5.3 Air Quality

5.3.1 Methodology

This chapter is based on the information contained in the "Air Quality Analysis, La Floresta, City of Brea, California, August 7, 2006" prepared by Giroux & Associates. That report is provided in Appendix C to this EIR. The Community Resources Element of the Brea General Plan also provides an overview of air quality conditions and policies in the city.

5.3.2 Setting

PROJECT SITE CONDITIONS

Both Sites

Meteorology/Climate Setting

Brea's climate, as with all of Southern California, is largely dominated by the strength and position of the semi-permanent high-pressure center over the Pacific Ocean near Hawaii. It creates cool summers, mild winters, and infrequent rainfall; it drives the refreshing daytime sea breeze; and it maintains comfortable humidity and ample sunshine. Unfortunately, the same atmospheric processes that create the desirable living climate combine to severely restrict the ability of the atmosphere to disperse the air pollution generated mainly by the large population attracted by the climate. Portions of the Los Angeles Basin, including northern Orange County, therefore, experience some of the worst air quality in the nation for certain pollution species.

Regional air quality is controlled by the location and strength of pollutant sources and by the winds and inversions that control the horizontal and vertical regional dispersion patterns. Winds near the Project sites, as monitored at the South Coast Air Quality Management District (SCAQMD) measurement station in La Habra, display several characteristic regimes. During the day, especially in summer, winds are from the west and southwest at 7 to 9 miles per hour. At night, especially in winter, the land becomes cooler than the ocean and an offshore wind of 3 to 5 miles per hour develops. One other important wind regime occurs when a high-pressure center forms over the western United States and creates strong offshore winds. These winds are warmed and dried by air compression as they descend from the upper desert regions into the basin. These winds are accelerated through local canyons and create hot, dry, gusty Santa Ana winds from the east and northeast across northern Orange and southern Los Angeles Counties.

The low frequency of calms and adequate daytime ventilation speed typically do not allow for any daytime stagnation of air pollutants in the Brea area. The moderate onshore breeze carries any locally generated emissions eastward toward the Chino Hills

or across northern Orange County and then up Santa Ana Canyon or Carbon Canyon toward receptors in western San Bernardino and Riverside Counties. Any daytime air quality problems occur mainly when winds shift more into the northwest and the daytime clean sea breeze is replaced by airflow across substantial pollution generation areas of southwestern Los Angeles County. These winds bring occasional unhealthful smog levels across the project area during the summer and early fall. Wind at night drifting seaward across the air basin and off the nearby hills is much slower and does allow for localized stagnation of pollution, but the density of vehicular sources in the upwind area is generally low enough to minimize any major air pollution problems. Any air pollution episodes, if they occur, are, therefore, due mainly to pollutants transported into the area rather than any locally generated emissions.

In addition to winds that govern the horizontal rate and trajectory of any air pollutants, Southern California experiences several characteristic temperature inversions that control the vertical depth through which pollutants can be mixed. The daytime onshore flow of marine air is capped by a massive dome of warm air that acts like a giant lid over the basin. As the clean ocean air moves inland, pollutants are continually added from below without any dilution from above. As this layer slows down in inland valleys of the basin and undergoes photochemical transformations under abundant sunlight, it creates very unhealthful levels of smog (mainly ozone).

A second inversion forms at night as cool air pools in low elevations while the air aloft remains warm. Shallow radiation inversions are formed (especially in winter) that trap pollutants near intensive traffic sources such as freeways and shopping centers, and form localized violations of clean air standards called "hot spots." If any noticeable, direct air pollution effects were to occur from changes in the vehicular distribution around the Project area, it would be from automotive exhaust trapped by these nocturnal radiation inversions.

Air Quality Setting

Ambient Air Quality Standards (AAQS)

In order to gauge the significance of the air quality impacts of the proposed Project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those people 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, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or include different exposure periods. The initial attainment deadline of 1977 was extended several times in

air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule that extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 5.3-1. Sources and health effects of various pollutants are shown in Table 5.3-2.

