants, California has aggressive requirements for reducing non-criteria pollutants, also known as toxic air contaminant (TAC) emissions. TAC emissions do not have air quality standards that specify levels considered safe for everyone. Exposure to TACs can increase the risk of contracting cancer or result in other deleterious health effects which target such systems as cardiovascular, reproductive, hematological, or nervous. Effects may be both chronic (i.e., of long duration) or acute (i.e., severe but of short duration). Local concentrations can pose a significant health risk and are termed "toxic hot spots." The regulatory approach used to control toxic air contaminant levels relies on a quantitative risk assessment process, rather than on ambient air concentrations, to determine allowable emissions from the source.

4.5.1.4 Global Climate Change

Global climate change is generally defined as a change in the long-term weather patterns that characterize the regions of the world.[1] The term "weather" refers to the short-term (daily) changes in temperature, wind, and/or precipitation of a region (Merritts *et al*. 1998). Weather is influenced by the sun, which heats the Earth's atmosphere and its surface causing air and water to move around the planet. The result can be as simple as a slight breeze or as complex as the formation of a hurricane.

The greenhouse effect is a warming process that balances the Earth's cooling processes.[2] During this process, sunlight passes through Earth's atmosphere as short-wave radiation. Some of the radiation is absorbed by the planet's surface. As the Earth's surface is heated, it emits long wave radiation toward the atmosphere. In the atmosphere, some of the long wave radiation is absorbed by certain gases called greenhouse gases. Greenhouse gases include but are not limited to carbon dioxide (CO_2), chlorofluorocarbons (CFCs), methane (CH_4), nitrous oxide (N_2O), tropospheric ozone (O_3), and water vapor.[3] Each molecule of greenhouse gas becomes energized by the long wave radiation. The energized molecules of gas then emit heat energy in all directions. By emitting heat energy toward Earth, greenhouse gases increase the Earth's temperature.

The greenhouse effect is a natural occurrence that maintains Earth's average temperature at approximately 16 degrees Celsius.[4] The greenhouse effect is a necessary phenomenon that retains most of the Earth's heat from escaping to the outer atmosphere. Without the natural greenhouse effect, the Earth would be approximately 33 degrees Celsius cooler and the existence of life on this planet would not be possible.[5] However, too many greenhouse gases in Earth's atmosphere could increase the greenhouse effect, which could result in an increase in mean global temperatures (i.e., "global warming"), as well as changes in precipitation patterns.

In the last 200 years, scientists have observed an unprecedented increase in the rate of global warming.[6] The recent global warming trend has coincided with the Industrial Revolution, which has resulted in release of substantial amounts of greenhouse gases from deforestation and use of fossil fuels.[7] Recently, controlling atmospheric CO_2 levels, which account for approximately 55 percent of the greenhouse effect,

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[1] Intergovernmental Panel on Climate Change. "Stabilization of Atmospheric Greenhouse Gases: Physical, Biological and Socio-Economic Implications - IPCC Technical Paper III." February 1997.
[2] *Ibid.*
[3] *Ibid.*
[4] *Ibid.*
[5] Jain, Ravi et al. Environmental Assessment. 2nd ed. McGraw-Hall: 2002, New York.
[6] Jain, Ravi et al. Environmental Assessment. 2nd ed. McGraw-Hall: 2002, New York.
[7] *Ibid.*

has been the primary focus of global warming prevention policy.[8] The United States alone accounts for nearly one-fourth of the world's generation of CO_2.[9] California is a substantial contributor of global greenhouse gases as it is the second largest contributor in the U.S. and sixteenth largest contributor in the world, emitting over 400 million tons of CO_2 per year.[10]

Global Climate Change Regulations

Voluntary greenhouse gas emission reduction programs are being implemented on an international level. In 1988, the United Nations established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change agreement with the goal of controlling greenhouse gas emissions, including methane. As a result, the Climate Change Action Plan was developed to address the reduction of greenhouse gases in the United States. The plan consists of more than 50 voluntary programs. The Kyoto Protocol of the United Nations Framework Convention on Climate Change is an amendment to the international treaty on climate change, assigning mandatory emission limitations for the reduction of greenhouse gas emissions to the signatory nations. The objective of the protocol is the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. As of June 2007, a total of 172 countries and other governmental entities have ratified the agreement.

Federal and Local Regulations

Currently, there are no federal or local regulations that address GHG emissions. However, in *Massachusetts v. Environmental Protection Agency*, __ U.S. __, 127 S. Ct. 1438 (2007), the United States Supreme Court found that the U.S. Environmental Protection Agency has statutory authority under the Clean Air Act to regulate "greenhouse gas" emissions (including CO_2 emissions) from new motor vehicles.[11] In response to this court case's decision, the EPA is drafting regulations that address GHG emissions.

State Regulations

California regulations seek to reduce the effects of global warming in statutes and Executive Orders: Exec. Order S-3-05; Health and Safety Code §§ 38500, *et seq.*; and Health and Safety Code §§ 42823, 43018.5. These regulations recognize global warming as a significant threat to California and therefore certain guidelines must be enacted to limit the production of greenhouse gases. Executive Order S-3-05 (2005) states that:

- By 2010 Greenhouse gases must be reduced to 2000 emission levels
- By 2020 Greenhouse gases must be reduced to 1990 emission levels
- By 2050 Greenhouse gases must be reduced to 80% below 1990 levels

[8] *Ibid*
[9] *Ibid.*
[10] Hendrix, Michael et al. "Recommendations by the Association of Environmental Professionals (AEP) on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents." 5 Mar. 2007.
[11] Abreu, Heidy and Miguel Loza. "Massachusetts v. Environmental Protection Agency (05-1120)." *The Legal Information Institute, Cornell Law School.* 2007. 5 Aug. 2007 http://www.law.cornell.edu/supct/cert/05-1120.html

The Order also states that the California Environmental Protection Agency will have oversight of regulation. Furthermore, starting January 2006 and bi-yearly afterwards, the CalEPA must prepare science reports of the potential impact global warming may have on California's economy and environment.

The California Global Warming Solutions Act of 2006 (Health and Safety Code §§ 38500, *et seq.*) became effective on January 1, 2007. The Act seeks to reduce California's greenhouse gas emissions to 1990 levels by 2020. This legislation represents the first enforceable statewide program in the U.S. to limit all greenhouse gas emissions from major sources that includes penalties for non-compliance. Primarily concerned with emissions of CO_2, it requires the California Air Resources Board (ARB) to establish a program for statewide greenhouse gas emissions reporting and to monitor and enforce compliance with this program. The Act authorizes ARB to adopt market-based compliance mechanisms including cap-and-trade, and allows a one-year extension of the targets. Under the Act, greenhouse gases do not include ozone-depleting substances, such as the freons used in air conditioning systems and refrigeration units, which are pollutants targeted for reduction because of their potential harm to the upper (protective) atmospheric ozone layer.

The following regulations would apply to the proposed project:

- Discrete early action GHG emission reduction measures Air Resources Board publicly available issued June 2007.
- Title 17, California Code of Regulations, Subchapter 10, Article 1, sections 95100 will require the reporting and verification of greenhouse gas emissions from greenhouse gas emissions sources in California. This article is designed to meet the requirements of section 38530 of the Health and Safety Code, the California Global Warming Solutions Act of 2006.
- We will use the comments received to prepare a proposed regulation and staff report, to be released on October 19, 2007, for a formal 45 day comment period. The board will consider the October 19th staff proposal at its December 6-7, 2007, meeting.
- By January 1, 2008 the state will determine the 1990 GHG emission levels and set that as a baseline for the 2020 emission limit.
- On or before January 1, 2011 the state will adopt quantifiable, verifiable, and enforceable emission reductions aimed to decrease GHG emissions to the 1990 baseline by 2020. These will come into effect by January 1, 2012 by the latest. The reductions measures may include direct reduction methods, alternative compliance mechanisms, and various incentives.

Health and Safety Code §§ 42823 and 43018.5 require the Air Resources Board to adopt regulations that address greenhouse gases emitted by motor vehicles in an effort to reduce emissions. In summary these sections require:

- The ARB not later than January 1, 2005 to develop and adopt regulation to achieve the most feasible and cost-effective reduction of GHGs emitted by motor vehicles.
- ARB regulations do not go into effect before January 1, 2006 and furthermore the regulations must only apply to vehicle 2009 models or later.

The California Climate Action Registry must consult with the ARB to develop procedures and protocols for the reduction of greenhouse gases. In regards to the proposed project vehicles in the construction phase will mostly likely not be affected by this regulation. Additionally, this will most likely not affect the proposed project on a local level.

4.5.1.5 Regional Plans and Policies

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy and community development and the environment. SCAG serves as the federally-designated metropolitan planning organization (MPO) for the southern California region and is the largest MPO in the United States. With respect to air quality planning, SCAG prepared the Regional Comprehensive Plan and Guide (RCPG) for the SCAG region, which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation control parts of the Ventura County Air Quality Management Plan (AQMP) and are utilized in the preparation of air quality forecasts included in the AQMP. SCAG also prepares the Regional Transportation Plan every three years which focuses on growth forecasts, long term financing needs and the future regional aviation system.

4.5.1.6 Ventura County Air Pollution Control District

The VCAPCD has the responsibility to manage air quality and ensure that federal and state ambient air quality standards are achieved and maintained in the Ventura County portion of the SCCAB. This includes monitoring ambient air pollutant levels throughout the County and development of a regional AQMP that identifies actions necessary to reach attainment of the standards, and implements and enforces rules and regulations to improve air quality in the region. Because ozone is a secondary pollutant formed in the atmosphere, volatile organic compounds (VOCs) and oxides of nitrogen (NOx) are regulated as ozone precursors. The 1994 AQMP, with 1995 and 1997 revisions 2004, and soon to be released 2007 Revisions, is the most recent approved version of the AQMP for Ventura County.

California regulatory districts including the VCAPCD have recently been in the process of updating their AQMP to satisfy new federal 8-hour ozone pollutant standards. A draft of the Ventura County AQMP was completed in October 2006 and is under review by the State of California Air Resources Board. Until approved, the VCAPCD is operating under the most recently approved AQMP.

