5.2 AIR QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for the Hyatt Regency Newport Beach expansion (proposed project) to impact air quality in the local and regional context. The analysis in this section is based on air quality analysis completed by The Planning Center in November 2007.The air quality model output sheets are included in Appendix C of this DEIR.

5.2.1 Environmental Setting

Meteorological Conditions

The project area lies in the South Coast Air Basin (SoCAB), which includes all of Orange County as well as the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties. The air basin is located in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semipermanent high pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds.

Temperature and Precipitation

The annual average temperature varies little throughout the 6,645-square-mile SoCAB, ranging from the low 60s to the high 80s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The Western Regional Climate Center maintains historical climate information for the western U.S. The closest meteorological monitoring station to the City of Newport Beach, monitored by the Western Regional Climate Center, is the Newport Beach Harbor Monitoring Station. The average low is reported at 48°F in December and January, and the average high is 73°F in August (Western Regional Climate Center 2006).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all annual rains fall between November and April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. Rainfall averages around 11.78 inches per year in the project area (Western Regional Climate Center 2006).

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent; and low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB.

Wind

Wind patterns across the south coastal region are characterized by westerly or southwesterly onshore winds during the day and by easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season.

Between periods of wind, periods of air stagnation may occur, both in the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, down-slope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the transport and diffusion of pollutants by inhibiting their eastward transport. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions.

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two types of temperature inversions that control the vertical depth through which pollutants are mixed. These inversions are the marine/subsidence inversion and the radiation inversion. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the project area.

Air Pollutants of Concern

Criteria Air Pollutants

Criteria air pollutants are those that are regulated by federal and state law, and are categorized into primary and secondary pollutants. Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxides (NO_X), sulfur dioxide (SO_2) and most fine particulate matter (PM_{10} and $PM_{2.5}$), lead (Pb), and fugitive dust are primary air pollutants. Of these, CO, SO_2, PM_{10}, and $PM_{2.5}$ are criteria pollutants. ROG and NO_X are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants. Presented below is a description of each of the primary and secondary criteria air pollutants and their known health effects.

Other pollutants, such as carbon dioxide, a natural by-product of animal respiration that is also produced in the combustion process, have been linked to such phenomena as global warming. These emissions are unregulated and there are no thresholds for their release. These pollutants do not jeopardize the attainment status of the SoCAB.

Carbon Monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.

Reactive Organic Gases (ROGs) are compounds comprised primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROGs include evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROGs, but rather by reactions of ROG that form secondary pollutants such as ozone.

Nitrogen Oxides (NO_X) serve as integral participants in the process of photochemical smog production. The two major forms of NO_X are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown irritating gas formed by the combination of NO and oxygen. NO_X acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

Nitrogen Dioxide (NO_2) is a by-product of fuel combustion. The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 acts as an acute irritant and in equal concentrations is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 part per million (ppm). NO_2 absorbs blue light resulting in a brownish-red cast to the atmosphere and reduced visibility. NO_2 also contributes to the formation of PM_{10} (particulates having an aerodynamic diameter of 10 microns, or 0.0004 inch, or less in diameter) and ozone.

Sulfur Dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. Fuel combustion is the primary source of SO_2. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. A primary source of SO_2 emissions is high sulfur-content coal. Gasoline and natural gas have very low sulfur content and hence do not release significant quantities of SO_2.

Particulate Matter (PM) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized. Inhalable coarse particles, or PM_{10}, include the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 one-millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns (i.e., 2.5 one-millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind action on arid landscapes also contributes substantially to local particulate loading. Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in those people who are naturally sensitive or susceptible to breathing problems.

Fugitive dust primarily poses two public health and safety concerns. The first concern is that of respiratory problems attributable to the particulates suspended in the air. Diesel particulates are classified by the California Air Resources Board (CARB) as a carcinogen. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage during strong windstorms because it is an abrasive (much like sandblasting). Finally, fugitive dust can result in a nuisance factor due to the soiling of proximate structures and vehicles.

Ozone **(**O_3), or smog, is one of a number of substances called photochemical oxidants that are formed when reactive organic compounds (ROC) and NO_X (both by-products of the internal combustion engine) react with sunlight. O_3 is present in relatively high concentrations in the SoCAB, and the damaging effects of photochemical smog are generally related to the concentrations of O_3. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people and has been tied to crop damage—typically in the form of stunted growth—and premature death. O_3 can also act as a corrosive, resulting in property damage such as the degradation of rubber products.

Toxic Air Contaminants

The public's exposure to toxic air contaminants (TACs) is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant (HAP) pursuant to subsection (b) of Section 112 of the federal Clean Air Act (42 USC Sec. 7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency, acting through the CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology (T-BACT) to minimize emissions. CARB has, to date, established formal control measures for 11 TACs, all of which are identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High-priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

To date, CARB has designated nearly 200 compounds as TACs. Additionally, it has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, one of the most important in the southern California being particulate matter from diesel-fueled engines.

In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in the diesel exhaust were considered as TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

In 2000, the South Coast Air Quality Management District (SCAQMD) conducted a study on ambient concentrations of TACs and estimated the potential health risks from air toxics. The results showed that the overall risk for excess cancer caused by a lifetime exposure to ambient levels of air toxics was about 1,400 in a million. The largest contributor to this risk was diesel exhaust, accounting for 71 percent of the risk.

Global Climate Change

Greenhouse Gases and Climate Change

Climate change refers to the variation of the Earth's climate over time, whether due to natural variability or a result of human activities. The climate system is an interactive system consisting of five major components: the atmosphere, hydrosphere (ocean, rivers and lakes), cryosphere (sea ice, ice sheets, and glaciers), land surface, the biosphere (flora and fauna). The earth's atmosphere is the most unstable and rapidly changing part of the system. It is composed of 78.1 percent nitrogen (N_2), 20.9 percent oxygen (O_2), and 0.93 percent argon (Ar). These gases have only limited interaction with the incoming solar radiation and do not interact with infrared (long-wave) radiation emitted by the Earth. However there are a number of trace gases, such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3) that absorb and emit infrared radiation and therefore have an affect on the Earth's climate. These trace gases are defined as greenhouse gases (GHG), and while they comprise less than 0.1 percent of the total volume mixing ratio in dry air, they play an essential role in influencing the Earth's climate (IPCC 2001).

