# 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 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 Pasadena 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 (SCAQMD, 1993).

### 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 stations to the project site are the Pasadena-S Wilson Avenue and the Los Angeles North Main Street Monitoring Stations. The following pollutants are monitored at these stations: ozone ($O_3$), carbon monoxide (CO), and particulate matter less than 10 and less than 2.5 microns (PM10 and PM2.5). The most recent published data for the monitoring stations are presented in **Table 3B-1**.

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

| Pollutant | Monitoring Data by Year | | | |
|---|---|---|---|---|
| | Standard[a] | 2004 | 2005 | 2006 |
| ***Ozone – Pasadena-S Wilson Avenue*** | | | | |
| Highest 1 Hour Average (ppm)[b] | 0.09 | **0.13** | **0.15** | **0.15** |
| Days over State Standard | | 27 | 13 | 26 |
| Highest 8 Hour Average (ppm)[b] | 0.08 | **0.10** | **0.11** | **0.12** |
| Days over National Standard | | **10** | **5** | **7** |
| ***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) Pasadena-S Wilson Avenue*** | | | | |
| Highest 24 Hour Average ($\mu g/m^3$)[b] | **35** | 59 | 63 | 46 |
| Days over National Standard | | 0 | 0 | 0[d] |
| State Annual Average ($\mu g/m^3$)[b] | **12** | **17** | NA | NA |
| ***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[d] | **2** | 0[d] |
| State Annual Average ($\mu g/m^3$) | **12** | NA | 17.8 | 16 |
| ***Carbon Monoxide (CO) Pasadena-S. Wilson Avenue*** | | | | |
| Highest 8-Hour Average | | 3.5 | 2.8 | 2.8 |
| Days over National Standard | **9** | 0 | 0 | 0 |
| Days over State Standard | **9** | 0 | 0 | 0 |

[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.
[d] Apparent violations, but not recorded as violations now on the CARB website. Subject to revision as CARB evaluates the data.
NOTES: Values in **bold** are in excess of at least one applicable standard. NA = Not Available.
Pasadena-S. Wilson Avenue does not have PM10 data.

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

In addition, air pollutants of interest to the regulatory agencies for their potential adverse impacts on sensitive receptors are described below.

## Criteria Air Pollutants

### *Ozone*

Short-term exposure to ozone can irritate the eyes and cause constriction 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, and diesel particulate matter has been identified as a carcinogen by the state.

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.

### *Greenhouse Gases*

Gases that trap heat in the atmosphere are called greenhouse gases. The major concern is that increases in greenhouse gases are causing Global Climate Change. Global Climate Change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation and temperature. Although there is tremendous disagreement as to the speed of global warming and the extent of the impacts attributable to human activities, most agree that there is a direct link between increased emission of so-called greenhouse gases and long term global temperature. What greenhouse gases have in common is that they allow sunlight to enter the atmosphere, but trap a portion of the outward-bound infrared radiation and warm up the air.

The process is similar to the effect greenhouses have in raising the internal temperature, hence the name greenhouse gases. Both natural processes and human activities emit greenhouse gases. The accumulation of greenhouse gases in the atmosphere regulates the earth's temperature; however, emissions from human activities such as electricity production and motor vehicles have elevated the concentration of greenhouse gases in the atmosphere. This accumulation of greenhouse gases has contributed to an increase in the temperature of the earth's atmosphere and contributed to Global Climate Change. The principal greenhouse gases are carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), sulfur hexafluoride (SF6), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and water vapor ($H_2O$). Carbon dioxide is the reference gas for climate change because it gets the most attention and is considered the most important greenhouse gas. To account for the warming potential of greenhouse gases, greenhouse gas emissions are often quantified and reported as $CO_2$ equivalents ($CO_2E$). Large emission sources

are reported in million metric tons of $CO_2E$ ($MMTCO_2E$). HFCs are used in refrigeration systems as substitutes for CFCs, which were banned for destroying the ozone layer.

