3.6 AIR QUALITY

This section summarizes information provided in the *Air Quality Assessment for Wyndham Hotel Residential Project* (2007a) prepared by Mestre Greve Associates, which is included in Appendix F of this EIR.

3.6.1 EXISTING CONDITIONS

Climate and Meteorological Conditions

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. It maintains moderate temperatures and comfortable humidity and limits precipitation to a few storms during the winter "wet" season. Temperatures are normally mild except during the summer months, which commonly bring substantially higher temperatures. In all portions of the South Coast Air Basin (air basin), temperatures well above 100 degrees Fahrenheit (°F) have been recorded in recent years. The annual average temperature in the air basin is approximately 62°F.

Wind significantly affects air pollution. Wind direction and speed influence the horizontal dispersion and transport of air pollutants. Southern California frequently has temperature inversions which inhibit the dispersion of pollutants. These conditions are further discussed in Appendix F.

Effects of Pollutants on Health

It is generally recognized that the presence of elevated concentrations of certain air pollutants (either directly or in reaction to other pollutants) can cause both damage to the environment and health problems in people. Such pollutants have been identified and regulated as part of the overall effort to prevent further deterioration and to facilitate improvement in air quality.

The following pollutants are regulated by the U.S. Environmental Protection Agency (USEPA) and are therefore subject to emissions reduction measures adopted by federal, State, and other regulatory agencies.

Ozone (O_3): Ozone is a secondary pollutant formed by the chemical reaction of volatile organic compounds and nitrogen oxides (NOx) under favorable meteorological conditions (such as high temperature and stagnation episodes). An elevated level of ozone irritates the lungs and breathing passages, causing coughing and pain in the chest and throat, and thereby increasing susceptibility to respiratory infections and reducing the ability to exercise. Effects are more severe in people with asthma and other respiratory ailments. Long-term exposure may lead to lung tissue scarring and may lower lung efficiency.

Carbon Monoxide (CO): Carbon monoxide is primarily emitted from combustion processes and motor vehicles because of incomplete fuel combustion. Elevated concentrations of CO weaken the heart's contractions and lower the amount of oxygen carried by the blood. It is especially dangerous for people with chronic heart disease. Inhalation of moderate levels of carbon monoxide can cause nausea, dizziness and headaches, and can be fatal at high concentrations.

Particulate Matter (PM10 and PM2.5): The human body naturally prevents the entry of large airborne particles into the body. However, small particles, with an aerodynamic diameter equal to or less than 10 microns (PM10) and even smaller particles with an aerodynamic diameter equal to or less than 2.5 microns (PM2.5) can get trapped in the nose, throat, and upper

respiratory tract. These small particulates enter the body and could potentially aggravate existing heart and lung diseases, change the body's defenses against inhaled materials, and damage lung tissue. The elderly, children, and those with chronic lung or heart disease are most sensitive to PM10 and PM2.5. Lung impairment can persist for two to three weeks after exposure to high levels of particulate matter. Some types of particulate matter could become toxic after inhalation due to the presence of certain chemicals and their reaction with internal bodily fluids.

Nitrogen Oxides (NOx): Major sources of NOx include power plants, large industrial facilities, and motor vehicles. Nitrogen oxides are emitted from combustion processes and irritate the nose and throat. They increase susceptibility to respiratory infections, especially in people with asthma. NOx is a precursor to the formation of ozone (O_3), which is why it is of principal concern.

Sulfur Dioxide (SO_2): Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of sulfur dioxide aggravate lung diseases, especially bronchitis. It also constricts the breathing passages, especially in asthmatics and people involved in moderate-to-heavy exercise. Sulfur dioxide potentially causes wheezing, shortness of breath, and coughing. High levels of particulate matter appear to worsen the effect of sulfur dioxide, and long-term exposures to both pollutants lead to higher rates of respiratory illness.

Lead (Pb): Lead is emitted from industrial facilities and from the sanding or removal of old lead-based paint. Smelting or processing metal is the primary source of lead emissions, which is primarily a regional pollutant. Lead affects the brain and other parts of the body's nervous system. Exposure to lead in very young children impairs development of the nervous system, kidneys, and blood-forming processes in the body.

Volatile Organic Compounds (VOCs): Although VOCs are not directly a health hazard and are not considered a criteria pollutant, they react with NOx in the presence of sunlight to produce ozone. As such, VOC emissions are regulated as a precursor of ozone. Some State and local agencies regulate VOCs as Reactive Organic Gases (ROGs), which possess similar characteristics as VOCs.

Air Quality Management Framework

As previously noted, the project site is located in the South Coast Air Basin (air basin or SCAB), which is within the jurisdiction of the South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB). The SCAQMD adopts and enforces regulations for stationary sources in the air basin and, together with the Southern California Association of Governments (SCAG), local governments and the private sector, develops the air basin's Air Quality Management Plan (AQMP). The CARB establishes legal emissions rates for new vehicles to be operated in California and is responsible for the vehicle inspection program. Other important agencies that help manage the air basin's air quality include the USEPA and SCAG. The USEPA implements the provisions of the federal Clean Air Act (CAA), which establishes ambient air quality standards that are applicable nationwide. In areas that are not achieving these standards, the CAA requires that plans be developed and implemented to meet the standards. The USEPA oversees the efforts in the air basin and ensures that appropriate plans are being developed and implemented. The SCAQMD is the primary agency responsible for writing the AQMP (with SCAG's collaboration) in preparing the transportation control measure component of the AQMP.