Non-CO_2 GHG include those listed in the Kyoto Protocol[1] (CH_4, N_2O, hydrofluorocarbons [HFC], perfluorocarbons [PFC], and sulfur hexafluoride [SH_6])and those listed under the Montreal Protocol and its Amendments[2] (chlorofluorocarbons [CFC], hydrochlorofluorocarbons [HCFC], and halons). Table 5.2-1 lists a selection of some of the GHG and their relative global warming potential (GWP), compared to CO_2. Although not included in this table, water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant in the atmosphere (IPCC 2001). A brief description of the major GHG is described below.

Table 5.2-1
Greenhouse Gases and their Relative Global Warming Potential

GHG	Atmospheric Lifetime (years)	Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	50 to 200	1
Methane (CH_4)[2]	12 (±3)	21
Nitrous Oxide (N_2O)	120	310
Hydrofluorocarbons:		
HFC-23	264	11,700
HFC-32	5.6	650
HFC-125	32.6	2,800
HFC-134a	14.6	1,300
HFC-143a	48.3	3,800
HFC-152a	1.5	140
HFC-227ea	36.5	2,900
HFC-236fa	209	6,300
HFC-4310mee	17.1	1,300
Perfluoromethane: CF_4	50,000	6,500
Perfluoroethane: C_2F_6	10,000	9,200
Perfluorobutane: C_4F_{10}	2,600	7,000
Perfluoro-2-methylpentane: C_6F_{14}	3,200	7,400
Sulfur Hexafluoride (SF_6)	3,200	23,900

Source: United States Environmental Protection Agency (EPA), Global Warming Potentials and Atmospheric Lifetimes, http://www.epa.gov/nonco2/econ-inv/table.html.
[1] 100-Year Time Horizon.
[2] The methane GWP includes the direct effects and those indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

[1] Kyoto Protocol: Established by the United Nations Framework Convention on Climate Change (UNFCC), and signed by more than 160 countries (excluding the United States) stating that they commit to reduce their GHG emissions by 55 percent or engage in emissions trading.
[2] Montreal Protocol and Amendments: International Treaty signed in 1987 and amended in 1990 and 1992. Stipulates that the production and consumption of compounds that deplete ozone in the stratosphere (CFC, halons, carbon tetrachloride, and methyl chloroform) are to be phased out by 2000 (2005 for methyl chloroform).

- **Carbon Dioxide** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, and trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants.

- **Ozone** is a gas in the atmosphere. Depending on altitude, it is created either naturally and by photochemical reactions involving gases resulting from human activities, or it is created by the interaction between solar ultraviolet radiation and oxygen (O_2). Depletion of ozone due to chemical reactions that may be enhanced by climate change results in an increased ground-level flux of ultraviolet (UV-) B radiation.

- **Methane** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.

- **Nitrous Oxide** is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

- **Fluorinated Gases** are synthetic, greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases.

  - *Chlorofluorocarbons* are GHGs used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere, CFCs drift into the atmosphere where, given suitable conditions, they break down ozone. These gases are being replaced by other compounds, including HCFCs and HFCs.

  - *Perfluorocarbons* are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced, along with HFCs, as alternatives to ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are also used in manufacturing. PFCs do not harm the ozone layer, but they are powerful greenhouse gases.

  - *Sulfur Hexafluoride* is a colorless and very powerful greenhouse gas used primarily in electrical transmission and distribution systems and in electronics.

  - *Hydrochlorofluorocarbons* contain hydrogen, fluorine, chlorine, and carbon. Although ozone-depleting substances, they are less potent at destroying ozone than CFCs. They have been introduced as temporary replacements for CFCs.

  - *Hydrofluorocarbons* contain hydrogen, fluorine, and carbon. They were introduced as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the ozone layer, but they are powerful greenhouse gases. (USEPA 2007)

California's GHG Sources and Relative Contribution

California is the second largest emitter of GHGs in the United States, surpassed only by Texas, and the tenth largest GHG emitter in the world (CEC 2005). In 2001 California ranked fourth lowest in carbon emissions per capita and fifth lowest in CO_2 emissions from fossil fuel consumption in the world. In 2002, California produced 493 million metric tons of CO_2-equivalent CO_2 GHG emissions,[3] of which 81 percent were CO_2 emissions produced from the combustion of fossil fuels, 2.3 percent were from other sources of CO_2, 6.4 percent were from methane, and 6.8 percent were from N_2O. The remaining 3.5 percent of GHG emissions were from High Global Warming Potential gases (CEC 2005).

CO_2 emissions from human activities represent 84 percent of the total GHG emissions. California's transportation sector is the single largest category of GHG emissions, producing 41.2 percent of the state's total emissions. Industrial sources are second, at 22.8 percent; electricity consumption is the third, at 19.6 percent. While out-of-state electricity generation for use in California comprises one-fifth to one-third of the total electricity supply, out-of-state electricity generation contributes 50 percent of the GHG emissions associated with electricity consumption in California. Other major sources of GHG emissions include mineral production, waste combustion and land use, and forestry changes. Agriculture, forestry, commercial, and residential activities comprose the balance of California's GHG emissions (CEC 2005).

Human Influence on Climate Change

For approximately 1,000 years before the Industrial Revolution the amount of GHGs in the atmosphere remained relatively constant. During the 20th century, scientists have observed a rapid change in the climate and climate-changing pollutants that are attributable to human activities. The amount of CO_2 has increased by more than 30 percent since preindustrial times and is still increasing at a rate of 0.4 percent per year, mainly due to combustion of fossil fuels and deforestation (IPCC 2001). These recent changes in climate-changing pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants (CAT 2006).

Climate change scenarios are affected by varying degrees of uncertainty (IPCC 2001). The Intergovernmental Panel on Climate Changes (IPCC) *2001 IPCC Third Assessment Report* projects that the global mean temperature increase from 1990 to 2100, under different climate change scenarios, will range from 2.0 to 4.5°C. While gradual changes in the earth's temperature have occurred in the past, resulting in changes in the distribution of species, availability of water, etc., human activities are speeding up this process so that the environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime.

Potential Climate Change Impacts for California

Climate change is not a local environmental impact—it is a global environmental impact. Unlike criteria pollutants, CO_2 emissions cannot be attributed to a direct health effect. However, human-caused increases in GHGs have been shown to be highly correlated with increases in the surface and ocean temperatures (IPCC 2001). What is not clear is the extent of the impact on environmental systems.

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences from changes in the earth's temperature are also difficult to predict. There are also varying degrees of uncertainty of environmental impact scenarios.

