# 4.2 AIR QUALITY

## 4.2.1 Introduction

This section of the EIR provides an evaluation of potential air quality impacts that could occur with implementation of the proposed Ontario Gateway Specific Plan. Information in this section is based on the Air Quality Assessment prepared by Mestre Greve Associates in January 2007. A copy of the Air Quality Assessment is included herein as Appendix B.

## 4.2.2 Environmental Setting

### Regional Setting

The City of Ontario is located in the northeast portion of the South Coast Air Basin (SCAB), which includes Orange County and portions of Los Angeles, Riverside and San Bernardino counties. The air basin encompasses an area of approximately 6,600 square miles bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east. The mountains, which reach heights of up to 11,000 feet above mean sea level act to prevent airflow and thus the transport of air pollutants out of the basin.

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

Winds in the project area are almost always driven by the dominant land/sea breeze circulation system. Regional wind patterns are dominated by daytime on-shore sea breezes. At night the wind generally slows and reverses direction traveling towards the sea. Wind direction can be altered by local canyons, with wind tending to flow parallel to the canyons. During the transition period from one wind pattern to another, the dominant wind direction rotates to the south and causes a minor wind direction maximum from the south. The frequency of calm winds (less than two miles per hour) occurs less than ten percent of the time. Therefore, there is little stagnation in the project vicinity, especially during busy daytime traffic hours.

The vertical dispersion of air pollutants in the air basin is limited by the presence of a persistent temperature inversion. Generally, the greater the distance from the ground, the colder the air usually becomes. During a temperature inversion, there is a temperature increase with altitude. Therefore, the inversion layer is a layer of warm air over cooler air. The result is that the inversion layer blocks the cooler air from rising and prevents pollutants from being dispersed.

Southern California frequently has temperature inversions that inhibit the dispersion of pollutants. Inversions may be either ground-based or elevated. Ground-based inversions sometimes referred to as radiation inversions, are most severe during clear, cold, early winter

mornings. Under conditions of a ground-based inversion, very little mixing or turbulence occurs, and high concentrations of primary pollutants may occur, particularly near major roadways or industrial areas. Elevated inversions can be generated by a variety of meteorological phenomena. Elevated inversions (inversions that occur at higher altitudes) act as a lid or upper boundary and restrict vertical mixing. Below the elevated inversion, dispersion is not restricted. Mixing heights for elevated inversions are lower in the summer and more persistent. This low summer inversion puts a lid over the air basin and is responsible for the high levels of ozone observed during summer months in the air basin.

**Air Quality Management**

The Federal Clean Air Act (FCAA) requires plans to demonstrate attainment of the National Ambient Air Quality Standards (NAAQS) for which an area is designated as nonattainment. Further, the California Clean Air Act (CCAA) requires South Coast Air Quality management District (SCAQMD) to revise its plan to reduce pollutant concentrations exceeding the NAAQS every three years. In the SCAB, SCAQMD and Southern California Association of Governments (SCAG), in coordination with local governments and the private sector, develop the Air Quality Management Plan (AQMP) for the air basin to satisfy these requirements. The AQMP is the most important air management document for the basin because it provides the blueprint for meeting state and federal ambient air quality standards.

The l997 AQMP is the current Federally approved applicable air plan for Ozone. The successor 2003 AQMP was adopted locally on August 1, 2003, by the governing board of the SCAQMD. California Air Resources Board (CARB) adopted the plan as part of the California State Implementation Plan on October 23, 2003. The EPA adopted the mobile source emission budgets from the plan on March 25, 2004. The $PM_{10}$ attainment plan from the 2003 AQMP received final approval on November 14, 2005 with an effective date of December 14, 2005. The EPA has not approved the ozone or CO attainment plans of the 2003 AQMP to date. For federal purposes, the 1997 AQMP with the 1999 amendments is the currently applicable ozone attainment plan. The CO attainment plan in the 1997 AQMP was approved by the EPA but only on an interim basis through 1998. Therefore, the basin does not have a federally approved CO attainment plan.

The overall control strategy for the 2003 AQMP is to meet applicable state and federal requirements and to demonstrate attainment with ambient air quality standards. The 2003 AQMP contains short- and long-term measures. These measures are included in Appendix IV-B of the AQMP.

Short-term measures propose the application of available technologies and management practices between 2005 and the year 2010. The 2003 AQMP includes 24 short-term control measures for stationary and mobile sources that are expected to be implemented within the next several years. The stationary source measures in the 2003 AQMP include measures from the 1997 AQMP and 1999 Amendment to the Ozone SIP with eleven additional new control measures. In addition, a new transportation conformity budget backstop measure is included in the 2003 AQMP.

One long-term measure for stationary sources is included in the 2003 AQMP. This control measure seeks to achieve additional VOC reductions from stationary sources. The long-term

measure is made up of Tier I and Tier II components. Tier I long-term measure has an adoption date between 2005 and 2007 and implementation date between 2007 and 2009 for Tier I. Tier II has an adoption date between 2006 and 2008 and implementation date between 2008 and 2010.

To ultimately achieve ambient air quality standards, additional emission reductions will be necessary beyond the implementation of short-term measures. Long-term measures rely on the advancement of technologies and control methods that can reasonably be expected to occur between 2005 and 2010. Additional stationary source control measures are included in Appendix IV-B of the AQMP, Proposed 2003 State and Federal Strategy for the California SIP. Contingency measures are also included in Appendix IV-Section 2 of the 2003 AQMP.

The SCAQMD has published Draft 2007 AQMP in response to the new federal $PM_{2.5}$ and 8-hour ozone standards. The plan focuses on control of Sulfur Oxides ($SO_x$), directly emitted $PM_{2.5}$, and nitrogen oxides ($NO_x$) to achieve the $PM_{2.5}$ standard. Achieving the 8-hour ozone standard builds upon the $PM_{2.5}$ attainment strategy with additional VOC reductions. Control measures proposed by the District for sources under their jurisdiction include facility modernization, energy efficiency and conservation, good management practices, market incentives/compliance flexibility, area source programs, emission growth management and mobile source programs. CARB has only developed an overview of possible control strategies for sources controlled by CARB (i.e. on-road and off-road motor vehicles and consumer products) and the District has recommended several measures for CARB to consider. The AQMP states that significant additional emission reductions are required from sources under state and federal jurisdictions to meet the standards. A final draft of the AQMP is expected to be published in January 2007 with projected adoption by the SCAQMD board in April 2007 and by CARB in May 2007. The plan is to be submitted to the U.S. EPA by June 2007.

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

Under the CCAA, the California Air Resources Board has established California Ambient Air Quality Standards (CAAQS) to protect the health and welfare of Californians. State standards have been established for the six criteria pollutants as well as four additional pollutants; visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Table 4.2-1 presents the state and national ambient air quality standards.

## Table 4.2-1
## Ambient Air Quality Standards

| Pollutant | Averaging Time | California Standards[1] | | Federal Standards[2] | | |
|---|---|---|---|---|---|---|
| | | Concentration[3] | Method[4] | Primary[3,5] | Secondary[3,6] | Method[7] |
| Ozone ($O_3$) | 1 Hour | 0.09 ppm (180 µg/m$^3$) | Ultraviolet Photometry | 0.12 ppm (235 µg/m$^3$)[8] | Same as Primary Standard | Ultraviolet Photometry |
| | 8 Hour | 0.070 ppm (137 µg/m$^3$) | | 0.08 ppm (157 µg/m$^3$)[8] | | |
| Respirable Particulate Matter ($PM_{10}$) | 24 Hour | 50 µg/m$^3$ | Gravimetric or Beta Attenuation* | 150 µg/m$^3$ | Same as Primary Standard | Inertial Separation and Gravimetric Analysis |
| | Annual Arithmetic Mean | 20 µg/m$^3$ | | 50 µg/m$^3$ | | |
| Fine Particulate Matter ($PM_{2.5}$) | 24 Hour | No Separate State Standard | | 35 µg/m$^3$ | Same as Primary Standard | Inertial Separation and Gravimetric Analysis |
| | Annual Arithmetic Mean | 12 µg/m$^3$ | Gravimetric or Beta Attenuation* | 15 µg/m$^3$ | | |
| Carbon monoxide (CO) | 8 Hour | 9.0 ppm (10mg/m$^3$) | Non-Dispersive Infrared Photometry (NDIR) | 9 ppm (10mg/m$^3$) | None | Non-Dispersive Infrared Photometry (NDIR) |
| | 1 Hour | 20 ppm (23 mg/m$^3$) | | 35 ppm (40 mg/m$^3$) | | |
| | 8 Hour (Lake Tahoe) | 6 ppm (7 mg/m$^3$) | | --- | --- | --- |
| Nitrogen dioxide ($NO_2$) | 1 Hour | 0.25 ppm (470 µg/m$^3$) | Gas Phase Chemiluminescence | 0.053 ppm (100 µg/m$^3$) | Same as Primary Standard | Gas Phase Chemiluminescence |
| | Annual Arithmetic Mean | --- | | --- | | |
| Sulfur Dioxide ($SO_2$) | Annual Arithmetic Mean | --- | Ultraviolet Fluorescence | 0.030 ppm (80 µg/m$^3$) | --- | Spectrophotometry (Pararosaniline Method) |
| | 24 Hour | 0.04 ppm (105 µg/m$^3$) | | 0.14 ppm (365 µg/m$^3$) | --- | |
| | 3 Hour | --- | | --- | 0.5 ppm (1300 µg/m$^3$) | |
| | 1 Hour | 0.25 ppm (655 µg/m$^3$) | | --- | -- | --- |
| Lead[9] | 30 Day Average | 1.5 µg/m$^3$ | Atomic Absorption | --- | Same as primary Standard | --- |
| | Calendar Quarter | --- | | 1.5 µg/m$^3$ | | High Volume Sampler and Atomic Absorption |
| Visibility Reducing Particles | 8 Hour | Extinction coefficient of 0.23 per km – visibility of 10 miles or more due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape | | **No Federal Standards** | | |
| Sulfates | 24 Hour | 25 µg/m$^3$ | Ion Chromatography* | | | |
| Hydrogen sulfide | 1 Hour | 0.03 ppm (42 µg/m$^3$) | Ultraviolet Fluorescence | | | |
| Vinyl Chloride[9] | 24 Hour | 0.01 ppm (26 µg/m$^3$) | Gas Chromatography | | | |

