3B Air Quality

3B.1 Introduction

This section provides an overview of the existing air quality at the project site and surrounding region, the regulatory framework, an analysis of potential impacts to air quality that would result from implementation of the project, and identification of mitigation measures.

3B.2 Existing Environmental Setting

Regional Climate

Air quality is affected by both the rate and location of pollutant emissions and by meteorological conditions that influence movement and dispersal of pollutants. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients, along with local topography, provide the link between air pollutant emissions and air quality.

The City of Los Angeles lies within the South Coast Air Basin (Basin). The distinctive climate of the Basin is determined by its terrain and geographical location. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the southwest and high mountains around its remaining perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild weather is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds.

Vertical dispersion of air pollutants in the Basin is hampered by the presence of persistent temperature inversions. High-pressure systems, such as the semi-permanent high-pressure zone in which the Basin is located, are characterized by an upper layer of dry air that warms as it descends restricting the mobility in the formation of subsidence inversions. Such inversions restrict the vertical dispersion of air pollutants released into the marine layer and, together with strong sunlight, can produce worst-case conditions for the formation of photochemical smog. The atmospheric pollution potential of an area is largely dependent on winds, atmospheric stability, solar radiation and terrain. The combination of low wind speeds and low inversions produces the greatest concentration of air pollutants. On days without inversions, or on days of winds averaging over 15 miles per hour (mph), smog potential is greatly reduced.[1]

Existing Air Quality in the Project Vicinity

The South Coast Air Quality Management District (SCAQMD) maintains monitoring stations within Los Angeles County that monitor air quality and compliance with associated ambient standards. The closest station to the project site is the Los Angeles North Main Street Monitoring Station. The following pollutants are monitored at these stations: ozone (O_3), particulate matter less than 10 and less than 2.5 microns (PM10 and PM2.5). The most recent published data for the

[1] SCAQMD, *CEQA Air Quality Handbook*, April 1993, p. A8-1.

monitoring stations are presented in **Table 3B-1**. In addition, air pollutants of interest to the regulatory agencies for their potential adverse impacts on sensitive receptors are described below.

TABLE 3B-1
AIR QUALITY DATA SUMMARY (2004 - 2006)

Pollutant	Monitoring Data by Year			
	Standard[a]	2004	2005	2006
Ozone – Los Angeles- North Main Street				
Highest 1 Hour Average (ppm)[b]	0.09	**0.1**	**0.1**	**0.1**
Days over State Standard		**7**	**2**	**8**
Highest 8 Hour Average (ppm)[b]	0.08	**0.091**	**0.098**	0.079
Days over National Standard		**1**	**1**	0
Particulate Matter (PM10) – Los Angeles- North Main Street				
Highest 24 Hour Average ($\mu g/m^3$)[b]	50	**72**	**69**	**58**
Est. Days over State Standard[c]		30	18	18
Highest 24 Hour Average ($\mu g/m^3$)[b] – National Measurement	150	72	70	59
Est. Days over National Standard[c]		0	0	0
State Annual Average ($\mu g/m^3$)[b]	20	**33**	**29**	**30**
Particulate Matter (PM2.5) Los Angeles- North Main Street				
Highest 24 Hour Average ($\mu g/m^3$)[b]	35	**60**	**74**	**46**
Days over National Standard		0	**2**	0
State Annual Average ($\mu g/m^3$	12	NA	17.8	16

[a] Generally, state standards and national standards are not to be exceeded more than once per year.

[b] ppm = parts per million; µg/m3 = micrograms per cubic meter.

[c] PM10 is not measured every day of the year. Number of estimated days over the standard is based on 365 days per year.

NOTES: Values in **bold** are in excess of at least one applicable standard. NA = Not Available.

SOURCE: California Air Resources Board, 2007a. *Summaries of Air Quality Data*, 2004, 2005, 2006; http://www.arb.ca.gov/adam/cgi-bin/db2www/polltrendsb.d2w/start

Criteria Air Pollutants

Ozone

Short-term exposure to ozone can irritate the eyes and cause construction of the airways. Besides causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROG) and nitrogen oxides (NOx). The time period required for ozone formation allows the reacting compounds to spread over a large area, producing a regional pollution problem. Ozone problems are the cumulative result of regional development patterns rather than the result of a few significant emission sources.