The SCAQMD and SCAG, in coordination with local governments and the private sector, have developed the AQMP for the air basin. The AQMP is the most important air quality management document for the SCAB because it provides the blueprint for meeting State and federal ambient air quality standards.[1] The 2003 AQMP was adopted locally on August 1, 2003, by the governing board of the SCAQMD. The CARB adopted the AQMP as part of the California State Implementation Plan on October 23, 2003. The 2003 AQMP was adopted by the USEPA on April 9, 2004. State law mandates the revision of the AQMP at least every three years, and federal law specifies certain dates for developing attainment plans for criteria pollutants. The 2007 AQMP is currently under development.

Federal law specifies dates for attaining criteria pollutant standards and preparing plans to meet them. Under federal law, the USEPA has designated the SCAB as a non-attainment area for O_3, CO, PM10, and PM2.5. The air basin has met the federal NO_2 standards for three years in a row and is therefore qualified for redesignation to "attainment." An NO_2 maintenance plan is included in the 2003 AQMP. Under California law, the CAA mandates the implementation of a program that would achieve the California Ambient Air Quality Standards (CAAQS), and the CAA mandates the implementation of new air quality performance standards. 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.

Monitored Air Quality

Air quality at any site is dependent upon 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 air basin have been made for existing emissions ("2003 Air Quality Management Plan," 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.

The SCAQMD has divided the air basin into 38 air monitoring areas with a designated ambient air monitoring station representative of each area. The air quality monitoring station designated for this area is the Costa Mesa Station. This is the nearest air quality monitoring station to the project site. The Costa Mesa Station is located near Mesa Verde Drive west of Harbor Boulevard, approximately four miles southwest of the project site. The air pollutants measured at the Costa Mesa station include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). Particulate (PM10) concentrations are not measured at the Costa Mesa station. The nearest station where PM10 is monitored is the Mission Viejo station. Monitored concentrations of these pollutants for the years 2004 to 2006 at the monitoring stations are shown in Table 3.6-1. The monitoring data were obtained from the CARB air quality data website (CARB 2007). The monitoring data show that ozone and particulate matter (PM10 and PM2.5) are the air pollutants of primary concern in the project area.

[1] State and federal air quality standards are set forth in the California Clean Air Act (CCAA) and the 1990 amendments to the federal Clean Air Act (CAA), respectively.

TABLE 3.6-1
AIR QUALITY LEVELS[a]

Pollutant	California Standard	National Standard	Year	Percent Measured[b]	Max. Level	Days State Standard Exceeded[c]	Days National Standard Exceeded[c]
Ozone							
1 Hour Average[d]	0.09 ppm[e]	0.12 ppm	2006	100	0.074	0	0
			2004	92	0.085	0	0
			2004	98	0.104	2	0
8 Hour Average[f]	0.07 ppm	0.08 ppm	2006	100	0.062	0	0
			2005	92	0.072	—	0
			2004	98	0.087	—	1
CO							
1 Hour Average	20 ppm	35 ppm	2006	98	3.5	0	0
			2005	96	4.1	0	0
			2004	97	4.9	0	0
8 Hour Average	9.0 ppm	9 ppm	2006	98	3.0	0	0
			2005	96	3.2	0	0
			2004	97	4.1	0	0
NO_2							
1 Hour Average	0.25 ppm	None	2006	98	0.101	0	N/A
			2005	86	0.085	0	N/A
			2004	97	0.097	0	N/A
AAM[g]	None	0.053 ppm	2006	97	0.015	N/A	No
			2005	98	0.014	N/A	No
			2004	98	0.016	N/A	No
SO_2							
24-Hour Average	0.04 ppm	0.14 ppm	2006	92	0.005	0	0
			2005	94	0.008	0	0
			2004	98	0.008	0	0
AAM	None	0.030 ppm	2006	92	0.001	N/A	No
			2005	94	0.001	N/A	No
			2004	98	0.002	N/A	No
Particulates[h]							
PM10: 24-Hour Average	50 µg/m^3	150 µg/m^3	2006	19	57	0/0	0
			2005	90	41	0/0	0
			2004	94	47	0/0	0
PM10**:** AAM	20 µg/m^3	none	2006	19	23	Yes	No
			2005	90	18	Yes	No
			2004	94	24	Yes	No

TABLE 3.6-1 (Cont.)
AIR QUALITY LEVELS[a]

Pollutant	California Standard	National Standard	Year	Percent Measured[b]	Max. Level	Days State Standard Exceeded[c]	Days National Standard Exceeded[c]
Fine Particulates							
PM2.5: 24-Hour Average	None	35 µg/m^3	2006	—	26.9	N/A	0
			2005	—	35.4	N/A	0
			2004	—	49.4	N/A	0
PM2.5: AAM	12 µg/m	15 µg/m	2006	—	—	—	—
			2005	—	10.6	No	No
			2004	—	12.0	No	No

a Measured at the Costa Mesa & Mission Viejo monitoring stations.
b Percent of the year when high pollutant levels were expected when measurements were made.
c For annual averaging times a "yes" or "no" response is given if the annual average concentration exceeded the applicable standard. For the PM10 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 is expected to be exceeded if measurements were taken every day.
d 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.
e Parts Per Million
f The State 8-hour standard became effective on May 17, 2006. Prior to this date, the State did not regulate 8-hour Ozone concentrations.
g Annual Arithmetic Mean
h On September 21, 2006, the USEPA announced that it was revoking the annual average PM10 standard and lowering the 24-hour PM2.5 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: Mestre Greve Associates, 2007.

Ozone

According to monitoring data, the State 1-hour ozone standard was exceeded 2 days in 2004, but not in 2005 or 2006 at the Costa Mesa and Mission Viejo monitoring stations. The federal 1-hour standard has not been exceeded in the last 3 years. The federal 8-hour standard was exceeded 1 day in 2004, but not in 2005 or 2006. The State 8-hour standard became effective on May 17, 2006. Prior to this date, the State did not have an 8-hour standard for ozone. The data show a downward trend in the maximum levels and number of days exceeding the State and federal ozone standards in the last three years.