Source: CARB September 2004.

(1) California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter – $PM_{10}$, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations

(2) National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For $PM_{10}$, the 24 hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

(3) Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

(4) Any equivalent procedure which can be shown to the satisfaction of ARB to provide equivalent results at or near the level of the air quality standard may be used.

(5) National Primary Standards: The levels of air quality necessary to protect public health welfare from any known or anticipated adverse effects of a pollutant.

(6) National Secondary Standards: The levels of air quality necessary to protect public welfare from any known or anticipated adverse effect of a pollutant.

(7) Reference method as described by EPA. An "equivalent method" of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by EPA.

(8) New federal 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18, 1997.

(9) The ARB has identified lead and vinyl chloride as ‘toxic air contaminants’ with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

**California Global Warming Solutions Act of 2006**

The California Global Warming Solutions Act of 2006 was signed by Governor Arnold Schwarzenegger on September 27, 2006. It was the first legislation cutting global warming pollution in the United States.

The Bill, (AB 32), was agreed between Schwarzenegger and legislators on August 30, 2006. It requires a 25-percent reduction in the state's greenhouse gas emissions by 2020 to reduce them to 1990 levels. The CARB is to prepare plans to achieve the objectives stated in the Act.

As defined in the bill, "greenhouse gases" include all of the following gases: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF6).

The CARB is the state agency responsible for monitoring and regulating these emission sources under AB 32, and the details of the bill will be developed through CARB's rule-making process.

Specifically, AB 32, the California Global Warming Solutions Act of 2006, requires CARB to:

| | |
|---|---|
| By July 1, 2007 | The State Air Resources Board (ARB) forms Environmental Justice and Economic & Technology Advancement advisory committees. |
| By July 1, 2007 | ARB adopts list of discrete early action measures that can be adopted and implemented before January 1, 2010. |
| By Jan 1, 2008 | ARB adopts regulations for mandatory greenhouse gas (GHG) emissions reporting. ARB defines 1990 emissions baseline for California (including emissions from imported power) and adopts that as the 2020 statewide cap. |
| By Jan 1, 2009 | ARB adopts plan indicating how emission reductions will be achieved from significant sources of GHGs via regulations, market mechanisms and other actions. |
| During 2009 | ARB staff drafts rule language to implement its plan and holds a series of public workshop on each measure (including market mechanisms). |
| By Jan 1, 2010 | Early action measures take effect. |
| During 2010 | ARB conducts series of rulemakings, after workshops and public hearings, to adopt GHG regulations including rules governing market mechanisms. |
| By Jan 1, 2011 | ARB completes major rulemakings for reducing GHGs including market mechanisms. ARB may revise the rules and adopt new ones after 1/1/2011 in furtherance of the 2020 cap. |

| | |
|---|---|
| By Jan 1, 2012 | GHG rules and market mechanisms adopted by ARB take effect and are legally enforceable. |
| Dec 31, 2020 | Deadline for achieving 2020 GHG emissions cap. |

In the interim, CARB will begin to measure the greenhouse gas emissions of the industries it determines as significant sources of greenhouse gas emissions.

**Monitored Air Quality**

Air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the air basin. Estimates for the SCAB have been made for existing emissions ("2003 Air Quality Management Plan", August 1, 2003). The data indicate that mobile sources are the major source of regional emissions. Motor vehicles (i.e., on-road mobile sources) account for approximately 45 percent of volatile organic compounds (VOC), 63 percent of nitrogen oxide (NOx) emissions, and approximately 76 percent of carbon monoxide (CO) emissions.

Air quality data for the proposed project area is collected at the Ontario-Arrow Highway monitoring station. The data collected at this station is considered representative of the air quality experienced in the vicinity of the project. The air pollutants measured at the Ontario-Arrow Highway station include ozone, $PM_{2.5}$, $PM_{10}$, nitrogen dioxide ($NO_2$) and sulfur dioxide ($SO_2$). Carbon monoxide (CO) data were collected at the San Bernardino-4$^{th}$ Street station. The air quality monitored data from 2003 to 2005 for all of these pollutants are shown in Table 4.2-2. Table 4.2-2 also presents the Federal and State air quality standards.

The Ontario monitoring data presented in Table 4.2-2 show that ozone is the air pollutant of primary concern in the project area. The state 1-hour ozone standard was exceeded 49 days in 2005, 48 days in 2004, and 65 days in 2003. The federal 1-hour standard was exceeded 9 days in 2005, 7 days in 2004, 26 days in 2003. The federal 8-hour standard was exceeded 23 days in 2005, 29 days in 2004, and 43 days in 2003. The data from the last three years do show a downward trend towards fewer days of exceedance in the state and federal ozone standards.

Ozone is a secondary pollutant; it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly volatile organic compounds (VOC) and nitrogen oxides ($NO_x$), which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of the SCAQMD contribute to the ozone levels experienced at the monitoring station, with the more significant areas being those directly upwind.

Particulate matter ($PM_{10}$ and $PM_{2.5}$) is another air pollutant of primary concern in the area. The state standards for $PM_{10}$ have been exceeded between 148 and 166 days over the last two years. The federal standard for $PM_{10}$ was not exceeded. The annual average $PM_{10}$ concentrations have exceeded the state standards for the past three years. The federal standard for $PM_{2.5}$ was exceeded 3 days between 2003 and 2005. Both the state and federal $PM_{2.5}$ standards were exceeded in the last three years. There does not appear to be a trend toward fewer days of

exceedances or maximum levels for both $PM_{10}$ and $PM_{2.5}$. Particulate levels in the area are due to natural sources, grading operations and motor vehicles.

**Table 4.2-2**
**Air Quality Levels Measured at Ontario/San Bernardino Monitoring Stations**

| Pollutant | California Standard | National Standard | Year | % Meas.[1] | Max. Level | Days State Standard Exceeded[2] | Days National Standard Exceeded[2] |
|---|---|---|---|---|---|---|---|
| Ozone | 0.09 ppm | 0.12 ppm[4] | 2005 | 98 | 0.150 | 49 | 9 |
| | for 1 hr. | for 1 hr. | 2004 | 94 | 0.149 | 48 | 7 |
| | | | 2003 | 87 | 0.176 | 65 | 26 |
| Ozone | 0.070 ppm | 0.08 ppm | 2005 | 98 | 0.128 | n/a | 23 |
| | for 8 hr. | for 8 hr. | 2004 | 94 | 0.123 | n/a | 29 |
| | | | 2003 | 87 | 0.148 | n/a | 43 |
| Particulates | 50 µg/m$^3$ | 150 µg/m$^3$ | 2005 | 98 | 108 | 27/166 | 0 |
| $PM_{10}$ | for 24 hr. | for 24 hr. | 2004 | 100 | 106 | 25/148 | 0 |
| (24 Hour) | | | 2003 | 89 | 101 | 26/-- | 0 |
| Particulates | 20 µg/m$^3$ | 50 µg/m$^3$ [5] | 2005 | 98 | 51 | Yes | Yes |
| $PM_{10}$ | AAM[3] | AAM[5] | 2004 | 100 | 48 | Yes | No |
| (Annual) | | | 2003 | 89 | 48 | Yes | No |
| Particulates | None | 65 µg/m$^3$ | 2005 | -- | 96.8 | n/a | 1 |
| $PM_{2.5}$ | | for 24 hr. | 2004 | -- | 71.4 | n/a | 1 |
| (24 Hour) | | | 2003 | -- | 98.1 | n/a | 1 |
| Particulates | 12 µg/m$^3$ | 15µg/m$^3$ | 2005 | -- | 18.9 | Yes | Yes |
| $PM_{2.5}$ | AAM[5] | AAM[5] | 2004 | -- | 19.9 | Yes | Yes |
| (Annual) | | | 2003 | -- | 22.1 | Yes | Yes |
| $NO_2$ (1-Hour) | 0.25 ppm | None | 2005 | 98 | 0.101 | 0 | n/a |
| | for 1 hour | | 2004 | 73 | 0.104 | 0 | n/a |
| | | | 2003 | 96 | 0.117 | 0 | n/a |
| $SO_2$ | 0.04 ppm | 0.14 ppm | 2005 | 99 | 0.004 | 0 | 0 |
| | for 24 hours | for 24 hours | 2004 | 94 | 0.003 | 0 | 0 |
| | | | 2003 | 95 | 0.004 | 0 | 0 |
| CO | 20 ppm | 35 ppm | 2005 | 96 | 3.8 | 0 | 0 |
| | for 1 hour | for 1 hour | 2004 | 96 | 4.5 | 0 | 0 |
| | | | 2003 | 97 | 5.1 | 0 | 0 |
| CO | 9.0 ppm | 9 ppm | 2005 | 96 | 2.5 | 0 | 0 |
| | for 8 hour | for 8 hour | 2004 | 96 | 3.2 | 0 | 0 |
| | | | 2003 | 97 | 4.5 | 0 | 0 |