### *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 Regulatory Framework

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

**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<br>8 hours | 0.09 ppm<br>0.07 ppm[1] | ---<br>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<br>8 hours | 20 ppm<br>9.0 ppm | 35 ppm<br>9 ppm | Classified as a chemical asphyxiate, 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<br>Annual Avg. | 0.18 ppm<br>--- | ---<br>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<br>3 hours<br>24 hours<br>Annual Avg. | 0.25 ppm<br>---<br>0.04 ppm<br>--- | ---<br>0.5 ppm<br>0.14 ppm<br>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<br>Annual Avg. | 50 □g/m$^3$<br>20 □g/m$^3$ | 150 □g/m$^3$<br>50 □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<br>Annual Avg. | ---<br>12 □g/m$^3$ | 65 □g/m$^3$<br>15 □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.<br>Quarterly | 1.5 □g/m$^3$<br>--- | ---<br>1.5 □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 □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; □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, 2007b. *Ambient Air Quality Standards,* available at http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm Standards last updated February 22, 2007.

**TABLE 3B-3**
**LOS ANGELES COUNTY ATTAINMENT STATUS**

| Pollutant | Designation/Classification | |
|---|---|---|
| | 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

8 Hour Ozone: http://www.epa.gov/air/oaqps/greenbk/gncs.html#CALIFORNIA
PM10: http://www.epa.gov/air/oaqps/greenbk/pncs.html#CALIFORNIA

SOURCE: California Air Resources Board, 2007c. *Area Designation Maps,* http://www.arb.ca.gov/desig/adm/adm.htm, page updated June 28, 2007.

## 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.

### *Toxic Air Contaminants (TACs)*

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.

### *Diesel Particulate Matter*

In August of 1998, CARB identified particulate emissions from diesel-fueled engines (diesel particulate matter, or DPM) as a TAC because of its potential to cause cancer. 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 Community Health Perspective*

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.

### *Greenhouse Gas Emissions*

In 2005, in recognition of California's vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide emission of greenhouse gas would be progressively reduced, as follows:

- By 2010, reduce greenhouse gas emissions to 2000 levels;
- By 2020, reduce greenhouse gas emissions to 1990 levels; and
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill No. 32; California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), which requires the California Air Resources Board (CARB) to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide greenhouse gas emissions are reduced to 1990 levels by 2020 (representing an approximate 25 percent reduction in emissions).

In June 2007 CARB directed staff to pursue 37 early actions for reducing greenhouse gas emissions under the California Global Warming Solutions Act of 2006 (AB 32). The broad spectrum of strategies to be developed – including a Low Carbon Fuel Standard, regulations for refrigerants with high global warming potentials, guidance and protocols for local governments to facilitate greenhouse gas reductions, and green ports – reflects that the serious threat of climate change requires action as soon as possible (CARB, 2007d).

In addition to approving the 37 greenhouse gas reduction strategies, CARB directed staff to further evaluate early action recommendations made at the June 2007 meeting, and to report back to CARB within six months. The general sentiment of CARB suggested a desire to try to pursue greater greenhouse gas emissions reductions in California in the near-term. Since the June 2007 CARB hearing, CARB staff has evaluated all 48 recommendations submitted by several stakeholder and several internally-generated staff ideas and published the *Expanded List of Early Action Measures To Reduce Greenhouse Gas Emissions In California,* recommended for board consideration in October 2007 (CARB, 2007e). Based on its additional analysis, CARB staff is recommending the expansion of the early action list to a total of 44 measures. Nine of the strategies meet the AB 32 definition of discrete early action measures. Discrete early action measures are measures that will be in place and enforceable by January 1, 2010. The discrete early action items include: (1) a Low Carbon Fuel standards for ethanol, biodiesel, hydrogen, electricity, compressed natural gas, liquefied petroleum gas and biogas; (2) restrictions on High Global Warming Potential Refrigerants; (3) Landfill Methane Capture, (4) Smartway Truck Efficiency; (5) Port Electrification; (6) Reduction of perfluorocarbons from the semiconductor industry; (7) Reduction of propellants in consumer products; (8) Tire inflation; and (9) Sulfur Hexafluoride (SF6) reductions from non-electricity sector. Appendix Air Quality lists all 44 of the early action measures.

The 2020 target reductions are currently estimated to be 174 $MMTCO_2E$. In total, the 44 recommended early actions (see **Table 3B-4**) have the potential to reduce greenhouse gas emissions by at least 42 million metric tons of carbon dioxide ($CO_2$) equivalent ($MMTCO_2E$) emissions by 2020, representing about 25% of the estimated reductions needed by 2020. The CARB Board adopted Resolution 07-55 in December 2007, approving 427 million metric tons of carbon dioxide equivalents (MMTCO2e) as the statewide greenhouse gas emissions limit for 2020, which is equivalent to the 1990 emissions level. The 44 measures are in the sectors of fuels, transportation, forestry, agriculture, education, energy efficiency, commercial, solid waste, cement, oil and gas, electricity, and fire suppression.