Once formed, ozone remains in the atmosphere for one or two days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth "rainout" and absorption by water molecules in clouds that later fall to earth with rain "washout".

Carbon Monoxide

Ambient carbon monoxide concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic. Wind speed and atmospheric mixing also influence carbon monoxide concentrations. Under inversion conditions, carbon monoxide concentrations may be distributed more uniformly over an area that may extend some distance from vehicular sources.

When inhaled at high concentrations, carbon monoxide combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses.

Carbon monoxide concentrations have declined dramatically in California due to existing controls and programs. Carbon monoxide concentrations are expected to continue declining due to the ongoing retirement of older, more polluting vehicles from the mix of vehicles on the road network.

Respirable Particulate Matter (PM10 and PM2.5)

PM10 and PM2.5 consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. (A micron is one-millionth of a meter). PM10 and PM2.5 represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis and respiratory illnesses in children. Recent mortality studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. Particulates can also damage materials and reduce visibility. One common source of PM2.5 is particulate matter from diesel engines.

Traffic generates particulate matter and PM10 emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM10 can remain in the atmosphere for up to

seven days before gravitational settling, rainout and washout remove it.

Nitrogen Dioxide

NO2 is a reddish brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO2. Aside from its contribution to ozone formation, nitrogen dioxide can increase the risk of acute and chronic respiratory disease and reduce visibility. NO2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Climate Change and Greenhouse Gases

Some gases in the atmosphere affect the Earth's heat balance by absorbing infrared radiation. These layers of gas in the atmosphere can prevent the escape of heat much the same as glass in a greenhouse. Thus, this affect is often referred to as the "greenhouse effect". The gases most responsible for the greenhouse effect appear to be carbon dioxide (CO2) and methane. It is becoming more widely accepted that continued increases in greenhouse gases will contribute to climate change, although there is uncertainty concerning the type of changes, magnitude, and time of the trend. One of the most alarming trends is an increase in average temperatures, or global warming. There is evidence that this trend towards higher temperatures may be accelerating.

In 1990, Congress passed and the President signed Public Law 101-606, *the Global Change Research Act of 1990.* The purpose of the legislation was:

> *. . . to require the establishment of a United States Global Change Research Program aimed at understanding and responding to global change, including the cumulative effects of human activities and natural processes on the environment, to promote discussions towards international protocols in global change research, and for other purposes.*

To that end, Global Change Research Information Office (GCRIO) was established in 1991 to serve as a clearinghouse of information and to provide interagency Global Change Data and Information System (GCDIS) to high-level users.

At this time, the United States Environmental Protection Agency (USEPA) does not regulate greenhouse gas emissions. In April 2007, the USEPA issued an important ruling in its first case on global warning. In that case Massachusetts v USEPA, the U.S Supreme Court reviewed a USEPA decision not to regulate greenhouse gas emissions from cars and trucks under the Clean Air Act. The Court found that Massachusetts was injured by global warming. The lawsuit focused on Section 202 of the Clean Air Act. The case resolved the following legal issues; (1) the Clean Air Act grants the USEPA authority to regulate greenhouse gases; and (2) USEPA did not properly exercise its lawful discretion in deciding not to promulgate regulations.

Global warming and climate change have received substantial public attention for more than 15 years. Even so, the analytical tools have not been developed to determine the effect on worldwide global warming from a particular increase in greenhouse gas emissions, or the resulting effects on

climate change in a particular locale. The scientific tools needed to evaluate the impacts that a specific project may have on the environment are also not yet available.

Accordingly, there is as yet no significance threshold developed to evaluate the impacts of the proposed Project, or any project, on global climate change or on the environment in California.

AB 32: Global Warming Solutions Act

In 2006, the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, the State agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve greenhouse gas emissions equivalent to statewide levels in 1990 by 2020. The Act defines greenhouse gas emissions as all of the following gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexaflouride. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB32 lays out a program to inventory and reduce greenhouse gas emissions in California and from power generation facilities located outside the state that serve California residents and businesses.