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[3] CO_2-equivalent GHG emissions are used to account for the fact that different GHGs have different potentials to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential, is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

In California and western North America, observations in the climate have shown (1) a trend toward warmer winter and spring temperatures, (2) a smaller fraction of precipitation falling as snow instead of rain, (3) a decrease in the amount of spring snow accumulation in the lower and middle elevation mountain zones, (4) an advance snowmelt of 5 to 30 days earlier in the spring, and (5) a similar shift (5 to 30 days earlier) in the blooming of spring flowers (CAT 2006).

Regulatory Setting

The proposed project has the potential to release gaseous emissions of criteria pollutants and dust into the ambient air; therefore, it falls under the ambient air quality standards promulgated at the local, state, and federal levels. The project site is located in the SoCAB and is subject to the rules and regulations imposed by the SCAQMD. However, the SCAQMD reports to CARB, and all criteria emissions are also governed by the California Ambient Air Quality Standards (CAAQS) as well as the National Ambient Air Quality Standards (NAAQS).

Ambient Air Quality Standards

The Clean Air Act Amendment of 1971 established national AAQS and allowed states to retain the option to adopt more stringent standards or to include other pollution species. These standards are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect those “sensitive receptors” most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both the State of California and the federal government have established health-based Ambient Air Quality Standards for seven air pollutants. As shown in Table 5.2-2, these pollutants—O_3, CO, NO_2, SO_2 PM_{10}, $PM_{2.5}$ and Pb. In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace within a reasonable margin of safety.

Table 5.2-2
Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Ozone (O_3)	1-hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8-hours	0.07 ppm	0.08 ppm	
Carbon Monoxide (CO)	1-hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8-hours	9 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Average	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1-hour	0.018 ppm	*	
Sulfur Dioxide (SO_2)	Annual Average	*	0.03 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1-hour	0.25 ppm	*	
	24-hours	0.04 ppm	0.14 ppm	
Suspended Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24-hours	50 $\mu g/m^3$ (PM_{10})	150 $\mu g/m^3$ (PM_{10})	
Suspended Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 $\mu g/m^3$	15 $\mu g/m^3$	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24-hours	*	35 $\mu g/m^3$	
Lead (Pb)	Monthly	1.5 $\mu g/m^3$	*	Present source: lead smelters, battery manufacturing and recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	*	1.5 $\mu g/m^3$	
Sulfates (SO_4)	24-hours	25 $\mu g/m^3$	*	Industrial processes.

Source: CARB 2007c.
ppm is parts per million; $\mu g/m^3$ is micrograms per cubic meter
The nitrogen dioxide ambient air quality standard was amended on February 22, 2007, to lower the 1-hr standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes become effective after regulatory changes are submitted and approved by the Office of Administrative Law, expected later in 2007.
* standard has not been established for this pollutant/duration by this entity.

Air Quality Management Planning

The SCAQMD and the Southern California Association of Governments (SCAG) are the agencies responsible for preparing the Air Quality Management Plan (AQMP) for the SoCAB. Since 1979, a number of AQMPs have been prepared.

The current comprehensive plan is the 2007 AQMP which was adopted on June 1, 2007. The 2007 AQMP builds upon the approaches for attainment in the 2003 AQMP. It 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 proposes an attainment demonstration of the federal $PM_{2.5}$ standards through a more focused control of SO_X, directly emitted $PM_{2.5}$, NO_X, and volatile organic compounds (VOC) by 2015. The eight-hour ozone control strategy builds upon the $PM_{2.5}$ strategy, augmented with additional NO_X and VOC reductions to meet the standard by 2024, assuming a bump-up (i.e., extended attainment date) is obtained.

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards through the State Implementation Plan (SIP). Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas. Severity classifications for ozone nonattainment range in magnitude: marginal, moderate, serious, severe, and extreme. The attainment status for the SoCAB is shown in Table 5.2-3. The SoCAB is also designated as attainment of the CAAQS for SO_2, lead, and sulfates. According to the 2007 AQMP, the SoCAB will have to meet the new federal $PM_{2.5}$ standards by 2015 and the eight-hour ozone standard by 2024, and will most likely have to achieve the recently revised 24-hour $PM_{2.5}$ standard by 2020.

Table 5.2-3
Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	Revoked June 2005
Ozone – 8-hour	Extreme Nonattainment	Nonattainment
PM_{10}	Serious Nonattainment	Nonattainment Annual Standard Revoked September 2006
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment[1]
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
All others	Attainment/Unclassified	Attainment/Unclassified

Source: California Air Resource Board, based on 2004 State Area Designations and National Area Designations, current as of July 2007.
[1]The USEPA granted the request to redesignate the SoCAB from nonattainment to attainment for the CO NAAQS on May 11, 2007 (Federal Register Volume 71, No. 91), which became effective as of June 11, 2007.

Federal and California Clean Air Act Requirements

The Federal Clean Air Act (FCAA) requires the creation of plans to provide for the implementation of all reasonably available control measures, including the adoption of reasonably available control technology, for reducing emissions from existing sources. The following describes recent amendments to the FCAA and California CAA (CCAA) standards for criteria pollutants.

- **Ozone:** The USEPA has phased out and replaced the one-hour primary ozone standard with a new eight-hour standard to protect against longer exposure periods. The new ozone standard is set at a concentration of 0.08 part ppm and represents a tightening of the former one-hour ozone standard. Under the standard adopted by the USEPA, areas are allowed to disregard their three worst measurements every year and average their fourth highest measurements over three years to determine if they meet the standard.

- **Fine Particulate Matter ($PM_{2.5}$):** For particulate matter, the (USEPA) established new annual and 24-hour standards for $PM_{2.5}$ to complement the existing PM_{10} standards. The new annual $PM_{2.5}$ standard is set at 15 micrograms per cubic meter ($\mu g/m^3$), and the original 24-hour $PM_{2.5}$ standard was set at 65 $\mu g/m^3$. In September 2006, the USEPA tightened the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$. The annual component of the standard was set to provide protection against typical day-to-day exposures as well as longer-term exposures, while the daily component protects against more extreme short-term events. For the new 24-hour $PM_{2.5}$ standard, the form of the standard is based on the 98th percentile of 24-hour $PM_{2.5}$ concentrations measured in a year (averaged over three years) at the monitoring site with the highest measured values in an area. This form of the standard reduces the impact of a single high-exposure event that may be due to unusual meteorological conditions, and thus provides a more stable basis for effective control programs.