4.5.1.7 Regional Air Quality

The City of Santa Paula is located in the Santa Clara Valley of Ventura County, 15 miles from the Pacific Ocean. The Santa Clara Valley is defined by the Santa Susana Mountains to the south and the Los Padres National Forest to the north with elevations up to 2,000 feet adjacent to the City of Santa Paula. The City of Santa Paula has a Mediterranean climate characterized by mild dry summers and slightly cooler winters. Due to the proximity of the Pacific Ocean, temperatures range from the mid 60s to the mid 80s in summer with a potential for high temperatures above 100 degrees. Wintertime temperatures range from the mid 30s to the mid 70s with average highs in the low to mid 60s. The City receives an average of 15 inches of rainfall per year, most of which occurs during the winter months. Precipitation usually begins in November, peaks in February, and concludes in early April. From April to November the City is characterized by dry weather with trace amounts of precipitation**.**

Wind speed and wind direction data is collected at meteorological stations maintained by the VCAPCD and collocated with the El Rio and Piru monitoring stations. The Piru station is located east of Santa Paula and experiences reasonably similar wind patterns as those expected at the proposed project site. The Piru station is located on Pacific Avenue one mile west of Piru and 0.25 mile north of SR-126. Piru meteorological data representative of the project area is available from the VCAPCD for the calendar years 1991 to 1993. This same 3-year span is available for all VCAPCD stations use for air regulatory purposes and is considered representative of the range of meteorological conditions experienced in the

vicinity of the monitoring sites. A composite wind rose depicting wind speed and direction at the Piru monitoring station data from 1991-1993 is presented in Figure 4.5-1. The wind rose shows predominant winds blowing from the east and the southwest, in an orientation much like one would expect in the Santa Paula project area where winds are similarly influenced by the Santa Clara Valley.

4.5.1.8 Local Area Conditions

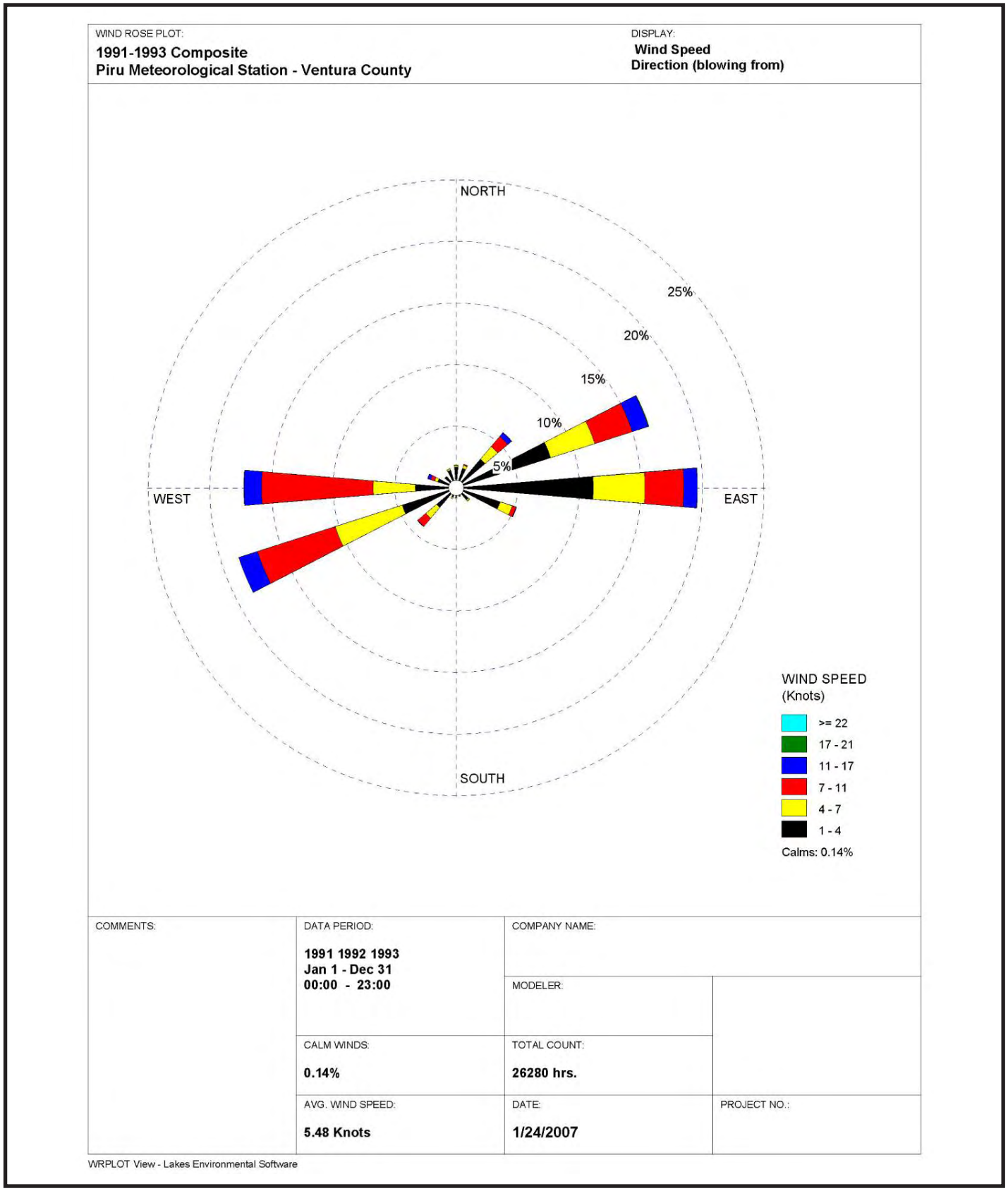
Existing Pollutant Levels At Nearby Monitoring Stations

The VCAPCD maintains a network of air quality monitoring stations throughout Ventura County. The City of Santa Paula is located west of the El Rio Monitoring Station in El Rio and east of the Piru Monitoring Station. The El Rio Monitoring Station measures O_3, nitrogen dioxide (NO_2), CO, SO_2, $PM_{2.5}$, and PM_{10}, and the Piru Monitoring Station measures O_3, $PM_{2.5}$, and PM_{10}. The Piru Station has monitored higher O_3 concentrations than the El Rio Station, while the El Rio Station has recorded higher concentrations of PM_{10}. The most recent criteria pollutants data available from these monitoring stations are for 2003 to 2005. Table 4.5-3 shows the following pollutant trends at these two monitoring stations (El Rio Monitoring Station at Rio Mesa School and Piru Monitoring Station at 3301 Pacific Avenue).

TABLE 4.5-3
AMBIENT AIR QUALITY DATA AT THE EL RIO AND PIRU MONITORING STATIONS

	2003		2004		2005	
	El Rio	**Piru**	**El Rio**	**Piru**	**El Rio**	**Piru**
Ozone (O_3) – maximum 1-hour concentration (ppm)						
First Highest 1-hour Concentration	0.081	0.119	0.084	0.104	0.076	0.119
Number of days of state exceedances (> 0.09 ppm)	0	27	0	6	0	7
Number of days of federal exceedances (> 0.12 ppm)	0	0	0	0	0	0
Ozone (O_3) – maximum 8-hour concentration (ppm)						
First Highest 8-hour Concentration	0.071	0.103	0.079	0.090	0.067	0.100
Number of days of federal exceedances (> 0.08 ppm)	0	16	0	4	0	2
Particulate Matter (PM_{10}) – Maximum concentration in µg/m^3						
Number of samples of state exceedances (> 50 µg/m^3)	***5***	***2***	***1***	***0***	***2***	ND
Number of samples of federal exceedances (> 150 µg/m^3)	0	0	0	0	0	ND
Highest Daily PM_{10} Concentration	123.8	73.9	59.6	50.5	54.0	ND
Particulate Matter ($PM_{2.5}$) – Maximum concentration in µg/m^3						
Number of samples of federal exceedances (> 65 µg/m^3)	1	0	0	0	0	0
Highest Daily $PM_{2.5}$ Concentration	81.7	26.1	28.5	28.1	35.2	20.4
Nitrogen Dioxide (NO_2) – maximum 1-hour concentration (ppm)						
First Highest 1-hour Concentration	0.057	ND	0.063	ND	0.070	ND
Number of days of state exceedances (> 0.25 ppm)	0	ND	0	ND	0	ND
Carbon Monoxide (CO) – maximum 8-hour concentration (ppm)						
First Highest 8-hour Concentration	3.50	ND	1.52	ND	ND	ND
Number of days of state exceedances (> 9.0 ppm)	0	ND	0	ND	0	ND
Sulfur Dioxide (SO_2) – maximum 24-hour concentration (ppm)						
First Highest 24-hour Concentration	0.002	ND	0.001	ND	ND	ND
Number of days of state exceedances (> 0.04 ppm)	0	ND	0	ND	0	ND

Source: California Air Resources Board (2006).
Notes: Ambient data for CO, lead and sulfur dioxide are not included in this table because the SCCAB is currently in compliance with the CAAQS and NAAQS for CO, lead, and sulfur dioxide.
ppm = parts per million µg/m^3 = micrograms per cubic meter
ND = no data available



Source: ENSR (2007)

Figure 4.5-1
Wind Rose Data at the Piru Monitoring Station

For the Piru Monitoring Station, the largest number of exceedances of the CAAQS for one-hour O_3 concentration, shown in Table 4.5-3, for 2003-2005 occurred in 2003 with 27 exceedances. There were no exceedances of the NAAQS for one-hour O_3. Eight-hour O_3 concentrations exceeded the NAAQS 16 times in 2003. A description of pollutants is provided below.

Ozone (O_3)

Ozone at the El Rio Station did not exceed the CAAQS or NAAQS for 2003-2005 for 1-hour O_3 concentrations. There were no exceedances of the AAQS for eight-hour O_3 concentrations at the El Rio Monitoring Station. Reactive organic compounds (ROC) undergo atmospheric reactions contribute to the formation of ground-level ozone and are therefore regulated as an ozone precursor.

Particulate Matter (PM_{10})

Particulate matter, or PM_{10}, at both the El Rio and Piru stations exceeded the CAAQS on one or more days during each year during the time period reported, except for the year 2004 when no recorded exceedances occurred at the Piru Station. The NAAQS were not exceeded during that time. The highest recorded concentration during the period 2003 to 2005 was approximately 123.8 micrograms per cubic meter of air ($\mu g/m^3$) recorded in 2003 at the El Rio Station.

Fine Particulates

The highest monitored 24-hour concentration was 81.7 $\mu g/m^3$ in 2003 at the El Rio Station. Only one exceedance of the NAAQS occurred in 2003 at the El Rio station. The Piru Station did not have any exceedances of the NAAQS.