Pursuant to Senate Bill 97, the OPR is in the process of developing CEQA Guidelines "*for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions*." OPR is required to "prepare, develop, and transmit" the guidelines to the Resources Agency on or before July 1, 2009. The Resources Agency must certify and adopt the guidelines on or before January 1, 2010. (CARB 2007c)

In the interim, the California Air Pollution Control Officers Association (CAPCOA) has prepared a white paper that considers options for evaluating and addressing greenhouse has emissions under CEQA. CARB staff has provided an early action list, which includes 44 greenhouse gas reduction measures. The 44 recommended early actions have the potential to reduce greenhouse gas emissions by about 25 percent of the estimated reductions needed by 2020. These strategies are almost entirely targeted at emissions from fuel production and storage, transportation of goods (via haul trucks and ports), cement plants, and energy facilities.

AB 32 requires that the state's GHG emissions be reduced to 1990 levels by 2020. This reduction would be accomplished through an enforceable statewide cap on GHG emissions that would be phased in starting in 2012. In order to effectively implement the cap, AB 32 directs the CARB to develop appropriate regulations and establish a mandatory reporting system to track and monitor GHG emissions levels.

Additionally, AB 32 requires that CARB use the following principles to implement the cap:

- Distribute benefits and costs equitably

- Ensure that there are no direct, indirect, or cumulative increases in air pollution in local communities
- Protect entities that have reduced their emissions through actions prior to this regulatory mandate
- Allow for coordination with other states and countries to reduce emissions

Toxic Air Contaminants (TACS)

Non-criteria air pollutants or TACs are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes approximately 200 compounds, including particulate emissions from diesel-fueled engines.

Diesel particulate matter (DPM) is the most complex of diesel emissions. Diesel particulates, as defined by most emission standards, are sampled from diluted and cooled exhaust gases. This definition includes both solids and liquid material that condenses during the dilution process. The basic fractions of DPM are elemental carbon, heavy hydrocarbons derived from the fuel and lubricating oil and hydrated sulfuric acid derived from the fuel sulfur. DPM contains a large portion of the polycyclic aromatic hydrocarbons (PAH) found in diesel exhaust. Diesel particulates include small nuclei mode particles of diameters below 0.04μm and their agglomerates of diameters up to 1μm. Ambient exposures to diesel particulates in California are significant fractions of total TAC levels in the State.

Odorous Emissions

Though offensive odors from stationary sources rarely cause any physical harm, they still remain unpleasant and can lead to public distress generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

3B.3 Applicable Regulations

Federal Regulations

The federal Clean Air Act (FCAA) requires the U.S. Environmental Protection Agency (USEPA) to identify National Ambient Air Quality Standards (NAAQS or national standards) to protect public health and welfare. National standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, PM10, PM2.5, and lead. **Table 3B-2** shows current national and state ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant.

Pursuant to the 1990 Federal Clean Air Act Amendments, the USEPA classifies air basins (or portions thereof) as “attainment” or “nonattainment” for each criteria air pollutants, based on

TABLE 3B-2
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour 8 hours	0.09 ppm 0.07 ppm[1]	--- 0.08 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NO_X) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
Carbon Monoxide	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
Nitrogen Dioxide	1 hour Annual Avg.	0.18 ppm ---	--- 0.030 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
Sulfur Dioxide	1 hour 3 hours 24 hours Annual Avg.	0.25 ppm --- 0.04 ppm ---	--- 0.5 ppm 0.14 ppm 0.03 ppm	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.
Respirable Particulate Matter (PM-10)	24 hours Annual Avg.	50 $\mu g/m^3$ 20 $\mu g/m^3$	150 $\mu g/m^3$ 50 $\mu g/m^3$	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
Fine Particulate Matter (PM-2.5)	24 hours Annual Avg.	--- 12 $\mu g/m^3$	65 $\mu g/m^3$ 15 $\mu g/m^3$	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
Lead	Monthly Ave. Quarterly	1.5 $\mu g/m^3$ ---	--- 1.5 $\mu g/m^3$	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Geothermal Power Plants, Petroleum Production and refining	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)
Sulfates	24 hour	25 $\mu g/m^3$	No National Standard	Produced by the reaction in the air of SO2.	Breathing difficulties, aggravates asthma, reduced visibility
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, discourages tourism.	See PM2.5.

NOTE: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.

[1] This concentration was approved by the Air Resources Board on April 28, 2005 and became effective May 17, 2006.

SOURCE: California Air Resources Board, 2007. *Ambient Air Quality Standards,* available at http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm Standards last updated February 22, 2007.

whether or not the NAAQS had been achieved. **Table 3B-3** shows the current attainment status of the project area.