- **Coarse Particulate Matter (PM_{10}):** As of September 21, 2006, the USEPA has revoked the annual PM_{10} standard of 50 $\mu g/m^3$ and replaced it with a new 24-hour PM_{10} standard set at 150 $\mu g/m^3$. More specifically, the USEPA revised the one-expected exceedance form of the current standard with a 99th percentile form, averaged over three years.

- **Nitrogen Dioxide:** On February 23, 2007, CARB approved new, stricter standards for NO_2 that lowered the existing one-hour standard from 0.25 ppm to 18 ppm and established a new annual-average state standard at 0.030 ppm.

GHG Emissions on a National Level

Currently there are no adopted regulations to reduce global climate change on a national level. However, recent statutory authority has been granted to the USEPA that may change the voluntary approach taken under our current administration to address this issue. On April 2, 2007, the United States Supreme Court ruled that the USEPA has the authority to regulate CO_2 emissions under the CAA.

GHG Emissions on a State Level

Assembly Bill 32 (AB 32), the Global Warming Solutions Act, was passed by the California state legislature on August 31, 2006. AB 32 requires the state's global warming emissions to be reduced to 1990 levels by year 2020 and by 80 percent of 1990 levels by year 2050. Pursuant to the requirements of AB 32, the state's reduction in global warming emissions will be accomplished through an enforceable statewide cap on global warming emissions that will be phased in starting in 2012. In order to effectively implement the cap, AB 32 directs CARB to develop appropriate regulations and establish a mandatory reporting system to track and monitor global warming emissions levels by January 2008. By January 1, 2009, CARB must prepare a plan demonstrating how the 2020 deadline can be met or earlier. However, as immediate progress in reducing GHG can and should be made, AB 32 directed CARB and the newly created California Climate Action Team (CAT) to identify a list of "discrete early action GHG reduction measures" that can be adopted and made enforceable by January 1, 2010. CAT is a consortium of representatives from state agencies that have been charged with coordinating and implementing GHG emission reduction programs that fall outside of CARB's jurisdiction.

To address GHG emission and global climate change in General Plans and CEQA documents, Senate Bill 97 (Chapter 185, 2007) requires the Governor's Office of Planning and Research (OPR) to develop CEQA guidelines on how to address global warming emissions and mitigate project-generated GHG. OPR is required to prepare, develop, and transmit these guidelines on or before July 1, 2009.

Baseline Air Quality

Existing levels of ambient air quality and historical trends and projections in the vicinity of the project site and the City of Newport Beach area are best documented by measurements made by the SCAQMD. The City of Newport Beach is located within the central portion of Source Receptor Area (SRA) 20 (Central Orange County Coastal). The SCAQMD air quality monitoring station in the SRA 20 that is closest to the proposed project site is the Costa Mesa monitoring station, located at Mesa Verde Drive, Costa Mesa. As this monitoring station does not monitor PM_{10} and $PM_{2.5}$, data was supplemented from the Mission Viejo Station for these criteria pollutants. Data from these stations are summarized in Table 5.2-4.

Table 5.2-4
Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels During Such Violations				
	2002	2003	2004	2005	2006
Ozone[1]					
State 1-Hour ≥ 0.09 ppm	0	4	2	0	0
Federal 8-Hour > 0.08 ppm	0	1	1	0	0
Max. 1-Hour Conc. (ppm)	0.087	0.107	0.104	0.085	0.074
Max. 8-Hour Conc. (ppm)	0.070	0.088	0.087	0.072	0.062
Carbon Monoxide[1]					
State 8-Hour > 9.0 ppm	0	0	0	0	0
Federal 8-Hour ≥ 9.5 ppm	0	0	0	0	0
Max. 8-Hour Conc. (ppm)	4.29	5.90	4.07	3.16	3.01
Nitrogen Dioxide[1]					
State 1-Hour ≥ 0.25[2] ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.106	0.107	0.097	0.085	0.101
Sulfur Dioxide (SO_2)[1]					
State 24-Hour ≥ 0.04 ppm	0	0	0	0	0
Federal 24-Hour ≥ 0.14 ppm	0	0	0	0	0
Max 24-Hour Conc. (ppm)-	0.011	0.012	0.008	0.008	0.005
Coarse Particulates (PM_{10})[3]					
State 24-Hour > 50 $\mu g/m^3$	4	2	0	0	1
Federal 24-Hour > 150 $\mu g/m^3$	0	0	0	0	0
Max. 24-Hour Conc. ($\mu g/m^3$)	80	64	47	41	57
Fine Particulates ($PM_{2.5}$)[3]					
Federal 24-Hour > 65[4] $\mu g/m^3$	0	0	4	1	0
Max. 24-Hour Conc. ($\mu g/m^3$)	58.5	50.6	49.4	35.3	46.9

Source: California Air Resources Board. Ambient Air Quality Monitoring Data. Obtained January 2007.
ppm: parts per million; $\mu g/m^3$, or micrograms per cubic meter
[1] Data obtained from the Costa Mesa Monitoring Station.
[2] The NO_X standard was amended on February 22, 2007, to lower the 1-hr standard to 0.18 ppm. This standard will not take effect until later in 2007.
[3] Data obtained from the Mission Viejo Monitoring Station.
[4] The USEPA recently revised the 24-hour $PM_{2.5}$standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$. However, this standard did not take affect until December 2006.

The data show occasional violations of both the state and federal ozone standards. The data also indicate that the area occasionally exceeds the state PM_{10} standard and federal $PM_{2.5}$ standard. Neither the CO nor NO_2 standard has been violated in the last five years at this station.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases.

Residential areas are also considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

5.2.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

AQ-1 Conflict with or obstruct implementation of the applicable air quality plan.

AQ-2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

AQ-3 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

AQ-4 Expose sensitive receptors to substantial pollutant concentrations.

AQ-5 Create objectionable odors affecting a substantial number of people.

The Initial Study, included as Appendix A, substantiates that impacts associated with the following threshold would be less than significant: AQ-5.

This impact will not be addressed in the following analysis.

South Coast Air Quality Management District Thresholds

Regional Significance Thresholds

CEQA allows for the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. The SCAQMD has established thresholds of significance for air quality for construction activities and project operation, as shown in Table 5.2-5.