Nitrogen Dioxide (NO_2)

The El Rio Station highest recorded one-hour concentration of NO_2 during the period 2003 to 2005 was 0.070 ppm, recorded in 2005. The CAAQS was not exceeded during the period. No violations of the NAAQS occurred during this time period. NO_2 was not monitored at the Piru Station.

Carbon Monoxide (CO)

The El Rio Station highest recorded eight-hour concentration of CO during the period 2003 to 2005 was 3.50 ppm, recorded in 2003. The CAAQS was not exceeded during the period. No violations of the NAAQS occurred during this time period. CO was not monitored at the Piru Station.

Sulfur Dioxide (SO_2)

The El Rio Station highest recorded 24-hour concentration of SO_2 during the period 2003 to 2005 was 0.002 ppm, recorded in 2003. The CAAQS was not exceeded during the period. No violations of the NAAQS occurred during this time period. SO_2 was not monitored at the Piru Station.

Lead (Pb)

The Basin is currently in compliance with CAAQS and NAAQS for lead.

Sensitive Receptors

Some population groups, such as children, the elderly, and acutely ill and chronically ill persons, especially those with cardio-respiratory diseases, are considered more sensitive to air pollution than others. Sensitive receptors within a 1-mile radius of the project site include schools, daycare facilities, hospitals and nursing homes, places of worship, and recreational parks. Sensitive receptors within a 1-mile radius of the project area were identified. Figure 4.5-2, illustrates the location of the nearest sensitive receptors in the vicinity of the proposed project (approximately 1-mile radius of Santa Paula, Zip Code 93060). As shown in Figure 4.5-2**,** the nearest residences to the existing project site are approximately 500 feet to the west of that property. The following sensitive receptors were identified:

Schools

1. Renaissance High School,404 N 6th St, Santa Paula 0.75miles
2. Thelma B Bedell Elementary School,1305 Laurel Rd, Santa Paula, CA 0.81 miles
3. Mupu Elementary School,4410 Santa Paula Ojai Rd, Santa Paula, CA 1.06 miles
4. Barbara Webster Elementary School,1150 Saticoy St, Santa Paula, CA 0.93miles
5. Santa Paula Union High School District,500 E Santa Barbara St, Santa Paula, CA 0.93 miles
6. Mc Kevett Elementary School,955 E Pleasant St, Santa Paula, CA 0.87 miles

Daycare Facilities

1. Westside Baptist Preschool,673 W Santa Paula St, Santa Paula, CA 1.24 miles
2. St Sebastian,325 E Santa Barbara St, Santa Paula, CA 0.87 miles
3. Child Development Resources,725 E Main St, Santa Paula, CA 1.06 miles

Hospitals

1. LA Loma Medical Center,500 E Main St, Santa Paula, CA 1.06 miles
2. Ventura County Medical Center Santa Paula Medical Clinic,1334 E Main St, Santa Paula, CA 1.31 miles
3. Santa Paula Clinic,1334 E Main St, Santa Paula, CA 1.31 miles

Nursing Homes

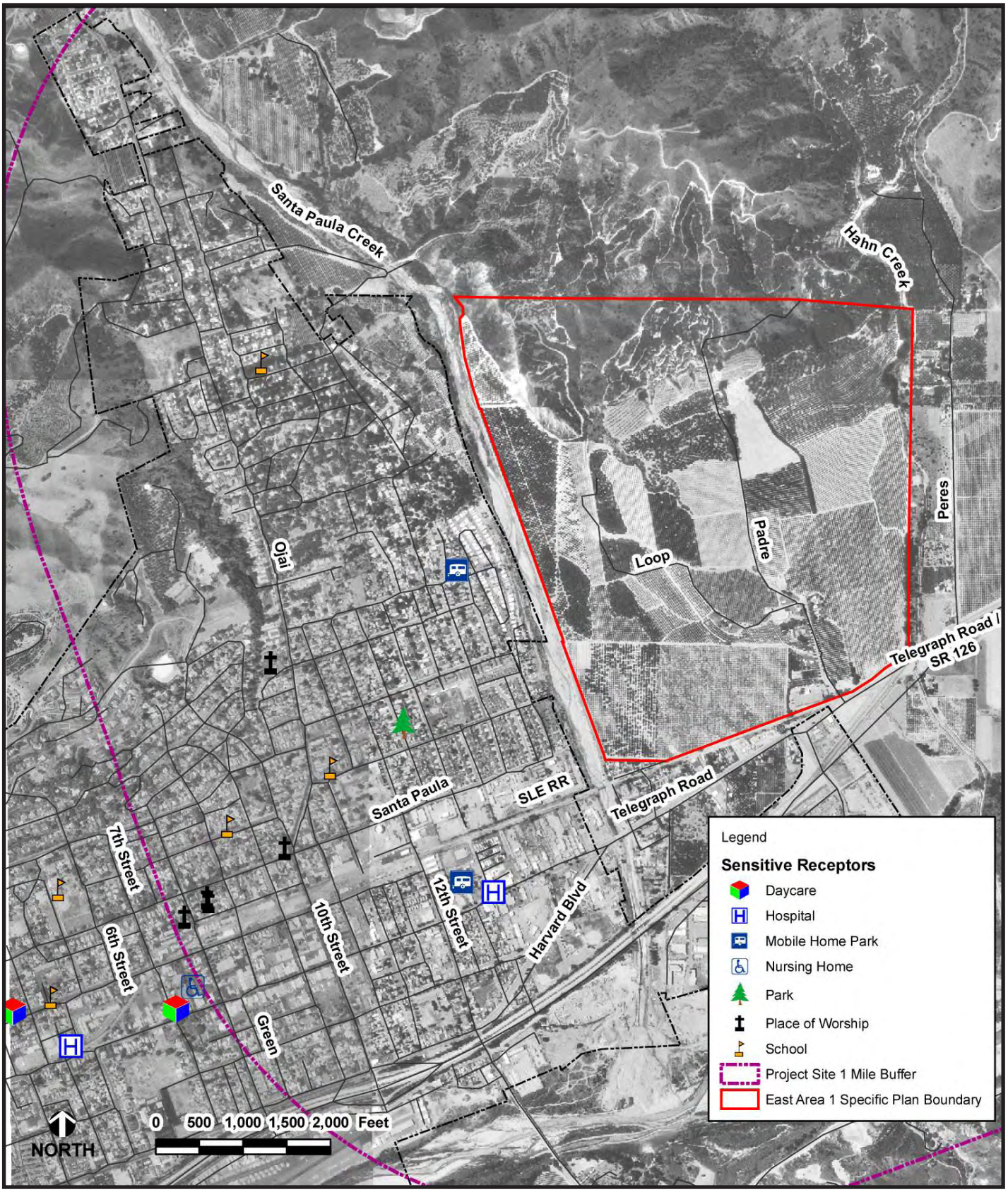
1. Caregivers Volunteers Assisting the Elderly,126 N 8th St, Santa Paula, CA 1.06 miles
2. Santa Paula Senior Center,530 W Main St, Santa Paula, CA 1.24 miles
3. Santa Clara Valley Hospice,133 N Mill St, Santa Paula, CA 1.12 miles

Parks

1. Las Piedras Park, 431 N. 13th Street, Santa Paula

Places of Worship

1. Our Lady Seat of Wisdom,11 Mckevett Hts, Santa Paula, CA 0.56 miles
2. Church of Jesus Christ of LDS,604 Ojai Rd, Santa Paula, CA 0.75 miles
3. St Sebastian Church,235 N 9th St, Santa Paula, CA 0.87 miles
4. Church of Christ,276 W Santa Paula St, Santa Paula, CA 0.93 miles
5. Chapel of Praise-Church of God,221 N 9th St, Santa Paula, CA 0.87 miles
6. First Christian Church,829 Railroad Ave, Santa Paula, CA 0.93 miles
7. United Methodist Church, 1029 E Santa Paula St, Santa Paula, CA 0.93 miles



Source: ENSR (2007)

Figure 4.5-2
Sensitive Receptor Locations Nearest to the Project Site

4.5.2 THRESHOLDS OF SIGNIFICANCE

Based on the California Environmental Quality Act (CEQA) Guidelines, Appendix G, a significant air quality impact would occur if the proposed project:

- Conflicts with or obstructs implementation of the applicable air quality plan;
- Violates any air quality standard or contributes substantially to an existing or projected air quality violation;
- Results 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 qualitative thresholds for ozone precursors);
- Exposes sensitive receptors to substantial pollutant concentrations;
- Creates objectionable odors affecting a substantial number of people.

The VCAPCD has authority to issue permits for emissions of air pollutants from stationary sources as well as responsibility for managing the overall air quality resource area under CEQA. For purposes of evaluating air quality impacts under CEQA, the VCAPCD has developed significance thresholds for air pollutant sources for which it does not issue air pollutant emission permits, such as for mobile sources. Many of these VCAPCD significance thresholds are developed based on programs developed and administered by the California Air Resources Board (ARB) and the United States Environmental Protection Agency (EPA).

In addition to ambient air quality standards for ozone and NOx, PM, and CO, there are several localized air quality impacts that the VCAPCD requires be evaluated under CEQA including health risk from air toxic pollutants, San Joaquin Valley Fever, and odors. Sources of air emissions will include exhaust from construction equipment, dust generating activities, and motor vehicles associated with construction and operations of East Area 1. The following VCAPCD Guideline thresholds of significance will be used to evaluate project impacts.

<u>Criteria Pollutants</u>

Significance thresholds established by the VCAPCD for criteria pollutants are based on daily pollutant mass thresholds to safeguard against project impacts delaying the attainment of regional air quality objectives. The City of Santa Paula does not have specific significance thresholds to evaluate potential air quality impacts and generally defers to the VCAPCD as the regional regulatory agency. Therefore, if the proposed project is determined to be inconsistent with adopted AQMP or VCAPCD significance thresholds, then the project is considered to have an adverse impact on air quality. Emission thresholds have been adopted by the VCAPCD stating that general development projects whose emissions are expected to meet or exceed their criteria will have a potentially significant adverse impact on air quality. If project emissions are below these thresholds, the project is considered to conform to the Ventura County AQMP and would not have a significant air quality impact. Daily pollutant emission thresholds are as follows:

- Emissions for the operations phase which exceed 25 pounds per day of ROC or NO_x.
- Emissions which exceed 2 pounds per day of ROC and NO_x and found to be inconsistent with the AQMP (Cumulative Impacts).

Daily pollutant thresholds apply specifically to project operations and not construction activities. The Ventura County Air Quality Assessment Guidelines (VCAQAG) are not applicable to equipment or operations required to have VCAPCD permits (Authority to Construct or Permit to Operate). APCD

permits are generally required for stationary and portable (non-vehicular) equipment of operations that may emit air pollutants.