The FCAA requires each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The FCAAA added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The USEPA has responsibility to review all state SIPs to determine if they conform to the mandates of the FCAAA and will achieve air quality goals when implemented. If the USEPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated timeframes can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

TABLE 3B-3
LOS ANGELES COUNTY ATTAINMENT STATUS

	Designation/Classification	
Pollutant	**Federal Standards**	**State Standards**
Ozone – one hour	No Federal Standard[1]	Nonattainment
Ozone – eight hour	Serious Nonattainment	Unclassified
PM10	Serious Nonattainment	Nonattainment
PM2.5	Nonattainment	Nonattainment
CO	Attainment	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	No Designation	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-Reducing Particles	No Federal Standard	Unclassified

[1] Federal One Hour Ozone National Ambient Air Quality Standard was revoked on June 15, 2005

SOURCE: California Air Resources Board, 2007c. *Area Designation Maps,*
http://www.arb.ca.gov/desig/adm/adm.htm, page updated June 28, 2007.
8 Hour Ozone: http://www.epa.gov/air/oaqps/greenbk/gncs.html#CALIFORNIA
PM10: http://www.epa.gov/air/oaqps/greenbk/pncs.html#CALIFORNIA

State Regulations

The California Air Resources Board (CARB) manages air quality, regulates mobile emissions sources, and oversees the activities of county Air Pollution Control Districts and regional Air Quality Management Districts. CARB establishes state ambient air quality standards and vehicle emissions standards.

California has adopted ambient standards that are more stringent than the federal standards for the criteria air pollutants. These are shown in **Table 3B-2.** Under the California Clean Air Act

(CCAA) patterned after the FCAA, areas have been designated as attainment or nonattainment with respect to the state standards. **Table 3B-3** summarizes the attainment status with California standards in the project area.

California State law defines TACs as air pollutants having carcinogenic effects. A total of 243 substances have been designated as TACs under California law; they include the 189 (federal) HAPs adopted in accordance with AB 2728. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources but AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. Depending on the risk levels, emitting facilities are required to implement varying levels of risk reduction measures. The project does not include developing facilities that may be categorized as "High-priority," which are required to perform a health risk assessment.

In August of 1998, CARB identified particulate emissions from diesel-fueled engines (diesel particulate matter, or DPM) as TACs. CARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (CARB, 2000). The document represents a proposal to reduce diesel particulate emissions, with the goal to reduce emissions and the associated health risk by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed diesel particulate filters and ultra low sulfur diesel fuel on diesel-fueled engines.

CARB recently published the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB, 2005). The primary goal in developing the handbook was to provide information that will help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. The handbook highlights recent studies that have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities. However, the health risk is greatly reduced with distance. For that reason, CARB provided some general recommendations aimed at keeping appropriate distances between sources of air pollution and sensitive land uses, such as residences.

Regional Comprehensive Plan and Guide

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development, and the environment. SCAG is the federally designated metropolitan planning organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. As the designated MPO, SCAG is mandated by the federal government to develop and implement regional plans that address transportation, growth management, hazardous waste management, and air quality issues. With respect to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide (RCPG) for the Los Angeles County region, which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation components of the Air Quality Management Plan (AQMP) and are utilized in the preparation of air quality forecasts and the consistency analysis that is included in the AQMP.

SCAQMD

The SCAQMD has jurisdiction over an area of approximately 10,743 square miles. This area includes all of Orange County, all of Los Angeles County except for the Antelope Valley, the nondesert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The previously discussed Southern California Air Basin (Basin) is a subregion of the SCAQMD jurisdiction. While air quality in this area has improved, the Basin requires continued diligence to meet air quality standards. The SCAQMD has adopted a series of AQMPs to meet the CAAQS and NAAQS. These plans require control technology for existing sources, control programs for area sources and indirect sources, a SCAQMD permitting system designed to allow no net increase in emissions from any new or modified permitted emission sources, and transportation control measures.

The SCAQMD adopted a comprehensive AQMP update, the 2007 AQMP for the Basin, on June 1, 2007. The 2007 AQMP outlines the air pollution control measures needed to meet federal health-based standards for ozone (8-hour standard) by 2024, and PM2.5 by 2015. This revision to the AQMP also addresses several State and federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes and new air quality modeling tools. The 2007 AQMP is consistent with and builds upon the approaches taken in the 2003 AQMP for the attainment of the federal ozone air quality standard but highlights the significant amount of reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under FCAA (SCAQMD, 2007).

The SCAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to construction or operation of the project. For example, SCAQMD Rule 403 requires the implementation of best available fugitive dust control measures during active operations capable of generating fugitive dust emissions from onsite earth-moving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads. As another example, SCAQMD Regulation XIII ensures that the operation of new facilities do not interfere with progress in attainment of the NAAQS.

The SCAQMD has published a *CEQA Air Quality Handbook* (SCAQMD, 1993) that is intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. This handbook provides standards, methodologies and procedures for conducting air quality analyses and was used in the preparation of this analysis.

Sensitive Receptors

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality.

Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Sensitive receptors (single-family residences) surround and abut the site.

3B.4 Significance Criteria

According to CEQA Guidelines Appendix G, the project would have a significant effect on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any nonattainment pollutant (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

The City of Los Angeles has not developed specific air quality thresholds for air quality impacts. However, because of the SCAQMD's regulatory role in the Basin, the significance thresholds and analysis methodologies in the SCAQMD's *CEQA Air Quality Handbook* are used in evaluating project impacts.

Construction. The project would result in a significant construction air quality impact if regional emissions from the project exceed the significance thresholds set forth in **Table 3B-4**

TABLE 3B-4
AIR QUALITY SIGNIFICANCE THRESHOLDS

Pollutant	Construction	*Operation*
NOx	100 lbs/day	55 lbs/day
VOC (ROG)	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
CO	550 lbs/day	550 lbs/day
CO2	None available	None available

Source: SCAQMD, 1993. *CEQA Air Quality Handbook*. April 1993.

Operations. The project would result in a significant operational air quality impact if either of the following occur:

- Emissions exceed the significance thresholds set forth in **Table 3.2-4**.
- The project would not be compatible with SCAQMD air quality goals and policies.

Toxic Air Contaminants. The project would result in a significant operational air quality impact if any of the following occur:

- On-site stationary sources emit carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of ten in one million or an acute or chronic hazard index of 1.0. (SCAQMD, 2005a).
- Hazardous materials associated with on-site stationary sources result in an accidental release of air toxic emissions or acutely hazardous materials posing a threat to public health and safety.

Greenhouse Gas Emissions. In lieu of any official regulatory directive or precedent for identifying significant greenhouse gas emissions, a project could be deemed to have a significant air quality impact if it would conflict with the 44 greenhouse gas reduction measures, set forth by the timetable established in AB 32. If a project complies with the state's strategies to reduce greenhouse gasses to the level proposed by the governor, it follows that the project would have a less than significant cumulative impact to global climate change. If a project does not or cannot comply with reduction strategies, the applicant can alternatively reduce its cumulative contribution to greenhouse gas emissions to less than significant levels by contributing to available regional, state, national, or international mitigation programs, such as reforestation, tree planting, or carbon trading.

In considering applicable directives to reduce greenhouse gas emissions, three types of analyses are used to determining whether the proposed project could be in conflict with the state goals for reducing greenhouse gas emissions. The analysis includes a review of:

A. The potential conflicts with the CARB 44 early action strategies;

B. The relative size of the project in comparison to the estimated greenhouse reduction goal of 174 MMT eCO_2 by 2020 and in comparison to the size of major facilities that are required to report greenhouse gas emissions (25,000 metric tons of eCO_2/yr),; and

The basis parameters of a project to determine whether its design is inherently energy efficient.

3B. Impacts and Mitigation

METHODOLOGY

Construction Impacts

Only one new home is now proposed along with completion of the five homes, such activity (other than the short duration of excavation which could have short-term localized impacts) is well below the threshold of potential impact for air quality. However, daily construction emissions were forecast for 19,000 cubic yards of excavation and construction of the 11 new homes proposed in July 2007, by using default values from the air quality emissions model URBEMIS 2007 version 9.2. 2. For the information of the reader these URBEMIS 2007 output sheets are provided in Appendix D of this document, they also show that excavation and removal of of 19,000 cubic yards of soil and construction of the 11 homes would not create an impact on

air quality. This analysis also shows that should additional soil (more than the 2,000 cubic yards now anticipated to be removed) need to be removed from the site in response to geologic concerns, significant impacts are not anticipated.