Particulate Matter

According to monitoring data, the State and federal 24-hour concentration standards and the federal annual standard for PM10 have not been exceeded in the last 3 years at the Costa Mesa and Mission Viejo monitoring stations; however, the State PM10 annual standard has been exceeded for the last three years. There is not yet a sufficient data set from the monitoring stations to measure PM2.5 concentrations.

Local Air Quality

In accordance with CEQA Guidelines §15125(a), the project's environmental baseline (existing conditions) consists of the existing uses on a site at the time the NOP is published. Data from the traffic study prepared for the project by Austin-Foust Associates, Inc. (Appendix E) estimates that these existing uses generate 2,140 average daily vehicle trips. Based on the uses and trip length data in the SCAQMD *CEQA Air Quality Handbook*, the average trip length for the uses is 9.2 miles, resulting in the estimate that existing uses generate 19,888 daily vehicle miles traveled. Emissions from the existing uses for the year 2007 are presented in Table 3.6-2. The emissions were calculated using the methodology presented in the air quality technical report in Appendix F.

TABLE 3.6-2
EMISSIONS FROM EXISTING USES

Source	Pollutant Emissions (lbs/day)					
	CO	ROG	NOx	PM10	PM2.5	SOx
Vehicular Trips	47.7	5.6	26.1	1.0	0.9	0.0
Natural Gas Consumption	0.0	0.0	0.2	0.0	0.0	0.0
Consumer Product Usage	0.0	0.0	0.0	0.0	0.0	0.0
Total Existing Emissions	47.8	5.6	26.3	1.0	0.9	0.0
Source: Mestre Greve Associates, 2007.						

The project's traffic analysis and the CO concentrations recorded by the Costa Mesa Monitoring Station were used to model the existing CO concentrations in the vicinity of the project site using the CALINE4 computer model. CALINE4 is an air quality modeling program that was developed by the Caltrans to estimate the existing background CO concentrations and projected concentrations using traffic data and projections. CO is of concern in urban areas because it is the primary pollutant in vehicle emissions and can result in immediate health effects.

Existing CO concentrations were modeled using CALINE4 for three intersections in the vicinity of the project site. These intersections were Bristol Street at Sunflower Avenue, Bristol Street at Anton Boulevard, and Avenue of the Arts at Anton Boulevard. The results of the modeling effort for the existing condition are presented in Table 3.6-3. A detailed methodology for the modeling effort is provided in Appendix F.

TABLE 3.6-3
EXISTING CARBON MONOXIDE CONCENTRATIONS

Intersection	1-hour (ppm)	8-hour (ppm)
Bristol Street at Sunflower Avenue	9.7	7.9
Bristol Street at Anton Boulevard	10.0	8.0
Avenue of the Arts at Anton Boulevard	8.1	6.9
State Standards	**20**	**9**
Number of Exceedances	0	0
Source: Mestre Greve Associates, 2007.		

Related Planning Programs

Southern California Association of Governments: Regional Comprehensive Plan and Guide (RCPG)

The SCAG RCPG includes core and ancillary regional policies that apply to a specific project being evaluated. The RCPG contains two types of policies: core policies that pertain to SCAG's statutory mandates in the areas of transportation, air quality, housing, hazardous waste, and water quality; and ancillary policies that provide voluntary guidance on a broader range of topics including open space, energy, and water supply. Table 3.6-13 evaluates the consistency of the proposed project with relevant goals and policies related to air quality.

South Coast Air Quality Management District (SCAQMD), Air Quality Management Plan (AQMP)

The AQMP provides guidance for meeting State and federal ambient air quality standards. The 2003 AQMP was adopted by the governing board of the SCAQMD on August 1, 2003. The California Air Resources Board (CARB) adopted the AQMP as part of the California State Implementation Plan on October 23, 2003 and USEPA adopted the AQMP on April 9, 2004. The SCAQMD is currently in the process of preparing the 2007 AQMP.

Costa Mesa 2000 General Plan

The Conservation Element of the *Costa Mesa 2000 General Plan* includes goals and policies related to air quality that are applicable to the proposed project. These goals and policies are provided in Table 3.6-11 with a project consistency analysis.

3.6.2 THRESHOLDS OF SIGNIFICANCE

The criteria used to determine the significance of potential project-related air quality impacts are based on the City's Initial Study checklist form. Based on these thresholds, the project would result in a significant impact related to air quality if it would:

Threshold 3.6.1: Conflict with or obstruct the implementation of an applicable air quality plan.

Threshold 3.6.2: Violate any air quality standard or contribute to an existing or projected air quality violation.

Threshold 3.6.3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Threshold 3.6.4: Expose sensitive receptors to pollutant concentrations.

Threshold 3.6.5: Conflict with any applicable land use plan, policy, or regulation of any agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Regional Air Quality

The significance thresholds recommended by the SCAQMD in its *CEQA Air Quality Management Handbook* are presented in Table 3.6-4, SCAQMD Regional Pollutant Emission Thresholds of Significance. The SCAQMD considers construction and operational emissions are to be significant if they exceed these thresholds.

TABLE 3.6-4
SCAQMD REGIONAL POLLUTANT EMISSIONS THRESHOLDS OF SIGNIFICANCE

	Pollutant Emissions (lbs/day)					
	CO	**ROG**	**NOx**	**PM10**	**PM2.5**	**SOx**
Construction	550	75	100	150	55	150
Operation	550	55	55	150	55	150
Source: SCAQMD, 1993.						