Project operations that exceed daily pollutant thresholds must assess whether actual impacts to air quality will result from pollutant emissions or change the underlying assumptions contained in the AQMP that would alter the plan for attainment of ambient air quality standards. The analysis would determine the air quality impact significance level by determining if:

- Emissions cause an exceedance or make a substantial contribution to an exceedance of an established NAAQS or CAAQS.
- Directly or indirectly cause the existing population to exceed the population forecasts in the most recently adopted AQMP.

If project related emissions are found to be below both these measures, the project is considered to be in conformance with the CAA and no further analysis is required to determine conformity. If project related emissions are in exceedance of these screening thresholds, a conformity determination is necessary.

Fugitive Dust

The VCAPCD regulates emissions of fugitive dust as a nuisance under Rule 51 of the VCAPCD Rules and Regulations, and as particulate matter that may cause or contribute to an exceedance of an ambient air quality standard.

Fugitive dust is evaluated for any project that may be reasonably expected to generate fugitive dust emissions in such quantities as to cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property (see California Health and Safety Code § 41700) will have a significant adverse air quality impact. A project for which an appropriate air dispersion modeling analysis shows a possible violation of an ambient particulate standard will have a significant adverse air quality impact.

Carbon Monoxide Hotspot Analysis

The California ambient air quality standards in Section 70200 of Title 17 of the California Code of Regulations indicates that a significance threshold of 20 ppm and 9.0 ppm should be used for assessing one-hour and eight-hour CO concentrations, respectively. An analysis at selected intersections is performed to determine the potential for the presence or the creation of CO hot spots attributable to project operations. Therefore, impacts related to air quality would be considered significant if the project violates any air quality standard or contributes substantially to an existing or projected air quality violation. VCAPCD is currently in attainment with CO, therefore there is no threshold established for CO in the basin.

Toxic Air Contaminants

The VCAPCD significance thresholds for cancer risk is greater than 10 in one million and for non-carcinogenic toxic air pollutants including chronic (long term) and acute (short term) being greater than 1 in the Hazard Index. Since non-criteria pollutants do not have ambient standards, impacts from toxic air contaminants (TACs) may be estimated by conducting a health risk assessment (HRA) to determine if people might be exposed to those types of pollutants at unhealthy levels. The risk assessment process identifies the types and amounts of hazardous substances the project could emit to the environment, estimate worst-case concentrations of project emissions using air dispersion modeling,

estimate potential pollutant exposure through inhalation, ingestion, and dermal contact, and characterize potential health risks by comparing worst-case exposure with established significance levels.

San Joaquin Valley Fever

There is no recommended threshold for a significant San Joaquin Valley Fever impact. However, listed below are factors that may indicate a project's potential to create significant Valley Fever impacts:

- Disturbance of the top soil of undeveloped land (to a depth of about 12 inches)
- Dry, alkaline, sandy soils.
- Virgin, undisturbed, non-urban areas.
- Windy areas.
- Archaeological resources probable or known to exist in the area (Native American midden sites).
- Special events (fairs, concerts) and motorized activities (motocross track, All Terrain Vehicle activities) on unvegetated soil (non-grass).
- Non-native population (i.e., out-of-area construction workers).

The lead agency should consider the factors above that are applicable to the project or the project site. The likelihood that the Valley Fever fungus may be present and impact nearby land uses (or the project itself) increases with the number of the above factors applicable to the project or the project site. Based on these or other factors, if a lead agency determines that project activities may create a significant Valley Fever impact, the District recommends that the lead agency consider the "Valley Fever Mitigation Measures," of the VCAPCD Guidelines. These mitigation measures focus on fugitive dust control to minimize fungal spore entrainment, as well as minimizing worker exposure.

Odors

A qualitative assessment indicating that a project may reasonably be expected to generate odorous emissions in such quantities as to cause detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property (see California Health and Safety Code, Division 26, §41700) will have a significant adverse air quality impact.

4.5.3 METHODOLOGY RELATED TO AIR QUALITY

The analysis of the proposed project's air quality impacts follows the guidance and methodologies recommended in the VCAPCD Assessment Guidelines. Project construction and operation activities can result in several air pollutants whose effects are often localized near the area of their origin. Such air quality effects are termed local air quality impacts and include, but are not necessarily limited to, fugitive dust, carbon monoxide, toxic air contaminants, odors, and entrained fungal spores that cause San Joaquin Valley Fever.

4.5.3.1 Air Quality Impact Analyses

Regional Air Pollutant Emissions

Emissions of ozone precursors ROC and NOx from construction and operation of the East Area 1 Project were evaluated for potential impacts to ambient air quality standards for ozone. Construction emissions were based on equipment type and number, operating schedule, the time line for project construction, the mix of construction equipment required to build the project and emission factors from

the URBEMIS2007, public domain software designed to estimate air emissions from land use development projects. The URBEMIS was originally developed by the ARB and is an emission mobile and area source inventory model that provides estimates of air pollutants generated during the construction and operations phases of projects. The use of URBEMIS2007 has been adopted by numerous air quality management districts and is a recently updated version of the URBEMIS2002 model, which is recommended in the VCAPCD Assessment Guidelines. Emissions from construction activities were calculated for a daily basis and were compared to the VCAPCD's construction emissions thresholds. Regional emissions were developed for the proposed project that includes the following sources:

- Project-related stationary sources that do not require permits from the District such as non-mobile equipment, devices, operations, or processes that directly emit air pollutants should be estimated and included in total project emissions. Most stationary sources are associated with commercial and industrial facilities and operations. Examples of stationary sources are industrial engines and boilers, turbines, spray paint booths, electronic component manufacturing operations, ready-mixed concrete facilities, plating operations, printing operations, plastic products manufacturing, and coffee roasters.

  Air emissions for equipment, operations, and processes that do not require a District permit may be calculated using emission factors available from the District. In addition to District emission factors, emission factors for stationary sources can be obtained from Volume I of the Environmental Protection Agency's *Compilation of Air Pollutant Emission Factors* (AP-42), which contains information on stationary source categories.

- Vehicle source emissions modeled for the operational phase of the project were compiled using the URBEMIS2007 emission inventory model. This computer model projects emission rates for motor vehicles based on the desired year of analysis, a projected vehicle fleet mix, projected vehicle speeds, whether these emissions are projected to occur during the summer or the winter months, and other factors.

- The volume of vehicle trips attributable to local roads during project operations was taken from the *Traffic Impact Analysis for the Santa Paula East Area 1 Specific Plan* (Fehr & Peers, June 2007) Average trip distances are provided in the URBEMIS2007 emissions inventory model. The URBEMIS2007 model calculates emissions resulting from project related on-road mobile source emissions. Stationary source emissions from electricity consumption from the project were calculated based on energy consumption estimates and emission rates.

Temporary particulate emissions associated with project construction activities will be evaluated as part of fugitive dust impacts.

<u>Toxic Air Contaminants</u>

All projects that may emit TACs should be assessed to determine whether those TAC emissions may adversely impact nearby populations. Potential environmental impacts associated with TACs are limited to human exposure to chemical substances of concern emitted into the air and associated with construction of the proposed project. The methods used to assess potential human health risks are consistent with those prepared by The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA, 2003) (Guidance Manual) which describes algorithms, exposure methods, and cancer and noncancer health values needed to perform a health risk assessment (HRA) under the Air Toxics Hot Spots Information and Assessment Act of 1987 (Hot Spots or AB 2588, Health

and Safety Code Section 44360 et seq.). This Guidance Manual is generally considered the best available reference for conducting human health risk assessment in California.

Carbon Monoxide Emissions

The potential for the project to cause an exceedance of short-term CO standards were evaluated using a tiered approach, in accordance with the VCAPCD Guidelines, which includes a screening and refined analysis. The carbon monoxide hotspot analysis was conducted for roadway intersections that are currently operating at, or are expected to operate at, Levels of Service E or F using the screening methodology described in the California Department of Transportation's (Caltrans) *Transportation Project-Level Carbon Monoxide Protocol* (December 1997). An analysis will be conducted at a sampling of project-impacted roadway intersection where a CO hotspot might occur.

The screening analysis was designed to estimate 1-hour and 8-hour CO concentrations for projects involving signalized intersections. The methodology estimates 1-hour CO levels, which then can be converted to estimates of 8-hour CO levels. Using the screening methodology to calculate an 8-hour average CO concentration as presented in the Caltrans CO Protocol, it is not possible for a project to result in a modeled 1-hour exceedance of the 1-hour CO standard without also causing a violation of the corresponding 8-hour standard. This is a consequence of using a "persistence factor" to convert the modeled 1-hour concentration to an 8-hour concentration.

If the screening procedure is not applicable for the subject project, or if the screening procedure indicates a potential CO hotspot, the California Line Source Dispersion Model (CALINE4 model) should be run as outlined in Appendix B of the Santa Paula East Area 1 Air Quality Report, "Detailed Analysis," of the Caltrans CO Protocol. CALINE4 is a modeling program used to assess air quality impacts near transportation facilities.[12] It is based on the Gaussian diffusion equation and uses a mixing zone concept to characterize pollutant dispersion over the roadway. If the CALINE4 model indicates that the project may cause a CO hotspot (or contribute to an existing hotspot), a finding of significant impact should be made, unless mitigation measures can be implemented that reduce the hotspot concentration to less than the applicable CO standard.

Particulate Matter (Fugitive Dust)

The VCAPCD recommends minimizing fugitive dust, especially during grading and excavation operations, rather than quantifying fugitive dust emissions. Occasionally, the District may recommend that a project's potential to affect ambient particulate concentrations be analyzed with an appropriate air pollutant dispersion computer model. The purpose of such an analysis is to help determine if the amount of dust that will be generated by project-related activities will cause an exceedance of an ambient particulate air quality standard.

If the analysis indicates a possible violation of an ambient particulate air quality standard, a finding of significant impact should be made and appropriate mitigating measures identified. The District will recommend that PM modeling be conducted if, in its opinion, project-related activities and operations may generate airborne PM in such quantities as to cause an exceedance of a particulate ambient air quality standard in an area where people live and work, including, but not limited to, residential areas, schools, day care centers, office complexes, and hospitals.