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

-- Data Not Reported
n/a – no applicable standard
Source: CARB Air Quality Data Statistics web site www.arb.ca.gov/adam/ accessed 11/15/06

According to the EPA, some people are much more sensitive than others to breathing fine particles ($PM_{10}$ and $PM_{2.5}$). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in $PM_{10}$ and $PM_{2.5}$. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths.

Carbon monoxide (CO) is another important pollutant that is due mainly to motor vehicles. Currently, CO levels in the project region are in compliance with the state and federal 1-hour and 8-hour standards. High levels of CO commonly occur near major roadways and freeways. CO may potentially be a continual problem in the future for areas next to freeways and other major roadways.

**Local Air Quality**

Local air quality is a major concern along roadways. Carbon monoxide is a primary pollutant. Unlike ozone, carbon monoxide is directly emitted from a variety of sources. The most notable source of carbon monoxide is motor vehicles. For this reason, carbon monoxide concentrations are usually indicative of the local air quality generated by a roadway network and are used to assess its impacts on the local air quality. Comparisons of levels with state and federal carbon monoxide standards indicate the severity of the existing concentrations for receptors in the project area. The Federal and State standards for carbon monoxide are presented in Table 4.2-3.

**Table 4.2-3**
**Federal and State Carbon Monoxide Standards**

| | Averaging Time | Standard |
|---|---|---|
| Federal | 1 hour | 35 ppm |
| | 8 hours | 9 ppm |
| | | |
| State | 1 hour | 20 ppm |
| | 8 hours | 9 ppm |

Carbon monoxide levels in the project vicinity due to nearby roadways were assessed with the CALINE4 computer model. CALINE4 is a fourth generation line source air quality model developed by the California Department of Transportation ("CALINE4," Report No. FHWA/CA/TL-84/15, June 1989).

The peak hour traffic data were provided by Kunzman Associates, Inc., September 20, 2006. The P.M. peak hour traffic volumes were utilized for the modeling. The level of service reported for the peak hour in the traffic study was used to determine the average vehicle travel speed in the vicinity of the intersection. Composite vehicular emission factors were derived from EMFAC2002. EMFAC2002 is a computer program published by CARB that calculates on-road vehicle emissions.

Existing CO concentrations were modeled using CALINE4 for two intersections in the vicinity of the project. The worst-case intersections which have the highest traffic or the greatest change due to the project were selected. These intersections are Haven Avenue and Inland Empire Boulevard and Haven Boulevard and Guasti Road. Receptors were located at each of the four corners, approximately 10 feet from edge of the roadway. The highest concentrations for each intersection are reported below in Table 4.2-4. The intersection locations are shown in Figure 4.2-1.

The existing background CO concentrations were obtained from the San Bernardino/4th Street monitoring station. Projected background concentrations available from the SCAQMD are for years 1999, 2000, 2010, 2015, and 2020. The 2005 CO background levels were interpolated from the 2000 and 2010 data and were used as the existing background CO for this analysis. The estimated existing CO background levels are 4.2 ppm for 1-hour and 3.4 ppm for 8-hour. Therefore, 4.2 ppm is added to the worst-case meteorological 1-hour projections, and 3.4 ppm to the 8-hour projections, to account for the background CO levels from sources not included in the modeling. The modeling results of the existing CO levels are presented in Table 4.2-4.

**Table 4.2-4**
**Existing Carbon Monoxide Concentrations (ppm)**

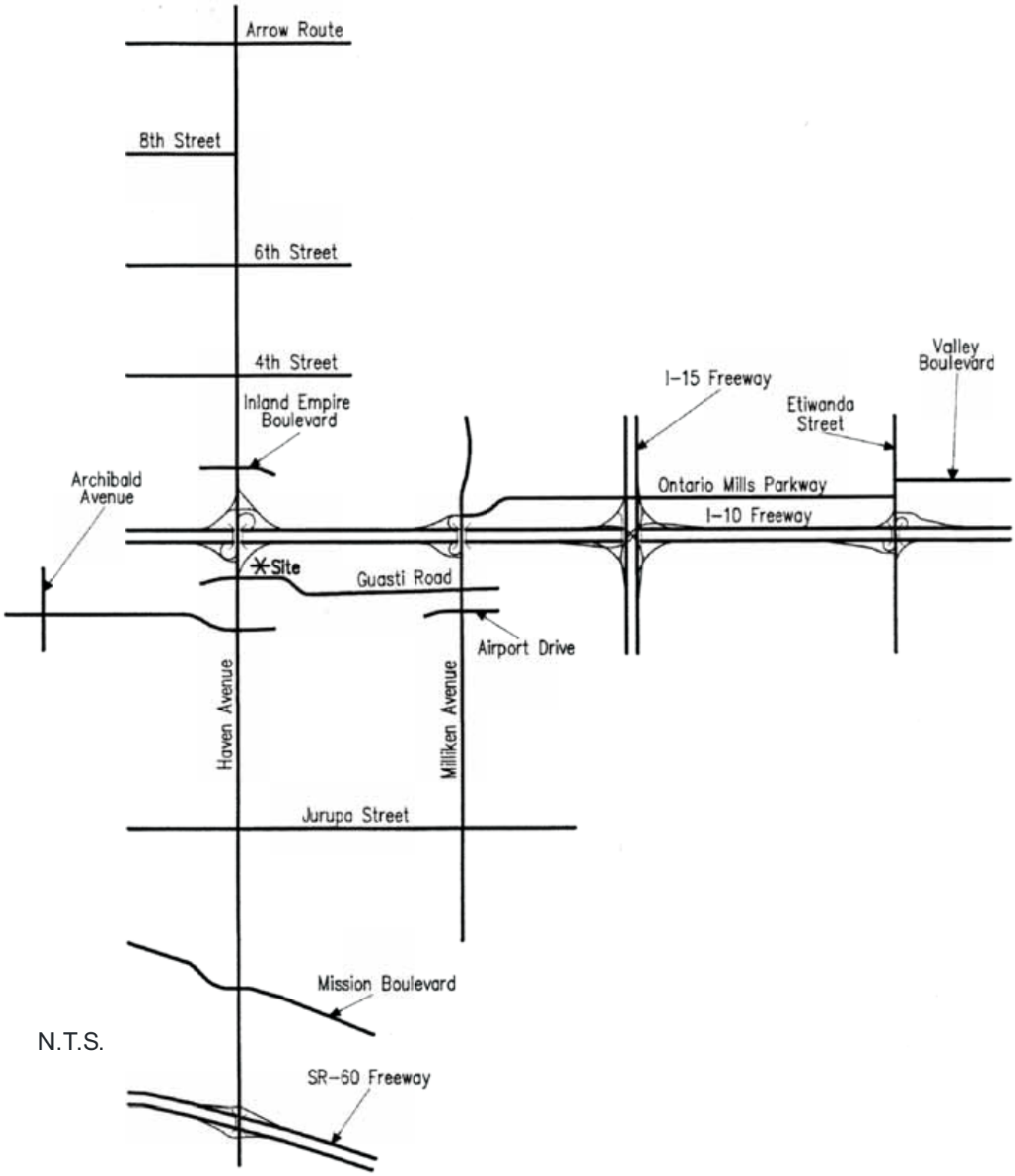
| | | Modeled Concentrations | |
|---|---|---|---|
| **Intersection** | | **1-hour** | **8-hour** |
| 1 | Haven Ave. and Inland Empire Blvd. | 9.2 | 7.6 |
| 2 | Haven Ave. and Guasti Road | 8.4 | 6.9 |
| | **State Standard:** | **20 ppm** | **9 ppm** |
| | No. of Exceedances | 0 | 0 |

NOTE: The CO concentrations include background concentrations of 4.2 ppm for 1-hour levels, and 3.4 ppm for 8-hour levels.