Local Air Quality

To assess local air quality impacts, the SCAQMD developed a localized significance threshold (LST) methodology and mass rate look-up tables by source receptor area (SRA) to determine whether a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each SRA. The LST mass rate look-up tables are applicable only for NOx, CO, and PM. The project is located in SRA 18 and is 3 acres in size. The closest residential use is The Lakes at South Coast apartment community located approximately 40 feet north of the project's property boundary. Additional apartments associated with this complex are located approximately 175 feet northeast of the property boundary and beyond the complex's tennis courts. The LST thresholds for the proposed project are shown in Table 3.6-5 and the assumptions for calculating the LSTs are provided in Appendix F. A project with daily emissions rates below the thresholds during operation is considered to have a less than significant impact.

TABLE 3.6-5
SCAQMD LOCALIZED SIGNIFICANCE THRESHOLDS AT NEAREST RECEPTORS

Description	**Distance to Nearest Receptor (ft)**	**Localized Significance Thresholds (lbs/day)**			
		CO	**NOx**	**PM10**	**PM2.5**
Construction					
Nearest Residences to the North	40	964	340	14	9
Nearest Residences to the Northeast	175	1,284	330	48	11
Operation					
Nearest Residences to the North	40	964	340	4	2.3
Nearest Residences to the Northeast	175	1,284	330	12	3
Source: Mestre Greve Associates, 2007.					

3.6.3 ENVIRONMENTAL IMPACTS

Methodology

Short-term Construction Impacts

Short-term impacts to air quality are associated with construction activities. The grading of the project site, the construction of the buildings, and construction worker vehicle trips would create temporary emissions of dust, fumes, equipment exhaust, and other air contaminants throughout the project construction period. Pollutant emissions during the primary phases of construction were calculated using the methodology presented in SCAQMD's "Sample Construction Scenarios for Projects Less than Five Acres in Size" (SCAQMB 2005). The assumptions used for each construction phase are presented in Appendix F.

Long-Term Operational Emissions

The data used to estimate the on-site combustion of natural gas and off-site electrical usage are based on the proposed land uses in terms of square footages and emissions factors in the 1993 *CEQA Air Quality Handbook*. The new uses proposed by the project include 120 high-rise residential units and an associated parking structure for the hotel and residents.

Because the proposed project would introduce additional traffic to the roadways serving the project site, an analysis of CO concentrations at sensitive areas in the project vicinity was conducted. CO is the pollutant of major concern along roadways because its most notable source is motor vehicles. Worst-case CO concentrations with the project were forecasted with the CALINE4 computer model. The assumptions used and the results of the modeling effort are discussed in greater detail in Appendix F.

Emission factors from EMFAC2002 published by the SCAQMD were used to estimate vehicular emissions. EMFAC2002 is a computer program generated by the CARB that calculates emission rates for vehicles. The average trip length for the project was calculated to be 9.2 miles. The average daily trips generated by the project were taken from the traffic study prepared by Austin-Foust Associates (April 2007). The proposed project is projected to generate 771 new daily trips, which equates to 7,093 new daily vehicle miles traveled.

PM2.5 emissions were calculated using the methodology presented in SCAQMD's *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds* (SCAQMD 2006).

Impact Analysis

A project's air quality impacts are separated into short-term impacts from construction and long-term permanent impacts from project operations. Short-term construction impacts are considered in separate phases for demolition, site grading and excavation, project construction, and paving/architectural coating. Long-term operational impacts take into account the air quality impacts of the long-term emissions generated by the land uses proposed on the project site, including traffic and utility use.

Short-term, Construction-related Emissions

Temporary air quality impacts would result from project construction activities. Air pollutants would be emitted by construction equipment and construction worker vehicles, and fugitive dust would be generated during construction of the existing facilities and grading of the site. The

assumptions and methodology used for assessing construction-related air quality impacts is described above and in the air quality assessment in Appendix F. The timing and phasing of construction activities is presented in Section 2.0, Project Description.

Demolition: The proposed project involves the renovation of the existing Wyndham Hotel; the demolition of the existing hotel parking structure; and the construction of a 22-story high-rise residential tower. Internal to the hotel, renovation includes a reduction in hotel rooms from 238 to 200 rooms; relocation of the hotel entrance and restaurant, renovation of the lobby and hotel rooms, and the addition of a spa facility within the hotel. The existing 3-level parking structure to be demolished has a grade level footprint of approximately 21,000 sf. Approximately 417,600 cubic feet (2,320 cy) of demolition debris material would be hauled off the site. At a rate of 100 trucks per day, the demolition debris would be removed in about 1.7 days. It is assumed the heavy equipment required to perform the demolition would include a concrete saw, a backhoe with hoe ram, a front loader, a dozer, and a water truck. Additionally, 10 worker vehicles traveling 20 miles round-trip each day were assumed. The peak construction emissions for the project were calculated and are presented in Table 3.6-6.

TABLE 3.6-6
AIR POLLUTANT EMISSIONS DURING DEMOLITION

Activity	Pollutant Emissions (lbs/day)					
	CO	**VOC**	**NOx**	**PM10**	**PM2.5**	**SOx**
On-Road Vehicles	29.18	7.18	88.33	4.28	3.77	0.08
Demolition Activities	19.40	5.00	39.20	4.10	2.30	0.00
Total Emissions	49	12	**127**	8	6	0
SCAQMD Thresholds	**550**	**75**	**100**	**150**	**55**	**150**
Exceedance?	No	No	**Yes**	No	No	No
Source: Mestre Greve Associates, 2007.						

The data presented in Table 3.2-6 show that the NOx emissions associated with the demolition of the project are projected to be above the significance thresholds established by the SCAQMD in the *CEQA Air Quality Handbook.* The primary source of NOx emissions would be from heavy trucks hauling debris off the site.