[12] Lakes Environmental Software. "U.S. EPA Models: CALINE4." 2007. http://www.weblakes.com/lakeepa1.html#CALINE4

San Joaquin Valley Fever

To evaluate San Joaquin Valley Fever the air quality analysis reviews key aspects that contribute to a project's potential to create significant Valley Fever impacts. These include, without limitation, the disturbance level and condition of top soil, winds in the area of the project site, and the presence of archaeological resources.

The factors evaluated to determine the likelihood that the Valley Fever fungus may be present and impact nearby land uses (or the project itself). Based on these factors, if the project determines activities may create a significant Valley Fever impact, Valley Fever mitigation measures may be considered.

4.5.4 POTENTIAL IMPACTS

Analysis of potential air quality impacts due to the proposed project was conducted for construction and operational phases. For each phase the analysis included an estimation of regional emissions using the Windows version of the URBEMIS2007 model. URBEMIS is designed to estimate air emissions from land use development projects based on user-defined project parameters. Regional parameters were set to reflect the South Central Coast Air Basin for the 2007-2008 year, including applicable regional default assumptions. The model was used to estimate emissions associated with the construction and daily operation applicable to the specific land use types associated with the proposed project.

The proposed project will be built over 10 years in four overlapping phases. Using phasing and development assumptions data presented for fiscal analysis of the proposed East Area 1 Specific Plan (Hoffman, 2007), proposed phasing of the residential and non-residential uses as well as the associated population and employment estimates for the 10-year period was reviewed to identify worst-case construction and operational conditions.

For the operational phase, the analysis also addresses local area concentrations of a specific pollutant, carbon monoxide (CO). CO is the only pollutant for which standardized modeling methodologies for estimating localized concentrations have been developed and approved by the VCAPCD. Therefore, localized concentrations of CO emissions generated from mobile sources during operations of the project were evaluated.

4.5.4.1 Construction Impacts

Due to the intermittent construction schedule separate worst-case analyses were conducted for mass grading and construction.

Mass Grading

Mass Grading for the project involves the cutting of the higher elevations of the project site and transporting the materials to lower elevations to use as fill. This cut and fill operation would move approximately 550,000 cubic yards (CY) of soil on the project site with the cut and fill being balanced on-site over a period of approximately 2 months (44 working days). During each day of mass grading approximately 12,500 CY of soil is expected to be moved by means of seven scrapers on-site. All work days will have the same activity level, so impacts from mass grading activities may be represented on a daily basis by a single worst-case daily emission rate. Supporting the scrapers are three dozers, two compactors, one off-road truck, and two water trucks. The equipment mix was provided by the applicant.

Paving, Building Construction, and Architectural Coatings

The construction emissions analysis was conducted for Year 7, which was identified as the worst-case year due to the overlapping construction activities of the Hahn Creek Neighborhood (Phase II), the Santa Paula Creek Neighborhood (Phase III), and the Foothill Neighborhood (Phase IV). During this year, plans call for the construction of 73 detached single-family residences, 48 attached single-family residences, 53 multifamily residences, 100 assisted living residences, 35 work/live residence/retail spaces, and 40,000 SF of neighborhood retail space.

Each building construction year was planned for an entire 12-month period. The paving period for each building construction year was planned to start concurrently with the start of each building construction year and last one month. The application of the architectural coatings was planned to start two months before the end of each 12-month building construction period and end concurrently with the end of each building construction year.

The URBEMIS 2007 equipment defaults were used to determine the equipment mix for the paving and building construction sub-phases. The equipment mix for the paving sub-phase consisted of one paver, two sets of paving equipment, and one roller. The building construction sub-phase equipment consisted of one crane, one generator set, one welder, three forklifts, and three tractors/loaders/backhoes.

Results of the construction emissions modeling analysis are presented in Table 4.5-4. ROC emissions from grading operations were less than the 25 lbs/day significance threshold, while the NO_X emissions exceeded the 25 lbs/day significance threshold due to the heavy equipment exhaust emissions. Emissions of ROC and NO_X from building construction exceeded the 25 lbs/day significance thresholds. The relatively high ROC emissions are due to the application of architectural coatings.

TABLE 4.5-4
WORST CASE CONSTRUCTION EMISSIONS IMPACTS

	EMISSIONS (LBS/DAY)					
EMISSIONS SOURCE	**ROC**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Grading						
Daily Emission Totals:	16	133	88	< 1	203	46
VCAPCD Threshold:	25	25	—	—	—	—
Exceeds VCAPCD Threshold?	No	**Yes**	—	—	—	—
Building Construction						
Daily Emission Totals:	595	32	75	< 1	2	2
VCAPCD Threshold:	25	25	—	—	—	
Exceeds VCAPCD Threshold?	**Yes**	**Yes**	—	—	—	

Source: ENSR (2007).

4.5.4.2 Operational Impacts

As previously noted, project construction is estimated to be completed in 10 years from project commencement. For the purposes of this air quality emissions analysis, operational-related air quality impacts were studied for year 2018. The operational air quality impacts would consist of mobile source emissions generated from project-related traffic and from area source emissions generated directly from natural gas, use of consumer products, and landscaping activities. Calculations and discussions related to these emissions sources are presented below.

Mobile Source Emissions

Mobile sources consist of emissions from motor vehicles that include tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROC, NO_X, SO_X, and PM_{10} are all pollutants of regional concern (NO_X and ROC react with sunlight to form O_3 [photochemical smog], and wind currents readily transport SO_X and PM_{10}). However, CO tends to be a localized pollutant, dispersing rapidly at the source. As previously discussed, Ventura County is classified as a severe non-attainment area under the California Clean Air Act for 1-hour ozone and particulate matter (PM_{10}) standards. The air basin is in attainment for the state carbon monoxide (CO) standards. Nitrogen oxides and ROC are regulated O_3 precursors. A precursor is defined as a directly emitted air contaminant that, when released into the atmosphere, forms or causes to be formed or contributes to the formation of a secondary air contaminant for which an ambient air quality standard has been adopted. Project-generated vehicle emissions have been estimated using URBEMIS 2007. This model predicts ROC, CO, NO_X, SO_X, PM_{10}, $PM_{2.5}$, CO_2 emissions from motor vehicle traffic associated with new or modified land uses; refer to Appendix A of the Santa Paula East Area 1 Air Quality Report for model input and output values used for this project. Project trip generation rates were based on the information provided by the Project Traffic Study (see Appendix D of this DEIR).

As shown in Table 4.5-5, emissions generated by mobile sources associated with the proposed project would exceed established VCAPCD significance thresholds for ROC and NO_X, and would result in a significant and unavoidable impact.

TABLE 4.5-5
MOBILE SOURCE EMISSIONS IMPACTS

	EMISSIONS (LBS/DAY)					
EMISSIONS SOURCE	**ROC**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Daily Emission Totals:	187	277	2,002	1	229	44
VCAPCD Threshold:	25	25	—	—	—	
Exceeds VCAPCD Threshold?	**Yes**	**Yes**	—	—	—	

1. Based on URBEMIS 2007 modeling results, worst-case seasonal emissions for area and mobile emissions.
2. Area Source emissions exclude the use of fireplaces and wood burning stoves.

Area Source Emissions

Area source emissions would be generated primarily by natural gas combustion by the various land uses of the proposed project. The primary use of natural gas by the proposed land uses would be to produce space heating, water heating and other miscellaneous heating, or air conditioning. The area source emissions also take into account the use of gasoline-powered gardening and landscaping equipment for the project and use of consumer products by project residents.

As shown on Table 4.5-6, area source emissions from the proposed project would exceed VCAPCD significance thresholds for ROC and NO_X.

TABLE 4.5-6
AREA SOURCE EMISSIONS IMPACTS

	EMISSIONS (LBS/DAY)					
EMISSIONS SOURCE	**ROC**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Daily Emission Totals:	362	43	1,032	3	162	156
VCAPCD Threshold:	25	25	—	—	—	—
Exceeds VCAPCD Threshold?	**Yes**	**Yes**	—	—	—	—

1. Based on URBEMIS 2007 modeling results, worst-case seasonal emissions for area and mobile emissions.
2. Area Source emissions exclude the use of fireplaces and wood burning stoves.

4.5.4.3 Health Effects

The proposed project would result in the emissions of ROCs, NO_X, SO_X, PM_{10}, and $PM_{2.5}$. As previously discussed above under *Local Ambient Air Quality*, these criteria pollutants have been known to cause health-related problems to humans. According to the American Lung Association, people with cardiovascular diseases, children, and the elderly are most vulnerable to the health risks associated with air quality pollution. The following provides further discussion on the types of health effects associated with project air emissions:

- ROC – The primary health effects of hydrocarbons result from the formation of ozone and its related health effects. High levels of hydrocarbons in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement.

- NOx – NOx can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza.

- CO – CO enters the bloodstream and binds more readily to hemoglobin than oxygen, reducing the oxygen-carrying capacity of blood, thus reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected, but only at higher levels of exposure. Carbon monoxide binds strongly to hemoglobin, the oxygen-carrying protein in blood, and thus reduces the blood's capacity for carrying oxygen to the heart, brain, and other parts of the body. At high concentrations, CO can cause heart difficulties in people with chronic diseases, and can impair mental abilities. Typically, CO is a localized pollutant and does not disperse far from the source.

- SOx – The major health concerns associated with exposure to high concentrations of SO_X are effects on breathing, respiratory illness, diminishment of pulmonary defenses, and aggravation of existing cardiovascular disease. Major subgroups of the population that are most sensitive to SO_X are individuals with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema), as well as children and the elderly. Emissions of SO_X also can damage the foliage of trees and agricultural crops. Together, SO_X and NO_X are the major precursors to acid rain, which is associated with the acidification of lakes and streams, and the accelerated corrosion of buildings and public monuments. Sulfur oxides can react to form sulfates, which significantly reduce visibility.

- Particulate Matter – These particles are small enough to be inhaled into, and lodged in, the deepest parts of the lung. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, coughing, bronchitis and respiratory illnesses in children.

4.5.4.4 Local Impacts- CO Hotspots Along Roads

Proposed East Area 1 Project

CO is produced in greatest quantities from vehicle combustion, and is usually concentrated at or near ground level because it does not readily disperse into the atmosphere. As a result, potential air quality impacts to sensitive receptors are assessed through an analysis of localized CO concentrations. Areas of vehicle congestion have the potential to create "pockets" of CO called "hotspots." These pockets have the potential to exceed the state ambient air quality 1-hour standard of 20 ppm or the 8-hour standard of 9.0 ppm. Note that the federal levels are based on 1- and 8-hour standards of 35 and 9 ppm, respectively. Thus, an exceedance condition would occur based on the state standards prior to exceedance of the federal standard.