Operational Impacts

URBEMIS 2007 was also used to estimate the operational emissions of the project. The project does not include any substantial stationary or area sources of TAC emissions.

Impact 3B-1: The project would not conflict with or obstruct implementation of the applicable air quality plan. (Less than significant.)

The SCAQMD has designated two key indicators of consistency with air quality policies. The first criterion requires that the project not result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emission reductions specified in the AQMP. The second criterion requires that the project not exceed the growth assumptions made in preparing the AQMP.

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis include forecasts of project emissions in a regional context during construction and operation. As described below in Impact 3B-3, operation of the project would result in less than significant emissions associated with vehicle traffic and operation of the facility. As described below in Impact 3B-2, as a result of the grading (up to about 2,000 cubic yards of exported soil) the project could result in emissions that would exceed the SCAQMD significance thresholds during the short-term duration of excavation (about 3 weeks). Although the temporary emissions would contribute to air pollution in the basin, the construction activities would not result in measurably more frequent or more severe air quality violations. The AQMP identifies construction activities as contributing factors to the overall emissions sources and provides source control measures to reduce this contribution, but does not conclude that individual projects would delay the attainment of air quality standards for the basin. Compliance with the Rules established by the SCAQMD to reduce construction emissions including fugitive dust control measures and vehicle maintenance measures would ensure that the project would not conflict with the current AQMP.

The second consistency criterion requires that the project does not exceed the assumptions in the AQMP. A project is consistent with the AQMP if it is consistent with the population, housing and employment assumptions which were used in the development of the AQMP. The 2007 AQMP, the most recent AQMP adopted by the SCAQMD, incorporates, in part, SCAG's 2004 Regional Transportation Plan (RTP) socioeconomic forecast projections of regional population and employment growth. The 2004 RTP is based on growth assumptions through 2030 developed by each of the cities and counties in the SCAG region. The project is consistent with growth assumptions included in the AQMP because it is consistent with the City General Plan, which is consistent with the RTP. As such, the impact would be less than significant.

Mitigation Measures

Implement Measures under Impact 3B-3 below.

Significance after Mitigation: Less than significant.

Impact 3B-2: Project construction entails the construction of one house and minor activity associated with the completion of 5 homes; the project would not violate air quality standards nor contribute substantially to an existing or projected air quality violation nor would it expose sensitive receptors to pollutant concentrations resulting in an adverse health effect during the short-term duration of construction. (Less than significant.)

Criteria Air Pollutants

Construction-related emissions would be short-term, but may still cause adverse effects on air quality. Project construction activities would include site preparation, earthmoving, and general construction. Site preparation includes activities such as general land clearing and grubbing. Earthmoving activities include cut-and-fill operations (up to about 2,000 cubic yards of soil would be exported from the site), trenching, soil compaction, and grading. General construction includes adding improvements such as roadway surfaces, structures, and facilities. The emissions generated from these construction activities include:

- Dust (including PM10 and PM2.5) primarily from "fugitive" sources (i.e., emissions released through means other than through a stack or tailpipe) such as soil disturbance;
- Combustion emissions of criteria air pollutants (ROG, NOx, carbon monoxide, carbon dioxide, PM10, and PM2.5) primarily from operation of heavy off-road construction equipment (primarily diesel-operated), portable auxiliary equipment, and construction worker automobile trips (primarily gasoline-operated); and
- Evaporative emissions (ROG) from asphalt paving and architectural coatings.

Construction-related fugitive dust emissions would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. In the absence of mitigation, construction activities could result in significant quantities of dust, and as a result, local visibility and PM10 concentrations could be adversely affected on a temporary and intermittent basis during excavation (about 3 weeks). In addition, the fugitive dust generated by construction would include not only PM10, but also larger particles, which would fall out of the atmosphere within several hundred feet of the site and could result in nuisance-type impacts to neighbors. It is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for fugitive dust. Specific Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site, and maintaining effective cover over exposed areas. Compliance with Rule 403 would reduce PM10 and PM2.5 fugitive dust emissions associated with construction activities by 61 percent.