Grading and Construction: Approximately 7,500 cy of grading and excavation would be required for the proposed project. The heavy equipment required to perform project grading include one loader, one dozer, and one water truck. For this project, concrete mixer may be required and is assumed in the calculations. Additionally, 12 worker vehicles traveling 20 miles round-trip each day were assumed. Using the estimates presented above, the peak construction emissions for the project were calculated and are presented in Table 3.6-7. The data presented in the table shows that emissions would be less than significant based on the SCAQMD thresholds.

TABLE 3.6-7
AIR POLLUTANT EMISSIONS BY CONSTRUCTION ACTIVITY

Activity	Pollutant Emissions (lbs/day)					
	CO	VOC	NOx	PM10	PM2.5	SOx
On-Road Vehicle	13.93	3.24	38.40	1.86	1.64	0.04
Grading and Construction Activities	17.60	4.40	37.60	3.90	2.10	0.00
Total Emissions	32	8	76	6	4	0
SCAQMD Thresholds	**550**	**75**	**100**	**150**	**55**	**150**
Exceedance?	No	No	No	No	No	No
Source: Mestre Greve Associates, 2007.						

Diesel Particulate Matter Emissions: In 1998, the CARB identified particulate matter from diesel-fueled engines (Diesel Particulate Matter or DPM) as a Toxic Air Contaminant (TAC). It is assumed that the majority of the heavy construction equipment used during construction would be diesel fueled and would therefore emit diesel particulate matter. 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 1 million people due to exposure to the cancer-causing substance over a 70-year lifetime (CalEPA 2003). Demolition and grading for the project, when the peak diesel exhaust emissions would occur, is expected to take approximately 18 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 considered a significant impact.

On-site Construction Emissions

Demolition: Tables 3.6-6 and 3.6-7 present the results of the emissions calculations for the construction activities. This is a combination of the demolition and construction equipment emissions and emissions from on-road vehicles traveling outside of the project site. On-site emissions presented in Table 3.6-8 are those that would be emitted from demolition activities within the project site including emissions from vehicles traveling inside the project boundaries. The on-site vehicle emissions were based on an assumed internal trip length of 0.1 mile. The total on-site construction emissions are compared to the LSTs. Demolition activities would not result in on-site emissions exceeding the LSTs at any of the nearest existing land uses. Therefore, demolition would not result in a significant short-term air quality impact.

TABLE 3.6-8
ON-SITE EMISSIONS BY DEMOLITION ACTIVITY

Activity	Pollutant Emissions (lbs/day)			
	CO	NOx	PM10	PM2.5
On-Site Vehicle	0.3	0.8	0.0	0.0
Ground Disturbance	0.0	0.0	2.0	0.4
Construction Equipment	19.1	37.4	2.0	1.9
Total Emissions	19.4	38.2	4.1	2.3
LSTs at the Nearest Residences to the North	**964**	**340**	**14**	**9**
Exceedance?	No	No	No	No
LSTs at the Residences to the Northeast	**1,284**	**330**	**48**	**11**
Exceed Threshold?	No	No	No	No
Source: Mestre Greve Associates, 2007.				

Grading and Construction: On-site emissions presented in Table 3.6-9 are those that would be emitted from construction activities within the project site including emissions from vehicles traveling inside the project boundaries. As with demolition activities, on-site vehicle emissions were based on an assumed internal trip length of 0.1 mile. The total on-site grading emissions are compared to the LSTs. Grading activities would not result in on-site emissions exceeding the LSTs at any of the nearest existing land uses. No significant short-term air quality impacts would occur.

TABLE 3.6-9
ON-SITE EMISSIONS BY GRADING ACTIVITY

Activity	Pollutant Emissions (lbs/day)			
	CO	NOx	PM10	PM2.5
On-Site Vehicle	0.2	0.5	0.0	0.0
Ground Disturbance	0.0	0.0	2.1	0.4
Construction Equipment	17.4	37.1	1.7	1.6
Total Emissions	**18**	**38**	**4**	**2**
LSTs at the Nearest Residences to the North	**964**	**340**	**14**	**9**
Exceedance?	No	No	No	No
LSTs at the Residences to the Northeast	**1,284**	**330**	**48**	**11**
Exceed Threshold?	No	No	No	No
Source: Mestre Greve Associates, 2007.				

Architectural Coatings: Architectural coatings include painting exterior and interior walls as well as coatings applied to windows and window casings. ROGs are emitted from these coatings as well as the solvents used in cleanup of the coatings. The amount of ROGs that are emitted is dependant on the specific coating being used and its ROC content. Table A9-13-C of the SCAQMD *CEQA Handbook* was used to determine the ROG numbers and recommends using twice the gross floor area as an estimate of the total painted area for commercial uses. This accounts for both interior and exterior surface areas.

The SCAQMD CEQA Handbook (Table A9-13-C) recommends using twice the gross floor area as an estimate of the total painted area for commercial uses. This accounts for both interior and exterior surface areas. It is assumed that the project painting would take 30 days. Total emission from painting of the project is estimated to be 457 pounds of ROG. This emissions estimate would exceed the threshold of 75 pounds per day established by the SCAQMD. Therefore, ROG emissions during painting would exceed the significance threshold of 75 pounds per day, and emissions from this activity would result in a significant impact including its contribution to the formation of ozone which has potential human health implications. Implementation of MM 3.6-4, which includes ROG-control measures, would reduce this impact, but not to a level considered less than significant.

Long-term Operation-related Impacts

Long-term air quality emissions associated with the proposed project would result from two types of sources: stationary and mobile. Stationary sources include the emissions produced from on-site energy use for heating, cooling, operation of electrical machinery, lighting, appliances, and other equipment that consumes electricity or natural gas. Mobile sources are emissions generated by an increase in vehicular trips which would result from project

implementation. Long-term impacts associated with project implementation are provided for local CO emissions and regional pollutant emissions.