The existing CO concentrations are estimated to range between 8.4 and 9.2 ppm for 1-hour and 6.9 and 7.6 ppm for 8-hour at the receptor locations. The data indicate that the existing CO concentrations in the vicinity of the project site comply with the 1-hour and 8-hour state and federal standards. Note that the bulk of the existing CO concentrations is the background concentrations of 4.2 ppm for the 1-hour averaging time and 3.8 ppm for the 8-hour averaging time.

*Localized Significance Thresholds*

SCAQMD has developed a methodology to assess the localized impacts of emissions from within a project site (SCAQMD, Draft Localized Significance Threshold Methodology, June 19, 2003). SCAQMD recommends, but does not require, comparing projects to localized significance thresholds (LSTs). The LST's were developed to analyze the significance of potential local air quality impacts of projects and provides screening tables for smaller projects, in which emissions may be less than the mass daily emission thresholds analyzed above. The SCAQMD also recommends project-specific air quality modeling for larger projects. Because of the proposed project's size, the screening tables provided by SCAQMD are not applicable. However, given the size and location of the project, it is anticipated that dispersion analysis




Source: Mestre Greve Assoc., 12/06.

# Intersection Locations

Ontario Gateway Specific Plan
City of Ontario, California

**Figure 4.2-1**

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would confirm that the project will have a significant short-term localized impact for $NO_2$, $PM_{10}$, and $PM_{2.5}$. Therefore, the proposed project will have a significant impact on local air quality during construction.

### 4.2.3 Applicable Polices, Plans and Regulations

A combination of climatic factors and urbanization cause the Los Angeles Basin and the interior valleys to have some of the highest air pollution levels in the country. This region, defined as the SCAB, falls under the jurisdiction of the SCAQMD for statutory air quality issues. Specifically, the SCAQMD monitors and enforces the federal and state air quality standards in association with federal, state, local, and regional government agencies. These agencies work jointly as well as individually to reduce air pollution through legislation, regulation, policy making, education, and a variety of programs. These agencies include:

**Environmental Protection Agency (EPA)** - Responsible for setting and enforcing the national standards for atmospheric pollutants, including the Clean Air Act (CAA), as amended

**California Air Resources Board (CARB)** - Part of the California Environmental Protection Agency (Cal-EPA) and responsible for assuring implementation of the CCAA, responding to federal regulations, and regulating emission standards.

**SCAQMD** - Primarily responsible for comprehensive air pollution control in the SCAB and Riverside and Los Angeles County portions of the South East Desert Air Basin (SEDAB). SCAQMD implements the CCAA and works directly with federal, state, and local agencies.

**Local Governments** - Have the authority and responsibility to reduce air pollution through their local land use decision-making authority.

Air emissions from the proposed Ontario Gateway Specific Plan are subject to federal, state, and local rules and regulations as implemented through provisions of the federal CAA, CCAA, and the AQMP adopted and updated regularly by SCAQMD. The following is an overview of these rules and regulations.

**Federal Clean Air Act (FCAA)**. The FCAA was established in an effort to assure that acceptable levels of air quality are maintained in all areas of the United States. These levels are based upon health-related exposure limits and are referred to as NAAQS. The NAAQS establish maximum allowable concentrations of specific pollutants in the atmosphere and characterize the amount of exposure deemed safe of the public. The NAAQS set standards for the following pollutants:

Nitrogen dioxide ($NO_2$)
Sulfur dioxide ($SO_2$)
Particulate matter less than 10 microns, aerodynamic diameter ($PM_{10}$)
Particulate matter less than 2.5 microns, aerodynamic diameter ($PM_{2.5}$)
Ozone ($O_3$)
Lead (Pb)

Primary and secondary NAAQS have been established and are shown in Table 4.2-1. Primary standards reflect levels of air quality deemed necessary by the EPA to provide an adequate margin of safety to protect public health. Areas found to be in violation of primary standards are termed "non-attainment areas". Secondary standards reflect levels of air quality necessary to protect public welfare from the known or anticipated adverse effects of a pollutant.

**California Clean Air Act**. Under the CCAA, state and local authorities have primary responsibility for assuring that their respective regions are in attainment of, or have a verifiable plan to attain, the NAAQS. The federal CAA provides state and local agencies authority to promulgate more stringent ambient air quality standards. The CAAQS for the following pollutants are also included in Table 4.2-1.

Hydrogen sulfide ($H_2S$)
Vinyl chloride
Sulfates ($SO_4$)
Visibility-reducing particles

**SCAQMD Air Quality Management Plan**. SCAQMD has local regulatory review and primary authority over potential sources of air pollution within the SCAB. The EPA and CARB serve as technical review and advisory agencies, providing technical advice when necessary and offering guidance when SCAQMD regulations are not sufficiently detailed to address a particular issue.

Under the provisions of the federal and California CAAs, areas not in attainment of the NAAQS or CAAQS are required to prepare an AQMP. An AQMP establishes an area-specific program to control existing and proposed sources of air emissions so that the NAAQS or CAAQS may be attained by the applicable target date. CARB and EPA are required to designate areas of the state as "attainment", "nonattainment", or "unclassified" for state and federal ambient air quality standards. An attainment designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant. A nonattainment designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an extraordinary event. An unclassified designation indicates a lack of adequate air quality data or other information on which to base an attainment or nonattainment designation.

The SCAB has been classified as "extreme" non-attainment for ozone, "serious" non-attainment for CO and $PM_{10}$, and non-attainment for $NO_2$ in accordance with the federal CAA.

### 4.3.4 Impacts and Mitigation Measures

#### Standards of Significance

Significant impacts to air quality may result if the Ontario Gateway Specific Plan:

- 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 criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

- Expose sensitive receptors to substantial pollutant concentrations?

- Create objectionable odors affecting a substantial number of people?

Air quality impacts are usually divided into short-term and long-term. Short-term impacts are usually the result of construction or grading operations. Long-term impacts are associated with the build-out condition of the proposed project (operational emissions).

SCAQMD has established significance thresholds to assess the regional impact of project-related air pollutant emissions. Table 4.2-5 presents these significance thresholds. A project with daily emission rates below these thresholds are considered to have a less than significant effect on regional air quality throughout the air basin.

**Table 4.2-5**
**SCAQMD Regional Pollutant Emission Thresholds of Significance**

| | Pollutant Emissions (lbs/day) | | | | | |
|---|---|---|---|---|---|---|
| | **CO** | **ROG** | **NOx** | **$PM_{10}$** | **$PM_{2.5}$** | **SOx** |
| Construction | 550 | 75 | 100 | 150 | 55 | 150 |
| Operation | 550 | 55 | 55 | 150 | 55 | 150 |

Source: SCAQMD

To assess local air quality impacts related to CO, the significance thresholds are relative to the State standards of 20 ppm for 1-hour CO concentration levels, and 9 ppm for 8-hour CO concentration levels. If the CO concentration levels with the project are under the standards, then there is no significant impact. If future CO concentrations with the project are above these levels, then the project-related increase determines if the impact is significant or not. If the project results in an increase of one ppm or more for the 1-hour averaging time and 0.45 ppm or more for the 8-hour averaging time, then the project would have a significant impact.

**Impacts Determined to Have No Impact**

**Create objectionable odors affecting a substantial number of people?**

Implementation of the Ontario Gateway Specific Plan would include development of land uses such as: office, hospitality, hospital and other commercial buildings that are generally not associated with creating objectionable odors. Moreover, the surrounding land uses are of similar nature. Further, the project shall comply with the policies of the Ontario Municipal Code and the General Plan. No impacts related to objectionable odors are anticipated.

**Impacts Determined to be Potentially Significant**

**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 criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?**

**Expose sensitive receptors to substantial pollutant concentrations?**

**Impact AQ-1**

**The proposed project may be inconsistent with the SCAQMD AQMP. This is a potentially significant impact.**

An EIR must discuss any inconsistencies between the proposed project and applicable General Plans and regional plans (California Environmental Quality Act (CEQA) guidelines (Section 15125)). Regional plans that apply to the proposed project include the South Coast Air Quality Management Plan.

The purpose of the consistency discussion is to evaluate the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the project would interfere with the region's ability to comply with federal and state air quality standards. If the decision-makers determine that the project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

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

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

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

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

Based on the air quality modeling analysis, it is anticipated that there will be short-term construction impacts due to the project. While emissions will be generated in excess of SCAQMD's threshold criteria, it is unlikely that short-term construction activities will increase the frequency or severity of existing air quality violations due to required compliance with SCAQMD Rules and Regulations.