NOx, ROG, PM10, PM2.5, CO, and CO2 construction emissions were estimated for a worst-case day based on maximum crew, truck trip, and equipment usage data from the applicant for

construction of 11 new homes and remodeling the five homes. Emissions are based on criteria pollutant emission factors from URBEMIS 2007. The results of this analysis are summarized in **Table 3B-5**.

TABLE 3B-5
WORST CASE CONSTRUCTION EMISSIONS (POUNDS PER DAY)[1]

Project Data	ROG	NOx	CO	PM10[2]	PM2.5[2]	CO2
2009 Totals	5.6	53.04	25.76	30.36	8.18	5,429.07
SCAQMD Thresholds of Significance	75	100	550	150	55	NA
Significant (Yes or No)?	No	No	No	No	No	NA

1. Construction emissions estimates for off-road equipment for 11 new homes were made using URBEMIS2007, version 9.2.2. See Appendix D for more details.
2. PM10 and PM2.5 emission estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries and achieves 61 percent or greater reduction in dust.

Source: Sirius Environmental, 2007

Toxic Air Contaminants

The greatest potential for TAC emissions would be related to diesel particulate emissions associated with heavy equipment operations during grading and excavation activities at the one home site. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. While some materials used during construction result in toxic air emissions (diesel, gasoline, solvents, paints), they would be used in small quantities and for short duration. The project would not result in a long-term (i.e., 70 years) substantial source of TAC emissions. In addition, there would be no residual emissions after construction and corresponding individual cancer risk. As such, project-related toxic emission impacts during construction would be less than significant.

Mitigation:

Mitigation Measure 3B-1: General contractors shall implement a fugitive dust control program pursuant to the provisions of SCAQMD Rule 403.

Mitigation Measure 3B-2: All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.

Mitigation Measure 3B-3: General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. During construction, trucks and vehicles in loading and unloading queues would turn their engines off when not in use to reduce vehicle emissions. Construction emissions should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.

Mitigation Measure 3B-4: Electricity from power poles rather than temporary diesel- or gasoline-powered generators shall be used to the extent feasible.

Mitigation Measure 3B-5: All construction vehicles shall be prohibited from idling in excess of five minutes, both on- and off-site.

Mitigation Measure 3B-6: The Applicant shall utilize coatings and solvents that are consistent with applicable SCAQMD rules and regulations**.**

Significance after Mitigation: Less than significant.

Impact 3B-3: Project operation would not violate air quality standards or contribute substantially to an existing or projected air quality violation nor expose sensitive receptors to pollutant concentrations resulting in an adverse health effect during long-term operation. (Less than significant.)

Operational emissions for the project would be generated primarily from on-road vehicular traffic and indirectly by the energy consumption of the homes on site. Because power is provided over an integrated electricity grid, indirect emissions from the use of electricity could occur at any of the fossil-fueled power plants in California or neighboring states, or from hydroelectric or nuclear plants or renewable energy sources. For all power plants, it can be assumed that the emissions are reviewed as part of the permitting process before the power plant is built or expanded. In California the California Energy Commission uses the Application For Certification (AFC) process for major power plants that are greater than 49 Megawatts. The potential impacts of air quality are reviewed in the local context prior to plants being permitted and licensed. Emissions for the originally proposed 16 homes are based on criteria pollutant emission factors from URBEMIS 2007. The results of this analysis (for 16 homes) are summarized in **Table 3B-6**. As shown in **Table 3B-6**, no emissions for 16 homes, let alone the 6 homes now proposed would be greater than the significance criteria. Thus, operation-related emissions would be less than significant without mitigation.

Mitigation: None required.

Significance: Less-than-Significant

TABLE 3B-6
ESTIMATED WORST CASE DAY UNMITIGATED EMISSIONS FROM PROJECT OPERATION (POUNDS PER DAY)[1]

Project Data	ROG	NOx	CO	PM10[2]	PM2.5[2]	CO2
Area Sources	3.41	0.49	7.07	1.08	1.04	637.18
Mobile Sources	1.81	2.66	18.50	2.57	0.51	1,409.18
Total	5.22	3.15	25.57	3.65	1.55	2,046.36
SCAQMD Thresholds of Significance	75	100	550	150	55	NA
Significant (Yes or No)?	No	No	No	No	No	NA

1. Project emissions estimates for 16 new homes were made using URBEMIS2007, version 9.2.2; only 6 new homes are now proposed See Appendix D for more details.