Local Air Quality

Air Quality Impacts Near Intersections Affected by Project-Generated Traffic: Increased traffic volumes due to the project would emit increased amounts of pollutants in the vicinity of the roads used by this traffic, which can cause pollutant levels to exceed the ambient air quality standards. Carbon monoxide (CO) is the pollutant of major concern along roadways because the most notable sources of CO are motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of local air quality impacts. CO concentrations are highest near intersections where queuing increases emissions. Worst-case CO concentrations with the project were forecasted with the CALINE4 computer model. The assumptions used and the results of the modeling effort are discussed in greater detail in Appendix F.

The results of the CALINE4 CO modeling effort are summarized in Table 3.6-10 for years 2010 and 2025. The CO modeling results are shown for future 1-hour and 8-hour CO concentration levels with and without project. The pollutant levels are expressed in parts per million (ppm) for each receptor. The results of the CO modeling show that CO concentrations are not projected to exceed the State ambient air quality standards for either the 2010 or 2025 scenarios. The future CO concentrations with and without the project are the same for all scenarios. All intersections in the project vicinity would not be expected to experience CO concentrations in excess of the State standards. The proposed project would not result in a significant local air quality impact.

TABLE 3.6-10
LOCAL LONG-TERM CARBON MONOXIDE CONCENTRATIONS

Receptor Location	2010				2025			
	No Project		With Project		No Project		With Project	
	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour	1-hour	8-hour
Bristol at Sunflower	7.9	6.4	7.9	6.4	6.7	5.4	6.7	5.4
Bristol at Anton	8.0	6.5	8.0	6.5	6.7	5.4	6.7	5.4
Avenue of the Arts at Anton	6.9	5.6	6.9	5.6	6.3	5.1	6.3	5.1
State Standards (in ppm)	**20**	**9**	**20**	**9**	**20**	**9**	**20**	**9**
Number of Exceedances	0	0	0	0	0	0	0	0

Note: The CO concentrations include the ambient concentrations of 5.8 ppm for 1-hour levels, and 4.7 ppm for 8-hour levels.

Source: Mestre Greve Associates, 2007.

Regional Air Quality

The primary source of long-term regional emissions generated by the proposed project would be from motor vehicles. Other on-site emissions would be generated from the combustion of natural gas for space heating. In addition, emissions are generated by residential use of consumer products. Emissions would also be generated off site by the use of natural gas and oil for the generation of electricity consumed by at the project site.

Pollutant emissions were modeled based on emission factors taken from the 1993 CEQA Air Quality Handbook data in terms of dwelling unit types and square footages, and vehicular emission factors from the EMFAC2007 computer model published by the SCAQMD. Using an average trip length of 9.2 miles, the proposed project would generate a net increase of

771 average daily trips and 7,093 daily vehicle miles traveled; the data, presented in Table 3.6-11, show that the total project emissions would not exceed the SCAQMD regional significance thresholds. Therefore, the project would not result in a significant regional air quality impact and no mitigation is required.

TABLE 3.6-11
LONG-TERM OPERATIONAL EMISSIONS

Source	Pollutant Emissions (lbs/day)					
	CO	VOC	NOx	PM10	PM2.5	SOx
Existing Emissions						
Vehicular Trips	47.7	5.6	26.1	1.0	0.9	0.0
Natural Gas Consumption	0.0	0.0	0.2	0.0	0.0	0.0
Consumer Product Usage	0.0	0.0	0.0	0.0	0.0	0.0
Total Project Emissions	47.8	5.6	26.3	1.0	0.9	0.0
Year 2010 Proposed Project						
Vehicular Trips	115.6	14.5	69.7	2.9	2.4	0.2
Natural Gas Consumption	0.3	0.1	1.4	0.0	0.0	0.0
Consumer Product Usage	0.0	6.2	0.0	0.0	0.0	0.0
Total Project Emissions	115.9	20.8	71.1	2.9	2.4	0.2
Net Increase	**68.1**	**15.2**	**44.8**	**1.9**	**1.5**	**0.2**
SCAQMD Thresholds	**550**	**55**	**55**	**150**	**55**	**150**
Exceed Threshold?	No	No	No	No	No	No
Source: Mestre Greve Associates, 2007.						

On-Site Project Emissions: On-site project emissions were compared to the LSTs. On-site emissions include natural gas combustion and vehicular emissions from vehicle movement within the project site. Based on 771 new daily trips at 0.1 mile per trip, the project would generate 77 new daily on-site trips. Table 3.6-12 shows that on-site emissions would not result in a localized air quality impact.

TABLE 3.6-12
ON-SITE AIR POLLUTANT EMISSIONS BY CONSTRUCTION ACTIVITY

On-Site Activity	Emissions (lbs/day)			
	CO	NOx	PM10	PM2.5
Vehicular Trips	1.3	0.2	0.8	0.0
Natural Gas Consumption	0.3	0.1	1.4	0.0
Consumer Product Usage	0.0	0.0	0.0	0.0
Total Project Emissions:	1.6	0.3	2.1	0.0
Localized Significance Threshold at the Nearest Residences to the North	**964**	**340**	**4**	**2**
Exceed Threshold?	No	No	No	No
Localized Significance Threshold at the Nearest Residences to the Northeast	**1,284**	**330**	**12**	**3**
Exceed Threshold?	No	No	No	No
Source: Mestre Greve Associates, 2007.				

Impact 3.6.1: **Significant and Unavoidable Impact.** Project-related construction activities would result in a significant short-term construction-related air quality impact for the following air pollutants: NOx and ROG. Implementation of MM 3.6-1 and MM 3.6-2 would reduce these impacts but not to a level considered less than significant. Long-term operation of the project would result in an increase in vehicular emissions; however, these emission levels are not projected to exceed established thresholds. Long-term impacts would be considered less than significant.