The proposed project will increase regional emissions, and will increase regional emissions by an amount greater than the SCAQMD thresholds for CO, ROG and NOx. The project will increase local CO emissions. The 2008 CO concentrations, for both with and without project scenarios, are projected to exceed the state and federal 8-hour CO standards. Also, the 2030 CO levels will increase slightly with project, but will not be in excess of the state and federal CO standards. However, with the level of service (LOS) improvements (includes all funded roadway improvements as well as mitigation measures as discussed in Section 4.11, Traffic and Circulation), the CO due to the project in 2008 and 2030 will generate a smaller increase or be lower when compared to no project. Because the project with LOS improvements will be lower than no project and thus is not projected to impact the local air quality, the project is found to be consistent with the AQMP for the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

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

Since the SCAG forecasts are not detailed, the test for consistency of this project is not specific. The traffic modeling upon which much of the air quality assessment is based on are the 2005 San Bernardino County Congestion Management Program and ITE Trip Generation, 7$^{th}$ Edition. The AQMP assumptions are based upon projections from local general plans. Projects that are consistent with the local general plan are consistent with the AQMP assumptions. The project is included in the traffic volumes forecast for opening year 2008 and buildout year 2030. It appears that the growth forecasts for the proposed project are consistent with the SCAG growth forecasts. The forecasts made for the project EIR seem to be based on the same demographics as the AQMP, and therefore, the second criterion is met for consistency with the AQMP. The project is consistent with the SCAQMD's AQMP and no additional mitigation is required.

**Impact AQ-2**

**Development of the proposed Specific Plan would violate pollutant level thresholds as established by the SCAQMD during the construction phase. This is a potentially significant short-term impact.**

Short-term, temporary impacts will result from project construction activities. Air pollutants will be emitted by construction equipment and fugitive dust will be generated during on site grading of the site.

Temporary impacts will result from project construction activities. Air pollutants will be emitted by construction equipment and fugitive dust will be generated during on site grading of the site. Peak construction air pollutant emissions typically occur during demolition of any existing structures and/or grading of the project site.

Calculations of emissions during construction of the buildings proposed by the project would be speculative at this point. It is not known if all of the project components would be constructed at one time or the amount of equipment that would be required at any one time. The primary sources of emissions would be combustion engine powered equipment, delivery trucks, and worker vehicle trips. Activity with more than approximately eight pieces of heavy equipment active during a day and more than five material delivery trucks would result in an exceedance of the $NO_x$ significance threshold. If all of the buildings proposed by the project were under construction at the same time, it is likely that $NO_x$ emissions would exceed the significance thresholds but unlikely that the emissions of other pollutants would exceed the thresholds.

Two activities that generate considerable emissions other than $NO_x$ include the off-gas emissions of Reactive Organic Compounds (ROG) from architectural coatings (painting) and off-gas emissions from asphalt paving.

**Construction Emissions**

Construction activities for large development projects are estimated by the U.S. Environmental Protection Agency (according to the 1993 CEQA Handbook, emission factor for disturbed soil is 26.4 pounds of $PM_{10}$ per day per acre, or 0.40 tons of $PM_{10}$ per month per acre). The $PM_{10}$ emission factor used in the calculations for demolition is from the 1993 CEQA Handbook. The emission factor for demolition debris is 0.00042 pounds of $PM_{10}$ per cubic feet of demolished building. If water or other soil stabilizers are used to control dust as required by SCAQMD Rule 403, the emissions can be reduced by 50 percent. The $PM_{10}$ calculations include the 50 percent reduction from watering.

On-Road vehicle emission factors used in the calculations are from CARB's EMFAC2002 model which calculates emissions from on-road vehicles. The specific emission factors used were generated by SCAQMD and posted on their CEQA Handbook website (http://www.aqmd.gov/ceqa/hdbk.html). The emission factors provided are composite emission factors in terms of pounds of pollutants per mile traveled for three vehicle categories, passenger vehicles, delivery trucks, and heavy trucks.

Emission calculations for off-road equipment are based on emission factors provided by the CARB from their Off-Road Mobile Source Model provided on the SCAQMD CEQA Handbook website. The emission factors represent a composite emission factor for each off-road construction equipment category in units of pounds of emissions per hour.

Painting emissions are estimated to be 0.0185 pounds of ROG per square foot painted and asphalt paving emissions are estimated to be 2.62 pounds of ROG per acre paved. These emission factors are from the URBEMIS2002 model published by SCAQMD.

$PM_{2.5}$ emissions were calculated using the methodology presented in SCAQMD's "Final Methodology to Calculate Particulate Matter (PM) 2.5 and $PM_{2.5}$ Significance Thresholds" (October 2006). The $PM_{10}$ emissions were calculated using the above methodologies and then multiplying the $PM_{10}$ emissions by the applicable $PM_{2.5}$ fraction derived from emission source, using PM profiles in the California Emission Inventory Data and Reporting System (CEIDRS) developed by CARB shown in Table 4.2-6.

**Table 4.2-6**
**$PM_{2.5}$ Fraction of $PM_{10}$ Used to Calculate Construction $PM_{2.5}$ Emissions**

| Source | $PM_{2.5}/PM_{10}$ Fraction |
|---|---|
| Passenger Vehicles | 0.928 |
| Delivery Trucks | 0.964 |
| Heavy Trucks | 0.920 |
| Off-Road Equipment | 0.920 |
| Fugitive Dust | 0.208 |
| Demolition | 0.208 |

In 1998 the California Air Resources Board (ARB) identified particulate matter from diesel-fueled engines (Diesel Particulate Matter or DPM) as a Toxic Air Contaminant (TAC). The majority of the heavy construction equipment utilized during construction will be diesel fueled and emit DPM. Impacts from toxic substances are related to cumulative exposure and are assessed over a 70-year period. Cancer risk is expressed as the maximum number of new cases of cancer projected to occur in a population of one million people due to exposure to the cancer-causing substance over a 70-year lifetime (California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Guide to Health Risk Assessment). While construction of the project is projected to occur over a 1 year period, grading, when the peak diesel exhaust emissions would occur, is expected to take approximately six months. Because of the relatively short duration of construction compared to a 70 year lifespan, diesel emissions resulting from the construction of the project are not anticipated to result in a significant impact.

**Demolition**

The project comprises approximately 41.29 acres. Currently, the approximately 18.9 of the site is vacant land, while approximately 24.4 acres of the site is paved and is used as an industrial storage and distribution facility. An approximately 200,000 square foot metal industrial building is situated on the southern portion of the site. The existing industrial building will be demolished as a part of the project. This building has a total floor area 200,000 square feet. Based on an

estimated average building height of 20 feet, the total building volume is estimated to be approximate 4,000,000 cubic feet. The building is projected to generate approximately, 22,200 cubic yards of debris. Removal of the existing paving is projected to generate approximately 23,900 cubic yards of debris. The demolition of the building and existing paving is expected to create approximately 46,100 cubic yards of demolition debris that will be hauled off site. If the demolition material were removed from the site by trucks with a 14 CY capacity at a rate of 100 trucks per day, the demolition debris would be removed in 33 days.

The heavy equipment required to perform the grading and demolition would include (2) excavators, (2) backhoes with hoe ram, (2) front loaders, and (2) water trucks including a street sweeper. It is estimated that there will be 20 worker vehicles traveling to and from the site each day and the average trip length for each worker vehicle is 20 miles. Using the above assumptions the peak construction emissions for the project were calculated and presented in Table 4.2-7. Refer to Appendix B for the data used to calculate the emissions.

**Table 4.2-7**
**Worst Case Air Pollutant Emissions During Demolition**

| | Pollutant Emissions (lbs/day) | | | | |
|---|---|---|---|---|---|
| **Source** | **CO** | **ROG** | **$NO_x$** | **$PM_{10}$** | **$PM_{2.5}$** |
| On-Road Vehicle | 5.6 | 0.7 | 2.9 | 0.5 | 0.4 |
| Heavy Duty Trucks | 27.6 | 6.1 | 178.2 | 3.2 | 3.0 |
| Ground Disturbance | 0.0 | 0.0 | 0.0 | 308.9 | 67.3 |
| Demolition | 0.0 | 0.0 | 0.0 | 105.4 | 10.36 |
| Construction Equipment | 78.3 | 9.5 | 57.5 | 2.1 | 1.3 |
| **Total Emissions** | **111.5** | **16.3** | **238.6** | **420.1** | **82.8** |
| SCQAMD Thresholds | 550 | 75 | 100 | 150 | 55 |
| **Significant** | **No** | **No** | **Yes** | **Yes** | **Yes** |

Table 4.2-7 shows that emissions during demolition activities would exceed SCAQMD thresholds, specifically for $NO_x$, $PM_{10}$ and $PM_{2.5}$. Therefore, the demolition activities would result in a significant short-term air quality impact. Table 4.2-7 shows that the majority of the $NO_x$ emissions is due to heavy construction equipment and hauls trucks, while the majority of the $PM_{10}$ and $PM_{2.5}$ emissions are due to ground disturbance. To reduce total $NO_x$ emissions to below the significance threshold haul truck emissions would need to be reduced to 28.8-percent of the projected emissions. The only practical way to do this would be limit haul trucks to 29 daily trips assumed. This would more than triple the duration of the demolition phase to approximately 115 days which has been determined to be infeasible. Even with the reduction in $NO_x$ emissions, $PM_{10}$ and $PM_{2.5}$ emissions would exceed the thresholds and demolition would still result in significant unavoidable impact.