**TABLE 3B-4**
**RECOMMENDED AB32 GREENHOUSE GAS MEASURES TO BE INITIATED BY CARB BETWEEN 2007 AND 2012 (CARB, 2007A)**

| ID # | Sector | Strategy Name |
|---|---|---|
| 1 | Fuels | Above Ground Storage Tanks |
| 2 | Transportation | Diesel – Offroad equipment (non-agricultural) |
| 3 | Forestry | Forestry protocol endorsement |
| 4 | Transportation | Diesel – Port trucks |
| 5 | Transportation | Diesel – Vessel main engine fuel specifications |
| 6 | Transportation | Diesel – Commercial harbor craft |
| 7 | Transportation | Green ports |
| 8 | Agriculture | Manure management (methane digester protocol) |
| 9 | Education | Local gov. Greenhouse Gas (GHG) reduction guidance / protocols |
| 10 | Education | Business GHG reduction guidance / protocols |
| 11 | Energy Efficiency | Cool communities program |
| 12 | Commercial | Reduce high Global Warming Potential (GWP) GHGs in products |

**TABLE 3B-4 (CONT.)**
**RECOMMENDED AB32 GREENHOUSE GAS MEASURES TO BE INITIATED BY CARB BETWEEN 2007 AND 2012 (CARB, 2007A)**

| ID # | Sector | Strategy Name |
|---|---|---|
| 13 | Commercial | Reduction of PFCs from semiconductor industry |
| 14 | Transportation | SmartWay truck efficiency |
| 15 | Transportation | Low Carbon Fuel Standard (LCFS) |
| 16 | Transportation | Reduction of HFC-134a from DIY Motor Vehicle AC servicing |
| 17 | Waste | Improved landfill gas capture |
| 18 | Fuels | Gasoline disperser hose replacement |
| 19 | Fuels | Portable outboard marine tanks |
| 20 | Transportation | Standards for off-cycle driving conditions |
| 21 | Transportation | Diesel – Privately owned on-road trucks |
| 22 | Transportation | Anti-idling enforcement |
| 23 | Commercial | $SF_6$ reductions from the non-electric sector |
| 24 | Transportation | Tire inflation program |
| 25 | Transportation | Cool automobile paints |
| 26 | Cement | Cement (A): Blended cements |
| 27 | Cement | Cement (B): Energy efficiency of California cement facilities |
| 28 | Transportation | Ban on HFC release from Motor Vehicle AC service / dismantling |
| 29 | Transportation | Diesel – offroad equipment (agricultural) |
| 30 | Transportation | Add AC leak tightness test and repair to Smog Check |
| 31 | Agriculture | Research on GHG reductions from nitrogen land applications |
| 32 | Commercial | Specifications for commercial refrigeration |
| 33 | Oil and Gas | Reduction in venting / leaks from oil and gas systems |
| 34 | Transportation | Requirement of low-GWP GHGs for new Motor Vehicle ACs |
| 35 | Transportation | Hybridization of medium and heavy-duty diesel vehicles |
| 36 | Electricity | Reduction of $SF_6$ in electricity generation |
| 37 | Commercial | High GWP refrigerant tracking, reporting and recovery program |
| 38 | Commercial | Foam recovery / destruction program |
| 39 | Fire Suppression | Alternative suppressants in fire protection systems |
| 40 | Transportation | Strengthen light-duty vehicle standards |
| 41 | Transportation | Truck stop electrification with incentives for truckers |
| 42 | Transportation | Diesel – Vessel speed reductions |
| 43 | Transportation | Transportation refrigeration – electric standby |
| 44 | Agriculture | Electrification of stationary agricultural engines |

### *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 non-desert 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 sub-region 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 is 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. The closest sensitive receptor to construction is a residence approximately 500 feet away to the southeast. Seven houses are located to the southeast within 800 feet of the construction area.

# 3B.4 Impacts and Mitigation

## 3B.4.1 Methodology

### *Construction Impacts*

Daily construction emissions were forecast by using default values from the air quality emissions model URBEMIS 2007 version 9.2. URBEMIS 2007 output sheets are provided in Appendix AQ of this document.