Sensitive Receptors

Some people are especially sensitive to air pollution emissions and should be given special consideration when evaluating air quality impacts from projects. These people include children, the elderly, persons with preexisting respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. The SCAQMD's *CEQA Air Quality Handbook* defines sensitive receptors as structures that house these persons or places where they gather to exercise. The nearest sensitive receptors to the project are multi-family residences located adjacent to the project site just north of the project boundary.

As previously noted, the project would result in short-term exceedances of SCAQMD thresholds for NOx and ROG during construction activities. The ROG and NOx emissions occurring during construction would contribute to the formation of ozone away from the project site. While these emissions could result in increased ozone concentrations in the basin, because the emissions are only a miniscule amount of the overall basin emissions, ozone concentrations would only increase by a corresponding miniscule amount. Furthermore, the analysis of the SCAQMD LST thresholds showed that construction would generate on-site pollutant emissions that would be expected to result in pollutant concentrations that exceed the State ambient air quality standards for PM10 and PM2.5. Sensitive receptors would be exposed to these pollutants during construction. Short-term impacts would be reduced by SC 3.6-1 and MMs 3.6-1, 3.6-2, and 3.6-3, but not to a level that is considered less than significant; thereby resulting in potentially significant impacts to sensitive receptors.

Impact 3.6.2: **Significant and Unavoidable Impact.** Construction of the proposed project would expose sensitive receptors to pollutant concentrations of NOx, ROG, PM10, and PM2.5 that exceed SCAQMD thresholds and localized significance thresholds which would be considered a potentially significant impact.

Related Planning Programs

An EIR must discuss the consistency between the proposed project and applicable general and regional plans. Table 3.6-13 addresses the consistency of the proposed project with applicable goals.

TABLE 3.6-13
CONSISTENCY OF THE PROJECT WITH AIR QUALITY-RELATED GOALS AND POLICIES

Goals and Policies		Consistency Analysis
Costa Mesa 2000 General Plan		
Conservation Element		
Objective CON-1E	Pursue the prevention of the significant deterioration of local and regional air and water quality.	As discussed in this section, the project would not result in significant long-term air quality impacts and is not anticipated to result in the deterioration of local or regional air quality.
Objective CON-1E.1	Cooperate with and support regional, State, and Federal agencies to improve air quality throughout the South Coast Air Basin.	As discussed, the project is consistent with the SCAG Regional Comprehensive Plan and Guide and the AQMP. Therefore, the project would support State and federal regulatory attempts to improve the air quality of the air basin.
Objective CON-1E.2	Require, as a part of the environmental review procedure, an analysis of major development or redevelopment project impacts on local and regional air and water quality.	An air quality assessment was prepared for the project and is included as Appendix F of this EIR. The air quality assessment meets the requirements of this objective.
SCAG Regional Comprehensive Plan and Guide		
Conservation Element		
Air Quality Chapter		
Core Action 5.07	Determine specific programs and associated actions needed (e.g., indirect source rules, enhanced use of telecommunications, provision of community based shuttle services, provision of demand management based programs, or vehicle-miles-traveled/emission fees) so that options to command and control regulations can be assessed.	Although SCAG has recommended that the Draft EIR addresses this RCPG policy, the policy is mainly applicable to air quality agencies and local jurisdiction general plans. The proposed project would not impede air quality command and control regulations or their alternatives.
Core Action 5.11	Through the environmental document review process, ensure that plans at all levels of government (regional, air basin, county, subregional and local) consider air quality, land use, transportation and economic relationships to ensure consistency and minimize conflicts.	Consistent with CEQA Guidelines, this EIR addresses the proposed project's potential impacts on air quality, land use and transportation, as well as consistency of the project with planning programs related to these issues.
South Coast Air Quality Management Plan		
Conservation Element		
Criterion 1	Increase in the frequency or severity of violations?	Based on the air quality analysis contained in this report, short-term construction and long-term operation would not result in significant local air quality impacts based on the SCAQMD thresholds of significance. The analysis shows that short-term construction emissions of NOx and ROG would exceed the SCAQMD significance thresholds. However, it is unlikely that short-term construction activities would increase the frequency or severity of existing air quality violations due to required compliance with SCAQMD Rules and Regulations. Similarly, the emissions from the project are projected to be a fraction of a percentage of the basin wide emissions. The analysis for long-term local air quality impacts showed that local pollutant concentrations are not projected to exceed any of the air quality standards.

TABLE 3.6-13 (Cont.)
CONSISTENCY OF THE PROJECT WITH AIR QUALITY-RELATED GOALS AND POLICIES

Goals and Policies		Consistency Analysis
		The proposed project is not projected to contribute considerably to the exceedance of any air pollutant concentration standards, thus the project is found to be consistent with the AQMP for the first criterion.
Criterion 2	Exceed the assumptions in the AQMP in 2010 or increments based on the year of project buildout and phase?	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 methodologies upon which much of the air quality assessment are based are the *City of Costa Mesa Traffic Model* (CMTM), Orange County Transportation Analysis Model Version 3.1 (OCTAM3.1), the Congestion Management Program (CMP), the ITE Trip Generation, 7th Edition, and the Highway Capacity Manual 2000. 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 proposed development is generally expected to be within the development capacity of the *General Plan* because it does not involve a significant increase in traffic volumes. The project is included in the traffic volumes 2025 forecast (at buildout) including regional growth. 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.

Impact 3.6.3: **No Impact.** As identified in the table above, the proposed project is consistent with the relevant goals and policies related to air quality.