### Grading

The project site comprises a total of approximately 41.29 acres. It is assumed the entire site will be graded at the same time.

Using the assumptions above, the peak air pollutant emissions during grading were calculated and presented in Table 4.2-8. These emissions represent the highest level of emissions during construction of the proposed project. Refer to Appendix B for a worksheet showing the specific data used to calculate the grading emissions.

**Table 4.2-8**
**Worst Case Grading Emissions (Pounds/day)**

| | Pollutant Emissions (lbs/day) | | | | |
|---|---|---|---|---|---|
| **Source** | **CO** | **ROG** | **$NO_x$** | **$PM_{10}$** | **$PM_{2.5}$** |
| On-Road Vehicle | 5.6 | 0.7 | 2.9 | 0.5 | 0.4 |
| Ground Disturbance | 0.0 | 0.0 | 0.0 | 541.2 | 112.6 |
| Construction Equipment | 247.4 | 31.2 | 214.2 | 9.4 | 0.3 |
| **Total Emissions** | **253.0** | **31.9** | **217.1** | **581.4** | **119.6** |
| SCQAMD Thresholds | 550 | 75 | 100 | 150 | 55 |
| **Significant** | **No** | **No** | **Yes** | **Yes** | **Yes** |

The project is anticipated to generate peak daily emission estimates of 571 pounds per day of $PM_{10}$ (0.29 tons per day). According to the SCAQMD's CEQA Handbook, $PM_{10}$ emissions greater than 150 pounds per day should be considered significant. The $PM_{10}$ emissions generated by the project are anticipated to be greater. Therefore, are considered to be significant.

The impact due to grading is localized. Additionally, this material is inert silicates, rather than the complex organic particulate matter released from combustion sources which are more harmful to health. In some cases, grading may be near existing development. Care should be taken to minimize the generation of dust. Common practice for minimizing dust generation is watering before and during grading. Without watering, $PM_{10}$ emission generation would be double.

Heavy-duty equipment emissions are difficult to quantify as the day to day variability in construction activities and equipment used. Typical emission rates for construction equipment were obtained from the SCAQMD Air Quality Handbook. Heavy equipment estimated to be used in the grading includes (4) scrapers, (4) dozers, and (2) water trucks, all operating 8 hours per day.

Using the estimates presented above, the peak air pollutant emissions during grading were calculated and presented in Table 4.2-8. These emissions represent the highest level of emissions during construction of the proposed project. Refer to Appendix B for a worksheet showing the specific data used to calculate the grading emissions.

Table 4.2-8 shows that emissions during grading of proposed project would exceed the SCAQMD thresholds, specifically for $NO_x$, $PM_{10}$ and $PM_{2.5}$. Therefore, grading of the proposed project would result in a significant short-term air quality impact. Table 4.2-8 shows that the majority of the $NO_x$ emissions are due to heavy construction equipment, while the majority of the $PM_{10}$ and $PM_{2.5}$ emissions are due to ground disturbance.

**Asphalt Paving**

Approximately 24.3 acres of the project site is anticipated to be paved with asphalt. It is likely that the entire project site will not be paved at one time but will be paved in phases as the different buildings are constructed. It was assumed that a maximum of one tenth of the total paved area would be paved on any one day. This would require 50 asphalt trucks to deliver materials. It was assumed that the asphalt trucks would have a one-way trip length of 15 miles.

The heavy equipment required to perform the asphalt paving would include (3) graders, (3) pavers, (3) paving equipment, (4) rollers and (2) water trucks including a street sweeper. It is estimated that there will be 20 worker vehicles traveling to and from the site each day and the average trip length for each worker vehicle is 20 miles. Using the estimates presented above the peak construction emissions for the project were calculated and presented in Table 4.2-9. Refer to Appendix B for data used to calculate the emissions.

**Table 4.2-9**
**Worst Case Air Pollutant Emissions During Asphalt Paving**

| | **Pollutant Emissions (lbs/day)** | | | | |
|---|---|---|---|---|---|
| **Source** | **CO** | **ROG** | **$NO_x$** | **$PM_{10}$** | **$PM_{2.5}$** |
| On-Road Vehicle | 5.6 | 0.7 | 2.9 | 0.5 | 0.4 |
| Heavy Duty Trucks | 8.3 | 1.8 | 53.5 | 1.0 | 0.9 |
| Asphalt Off-Gas | 0.0 | 6.4 | 0.0 | 0.0 | 0.0 |
| Construction Equipment | 159.9 | 19.4 | 120.2 | 4.4 | 0.2 |
| **Total Emissions** | **173.8** | **28.3** | **176.5** | **5.9** | **1.5** |
| SCQAMD Thresholds | 550 | 75 | 100 | 150 | 55 |
| **Significant** | **No** | **No** | **Yes** | **No** | **No** |

Table 4.2-9 shows that emissions during asphalt paving activities would exceed the SCAQMD $NO_x$ threshold. Therefore, the asphalt paving activities would result in a significant short-term air quality impact. As shown in Table 4.2-9 the majority of $NO_x$ emissions is due to heavy construction equipment and hauls trucks.

**Architectural Coating Emissions**

Architectural Coating (paints) release Reactive Organic Compounds (ROG) as they are applied and as they dry. ROG emissions are estimated based on the area being painted. The SCAQMD CEQA Handbook estimates that, for commercial uses, the amount of area to be painted is estimated to be two times the floor area. The project proposes the development of 625,000 square feet of floor space which results in an estimate of 1,250,000 square feet of painted area. This results in an estimate of 23,125 pounds of ROG emissions from painting of the project. To remain below the 75 pounds per day significance threshold, painting would need to be limited to 4,054 square feet per day and at this rate painting would occur for 309 days. Limiting the painting activity to this level is economically infeasible. Therefore, ROG emissions for painting will exceed the significance threshold of 75 pounds per day.

During the construction phase the applicant will be required to comply with regional rules, which will assist in reducing short-term air pollutant emissions. Therefore, implementation with the compliance of SCAQMD Rule 402 and 403 will be required. Refer to Tables 15 through 18 of the Air Quality Assessment included as Appendix B for Rule 403 performance standards.

**Mitigation Measures**

**Mitigation Measure AQ-1**

*Comply with SCAQMD's Rules 402 and 403 as well as the following measures:*

- *Submit a fully executed Large Operation Notification (SCAQMD Form 403N) to the SCAQMD Executive Officer within 7 days of qualifying as a large operation;*
- *Include, as part of the notification, the name(s), address(es), and phone number(s) of the person(s) responsible for the submittal, and a description of the operation(s), including a map depicting the location of the site;*
- *Maintain daily records to document the specific dust control actions taken, maintain such records for a period of not less than three years; and make such records available to the Executive Officer upon request;*
- *Install and maintain project signage with project contact signage that meets the minimum standards of the Rule 403 Implementation Handbook, prior to initiating any earthmoving activities;*
- *Identify a dust control supervisor that is employed by or contracted with the property owner or developer, is on the site or available on-site within 30 minutes during working hours, has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule requirements, and has completed the AQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class; and*
- *Notify the SCAQMD Executive Officer in writing within 30 days after the site no longer qualifies as a large operation.*

**Mitigation Measure AQ-2**

*Reduce construction equipment emissions by implementing the following measures.*

- *Use low emission mobile construction equipment. The property owner/developer shall comply with CARB requirements for heavy construction equipment.*
- *Maintain construction equipment engines by keeping them tuned.*
- *Use low sulfur fuel for stationary construction equipment. This is required by SCAQMD Rules 431.1 and 431.2.*
- *Utilize existing power sources (i.e., power poles) when available. This measure would minimize the use of higher polluting gas or diesel generators.*

- *Configure construction parking to minimize traffic interference.*
- *Minimize obstruction of through-traffic lanes. Construction should be planned so that lane closures on existing streets are kept to a minimum.*
- *Schedule construction operations affecting traffic for off-peak hours to the best extent when possible.*
- *Develop a traffic plan to minimize traffic flow interference from construction activities (the plan may include advance public notice of routing, use of public transportation and satellite parking areas with a shuttle service.)*

**Mitigation Measure AQ-3**

*Reduce ROG emissions from painting activities to the greatest extent feasible with the implementation of the following measures:*

- *Minimize the amount of paint used by using pre-coated, pre-colored and naturally colored building materials; and*
- *Use high transfer efficiency painting methods such as HVLP (High Volume Low Pressure) sprayers and brushes/rollers where possible.*

**Mitigation Measure AQ-4**

*Reduce NOx and VOC with the implementation of the following measures:*

*NOx*

- *Provide dedicated turn lanes for movement of construction trucks and equipment on- and off- site; and*
- *Alternative fueled off-road equipment; and*
- *Use street sweepers that comply with SCAQMD Rules 1186 and 1186.1; and*
- *Reroute construction haul trucks away from congested streets or sensitive receptor areas; and*
- *Improve traffic flow by signal synchronization; and*
- *Provide temporary traffic controls such as flag person, during all phases of construction to maintain smooth traffic flow; and*
- *Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site.*

*VOC*

- *Use required coatings and solvents with a VOC content lower than required under Rule 1113.*

**Level of Significance after Mitigation**

Mitigation Measures AQ-1 through AQ-4 addresses construction emissions from construction activities and will substantially reduce emissions to the maximum extent feasible. However, it is anticipated that emissions would still exceed SCAQMD thresholds and be considered a significant short-term impact.