The project was evaluated to determine if it would cause CO hotspots using the Caltrans CO screening protocol, as recommended by the VCAPCD. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these "hotspots" are typically produced at intersections. Per the project traffic impact analysis prepared by Fehr & Peers/Kaku Associates, CO hotspots analyses was conducted for 11 intersections with projected Level of Service (LOS) of E or worst corresponding to the Project build-out year of 2018.

The Caltrans CO hotspots protocol uses two tables based on geographic location to determine a base 1-hour CO concentration that is modified by various correction factors provided in tables. The geological locations divide projects into those located in Central Valley areas (inland sites) and coastal/coastal valley areas. The 1-hour base CO concentration for the project is determined with these tables by the distance from the nearest traffic lane to the receptor (i.e., three meters, the distance suggested by the Caltrans Protocol as providing the worst-case analysis), and the number of lanes for the roadway closest to the receptor. Once the 1-hour base CO concentration has been determined, its value is modified by the application of corrections factors that include peak traffic volume, average cruise speed, approach and departure performance, percentage of cold starts, and wind direction.

The resulting 1-hour contribution CO concentration is then added to the area background CO concentration. This background concentration is provided by continuous CO measurements conducted at the closest VCAPCD air quality monitoring station to the Project. This air quality monitoring station was sited at the Rio Mesa High School. The maximum 1-hour CO measurement measured by the Rio Mesa Station during its last three years of operation (2002 to 2004) was selected to provide a worst case scenario. This background value of 3.50 ppm was added to the 8-hour contribution CO concentrations to provide the total CO concentrations. Finally a persistence factor of 0.6 for rural and suburban locations was applied to the 1-hour total CO Concentrations to provide estimates of the 8-hour total CO Concentrations.

The resulting concentrations presented in Table 4.5-7, are well below the U.S. Environmental Projection Agency 1-hour and 8-hour and standards of 35 ppm and 9 ppm, respectively, and the State of California 1-hour 20 ppm and 8-hour 9.0 ppm CO standards. Impacts with regard to CO hot spots would be less than significant.

TABLE 4.5-7
CO HOTSPOTS ANALYSIS RESULTS

	CO CONCENTRATIONS (PPM)	
INTERSECTIONS	**1-HOUR**	**8-HOUR**
Federal CO Standards	**35**	**9.0**
State of California CO Standards	**20**	**9.0**
Telegraph Road & Hallock Drive	10.6	6.4
12th Street & Santa Paula Street	6.3	3.8
Ojai Street& Richmond	8.1	4.9
Ojai Street & Orchard Street	5.3	3.2
Ojai Street & Saticoy Street	6.4	3.8
Ojai Street/10th Street & Santa Paula Street	9.1	5.5
10th Street & Harvard Boulevard	9.6	5.8
8th Street & Santa Paula Street	5.9	3.5
Palm Avenue & Santa Paula Street	5.3	3.2
Steckel Drive & Santa Paula Street	5.3	3.2
Peck Road & Main Street/Harvard	10.1	6.0

Source: ENSR (2007).

4.5.4.5 Health Risk Assessment from Construction-Related Toxic Air Emissions

A Health Risk Assessment (HRA) was conducted for the proposed project in conjunction with the air quality and environmental impact analysis required under the CEQA.

Toxic Air Contaminants of Concern

The air quality concern addressed in a health risk assessment measures the potential exposure of public receptors to emissions of particulate matter from diesel-fueled construction equipment engine exhaust. The regulated pollutant surrogate for this air toxic substance is commonly referred to as diesel particulate matter (DPM). In 1990, the State of California administratively listed under Proposition 65 the particulates formed in the exhaust of diesel powered equipment as a chemical known to the State to cause cancer. For estimating risks due to diesel particulate matter exhaust, the risk assessment methodology used was consistent with that employed by the ARB in the document entitled Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (ARB, 2000).

Health Risk Factors

Diesel particulate emissions were evaluated in this HRA using health values approved by the OEHHA and the ARB for use in facility health risk assessments conducted for the AB2588 Air Toxics Hot Spots Program. The published OEHHA health effect values for diesel particulate matter used in this HRA are listed in Table 4.5-8. The table lists the OEHHA adopted inhalation and oral cancer slope factors and inhalation and oral noncancer chronic Reference Exposure Levels (RELs). The cancer potency factors and reference exposure levels (RELs) used were obtained from the OEHHA HRA Guidance Document. Although DPM contributes to cancer risk and non-cancer chronic (respiratory) impacts, cancer risk from DPM will show first as a significant impact and therefore was the focus of this health risk analysis.

TABLE 4.5-8
RISK ASSESSMENT HEALTH VALUES FOR SUBSTANCES OF POTENTIAL CONCERN

COMPOUND (CAS NUMBER)	CANCER RISK		NON-CANCER EFFECTS	
	INHALATION CANCER POTENCY $(MG/KG\text{-}DAY)^{-1}$	INHALATION UNIT RISK $(MG/M^3)^{-1}$	CHRONIC INHALATION REL (MG/M^3)	ACUTE INHALATION REL (MG/M^3)
Diesel Particulate Matter (9901)	1.1	3.0×10^{-4}	5.0	--

Source: OEHHA, 2003.

Risk Definition and Significance Threshold

Cancer risk is the probability or chance of contracting cancer over a human life span, which is assumed to be 70 years. Carcinogens are not assumed to have a threshold below which there would be no human health impact. In other words, any exposure to a carcinogen is assumed to have some probability of causing cancer; the lower the exposure, the lower the cancer risk (i.e., a linear, no-threshold model). Under various state and local regulations, an incremental cancer risk of 10-in-one-million due to a project is considered to be a significant impact on public health. For example, the 10-in-one-million risk level is used by the Air Toxics "Hot Spots" (AB2588) program and California's Proposition 65 as the public notification level for air toxic emissions from existing sources. The Ventura County Air Quality Assessment Guidelines (October, 2003) states that the recommended significance threshold for toxic air contaminant emissions is a health risk impact above 10 in a million.

Exposure Assessment

Diesel engine exhaust is emitted from a broad range of on- and off-road diesel engines and the particulate phase is commonly found throughout the environment and varies in size and composition. Fine and ultrafine diesel particulates are of the greatest health concern because these particles, which may be composed of elemental carbon with adsorbed compounds such as organics, sulfates, nitrates, metals, and other trace elements, can enter human lungs.

Emission Sources (Activities)

Assessments of public health impacts from emissions of DPM are typically conducted for operating facilities that would expose sensitive receptors to high concentrations of DPM over a long period of time. Per guidelines of the California OEHHA and the California Air Pollution Control Officers Association (CAPCOA) guidelines, estimating the cancer risk from DPM is typically not required for construction activities, as they occur for a short period of time and therefore would not measurably increase cancer risk. However, to provide a conservative analysis for construction impact, a health risk analysis was performed for East Area 1 using air dispersion modeling analysis. Because the proposed project is a mixed use development and not an industrial facility with continuous operations, this HRA addressed specifically health risks from construction activities.

Construction of the proposed project is scheduled to occur in four phases throughout the 10-year build-out period. Each phase will include separate site grading activities that will prepare the five Planning Areas of the East Area 1 project for development. During each construction period associated with a Planning Area, project design estimates show approximately 2.2 million cubic yards of soil movement in four (4) equal phases (approximately 550,000 cubic yards per phase). At this time the soil balance is expected to remain entirely onsite with no required offsite soil disposal. Site grading during a Planning Area construction period is expected to be 44 working days in duration with an average soil movement

of 12,500 cubic yard per day. Construction equipment that would generate DPM pollutant emissions would consist of dozers (3), scrapers (7), compactors (2), rock trucks (1), and water pulls (2). Soil volume estimates and site grading schedule were based on scrapper capacities and expected daily turnaround time per onsite haul trip.

Emission Estimates

The Ventura County Guidelines recommend the use of the latest version of the URBEMIS program to estimate project pollutant emissions. In June 2007 Version 9.2 of the program was released, and it includes emission factors for motor vehicles from EMFAC2007 and off-road equipment from OFFROAD2007, and estimates separate emissions for the pollutant "PM_{10} Exhaust," as well as PM_{10} from fugitive dust. EMFAC2007 and OFFROAD2007 are models developed by the California Air Resources Board for developing mobile source emission factors. DPM emissions from the East Area 1 project construction activities were calculated as PM_{10} Exhaust using URBEMIS2007. An overall emission profile for the 10-year phasing was developed to identify DPM emissions for the worst-case year (year with the highest PM_{10} Exhaust emissions) based on results of the URBEMIS program. The DPM emissions that would be associated with mass grading of each construction phase were quantified using the current estimates of numbers of construction equipment expected to be used during the grading phase.

Diesel particulate matter impacts associated with onsite construction included developing estimates of the number the equipment and activity pattern to be used during site grading and construction. According to the construction schedule for the project, any given site grading period will produce a similar level of DPM emission from construction equipment, therefore annualized hourly DPM emissions were based are identified as daily average. Because all phases are estimated to have an equivalent soil movement and construction equipment profile, the size (acres) of each Planning Area is a neutral consideration when estimating maximum emission levels. DPM emissions were taken from the URBEMIS construction outputs for the proposed project; refer to the Santa Paula East Area 1 Air Quality Report included as Appendix E of this DEIR. Maximum daily emissions of PM_{10} Exhaust were determined to be 5.69 pounds per day. Assuming a 44-day grading period, PM_{10} Exhaust emissions from diesel-fueled construction equipment engines would be 250.4 pounds per year. This level of emission is expected to occur four separate times during the 10-year phasing of the East Area 1 project, but it is not expected that two or more of these 44-day grading cycles will occur within a 12-month period. As noted above, only emissions shown in URBEMIS due to PM_{10} from diesel exhaust (not the inert silicates from dust) were evaluated for cancer-risk.

<u>Air Dispersion Modeling Analysis</u>

Concentrations of air toxic substances in ambient air were estimated from mass grading emissions through use of air dispersion modeling analysis, appropriate meteorological data, model source release parameters and receptors.

To ensure identification of maximum impacts at actual receptor locations, all sensitive receptors located within 2 kilometers of the East Area 1 project site were identified using a windshield survey, Google Earth, Yahoo Yellow Pages, and City of Santa Paula website. The closest receptor identified was located 0.56 miles, or 0.9 kilometers from the project site.