3.6.4 CUMULATIVE IMPACTS

As previously discussed, the project site is located within a 6,600-square-mile air basin comprised of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The air basin is the study area for cumulative air quality impacts. As previously noted, the USEPA has designated the air basin as being in Severe-17 non-attainment for ozone; in serious non-attainment for PM10 and CO; in non-attainment for PM2.5; and in attainment/maintenance for NO_2. The federal annual NO_2 standard was met for the first time in 1992 and has not been exceeded since. The air basin was redesignated as being in attainment for NO_2 in 1998. The basin will remain a maintenance/attainment area until 2018, assuming the NO_2 standard is not exceeded. NO_2 monitoring will continue to be required.

The proposed project would have a significant short-term construction-related impact on air quality regarding NOx and ROG. A project which contributes to a cumulatively considerable impact and causes a net increase of any criteria pollutant for which the project region is in non-attainment is considered to result in a cumulatively significant impact. Therefore, the proposed project's impacts associated with the exceedance of NOx and ROG thresholds would be considered cumulatively significant. The proposed project would result in significant short-term air quality impacts because emissions of NOx and ROG (both precursors to ozone) would exceed established thresholds. A project which contributes to a cumulatively considerable impact and causes a net increase of any criteria pollutant for which the project region is in non-attainment is considered to result in a cumulatively significant impact. Because the region is in non-attainment for ozone and because project-related increases of NOx and ROG are above SCAQMD thresholds, operation of the project would result in a significant cumulative air quality impact for NOx and ROG. Feasible mitigation measures to reduce the impacts from construction operations would be implemented for the proposed project; however, even after mitigation, the short-term construction impacts would be significant.

In summary, the proposed project contributes to a net increase in NOx and ROG. Therefore, the proposed project would have a significant and unavoidable cumulative air quality impact.

3.6.5 MITIGATION PROGRAM

Project Design Features

None have been identified.

Standard Conditions

SC 3.6-1 During construction of the proposed project, the Applicant and its Contractors shall be required to comply with SCAQMD Rules 402 and 403, which shall assist in reducing short-term air pollutant emissions. SCAQMD Rule 402 requires that air pollutant emissions not be a nuisance off site. SCAQMD Rule 403 (Tables 1, 2, and 3 of Rule 403) requires that fugitive dust be controlled with the best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. This requirement shall be included as notes on the Contractor Specifications.

Mitigation Measures

Construction: Dust Control

MM 3.6-1 During construction and grading activities, the Applicant shall comply with measures set forth in the Storm Water Pollution Prevention Plan (SWPPP) to ensure that airborne dust is kept to a minimum.

Construction: Construction Equipment Emission Control

MM 3.6-2 Prior to commencement of construction activities, the Applicant shall identify to the Development Services Department, a Construction-Relations Officer to act as a community liaison concerning on-site activity, including resolution of issues related to dust generation from grading/paving activities.

MM 3.6-3 Prior to approval of grading plans, the Applicant shall include the following notes on the Contractor Specifications submitted for review and approval by the Development Services Department:

> "To reduce construction equipment emissions, the following measures shall be implemented when feasible:
>
> - Use low-emission mobile construction equipment. The Property Owner/Developer shall comply with California Air Resources Board (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 South Coast Air Quality Management District (SCAQMD) Rules 431.1 and 431.2.
> - Use 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 greatest extent practicable.
> - 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)."

Several types of advanced emissions control technologies were considered (such as the use of aqueous diesel fuel) but are currently not commercially available. Aqueous diesel fuel reduces formation of nitrogen oxides (NOx) by

reducing combustion temperatures, which results in lower NOx emissions. According to the SCAQMD, the current availability of this fuel technology is limited, and it may not be available for use before the project terminates construction. In addition, with exhaust gas recirculation diesel engines, a small amount of hot exhaust gas is routed through a cooler and is mixed with fresh air entering the engine. The exhaust gas helps reduce the temperature during combustion, which lowers the formation of thermal NOx. Exhaust gas recirculation technology is in the development phase and has not been fully commercialized. To the extent that the advanced emissions control technologies become reasonably commercially available or are required by the CARB for Grading Contractors, such advanced emissions-control technologies shall be used.

Construction: Reactive Organic Gas (ROG) Control

MM 3.6-4 Reduce ROG emissions from painting activities. Painting activities from the project would result in a significant air quality impact. The following measures should be implemented when feasible. Prior to issuance of the first building permit, the Applicant shall provide evidence to the Development Services Development that the following measures shall be incorporated into project construction to the greatest extent feasible and the following measures should be provided as notes on the Contractor Specifications:

- The project shall comply with SCAQMD Rule 1113, which limits the ROG content of architectural coatings used in the South Coast Air Basin or shall allow the averaging of such coatings, as specified, so that actual emissions do not exceed the allowable emissions if all the averaged coatings had complied with the specified limits.

- Use high transfer efficiency painting methods such as HVLP (High Volume Low Pressure) sprayers and brushes/rollers where possible.

3.6.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Short-Term Impacts

Project emissions from construction activities would exceed the SCAQMD's thresholds of significance for NOx and would expose sensitive receptors to these pollutants. Mitigation would reduce emissions but not to a level below SCAQMD thresholds. Therefore, construction emissions of NOx would exceed SCAQMD thresholds after mitigation. Short-term construction air quality impacts would remain significant and unavoidable.

ROG emissions associated with painting and asphalt paving would exceed the SCAQMD's thresholds of significance. Mitigation would reduce emissions, but not to a level below SCAQMD thresholds. Therefore, emissions of ROG would exceed SCAQMD thresholds after mitigation and remain significant and unavoidable.

Long-Term Impacts

The analysis indicates that operational project emissions would not exceed SCAQMD thresholds of significance. Therefore, project-related operational emissions would be less than significant.

Cumulative Impacts

The proposed project's impacts associated with the exceedance of NOx and ROG thresholds would be considered cumulatively significant. Mitigation would reduce these pollutant emissions but not to a level below the SCAQMD's thresholds. Therefore, cumulative air quality impacts would remain significant and unavoidable.