**Impact AQ-3**

**Development of the proposed project will increase vehicle trips. This may increase CO concentrations to exceed local air quality standards. This is a potentially significant impact.**

As the project will introduce changes in traffic on the roadways serving the project, a detailed analysis of carbon monoxide concentrations at sensitive areas in the project vicinity was prepared. Carbon monoxide (CO) is the pollutant of major concern along roadways because the most notable source of carbon monoxide is motor vehicles. For this reason carbon monoxide concentrations are usually indicative of the local air quality generated by a roadway network, and are used as an indicator of its impacts on local air quality. Local air quality impacts can be assessed by comparing future carbon monoxide levels with State and Federal carbon monoxide standards moreover by comparing future CO concentrations with and without the project. The Federal and State standards for carbon monoxide are presented in Table 4.2-1.

Carbon monoxide concentrations with the project were forecasted with the CALINE4 computer model. CALINE4 is a fourth generation line source air quality model developed by the California Department of Transportation ("CALINE4," Report No. FHWA/CA/TL-84/15, June 1989). The purpose of the model is to forecast air quality impacts near transportation facilities in what is known as the microscale region. The microscale region encompasses the region of a few thousand feet around the pollutant source. Given source strength, meteorology, site geometry, and site characteristics, the model can reliably predict pollutant concentrations.

Worst case meteorology was assessed. Specifically, a late afternoon winter period with a ground based inversion was considered. For worst case meteorological conditions, a wind speed of 0.5 meter per second (1 mph) and a stability class G was utilized for a 1 hour averaging time. Stability class G is the worst case scenario for the most turbulent atmospheric conditions. The higher stability class promotes dispersion of pollutants. A worst case wind direction for each site was determined by the CALINE4 Model. A sigma theta of 10 degrees was also used and represents the fluctuation of wind direction. A high sigma theta number would represent a very changeable wind direction. The temperature used for worst case was 40 degrees Fahrenheit. The temperature affects the dispersion pattern and emission rates of the motor vehicles. The temperature represents the January mean minimum temperature as reported by Caltrans. The wind speed, stability class, sigma theta, and temperature data used for the modeling are those recommended in the “Development of Worst Case Meteorology Criteria,” (California Department of Transportation, June 1989). A mixing height of 1,000 meters was used as recommended in the CALINE4 Manual. A surface roughness of the ground in the area, 100 centimeters, was utilized and is based on the CALINE4 Manual. The results are also

dependent on the speeds of the vehicles utilized in the model. Composite emission factors utilized with the CALINE4 computer model were derived from EMFAC2002 prepared by ARB.

The peak hour traffic data for opening year 2008 and buildout year 2030 were taken from the traffic study prepared by Kunzman Associates in September 2006. The P.M. peak hour traffic volumes were utilized for the modeling. The level of service (LOS) reported for the peak hour in the traffic study was used to determine the average vehicle travel speed in the vicinity of the intersection. Composite vehicular emission factors were derived from EMFAC2002. EMFAC2002 is a computer program published by CARB that calculates on-road vehicle emissions.

Background concentrations are added to the modeling results to account for emissions from sources not included in the modeling. The projected background CO concentrations were obtained from the SCAQMD website (www.aqmd.gov/ceqa/hdbk.html) accessed in October 2006. Projected background concentrations are available for years 1999, 2000, 2010 and 2020. The nearest available CO background data for the project area is the San Bernardino monitoring station. The background CO levels for 2008 were linearly interpolated using these available data. The 2008 CO background levels are projected to be 3.8 ppm for 1-hour and 3.1 ppm for 8-hour. The 2020 CO background levels are projected to be 3.6 ppm for 1-hour and 2.9 ppm for 8-hour. The 2030 background CO concentrations are projected to be the same as year 2020.

The peak hour volumes and the LOS data at the critical intersections were used in the CALINE4 computer modeling. The LOS data are important in the CALINE4 computer modeling in that they determine the speeds and the emission factors. The lower the speeds, the higher the emission factors, hence, the higher the CO results. The p.m. peak hour traffic is utilized in the CALINE4 computer modeling as a worst case scenario.

Eight hour carbon monoxide levels were projected using Caltrans methodology described in their "Air Quality Technical Analysis Notes." The method essentially uses a persistence factor which is multiplied times the 1 hour emission projections. The projected 8 hour ambient concentration is then added to the product. The persistence factor can be estimated using the 10 highest non-overlapping ratio of 8-hour to 1-hour from the last three years of carbon monoxide monitoring data. For the project area, a persistence factor of 0.84 was estimated. The data and results of the CALINE4 modeling are provided in Appendix B. (The CALINE4 CO emission results shown in the appendix do not include the ambient background CO levels.)

Generally, the 1-hour CO level is considered the peak maximum CO level as it is the highest CO measured for an hour. According to the Caltrans Air Quality Technical Analysis Notes, changes in meteorology and traffic over time disperse the CO concentration levels and cause it to be less severe. Therefore, it is highly unlikely that the 1-hour CO levels would persist for a full eight hours. As a result, a 1-hour CO level is generally considered to be the peak level and is usually higher than an 8-hour CO level.

Two key intersections in the vicinity of the project were selected for CALINE4 analysis. The worst case intersections which have the highest traffic or the greatest change due to the project were selected. These intersections are Haven Avenue at Inland Empire Boulevard and Haven Avenue at Guasti Road. For each intersection, a receptor was located at each of the four corners

approximately 10 feet from edge of the road. The highest concentrations from each intersection are reported below. Refer to Figure 4.2-1 for the locations of the receptors.

The traffic study prepared for the project presents LOS conditions with the project for two scenarios. The first scenario includes no changes to the existing intersection configurations. The second scenario includes all funded roadway improvements as well as mitigation measures to achieve a LOS of D or better. These improvements and mitigation would improve the LOS at the Haven Avenue at Inland Empire Boulevard from E to D for both the 2008 and 2030 analysis years. The improvements and mitigation would improve the LOS at the Haven Avenue at Gausti Road intersection from F to D for the 2030 analysis year. CO concentrations were modeled for both conditions and are presented below.

The results of the CALINE4 CO modeling are summarized in Table 4.2-10 and Table 4.2-11. Table 4.2-10 presents the modeled 1-hour average CO concentrations and Table 4.2-11 presents the modeled 8-hour CO concentrations. Future with project concentrations are presented for conditions with and without expected intersection improvements which result in a LOS of D or better and lower air quality concentrations. The pollutant levels are expressed in parts per million (ppm) for each receptor. The carbon monoxide levels reported are composites of the background levels of carbon monoxide coming into the area plus those generated by the local roadways.

**Table 4.2-10**
**Modeled 1-Hour Carbon Monoxide Concentrations (ppm)**

| | | Opening Year - 2008 | | | Horizon Year - 2030 | | |
|---|---|---|---|---|---|---|---|
| **Intersection** | **Existing** | **No Project** | **With Project[1]** | **With Project[2]** | **No Project** | **With Project[1]** | **With Project[2]** |
| 1. Haven Ave. at Inland Empire Blvd. | 9.2 | 7.7 | 8.2 | 7.2 | 4.5 | 4.6 | 4.3 |
| 2. Haven Ave. at Guasti Rd. | 8.4 | 7.1 | 8.2 | 7.4 | 4.4 | 4.7 | 4.4 |
| | | | | | | | |
| **State Standard** | **20 ppm** | **20 ppm** | **20 ppm** | **20 ppm** | **20 ppm** | **20 ppm** | **20 ppm** |
| No. of Exceedances | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1. Without Improvements. | | | | | | | |
| 2. With funded improvements and project traffic mitigation. | | | | | | | |

The CO concentrations presented above include background concentrations of 4.2 ppm for existing conditions, 3.8 ppm for 2008 conditions, and 3.6 ppm for 2030 conditions.