### *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.

## 3B.4.2 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.

At this time there are no statewide guidelines for greenhouse gas emission impacts, but this will be addressed through the provisions of Senate Bill 97 (“SB 97”), which was enacted in 2007. SB 97 "2007 Statutes, Ch. 185" acknowledges that local agencies must analyze the environmental impact of greenhouse gases under CEQA. Furthermore, the bill requires the State Office of Planning and Research (OPR) to develop CEQA guidelines for the effects and mitigation of greenhouse gas emissions. Unfortunately, the guidelines will not be available for some time as OPR has until July 1, 2009 to draft the new greenhouse gas guidelines, and the State Resources

Agency will thereafter have until January 1, 2010 to certify and adopt the regulations. In the interim, local agencies must analyze the impact of greenhouse gases. For the purpose of this EIR, the lead agency has analyzed whether the project would conflict with the State goal of reducing green house gas emissions in California to 1990 levels by 2020, as set forth in the timetable established in AB 32, California Global Warming Solutions Act of 2006.

The City of Pasadena has not developed specific air quality thresholds for air quality impacts. 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.

**Regional Air Quality.** To clarify the third significance threshold listed above, the project would be considered to result in a cumulatively considerable net increase of a non-attainment pollutant and, thus, result in a significant air quality impact if regional emissions from the project construction or operation exceed the significance thresholds set forth in **Table 3B-5**.

**TABLE 3B-5**
**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 |

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

In addition, and to clarify the first significance threshold listed above, the project would be considered to conflict with or obstruct implementation of the applicable air quality plan and, thus, result in a significant operational air quality impact if emissions exceed the significance thresholds set forth in Table 3B-5 and the project would not be compatible with SCAQMD air quality goals and policies.

**Toxic Air Contaminants.** To clarify the fourth significance threshold listed above, the project would be considered to expose sensitive receptors to substantial pollutant concentrations and, thus, 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.

## 3B.4.3 Project Impacts

**Impact 3B.1: The project could 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, the project would not result in emissions that would exceed the SCAQMD significance threshold during the short-term duration of construction. 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:** None required.

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**Impact 3B.2: Project construction could violate air quality standards or contribute substantially to an existing or projected air quality violation and potentially 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, 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 may result in significant quantities of dust, and as a result, local visibility and PM10 concentrations may be adversely affected on a temporary and intermittent basis during construction. 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. It is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for fugitive dust (SCAQMD, 2005b). 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 trips, and equipment usage data from URBEMIS2007 model estimates. Emissions are based on criteria pollutant emission factors from URBEMIS 2007, and the model run assumes compliance with SCAQMD Rule 403. The results of this analysis are summarized in 3B.6. As shown in **Table 3B-6**, all emissions would be less than the significance criteria. Thus, construction-related emissions would be less than significant. The localized effects of the daily emissions of construction on the portion of the school in session were evaluated using the SCAQMD's localized significance threshold (LST) one acre site model. The model compares CO, NOx, PM10, and PM2.5 localized emissions to LST's at the project area. The total on-site emissions compared to West San Gabriel Valley LST's at 25 meters are shown in **Table 3B-7**.

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

| Project Data | ROG | NOx | CO | PM10[2] | PM2.5[2] | CO2 |
|---|---|---|---|---|---|---|
| 2008 Totals | 5 | 33 | 21 | 26 | 7 | 2,942 |
| 2009 Totals | 53 | 19 | 21 | 1 | 1 | 2,742 |
| SCAQMD Thresholds of Significance | 75 | 100 | 550 | 150 | 55 | NA |
| Significant (Yes or No)? | No | No | No | No | No | NA |

1 Project construction emissions estimates for off-road equipment were made using URBEMIS2007, version 9.4. See Appendix AQ 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. .

NOTE: Values in bold are in excess of the applicable SCAQMD significance threshold. NA = Not Available

SOURCE: ESA, 2008.

As seen in Table 3B-7, all emissions would be less than the LST's, and therefore emissions would be less than significant.

**TABLE 3B-7**
**TOTAL ON-SITE CONSTRUCTION EMISSIONS COMPARED TO WEST SAN GABRIEL VALLEY LOCAL SIGNIFICANCE THRESHOLDS[1]**

| Project Data | CO | NOx | PM10 | PM2.5 |
|---|---|---|---|---|
| Site Preparation | 9.2 | 21.1 | 1.7 | 1.2 |
| Grading | 17.2 | 36.8 | 2.1 | 1.8 |
| Building | 10.3 | 24.8 | 1.4 | 1.3 |
| Arch Coating and Paving | 18.2 | 36.3 | 2.6 | 2.4 |
| Localized Significance Threshold | 449 | 126 | 4 | 3 |
| Significant (Yes or No)? | No | No | No | No |

1 Project construction estimates were made using SCAQMD's localized significance threshold (LST) one acre site model. See Appendix AQ for more details.