Source: Sirius Environmental, 2007

Impact 3B-4: The project could contribute incrementally to a cumulative effect on Global Climate Change (GCC).

Global Climate Change (GCC) is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation and temperature. The California Global Warming Solutions Act of 2002 (AB32) identifies that GHG emissions contribute to GCC and establishes actions to reduce GHG emissions statewide. The project (6 homes) would generate approximately 767 lbs of CO2 per day. Indirect electricity emissions would add to this amount but have not been further quantified since, as described below, no thresholds for comparison have been established.

The proposed project does not pose any apparent conflict with the most recent list of CARB's 44 early action strategies. As previously noted, these strategies are almost entirely targeted at emissions from fuel production and storage, transportation of goods (via haul trucks and ports), cement plants, and energy facilities. The strategies that do address light-duty motor vehicles are directed toward regulatory agencies and not land use development.

CO_2 emissions from construction would result in a net increase in emissions of about 500 lbs per day. Additionally, operations would result in approximately 767 lbs per day of CO2. These quantities are significantly lower than the limit of 25,000 metric tons of CO_2 per year. Hence, this impact is considered less than significant. Additionally, new construction would also be required to meet California Energy Efficiency Standards in the State Building Code, helping to reduce

future energy demand as well as reduce the project's contribution to regional greenhouse gas emissions. As a result, the proposed project would have a less than significant impact on greenhouse gas emissions.

Mitigation:

Mitigation Measure 3B-7: The project shall maximize use of salvaged and recycled-content materials in construction.

Mitigation Measure 3B-8: The homes shall be highly energy efficient to decrease heating and cooling and other energy demands, including passive heating, natural cooling, minimize use of paving, high-efficiency heating and cooling systems, lighting and appliances.

Mitigation Measure 3B-9: Construction waste shall be recycled.

Mitigation Measure 3B-10: Maximize water conservation in buildings and landscaping.

Mitigation Measure 3B-11: If sufficient access to light is available, solar panels shall be used on the homes.

Significance: No threshold available.

Impact 3B-5: Air pollutant emissions associated with the project would not substantially contribute to an adverse cumulative impact to air quality. (Less than significant.)

A cumulative impact arises when two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant impacts, meaning that the project's incremental effects must be viewed in connection with the effects of past, current, and probable future projects. Notably, any project that would individually have a significant air quality impact would also be considered to have a significant cumulative impact.

Construction

Construction activity associated with other projects in the Basin would generally involve the use of similar equipment and would overlap with the construction schedule of the project. As with the project, it is assumed that other project construction activity would comply with the SCAQMD required mitigation measures, which would reduce air quality impacts but not eliminate air pollutant emissions completely. The cumulative impact of the project and other construction projects would not be significant, since the project alone would not generate significant emissions during construction. Because the project does not have a significant construction impact, it would not have a cumulatively considerable impact on the overall cumulative impact from construction. This would be a less than significant cumulative impact for the project for the short-term duration of construction.

Operation

The SCAQMD's approach for assessing cumulative operational impacts is based on the SCAQMD's AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and state CAAs. This forecast also takes into account SCAG's forecasted future regional growth. As such, the analysis of cumulative impacts focuses on determining whether the project is consistent with forecasted future regional growth. The project would not impede the attainment of ambient air quality standards. As presented in Impact 3B-1, the project would be consistent with AQMP forecasts and would result in a less than significant cumulative impact.

As discussed in Impacts 3B-2 and 3B-3, project TAC emissions would not have a significant impact on community health. However, cumulative sources from projects throughout the Basin would emit substantial amounts of TACs. The estimated carcinogenic risk in the Basin is currently about 1,400 per million people. The impact of TACs to community health within the Basin is a regional concern that is being addressed by the SCAQMD. The SCAQMD has published an Air Toxics Control Plan designed to limit TAC emissions in an equitable and cost-effective manner (SCAQMD, 2000b). In addition the SCAQMD addressed health risk in the Basin and TAC emissions reduction measures in the 2003 AQMP. While the total TAC emission from all projects in the region would be significant, the TAC emissions from the project are minimal for both construction and operations and would not be a cumulatively considerable contribution to the overall cumulative impact. Therefore the project would have a less than significant cumulative impact with regard to TACs.

Mitigation Measures

Implement Measures listed under Impact 3B-3.

References - Air Quality

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