**Table 4.2-11**
**Modeled 8-Hour Carbon Monoxide Concentrations (ppm)**

| | | Opening Year - 2008 | | | Horizon Year - 2030 | | |
|---|---|---|---|---|---|---|---|
| **Intersection** | **Existing** | **No Project** | **With Project[1]** | **With Project[2]** | **No Project** | **With Project[1]** | **With Project[2]** |
| 1. Haven Ave. at Inland Empire Blvd. | 7.6 | 6.4 | 6.8 | 5.9 | 3.7 | 3.7 | 3.5 |
| 2. Haven Ave. at Guasti Rd. | 6.9 | 5.9 | 6.8 | 6.1 | 3.6 | 3.8 | 3.5 |
| | | | | | | | |
| **State Standard** | **9 ppm** | **9 ppm** | **9 ppm** | **9 ppm** | **9 ppm** | **9 ppm** | **9 ppm** |
| No. of Exceedances | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1. Without Improvements. | | | | | | | |
| 2. With funded improvements and project traffic mitigation. | | | | | | | |

The CO concentrations presented above include background concentrations of 3.4 ppm for existing conditions, 3.1 ppm for 2008 conditions, and 2.9 ppm for 2030 conditions.

The results in Table 4.2-10 show that the 1-hour CO concentration levels with and without the project are projected to comply with the State standard of 20 ppm in both 2008 and 2030. Because concentrations with the project will not exceed the standard, the project will not result in a significant air quality impact. The table shows that at Haven Avenue at Inland Empire Boulevard, the conditions with the project and the roadway improvements result in CO concentrations slightly lower than no project conditions. Haven Avenue at Guasti Road CO concentrations are projected to increase slightly with the project and roadway improvements compared to no project conditions in 2008 but in 2030 there is no difference in the two scenarios. Table 4.2-8 shows that for all scenarios, CO concentrations in the future years are anticipated to be lower than existing conditions, and that concentrations in 2030 are projected to be lower than 2008 conditions. This occurs despite traffic volumes increasing in the future because emissions from future vehicle fleets are predicted by the EMFAC2002 program to be lower in the future. More newer vehicles, complying with increasingly stringent emission regulations, will be on the road in the future. The projected decrease in pollutant emissions offsets the projected increase in traffic volumes.

The results in Table 4.2-11 show that the 8-hour CO concentration levels with and without the project are projected to comply with the state standard of 9 ppm for both 2008 and 2030. Because concentrations with the project will not exceed the standard, the project will not result in a significant air quality impact. The results for the 8-hour CO concentrations are similar to the 1-hour concentrations. Concentrations with the project and road improvements are projected to be lower than no project conditions except for the 2008 scenario at the Haven Avenue at Guasti Road intersection where a slight increase is projected. Future 8-hour CO concentrations are projected. The future carbon monoxide (CO) emissions with project (with LOS improvement) are projected to generate a smaller increase or be lower than future no project, and therefore, the local CO impacts due to the project are not considered to be significant. Therefore, the project will not result in a significant local air quality impacts and no mitigation measures are required.

**Impact AQ-4**

**Development of the Specific Plan would increase vehicular travel to the site and increase urban land uses. This is a potentially significant impact to regional air quality.**

The primary source of regional emissions generated by the proposed project will be from motor vehicles. Other on-site emissions will be generated from the combustion of natural gas for space heating. Emissions will also be generated by the use of natural gas and oil for the generation of electricity off-site.

The data used to estimate the on-site combustion of natural gas, and off-site electrical usage is based on the proposed land uses in terms of square footages, and emission factors taken from the 1993 CEQA Handbook. The analysis presented in this report is consistent with the SCAQMD's "CEQA Handbook."

Emission factors from EMFAC2002 published by the SCAQMD on their CEQA Handbook web site (http://www.aqmd.gov/ceqa/hdbk.html) were used to estimate vehicular emissions. EMFAC2002 is a computer program generated by the California Air Resources Board that

calculates emission rates for vehicles. The average trip lengths were calculated to be 10 miles for the project area. This is a composite trip length derived from data contained in the 1993 SCAQMD CEQA Air Quality Handbook (Page 9-24). The average daily trips generated by the project were taken from the traffic study prepared by Kunzman Associates in September 2006. The proposed project is projected to generate 12,384 daily trips which equates to 123,840 daily vehicle miles traveled.

$PM_{2.5}$ emissions were calculated using the methodology presented in SCAQMD's "Final Methodology to Calculate Particulate Matter ($PM_{2.5}$) and $PM_{2.5}$ Significance Thresholds" (October 2006). The $PM_{10}$ emissions were calculated using the above methodologies and then multiplying the $PM_{10}$ emissions by the applicable $PM_{2.5}$ fraction derived from emission source, using PM profiles in the California Emission Inventory Data and Reporting System (CEIDRS) developed by CARB shown in Table 4.2-12.

**Table 4.2-12**
**$PM_{2.5}$ Fraction of $PM_{10}$ Used to Calculate Operation $PM_{2.5}$ Emissions**

| Source | $PM_{2.5}/PM_{10}$ Fraction |
|---|---|
| Passenger Vehicles | 0.928 |
| Delivery Trucks | 0.964 |
| Natural Gas Combustion | 0.990 |
| Electrical Generation | 0.990 |

Pollutant emissions resulting from the uses within the project area for opening year (2008) and buildout year (2030) are presented in Table 4.2-13. Refer to Appendix B for a worksheet showing the detailed data used to calculate these emissions.

**Table 4.2-13**
**Total Project Emissions**

| Source | Pollutant Emissions (lbs/day) | | | | | |
|---|---|---|---|---|---|---|
| | **CO** | **ROG** | **$NO_x$** | **$PM_{10}$** | **$PM_{2.5}$** | **$SO_x$** |
| **Opening year 2008** | | | | | | |
| Vehicular Trips | 1,512.4 | 172.7 | 426.1 | 14.1 | 13.3 | 1.4 |
| Natural Gas Consumption | 1.4 | 0.4 | 8.1 | 0.0 | 0.0 | 0.0 |
| Electrical Generation | 3.8 | 0.2 | 21.9 | 0.8 | 0.8 | 2.3 |
| **Project Emissions in 2008:** | **1,517.5** | **173.2** | **456.0** | **14.9** | **14.1** | **3.7** |
| SCAQMD Thresholds | 550 | 55 | 55 | 150 | 55 | 150 |
| **Significant** | **Yes** | **Yes** | **Yes** | **No** | **No** | **No** |
| **Buildout year 2030** | | | | | | |
| Vehicular Trips | 443.0 | 65.2 | 101.3 | 12.3 | 11.5 | 1.4 |
| Natural Gas Consumption | 1.4 | 0.4 | 8.1 | 0.0 | 0.0 | 0.0 |
| Electrical Generation | 3.8 | 0.2 | 21.9 | 0.8 | 0.8 | 2.3 |
| **Project Emissions in 2030:** | **448.1** | **65.7** | **131.3** | **13.0** | **12.2** | **3.7** |
| SCAQMD Thresholds | 550 | 55 | 55 | 150 | 55 | 150 |
| **Significant** | **No** | **Yes** | **Yes** | **No** | **No** | **No** |

Table 4.2-13 shows that the total project emissions are above the SCAQMD thresholds, specifically for CO, ROG and $NO_x$. The project emissions are projected to be greater in 2008 when compared to 2030. This is primarily due to the anticipated decrease in the future emission rates for vehicular sources as projected by the EMFAC2002 program. Since the project emissions are above the significance thresholds, the project will result in significant regional air quality impacts. The following mitigation measures are recommended.

**Mitigation Measures**

**Mitigation Measure AQ-5**

**Transportation Demand Management measures**

- *Provide adequate ingress and egress at all entrances to public facilities to minimize vehicle idling at curbsides.*
- *Provide dedicated turn lanes as appropriate and provide roadway improvements at heavily congested roadways.*

**Energy Efficient Measures**

- *Improve thermal integrity of the buildings and reduce thermal load with automated time clocks or occupant sensors.*
- *Install energy efficient street lighting.*
- *Capture waste heat and reemploy it in nonresidential buildings.*
- *Landscape with native drought-resistant species to reduce water consumption and to provide passive solar benefits.*
- *Provide lighter color roofing and road materials and tree planning programs to comply with the AQMP Miscellaneous Sources MSC-01 measure.*
- *Synchronize traffic signals.*
- *Introduce window glazing, wall insulation, and efficient ventilation methods.*

**Level of Significance after Mitigation**

The long-term regional air quality impacts due to the proposed project with the recommended measures sited above will be reduced to an extent. However, CO, $NO_x$ and ROG emissions would continue to exceed the SCAQMD thresholds and be considered significant.

**Impact AQ-5**

**The proposed project may expose sensitive receptors to substantial pollutant concentrations?**

The CARB Handbook recommends that sensitive uses not be located within 500 feet of a freeway with an average daily traffic volume of 100,000 or greater. The CARB document notes

that "These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues." The project is located next to a major freeway, I-10 which is used by a substantial number of diesel trucks. However, the sensitive use proposed by the project, the hospital, is proposed to be located more than 1,000 feet from the freeway. At this distance, Diesel Particulate Matter (DPM) concentrations will be very near background levels experienced well away from the freeway. Therefore, at its proposed location, the hospital would not experience DPM concentrations much greater than those even further away from the freeway and the health risks would be equal. Significant impacts to sensitive receptors (hospital) is not anticipated, therefore no mitigation is required.

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