Health Risk Assessment Results

Potential health impacts were determined using the estimation of dose and exposure through inhalation methods described in Section 5.4 of the OEHHA HRA Guidelines. The chief exposure assumption for cancer risk is one of continuous exposure to DPM concentrations produced by continuous emissions at the maximum emission rates over a 70-year period at each receptor location. Actual risks are not expected to be any higher than the 70-year predicted risks and are likely to be substantially lower, particularly when considering short-term emission increases such as construction-related equipment use. The cancer risk for an inhaled air toxic is estimated by multiplying the exposure concentration by the breathing rate (L/kg-day) times the inhalation cancer potency factor $(mg/kg\text{-}day)^{-1}$.

The expected diesel construction emission concentrations from the ISCST3 model at the highest offsite receptor location is 0.0348 micrograms per cubic meter ($\mu g/m^3$). This receptor is located at 900 meters (0.9 kilometers, or 0.5 miles) due west of the project site. The maximum exposed individual residential (MEIR) cancer risk for an adult is 2.1 in one million, or 2.1×10^{-6}. The MEIR cancer risk for a child 3.0×10^{-6} and the maximum exposed individual cancer risk for an occupational worker (MEIW) is 0.54×10^{-6}. Each maximum exposure is based on varying exposure assumptions as identify by OEHHA. Table 4.5-9 presents cancer risk estimates from construction activities assuming 10-year exposure duration.

TABLE 4.5-9
SUMMARY OF MAXIMUM HEALTH RISK IMPACTS BY INDIVIDUAL RECEPTOR

INDIVIDUAL RECEPTOR TYPE	ANNUAL AVERAGE CONCENTRATION ($\mu G/M^3$)	CANCER RISK IMPACT (1)
Maximum Exposed Individual Receptor (MEIR)	0.0348	2.1×10^{-6}
Maximum Exposed Individual Child (MEIC)	0.0348	3.0×10^{-6}
Maximum Exposed Individual Worker (MEIW)	0.0348	5.4×10^{-7}

(1) Cancer risk shown is total cancer risk, expressed in cases per million, from diesel particulate matter. Cancer risk for residential receptor is based on a 10-year exposure period for completion of all project phasing. Cancer risk for worker is based on an adjusted exposure in accordance with OEHHA.

The point of maximum impact is located within 100 meters of the project site and was modeled as 0.49 $\mu g/m^3$. The PMI is not a location of an actual receptor. In addition, receptors located within the area source are not considered reliable indications of downwind concentration. In accordance with the VCAPCD Guidelines to evaluate cancer risk based upon air concentrations, the modeled results for particulate matter concentrations are below the CAAQS, and thus present a very low cancer risk.

Estimated cancer risks at all receptors evaluated in this health risk analysis were determined to be less than the VCAPCD significance level of 10 in one million. Detailed health risk calculations and ISCST3 model outputs for all health risk results are provided in the Santa Paula East Area 1 Air Quality Report included as Appendix E of this DEIR.

Health Risk Uncertainty Analysis

Sources of uncertainty in the assessment of risks to public health include emissions estimates, dispersion modeling, exposure characteristics, and extrapolation of toxicity data in animals to humans. To address this uncertainty, highly conservative assumptions were used in this risk assessment, as are discussed in the Santa Paula East Area 1 Air Quality Report included as Appendix E of this DEIR.

4.5.4.6 Global Climate Change Impacts

There are no existing methodologies that address the regulation of greenhouse gases (GHGs). In addition, there are currently no health-based standards that measure the threat GHGs, including CO_2, pose on human health. CO_2 is generally a global pollutant and ordinarily poses an indirect threat to human health because CO_2 production, among other things, contributes to climate change. The proposed project's CO_2 production will contribute to climate change and climate change will also impact the project. This report acknowledges that greenhouse gases are a serious concern and steps will be taken to reduce CO_2 amounts. Ultimately, however, the project will have a net gain of CO_2.

However, the proposed project is pedestrian oriented. The proposed project is designed to promote walking between neighborhoods, streets are designed with bike lanes, and ample bike parking will be made available at commercial sites. Transportation contributes approximately 41% of California's GHGs (including CO_2); therefore, any effort made to reduce driving is significant. In addition, buildings are designed to be energy efficient with solar panel option for buyers, and trees to provide natural cooling and shade during the summer and allow filtered light for the winter. There also will be a transit station for commuting outside the project area. The City also promotes recycling to limit the amount of solid waste sent to landfills. While mitigation efforts will offset CO_2 production, they will not cause the operational phase to be carbon neutral, and therefore will conflict with the state of California's objective of achieving 1990 CO_2 levels by 2020.

The proposed project will most likely contribute a significant amount of greenhouse gases and although mitigation efforts will be taken the project might conflict with the spirit of S-3-05.

As discussed previously, there are currently no health-based standards that measure the threat GHGs, including CO_2, pose on human health. However, as the major contributor to global warming, CO_2 is an indirect threat to humans due to global warming's potential to change climate patterns thus affecting human health and welfare. The proposed project's construction and operational phases will result in an increase in CO_2. Yet because neither the State nor the Federal governments have established specific thresholds of significance regarding CO_2, this EIR cannot assess the degree to which the proposed project will impact climate change. It can be stated that the proposed project is contributing to a significant problem but the degree of significance cannot be determined at this time. It is anticipated that a baseline for operation will be established after which a degree of significance may be determined.

An estimation of CO_2 emissions from the proposed project was developed using the URBEMIS 2007 v9.2 program. URBEMIS factors in number of households, commercial, educational, and recreational facilities in order to calculate CO_2 emissions. The operational phase sources of CO_2 include stationary sources such as electricity and natural gas consumption. Mobile sources are based upon an estimated fleet of vehicles and projected average trips per day divided into work, shop, or other commutes. Operational CO_2 estimates are based upon fine site grading, building construction, application of architectural coatings, and laying of asphalt.

The methodology includes estimates of CO_2 by year for each source. Multiple runs for worst case scenarios depending on year were ran. The following data is the year with the most CO_2 emissions. The largest year of construction CO_2 emissions amounted to 2,179 tons per year. Operational and source emission totaled 14,702 tons per year unmitigated and 12,260 tons per year with mitigation, a 12.88 percent decrease.

Overall Impact Assessment

A significant impact determination associated with global climate change of the proposed project cannot be determined as it would be speculative because no adopted thresholds of significance currently exist for measuring the impact of global climate change on or from a project. However, design features are incorporated within the proposed project (such as pedestrian oriented design features discussed above) which would generally minimize global climate change impacts. In addition, mitigation measures are provided below that would generally reduce global climate change impacts.

4.5.4.7 Odor Impacts

The proposed project would develop additional urban uses on the project site, similar to uses already existing on and around the project site. The project does not propose uses that would generate significant objectionable odors, although it is possible that odors from restaurant operations may be occasionally perceptible. Operation of the proposed project will involve the disposal of refuse, including domestic and food service refuse from residential and retail uses. Existing restaurants may also dispose of refuse in trash containers near to proposed residential uses. This refuse would be disposed of in outdoor trash receptacles and could generate occasional odors pending regular collection and ultimate disposal into a sanitary landfill. However, project-generated refuse would be disposed into appropriate trash collection containers, which would be covered and enclosed as required by the City. As a result, impacts from odors would remain less than significant.

4.5.4.8 Valley Fever

The San Joaquin Valley Fever is an infectious disease caused by the fungus *Coccidioides immitis*. San Joaquin Valley Fever, commonly known as Valley Fever manifests itself as an infection that enters the body through inhalation of the *Coccidioides immitis* spores that have become airborne when dry, dusty soil or dirt is disturbed by wind, construction farming, or other activities. The Valley Fever fungus tends to be found at the base of hillsides, in virgin, undisturbed soil. It usually grows in the top few inches of soil, but can grow down to 12 inches. The fungus does not survive well in highly populated areas because there is not usually enough disturbed soil for it to grow. Additionally, the fungus is not likely to be found in soil that has been or is being cultivated and fertilized. This is because man-made fertilizers, such as ammonium sulfate, enhance the growth of the natural microbial competitors of the Valley Fever fungus. Infection is most frequent during summers that follow a rainy winter or spring, especially after wind and dust storms. Valley Fever infection commonly occurs in arid and semiarid areas of the western hemisphere. In Ventura County, the Valley Fever fungus is most prevalent in the County's dry, inland regions.

In its progressive form, Valley Fever may cause a chronic infection of many organs, including the skin, lymph glands, spleen, liver, bones, kidneys, and brain. Its primary form, symptoms appear as a mild upper respiratory infection, acute bronchitis, or pneumonia. The most common symptoms are fatigue, cough, chest pain, fever, rash, headache, and joint aches. In the remaining 40 percent, symptoms range from mild to severe. Individuals most vulnerable to Valley Fever are agricultural workers, construction and road workers, and archeologists, because they are exposed to the soil where the fungus might be just below the surface.

The proposed project would include earth-moving activities during the grading phase that will cut soil from the higher elevations of the Project site for use as fill at the lower elevations of the site. These activities would be conducive to disturbing the *Coccidioides immitis* spores that tend to be found at the base of hillsides, but due to the former use of the Project site for agriculture purposes, the probability of

infection from the inhalation of *Coccidioides immitis* spores is unlikely. Therefore, impacts related to exposure of people to Valley Fever would be less than significant.

4.5.4.9 Project Consistency with Air Quality Plans and Policies

The 1994 AQMP, 1995 AQMP Update, and 1997, 2004, and soon to be released 2007 Revisions were prepared to accommodate growth, and to attain the Federal 8-Hour Ozone Standard by June 15, 2013. Projects that are considered consistent with the AQMP would not interfere with attainment, because this growth is included in the projections utilized in the formulation of the AQMP. Therefore, projects, uses, and activities that are consistent with the applicable assumptions used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the VCAPCD's recommended daily emissions thresholds. According to the VCAPCD, inconsistent projects are usually those which cause the jurisdiction's AQMP population projections to be exceeded by a substantial amount, or for an indefinite period of time. For residential projects, a finding of inconsistency would be made if the project would cause the area in which it would be located to exceed the AQMP population forecasts. The proposed project's consistency with the AQMP is discussed below. Inconsistency is considered a significant cumulative air quality impact.