Table 5.2-5
SCAQMD Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROG)	75 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Nitrogen Oxides (NO_X)	100 lbs/day	55 lbs/day
Sulfur Oxides (SO_X)	150 lbs/day	150 lbs/day
Coarse Particulates (PM_{10})	150 lbs/day	150 lbs/day
Fine Particulates ($PM_{2.5}$)	55 lbs/day	55 lbs/day

CO Hotspots

In addition to the daily thresholds listed above, projects are also subject to the ambient air quality standards. These are addressed though an analysis of localized CO impacts. The California one-hour and eight-hour CO standards are:

- 1 hour = 20 parts per million
- 8 hour = 9 parts per million

The significance of localized project impacts depends on whether ambient CO levels in the vicinity of the project are above or below state and federal CO standards. If ambient levels are below the standards, a project is considered to have significant impacts if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a state or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. The SCAQMD defines a measurable amount as 1.0 ppm or more for the one-hour CO concentration or 0.45 ppm or more for the eight-hour CO concentration.

Localized Significance Thresholds

The SCAQMD developed Localized Significance Thresholds (LSTs) for emissions of NO_2, CO, PM_{10} and $PM_{2.5}$ generated at the project site (off-site mobile-source emissions are not included the LST analysis). LSTs represent the maximum emissions at a project site that are not expected to cause or contribute to an exceedance of the most stringent federal or state AAQS. LSTs are based on the ambient concentrations of that pollutant within the project SRA area and the distance to the nearest sensitive receptor. LST analysis for construction is applicable for all projects of five acres and less; however, it can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required. The construction LSTs for a five-acre project site within SRA 20 for sensitive receptors located 200 feet (61 meters) from the project site are shown in Table 5.2-6. If emissions exceed the LST for a five-acre site, then dispersion modeling needs to be conducted. Use of a five-acre site model for the project site would result in more stringent LST because emissions would occur in a more concentrated area closer to the nearest sensitive receptors than would occur in reality, due to the project site being much larger than five acres. Projects larger than five acres can determine the localized significance for construction by performing dispersion modeling for emissions that exceed the localized air quality standards shown in Table 5.2-7.

Table 5.2-6
Localized Significance Thresholds for SRA 20 for a 5-Acre Site at 61 Meters

Air Pollutant	Threshold (lbs/day)	
	Construction	Operation
Carbon Monoxide (CO)	1,293	1,293
Nitrogen Oxides (NO_2)	339	339
Coarse Particulates (PM_{10})	58	14
Fine Particulates ($PM_{2.5}$)	13	14

Source: SCAQMD, *Localized Significance Methodology*, June 2003, for a 5-acre site at 61 meters and Appendix B $PM_{2.5}$ Localized Significance Threshold Look-up Tables

Table 5.2-7
SCAQMD Localized Significance Thresholds for Project Sites Greater than Five Acres

Air Pollutant	Concentration
1-hour CO Standard (CAAQS)	20 ppm
8-hour CO Standard (CAAQS)	9.0 ppm
1-hour NO_2 Standard (CAAQS)	0.18 ppm
24-Hour PM_{10}Construction Standard (SCAQMD)	10.4 $\mu g/m^3$
24-Hour PM_{10}Operational Standard (SCAQMD)	2.5 $\mu g/m^3$
24-Hour $PM_{2.5}$ Construction Standard (SCAQMD)	10.4 $\mu g/m^3$
24-Hour $PM_{2.5}$ Operational Standard (SCAQMD)	2.5 $\mu g/m^3$

ppm is parts per million; $\mu g/m^3$ is micrograms per cubic meter

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

5.2.3 Environmental Impacts

The following impact analyses address thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

IMPACT 5.2-1: THE PROPOSED PROJECT IS CONSISTENT WITH THE APPLICABLE AIR QUALITY MANAGEMENT PLAN. [THRESHOLD AQ-1]

Impact Analysis: CEQA requires that projects be consistent with the AQMP. A consistency determination plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision makers of the environmental efforts of the project under consideration at an early enough stage to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to clean air goals contained in the AQMP. Only new or amended General Plan elements, Specific Plans, and major projects need to undergo a consistency review. This is because the AQMP strategy is based on projections from local General Plans. Projects that are consistent with the local General Plan are considered consistent with the air-quality-related Regional Plan.

The key to determining consistency with the AQMP is to evaluate the project's consistency with the applicable General Plan. As described in more detail in Section 5.8, *Land Use and Planning,* of this DEIR, the proposed project would be consistent with the City's General Plan. The land use designation for the site specifically entitles the hotel to expand to 479 rooms as proposed by the project. Ancillary uses, such as the new 800-seat ballroom, are considered to be included in this existing entitlement. In addition, the proposed hotel uses would not exceed the SCAQMD operational emission thresholds (as analyzed under Impact 5.2-4). The SCAQMD does not consider projects that result in emissions below the daily operational phase thresholds to be a substantial source of air pollutant emissions. Consequently, it would not significantly interfere with the goals of the AQMP. Because the proposed project is consistent with the City's General Plan and would not result in substantial quantities of air pollution, the project would therefore be considered consistent with the AQMP.

IMPACT 5.2-2: THE PROPOSED PROJECT IS NOT A REGIONALLY SIGNIFICANT PROJECT THAT COULD POTENTIALLY CUMULATIVELY CONTRIBUTE TO CLIMATE CHANGE IMPACTS IN CALIFORNIA. [THRESHOLD AQ-1]

Impact Analysis: Pursuant to Senate Bill 97 (Chapter 185, 2007), the OPR is currently in the process of developing CEQA guidelines on how to address global warming emissions and mitigation of project-specific GHG. OPR is required to prepare, develop, and transmit the guidelines on or before July 1, 2009. However, interim guidelines on how to compare the magnitude of project-related CO_2 emissions and their contribution to global climate change have yet to be established by either of these agencies. In the short term, the SCAQMD recommends that GHG emissions from the project be quantified for regionally significant projects.

Although the proposed project is not considered a regionally significant project, the proposed project would contribute to global warming through direct emissions of GHG and indirectly through removal of existing vegetation and replacement of the surface area with paved parking lots, sidewalks, and structures. Project-related CO_2 emissions from operation and construction activities were calculated by URBEMIS2007 with the exception of CO_{2e} emissions from off-site energy use from on-site energy production, which were calculated based on average energy demand for commercial lodgings and GHG emission rates by region from the United States Department of Energy (USDOE). CO_2 emissions associated with the project are shown in Table 5.2-8.

Table 5.2-8
Project-Generated CO_2 Emissions

Source	CO_2 Emissions	
	Tons/Year	As a Percentage of 1990 State Emissions
Operational Emissions	2,056	0.0005%
1990 California State CO2-Equivalent GHG Emissions[1]	452,300,000 tons	

Source: URBEMIS2007, Version 9.2.2, 2003 USDOE, Energy Information Administration's *2003 Commercial Buildings Energy Consumption Survey*, and *Updated State-and Regional-level Greenhouse Gas Emission Factors for Electricity*.
[1] CEC 2005. Based on 1997 CEC emissions inventory of GHG emissions for the State of California for 1990 of 452.3 million short tons of CO_{2e} (410.3 million metric tons of CO_{2e}) of in state emissions.