NOTE: Values in bold are in excess of the applicable significance threshold. NA = Not Available

SOURCE: ESA, 2008.

### *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. 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. 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:** None required.

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**Impact 3B.3: Project operation could violate air quality standards or contribute substantially to an existing or projected air quality violation or 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 production to support project uses of electricity. 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.

Project emissions are based on criteria pollutant emission factors from URBEMIS 2007. The results of this analysis are summarized in **Table 3B-8**. As shown in Table 3B-8, no emissions would be greater than the significance criteria. Thus, operation-related emissions would be less than significant without mitigation.

**Mitigation:** None required.

**TABLE 3B-8**
**ESTIMATED WORST CASE DAY UNMITIGATED EMISSIONS FROM PROJECT OPERATION (POUNDS PER DAY)[1]**

| Project Data | ROG | NOx | CO | PM10[2] | PM2.5[2] |
|---|---|---|---|---|---|
| Area Sources | 1 | 1 | 4 | <1 | <1 |
| Mobile Sources | 14 | 15 | 123 | 17 | 3 |
| Total | 15 | 16 | 127 | 17 | 3 |
| SCAQMD Thresholds of Significance | 75 | 100 | 550 | 150 | 55 |
| Significant (Yes or No)? | No | No | No | No | No |

1. Project emissions estimates were made using URBEMIS2007, version 9.2. See Appendix AQ for more details.

NOTE: Values in bold are in excess of the applicable SCAQMD significance threshold. NA = Not Available

SOURCE: ESA, 2007.

**Impact 3B.4: The project could create objectionable odors affecting a substantial amount of people (less than significant).**

According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The project does not include any uses identified by the SCAQMD as being associated with odors. As the project activities would not be a source of odors, potential odor impacts would be less than significant.

**Mitigation:** None required.

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**Impact 3B.5: Project traffic could increase localized carbon monoxide concentrations at sensitive receptors in the project vicinity (less than significant).**

Traffic generated by the project was analyzed to determine its potential to affect carbon monoxide concentrations along surface streets and at sensitive receptors in the project area. The modeling method included background CO concentration levels obtained from Pasadena South Wilson Avenue Monitoring station, and traffic projections prepared for the project at the most affected streets with sensitive receptors in the project vicinity (portions of Orange Grove Boulevard, Holly Street, and San Rafael Avenue).

As these residences would be the most affected by project-related traffic, it was assumed that if carbon monoxide concentrations on these roadway segments would not exceed the ambient air quality standards, the project's contribution to impacts at other intersections affected by project traffic to a lesser extent, would be less substantial. As shown in the **Table 3B-9**, the analysis demonstrated that no exceedances of the CO one hour standard would occur at any of the receptors located close to the intersections. Thus, project-related traffic would have a **Less-than-Significant** impact on local carbon monoxide concentrations.

**Mitigation:** None required.

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**Impact 3B.6: The project could conflict with implementation of state goals for reducing greenhouse gas emissions and thereby have a negative effect on Global Climate Change (less than significant).**

With regard to new projects in California, GHG impacts are nearly always exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA, 2008; AEP, 2007). As with other individual relatively small projects (i.e., projects that are not cement plants, oil refineries, electric generating facilities/providers, co-generation facilities, or hydrogen plants or other stationary combustion sources that emit more than 25,000 MMT $CO_2E$/yr), the primary concern would be whether the project would be in conflict with the state goals (AB 32) for reducing greenhouse gas emissions.

**TABLE 3B-9**
**ESTIMATED CARBON MONOXIDE CONCENTRATIONS**

| Receptor location | Averaging time (hrs.) | State Standard (ppm) | Modeled Concentration (ppm)[a] |
|---|---|---|---|
| Receptor One North of Holly St. and West of Orange Grove Blvd. | 1 | 20 | 2.8 |
| | 8 | 9 | 1.9 |
| Receptor Two North of Holly St. and West of Orange Grove Blvd. | 1 | 20 | 2.8 |
| | 8 | 9 | 1.9 |
| Receptor Three South of Colorado Blvd. and West of Orange Grove Blvd. | 1 | 20 | 2.9 |
| | 8 | 9 | 2.0 |
| Receptor Four South of Colorado Blvd. and West of San Rafael Ave. | 1 | 20 | 2.9 |
| | 8 | 9 | 2.0 |

A. The carbon monoxide analysis focuses on the average daily traffic of the Future Plus Project Scenario. Carbon monoxide estimates shown above include background concentrations of 2.8 for 1 hour

SOURCE: ESA, 2008.