<u>Population Forecast Consistency</u>

The AQMP Growth/Non-Growth Area Totals through March 31, 2006 indicate an estimated population of 24,930 for the City of Santa Paula. The Southern California Association of Governments (SCAG) population projections used by SCAG's Modeling section to forecast travel demand and air quality for planning activities such as the Regional Transportation Plan (RTP), the Air Quality Management Plan (AQMP), Regional Transportation Improvement Program (RTIP), and the Regional Housing Plan forecast a population of 32,033 for 2010, 34,388 for 2015, and 36,919 for 2020. Population additions to the City of Santa Paula resulting from the project over a 10-year period between 2008 and 2018 are anticipated as follows:

- Years 2008 through 2010 will add 1,369 people;
- Years 2011 through 2015 will add 2,878 people; and
- Years 2016 through 2018 will add 1,028 people.

The determination of compliance with the AQMP with respect to population was calculated as follows:

- The addition of the Project contribution of 1,369 people for the years 2008 through 2010 to the 2005 SCAG Santa Paula forecast figure of 29,548 resulted in a 2010 population of 30,917 that is less than the 2010 SCAG Santa Paula forecast figure of 32,033 (29,548 + 1,369 = 30,917 < 32,033).
- The addition of the Project contribution of 2,878 people for the years 2011 through 2015 to the 2010 SCAG Santa Paula forecast figure of 32,033 results in a 2015 population of 34,911 that exceeds the 2015 SCAG Santa Paula forecast figure of 34,388 by 523 people (32,033 + 2,878 = 34,911 > 34,388).
- The addition of the Project contribution of 1,028 people for the years 2016 through 2018 to the population calculated in the step above (34,911), results in a 2018 population of 35,939 that is less than the 2020 SCAG Santa Paula forecast figure of 36,919 (34,911 + 1,028 = 35,939 < 36,919).

These results show that by completion of the proposed project in 2018, the population of the City of Santa Paula with the addition of the project would not exceed the forecast population, which demonstrates consistency with the AQMP.

4.5.5 MITIGATION MEASURES

4.5.5.1 Construction Emissions

Grading and Excavation

AQ-1 During clearing, grading, earth-moving, or excavation operations, excessive fugitive dust emissions must be controlled by regular watering or other dust-preventive measures using the following procedures, as specified by the VCAPCD (including, without limitation, to VCAPCD Rule 50 (Opacity) and Rule 51 (Nuisance):

- On-site vehicle speed is not to exceed 15 miles per hour (the site will contain posted signs with the speed limit);
- All on-site construction roads with vehicle traffic must be watered periodically;
- Streets adjacent to the project reach must be swept as needed to remove silt that may have accumulated from construction activities so as to prevent excessive amounts of dust.
- All material excavated or graded must be sufficiently watered to prevent excessive amounts of dust. Watering will occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day;
- All clearing, grading, earth moving, or excavation activities must cease during periods of high winds (i.e., greater than 25 miles per hour averaged over one hour) so as to prevent excessive amounts of dust (contact the VCAPCD meteorologist for current information about average wind speeds);
- All material transported off-site must be either sufficiently watered or securely covered to prevent excessive amounts of dust; and
- The area disturbed by clearing, grading, earth moving, or excavation operations must be minimized so as to prevent excessive amounts of dust.

These control techniques will be indicated on project grading plans. The Applicant and/or its contractor are responsible for implementing these measures and compliance with this measure will be subject to periodic site inspections by the City.

AQ-2 Project grading plans must show that for the duration of construction, ozone precursor emissions from construction equipment vehicles must be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications, to the satisfaction of the City Engineer. Compliance with this measure will be subject to periodic inspections of construction equipment vehicles by the Public Works Department.

AQ-3 All trucks that will haul excavated or graded material on-site must comply with California Vehicle Code § 23114, with special attention to subsections 23114(b)(F), (e)(2) and (e)(4) as amended, regarding the prevention of such material spilling onto public streets and roads.

AQ-4 A comprehensive Fugitive Dust Control Plan must be developed by the Applicant and approved by the VCAPCD before the applicant commences grading and excavation operations. The Plan must include all feasible, but environmentally safe, dust control methods. If a particular dust control method is determined or believed not to be feasible, or if it would conflict with other

regulations, justification for not including the subject method must be provided at the time the Fugitive Dust Control Plan is submitted to the VCAPCD. The Plan must identify all fugitive dust sources, the means by which fugitive dust from each identified source will be minimized, and the schedule or frequency that each dust control method will be applied for each identified source.

Building Construction

AQ-5 The construction contractor must adhere to VCAPCD Rule 74.2 (Architectural Coatings) for limiting volatile organic compounds from architectural coatings. This rule specifies architectural coatings storage, clean up and labeling requirements.

4.5.5.2 Operations Emissions

Area Source Emissions

The proposed project would result in significant and unavoidable impacts with regard to ROC and NO_X. VCAPCD recommends that feasible area source mitigation measures be included in all projects that have been determined to have a significant air quality impact. The following mitigation measure is provided in Section 7.5.1 of the VCAPCD Guidelines along with the approximate emission reduction (ER).

AQ-6 Use low emission water heaters for residential, retail, and commercial water heating (Emissions reduction of 11% for ROC and 9.5% for NO_X).

Mobile Source Emissions

AQ-7 Construct pedestrian and transit friendly facilities such as wider sidewalks, bus stops with passenger benches and shelters, and bikeways and or lanes. Sidewalks and bikeways should be landscaped with trees (an approximately 4 percent emissions reduction).

AQ-8 Provide shuttle/minibus service between Project residential and Project retail areas and the Santa Paula downtown area.

AQ-9 Provide shuttle/minibus service between the Project commercial and industrial land uses and the Project retail land uses and the Santa Paula downtown area during the lunchtime period (11:00 A.M. to 2:00 P.M.).

4.5.5.3 Valley Fever

AQ-10 To the extent feasible, construction employees will be hired from local populations, since it is more likely that they have been previously exposed to the fungus and are therefore immune. An individual is quite likely to be affected by valley fever if he or she lives in an area where the fungus is prevalent. A person (or animal) with a positive skin test has had a valley fever infection and has developed immunity to the fungus and therefore will never contract valley fever again. (Valley Fever Vaccine Project of America, http://www.valleyfever.com/primer.htm, June 8, 2005.)

AQ-11 During periods of high dust in the grading phase, crews must use respirators in accordance with California Division of Occupational Safety and Health regulations.

AQ-12 The operator cab of area grading and construction equipment must be enclosed and air-conditioned.

4.5.5.4 Long-Term Operational Emissions

AQ-13 The Applicant and/or its contractor must plant and maintain shade trees to reduce heat build-up on structures.

AQ-14 The Applicant and/or its contractor must prepare a Transportation Demand Management Program (TDM) for review and approval by the City and VCAPCD, before the City issues building permits. The plan must incorporate reasonable and feasible measures to reduce project-related traffic and vehicle miles traveled. At minimum, the TDM Program must include the following measures:

- Provision of connections to identified adjacent City or regional trails;
- Provision of adequate way-finding features to direct pedestrians and bicyclists to nearby project and City destinations, such as school, retail, and civic facilities;
- Provision of homeowner information packets prior to close of escrow, identifying local and regional non-vehicular transportation options, and providing homeowners with basic information regarding telecommuting options; and
- Providing adequate setbacks and design features such that the proposed future enhancement of commuter rail opportunities is not hindered by project design.
- Construct pedestrian and transit friendly facilities such as wider sidewalks, bus stops with passenger benches and shelters, bikeway or lanes. Sidewalks and bikeways should be landscaped with trees; and
- Perform a traffic light synchronization study on streets impacted by project development to reduce vehicle queuing time.

The project will be required to offset the increase in daily emission over the 25 pounds of reactive organic compounds and nitrogen oxides per day either through the purchase of emission offsets or through the in-lieu fees shall be paid to fund off-site Transportation Demand Management (TDM) facilities or services, if such a program has been established at that time. These fees can reduce emissions from non-project generated motor vehicle trips by funding programs to promote ridesharing, public transit and bicycling. The amount of this financial contribution should be calculated on a pro-rate basis as determined to be equitable by the APCD, and in accordance with the VCAPCD Guidelines. These fees should be paid prior to the issuance of building permits by the County. The applicant must demonstrate the availability of the offsets or contribution to fund off-site TDM services to the Ventura County APCD through a contract or other agreement with the offset source(s), which binds the reduction to the project, prior to finalizing the environmental review process.

AQ-15 The Applicant and/or its contractor are required to install EPA-certified wood-burning stoves or fireplace inserts. If this is not feasible, then the installation of a ceramic coating on the honeycomb inside a catalytic combustor must be utilized or the use of natural gas fireplaces may be used as a feasible alternative.

4.5.5.5 Additional Mitigation Measures

Area Source Emissions

The proposed project would result in significant and unavoidable impacts with regard to ROC and NO_X. VCAPCD recommends that feasible area source mitigation measures be included in all projects that have been determined to have a significant air quality impact. The following mitigation measure is provided in Section 7.5.1 of the VCAPCD Guidelines along with the approximate emission reduction (ER).

4.5.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed project was analyzed for potential air quality impacts from construction and operation. The air quality analysis showed overall that although the project may have significant regional air quality impacts from daily emissions, the long-term project is consistent with air quality plans and policies for the area.

The Santa Paula East Area 1 Air Quality Report analyzed the potential significance of eight (8) air quality impacts that may results from the proposed project. This report concluded that five (5) of the air quality impacts analyzed would not cause significant air quality impacts and would require no further mitigation.

- The project would generate insignificant long-term operational (local) mobile-source emissions of carbon monoxide.
- The project would result in less than significant exposure of sensitive receptors to project-generated operation-related emissions of toxic air contaminants.
- The project would generate some odors but would not result in exposure of sensitive receptors to odor emissions.
- The project would not result in exposure of sensitive receptors to fungus or spores that carry Valley Fever.
- The project would not result in any inconsistency with air quality management plans.

The proposed project was found to cause significant and unavoidable regional air quality impacts. The analysis shows that the project would generate long-term operational (regional) emissions of criteria air pollutants and precursors and that the generation of ROC and NOx would be significant during building construction on a project level and on a cumulative basis, which includes significant emissions of NOx during mass grading. Implementation of mitigation measures AQ-1 through AQ-12 would reduce regional emissions of criteria pollutants by approximately 15 percent, as well as reduce fugitive PM_{10} dust emissions by over 50 percent attributable to the dust control BMP as part of the project. However, even with implementation of the proposed mitigation measures, regional emissions of ROC and NOx emissions would still exceed the VCAPCD threshold of 25 pounds per day and therefore this impact would be significant and unavoidable.

While no significance determination could be made for global climate change impacts, implementation of mitigation measures AQ-13 through AQ-19 would generally reduce impacts related to global climate change.