While California alone cannot stabilize the climate, the state's actions set an example and drive global progress toward reduction of GHG. If the industrialized world were to follow the emission reduction targets established by California, and industrializing nations reduced emissions according to the lower emissions path (lower emissions IPPC scenario B1), medium or higher warming ranges of global temperature increases may be avoided and thus the most severe consequences of global warming would also be avoided. Currently, CARB has until January 1, 2009, to adopt a plan that establishes how California will meet the Year 1990 GHG emissions target. As this plan has not been drafted, it is unclear if the project would be consistent with the emissions reductions required within the proposed plan. However, CARB has recently adopted, as of June 2007, the Early Action Plan under AB 32 to identify early action measures to reduce GHG emissions within the state.

As described previously, it is speculative to determine how project-related GHG emissions would contribute to global climate change and how global climate change may impact California. Furthermore, it is unclear what percentage of project-generated CO_2 emissions are existing emissions within the state. As described in Section 5.8, *Land Use and Planning,* the land use designation for the site entitles the hotel to expand to 479 rooms, as proposed by the project. Ancillary uses, such as the new 800-seat ballroom, are considered to be included in this existing entitlement. In the absence of adopted thresholds, and because the proposed project is not considered a regionally significant project by SCAG and criteria pollutant emissions shown in Impact 5.2-3 and Impact 5.2-4 would not exceed the SCAQMD thresholds, project-related CO_2 emissions and their contribution to global climate change impacts in the State of California are considered less than cumulatively considerable.

IMPACT 5.2-3: CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROPOSED PROJECT WOULD NOT GENERATE SHORT-TERM EMISSIONS IN EXCEEDANCE OF SCAQMD'S THRESHOLD CRITERIA. [THRESHOLDS AQ-2 AND AQ-3]

Impact Analysis: Construction activities produce combustion emissions from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, vehicles hauling materials to and from the site, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions from construction activities envisioned on-site would vary daily as construction activity levels change.

Construction activities associated with new development occurring in the project area would temporarily increase localized PM_{10}, ROG, NO_X, SO_X, and CO concentrations in the project vicinity. The primary source of construction-related ROC and NO_X emissions is gasoline- and diesel-powered heavy-duty mobile construction equipment. Primary sources of PM_{10} emissions would be clearing and demolition activities, excavation and grading operations, construction vehicle traffic on unpaved ground, and wind blowing over exposed earth surfaces.

Emissions generated from project-related construction activities would be anticipated to cause temporary increases in pollutant concentrations that could contribute to violations of federal and state maximum concentration standards. The frequency and concentration of such violations would depend on several factors, including soil composition on-site, the amount of soil disturbed, wind speed, the number and types of machinery used, the construction schedule, and the proximity of other construction and demolition projects. A list of construction equipment provided by the project engineer can be found in Table 3-4, *Construction Equipment Mix*, in Chapter 3, *Project Description*, of this DEIR. The included analysis is based on the URBEMIS2007 computer model. The results of the URBEMIS2007 computer modeling are included in Table 5.2-9. The URBEMIS2007 model runs are included in Appendix C. As shown this table, construction emissions would not exceed SCAQMD standards. Consequently, no significant regional air quality construction-related impacts would occur.

Table 5.2-9
Project-Related Construction Phase Emissions
(in pounds per day)

Construction Phase[1]	CO	NO_X	ROG	SO_2	PM_{10}[2]	$PM_{2.5}$[2]	CO_2[3]
Demolition	23	42	5	<1	11	4	4,383
Site Grading	39	76	9	<1	17	7	7,701
Building Construction	46	65	22	<1	5	5	7,151
SCAQMD Standard	550	100	75	150	150	55	NA
Significant?	No	No	No	No	No	No	NA

Source: URBEMIS2007 Version 9.2.2.
[1] Construction equipment mix based on preliminary construction information from the project engineer.
[2] Fugitive dust emissions assume one-quarter of the approximately 14 acres site would be graded at any one time. Fugitive dust emissions assume implementation of SCAQMD Rule 403 for fugitive dust control, including: watering disturbed soils a minimum of two times daily, reestablishing disturbed groundcover as quickly as possible, reducing speeds on unpaved roads to no more than 15 miles per hour, and securing haul loads (covering with tarp or leaving a minimum of 24 inches of freeboard).
[3] CO_2emissions are provided for informational purposes only. The SCAQMD or CARB have yet to establish regional emissions thresholds for this air pollutant.

IMPACT 5.2-4: LONG-TERM OPERATION OF THE PROJECT WOULD NOT GENERATE ADDITIONAL VEHICLE TRIPS AND ASSOCIATED EMISSIONS IN EXCEEDANCE OF SCAQMD'S THRESHOLD CRITERIA. [THRESHOLDS AQ-2 AND AQ-3]

Impact Analysis: Long-term air emission impacts are those associated with changes in stationary and mobile sources related to the proposed project. Based on the traffic study dated January 3, 2008, which was prepared for this project by IBI Group (see Appendix L of this DEIR), the proposed project would generate 661 average daily trips (ADT). Using the default emission factors included in URBEMIS2007, emissions associated with project-related vehicular trips were calculated and are included in Table 5.2-10. As shown, project-related emissions would not exceed the SCAQMD daily emissions for all the analyzed pollutants. Therefore, the proposed project's impact to air quality is considered less than significant.

Table 5.2-10
Project-Related Operational Phase Emissions
(in pounds per day)

Summer	CO	NO_X	ROG	SO_2	PM_{10}	$PM_{2.5}$	CO_2[1]
Stationary Sources	4	1	5	0	<1	<1	1,250
Mobile Sources	57	6	5	<1	12	2	6,824
CO_{2e} Emissions from Energy Use	–	–	–	–	–	–	3,361
Total	61	7	9	<1	12	2	11,435
SCAQMD Standard	550	55	55	150	150	55	NA
Significant?	No	No	No	No	No	No	NA
Winter	**CO**	**NO_X**	**ROG**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2[1]**
Stationary Sources	34	2	16	<1	5	5	2,463
Mobile Sources	54	7	5	<1	12	2	6,165
CO_{2e} Emissions from Energy Use	–	–	–	–	–	–	3,361
Total	88	9	21	<1	17	7	11,949
SCAQMD Standard	550	55	55	150	150	55	NA
Significant?	No	No	No	No	No	No	NA

Source: URBEMIS2007, Version 9.2.2, 2003 USDOE, Energy Information Administration's *2003 Commercial Buildings Energy Consumption Survey*, and *Updated State-and Regional-level Greenhouse Gas Emission Factors for Electricity*.