Three types of analyses are used to determining whether the project could be in conflict with the state goals for reducing greenhouse gas emissions. The analyses are reviews of:

A. The potential conflicts with the CARB 44 early action strategies (Table 3B-4);

B. The relative size of the project in comparison to the estimated greenhouse reduction goal of 174 $MMTCO_2E$ by 2020 and in comparison to the size of major facilities that are required to report greenhouse gas emissions (25,000 metric tons of $CO_2E$/yr) (CARB, 2007f); and

C. The basic parameters of the project to determine whether its design is inherently energy efficient.

With regard to Item A, the project does not pose any apparent conflict with the most recent list of the CARB early action strategies (see Table 3B-4).

With regard to Item B, project construction greenhouse gas emissions would be approximately 233 metric tons of $CO_2E$/yr, based on URBEMIS 2007 estimates, and 2,222 metric tons of $CO_2E$/yr from operations (including emissions from vehicle trips, space heating and indirect emissions from use of electricity). The project would not be classified as a major source of greenhouse gas emissions (the maximum annual emissions would be during operations and would be about 9 percent of the lower reporting limit for major sources, which is 25,000 metric tons of $CO_2E$/yr).

When compared to the overall state reduction goal of approximately 174 million metric tons $CO_2E$/yr, the maximum greenhouse gas emissions for the project (2,222 metric tons $CO_2E$/yr or

0.001 percent of the state goal) are quite small and should not conflict with the state's ability to meet the AB32 goals.

With regard to Item C, about 75 percent of the project GHG emissions are estimated to come from vehicle trips. Implementation of one of the suggested trip reduction alternatives in the Final Traffic Impact Study would reduce new project trips on Lida Street West of Linda Vista Avenue from 796 to 291 trips. Any of the measures would result in a reduction of project GHG emissions and a more energy efficient project.

Based on project construction and operation greenhouse gas emissions estimates, it is not anticipated that the project emissions alone will substantially add to the global inventory of greenhouse gas emissions. The operational emissions of greenhouse gas emissions from the project (2,222 tons) would be about 0.0005 percent of California's current greenhouse gas emissions (478.65 million tons, according to the 2004 inventory). Recognizing that there is a great amount of public concern regarding GHGs, the majority of the information given above is for disclosure purposes as required by CEQA. There is no agreement among air quality experts, or guidance at the state level, regarding the level at which an individual project's incremental GHG effect is cumulatively considerable. Given the emerging level of experience within the air quality industry with GHG analyses, coupled with the fact that the policies implementing the state goal of reducing greenhouse gas emissions in California to 1990 levels by 2020, as set forth by the timetable established in AB 32, California Global Warming Solutions Act of 2006, have not been adequately defined, there is no way to state with reasonable scientific certainty that the project would conflict with these policies.

It should also be noted that the global climate change would not be expected to have a substantial impact on the project. The project location would not be affected by minor changes in sea level and the project would not require a substantial volume of water resources so any changes in available water resources (resulting from climate change) would not have a substantial effect on the viability of the project.

**Mitigation:** None required.

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## 3B.4.4 Cumulative Impacts

**Impact 3B.7: Air pollutant emissions associated with the project could result in an adverse cumulative impact to air quality (less than significant).**

A cumulative impact arises when two or more individual effects, when considered together, are considerable or could 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.

### *Criteria Pollutant Emissions*

Although there would be a significant cumulative impact from the total of all other construction emissions and operational emissions of criteria pollutants in the region that does not mean that the proposed project's incremental effects are cumulatively considerable. Consistent with the current practice and opinion of the SCAQMD, since the project's construction or operational emissions of criteria pollutants would not exceed the SCAQMD's thresholds (see Tables 3B-6 and 3B-8), the project emissions are not expected to be cumulatively considerable. Thus, both construction and operational emission from the project would be less than significant cumulative impacts.

### *TAC Emissions*

As discussed in Impacts 3B-2 and 3B-3, project TAC emissions would not substantially 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 (SCAQMD, 2000a). The impact of TACS to community health within the Basin is a regional concern is being addressed by various SCAQMD Rules and Regulations. 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:** None required.