[1] CO_2 emissions are provided for informational purposes only. The SCAQMD or CARB have yet to establish regional emissions thresholds for this pollutant.

IMPACT 5.2-5: THE PROPOSED PROJECT WOULD NOT EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS. [THRESHOLD AQ-4]

Impact Analysis: The proposed project has the potential to expose sensitive receptors to elevated pollutant concentrations if it would cause or contribute significantly to elevated pollutant concentration levels or place the project in an area with elevated pollutant concentrations. Unlike the mass of emissions shown in Table 5.2-5 (described in pounds per day), localized concentrations refer to an amount of pollutant in a volume of air (ppm or $\mu g/m^3$) and can be correlated to potential health effects.

CO Hotspot Analysis

An impact is also potentially significant if emission levels exceed the state or federal AAQS, thereby exposing receptors to substantial pollutant concentrations. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations.

Areas of vehicle congestion have the potential to create pockets of CO called "hot spots." These pockets have the potential to exceed the state 1-hour standard of 20 ppm or the 8-hour standard of 9 ppm. Note that the federal levels are based on one- and eight-hour standards of 35 and 9 ppm, respectively. Thus, an exceedance condition will occur based on the state standards prior to exceedance of the federal standard.

Because traffic congestion is highest at intersections, these hot spots are usually produced at intersection locations. Typically, for an intersection to exhibit a significant CO concentration, it would operate at level of service (LOS) D or worse. The following intersections are projected to operate at LOS D or worse upon opening year:

- Coast Highway and Dover Drive
- Coast Highway and Jamboree Road
- Coast Highway and MacArthur Boulevard
- Jamboree Road and San Joaquin Hills Road

Intersections that are most conducive to the formation of CO hot spots were modeled. Tables 5.2-11 and 5.2-12 list the one-hour and eight-hour project-related CO concentrations, respectively, that would occur at the study area intersections, with the proposed project, at opening year plus cumulative growth (2012) conditions for all intersections that would operate under an LOS D or worse. Based on the CALINE4 analyses, project-related traffic is not anticipated to exceed any of the state one-hour or eight-hour CO AAQS at the study area intersections. Consequently, sensitive receptors in the area would not be significantly adversely affected by CO emissions generated by operation of the proposed project. Localized air quality impacts related to mobile source emissions would therefore be less than significant for the proposed project.

Table 5.2-11
One-Hour Carbon Monoxide Dispersion Analysis
(in parts per million)

Receptor	Intersection Concentration With Project	SCAQMD Threshold	Exceeds Threshold?
Coast Highway and Dover Drive (PM Peak Hour)			
NE	7.2	20	No
SE	7.3	20	No
SW	6.7	20	No
NW	7.4	20	No
Coast Highway and Jamboree Road (PM Peak Hour)			
NE	7.2	20	No
SE	6.9	20	No
SW	7.1	20	No
NW	7.0	20	No
Coast Highway and MacArthur Boulevard (PM Peak Hour)			
NE	7.1	20	No
SE	7.3	20	No
SW	6.8	20	No
NW	6.8	20	No
Jamboree Road and San Joaquin Hills Road (PM Peak Hour)			
NE	6.3	20	No
SE	6.5	20	No
SW	6.3	20	No
NW	6.4	20	No

Based on the Caltrans' traffic emission dispersion model CALINE4, November 2007.

Table 5.2-12
Eight-Hour Carbon Monoxide Dispersion Analysis
(in parts per million)

Receptor	Intersection Concentration With Project	SCAQMD Threshold	Exceeds Threshold?
Coast Highway and Dover Drive (PM Peak Hour)			
NE	5.0	9	No
SE	5.1	9	No
SW	4.7	9	No
NW	5.2	9	No
Coast Highway and Jamboree Road (PM Peak Hour)			
NE	5.0	9	No
SE	4.8	9	No
SW	5.0	9	No
NW	4.9	9	No
Coast Highway and MacArthur Boulevard (PM Peak Hour)			
NE	5.0	9	No
SE	5.1	9	No
SW	4.8	9	No
NW	4.8	9	No
Jamboree Road and San Joaquin Hills Road (PM Peak Hour)			
NE	4.4	9	No
SE	4.6	9	No
SW	4.4	9	No
NW	4.5	9	No

Eight-hour CO concentrations were obtained by multiplying the one-hour CO concentrations by a persistence factor of 0.7, in accordance with SCAQMD methodology.
Based on the Caltrans' traffic emission dispersion model CALINE4, November 2007.

Operational LSTs

To estimate concentrations of air pollutants generated from operation of the project at nearby existing and proposed sensitive receptors, the project's maximum daily emissions were compared to the operational LSTs. In accordance with SCAQMD methodology, only on-site stationary sources and mobile equipment are included in the analysis. Project-related vehicles traveling off-site are not included in the analysis. To account for on-site vehicle travel within the parking lots, it is assumed that each vehicle would travel approximately a half of a mile on-site (round trip). Table 5.2-13 shows maximum daily operational emissions generated by the project compared to the air pollutant threshold (LST).

Table 5.2-13
Maximum Daily Operational Emissions Compared with the LST

Source[1]	Pollutants (lbs/day)			
	CO	NO_X	PM_{10}	$PM_{2.5}$
Stationary Source	34	2	5	5
Mobile Source	3	<1	1	<1
Total Onsite Operational Emissions	37	2	6	5
SCAQMD LST Threshold for SRA 20	1,293	339	14	14
Exceeds Threshold	No	No	No	No

Source: URBEMIS2007 Version 9.2.2.

Thresholds for dispersion modeling are based on the CAAQS, which represent the most stringent AAQS that has been established to provide a margin of safety in the protection of the public health and welfare. They are designed to protect those sensitive receptors most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. As shown in this table, project emissions would not exceed LSTs for CO, NO_2, PM_{10} and $PM_{2.5}$. Because the project's operational emissions would not exceed the LSTs for a 5-acre site, air pollutant concentrations from project-related operational activities would not exceed the California or federal AAQS and no significant air quality impact would occur from exposure of persons to substantial air pollutant concentrations.

Construction LSTs

LSTs were developed by the SCAQMD to identify whether or not a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that would cause or contribute to an exceedance of the most stringent applicable federal or state AAQS and were developed based on the ambient concentrations of that pollutant for each SRA. LSTs are applicable only to the following pollutants: NO_2, CO, PM_{10}, and $PM_{2.5}$. Because pollutants emitted during construction greatly depend on the proximity of the source to the receptor, LSTs are based on the location of the emission source relative to the sensitive receptors as well as the quantity of emission.

Table 5.2-14 shows construction emission rates and LSTs for SRA 20 based on a distance of 61 meters from the nearest receptor. The nearest sensitive receptors are the residential uses along Sea Cove Lane. As shown in this table, project emissions would not exceed LSTs for CO, NO_2, PM_{10}, and $PM_{2.5}$ for a five-acre site. Because the project's construction emissions would not exceed the stringent LST for a five-acre site, no air pollutant concentrations from project related construction activities would exceed the California or federal AAQS and no significant air quality impact would occur from exposure of persons to substantial air pollutant concentrations.

Table 5.2-14
Maximum Daily Construction Emissions Compared with the LST

Source[1]	Pollutants (lbs/day)			
	CO	NO_X	PM_{10}	$PM_{2.5}$
Demolition	23	42	11	4
Site Grading[2]	39	76	17	7
Building Construction	46	65	5	5
SCAQMD LST Threshold for SRA 20	1,293	339	58	13
Exceeds Threshold	No	No	No	No

Source: URBEMIS2007 Version 9.2.2. and the SCAQMD's Localized Significance Threshold Methodology.
[1] Construction equipment mix based on preliminary construction information from the project engineer.
[2] Fugitive dust emissions assume one-quarter of the approximately 14-acre site would be graded at any one time. Fugitive dust emissions assume implementation of SCAQMD Rule 403 for fugitive dust control, including: watering disturbed soils a minimum of two times daily, reestablishing disturbed groundcover as quickly as possible, reducing speeds on unpaved roads to no more than 15 miles per hour, and securing haul loads (covering with tarp or leaving a minimum of 24 inches of freeboard).

5.2.4 *Cumulative Impacts*

In accordance with the SCAQMD methodology, any project that produces a significant air quality impact in an area that is out of attainment adds to the cumulative impact. Cumulative projects within the local area include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well outside the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and, when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the project's air quality must be generic by nature.

Construction

The SoCAB is in a state of nonattainment for O_3, $PM_{10,}$ and $PM_{2.5}$. Construction of cumulative projects will further degrade the local air quality, as well as the air quality of the SoCAB. Air quality would be temporarily degraded during construction activities that occur separately or simultaneously. URBMEIS modeling demonstrates that construction emissions would not exceed the SCAQMD significance thresholds. Therefore, the proposed project does not add significantly to any cumulative impact for O_3 or PM_{10} and $PM_{2.5}$. Consequently, construction of the proposed project would not result in any significant impacts that would result in cumulative increases in criteria pollutants for which the SoCAB is in nonattainment.

Operation

Any project that does not exceed or can be mitigated to less than the daily threshold values is not considered by the SCAQMD to be a substantial source of air pollution and does not add significantly to a cumulative impact. URBEMIS modeling demonstrates that operation of the proposed project would not result in emissions in excess of the SCAQMD thresholds for long-term operation, and therefore, the proposed project does not add significantly to any cumulative impact for O_3 or PM_{10} and $PM_{2.5}$. Operation of the proposed project would not result in any significant impacts that would result in cumulative increases in criteria pollutants for which the SoCAB is in nonattainment.

Global Warming

As described under Impact 5.2-2, project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Consequently, it is speculative to determine how project-related GHG emissions would contribute to global climate change and how global climate change may impact California. Therefore, impacts identified under Impact 5.2-2 are not project-specific impacts to global warming but the project's contribution to this cumulative impact. As stated previously, because the proposed project is not considered a regionally significant project by SCAG and long-term project-related emissions of criteria pollutants would not exceed the SCAQMD's thresholds (see Impact 5.2-3 and 5.2-4), project-related CO_2 emissions and their contribution to global climate change impacts in the State of California are considered less than cumulatively considerable and therefore less than significant.

5.2.5 *Existing Regulations*

Future development projects within the project area shall comply with Title 24 of the California Code of Regulations established by the Energy Commission regarding energy conservation standards.

SCAQMD Rules and Regulations

The City of Newport Beach is located in the SoCAB and is subject to the rules and regulations imposed by the SCAQMD. All emissions within the City of Newport Beach are governed by the CAAQS as well as the NAAQS.

New pollution sources within the City of Newport Beach would be subject to a new source review by the SCAQMD. Any equipment that emits or controls air contaminants (such as NO_X or ROGs) requires a permit from SCAQMD prior to construction, installation, or operation unless it is specifically exempted from the permit requirement by SCAQMD Rule 219, Equipment Not Requiring a Written Permit. A list of SCAQMD rules and regulations applicable to the proposed project can be found in Appendix C.

SCAQMD Rule 402

SCAQMD Rule 402 states, "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public or which cause, or have a natural tendency to cause, injury or damage to business or property."

SCAQMD Rule 403

SCAQMD Rule 403 does not require a permit for construction activities, per se, but rather sets forth general and specific requirements for all construction sites (as well as other fugitive dust sources) in the SoCAB. The general requirement prohibits a person from causing or allowing emissions of fugitive dust from construction or other sources such that (1) the presence of such dust remains visible in the atmosphere beyond the property line of the emissions source or, (2) dust emissions exceed 20 percent opacity (as determined by the appropriate test method included in the Rule 403 Implementation Handbook) if the dust emission is the result of movement of a motorized vehicle. No person shall conduct active operations without utilizing the applicable best available control measures (BAC) to minimize fugitive dust emissions from each fugitive dust source within the active operation.

SCAQMD Rule 403 also prohibits a construction site from causing an incremental PM_{10} concentration impact at the property line of more than 50 micrograms per cubic meter as determined through PM_{10} high-volume sampling, but the concentration standard and associated PM_{10} sampling do not apply if specific measures identified in the rule are implemented and appropriately documented.

5.2.6 Level of Significance Before Mitigation

Upon implementation of project design features and regulatory requirements, the following impacts would be less than significant: 5.2-1, 5.2-2, 5.2-3, 5.2-4, and 5.2-5.

5.2.7 Mitigation Measures

No significant impacts were identified and no mitigation measures are necessary

5.2.8 Level of Significance After Mitigation

No significant impacts were identified. With adherence to existing regulations, air quality impacts of the project would be less than significant.