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "$PM_{2.5}$"). National AAQS were adopted on July 17, 1997.

Planning and enforcement of the federal standards for $PM_{2.5}$ and for ozone (8-hour) were challenged by trucking and manufacturing organizations. In a unanimous decision, the U.S. Supreme Court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. The Court did find, however, that there was some inconsistency between existing and "new" standards in their respective attainment schedules. Such attainment-planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA subsequently agreed to downgrade the attainment designation for a large number of communities to "non-attainment" for the 8-hour ozone standard. Because the South Coast Air Basin is far from attaining the 1-hour federal standard, the 8-hour ozone non-attainment designation will not substantially alter the attainment planning process. The compliance deadline for the 8-hour ozone standard has been extended to 2021.

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (CARB) to recommend adoption of the statewide $PM_{2.5}$ standard that is more stringent than the federal standard. This standard was adopted on June 20, 2002. The state $PM_{2.5}$ standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard, but only requires continued progress towards attainment.

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in April 2005, which mirrors the federal standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.08 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress toward attaining state standards, but there are no hard deadlines or any consequences of non-attainment. As part of the same re-evaluation process, the ARB is anticipated to adopt a new annual state standard for nitrogen dioxide (NO_2) that is more stringent than the corresponding federal standard.

Table 5.3-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	0.12 ppm (235 µg/m^3)	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.07 ppm (140 µg/m^3)		0.08 ppm (157 µg/m^3)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		50 µg/m^3		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		65 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–	–	–
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	(new standard pending)	Gas Phase Chemilumi-nescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemilumi-nescence
	1 Hour	0.25 ppm (470 µg/m^3)		–		
Lead	30-Day average	1.5 µg/m^3	Atomic Absorption	–	–	–
	Calendar Quarter	–		1.5 µg/m^3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	Ultraviolet Fluorescence	0.030 ppm (80 µg/m^3)	–	Spectro-photometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	–	
	3 Hour	–		–	0.5 ppm (1,300 µg/m^3)	
	1 Hour	0.25 ppm (655 µg/m^3)		–	–	
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer–visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70%. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chroma-tography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chroma-tography			

Table 5.3-2
Health Effects of Criteria Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.
Fine Particulate Matter (PM_{10})	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Fine Particulate Matter ($PM_{2.5}$)	• Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.	• Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Of the standards shown in Table 5.3-1, those for ozone (O_3), carbon monoxide (CO), and particulate matter (PM_{10}) are exceeded at times in the South Coast Air Basin. They are called "non-attainment pollutants." The CO standard is currently met in the basin, and re-designation to "attainment/maintenance" is anticipated shortly. Because of the variations in the regional meteorology and in area-wide differences in levels of air pollution emissions, patterns of non-attainment have strong spatial and temporal differences.

Baseline Air Quality

Existing and probable future levels of air quality around the Project area can be best inferred from ambient air quality measurements conducted by the SCAQMD at the La Habra monitoring station. This station measures both regional pollution levels such as smog, as well as primary vehicular pollution levels near busy roadways such as carbon monoxide or nitrogen oxides. Some pollutants such as respirable particulates (PM_{10}) are not monitored near Brea. The nearest Orange County PM_{10} data are available in Anaheim. Although these data resources are relatively far from Brea, the pervasive regional nature of many air pollutants makes these measurements reasonably applicable to Brea.

Table 5.3-3 summarizes the last five years of published data from a composite of representative monitoring stations. From these data the following conclusions can be drawn:

Table 5.3-3
Air Quality Monitoring Summary –
(Number of Days Standards Were Exceeded and Maximum Levels during Such Violations)

Pollutant/Standard	2000	2001	2002	2003	2004
Ozone					
1-Hour > 0.09 ppm (S)	8	4	3	7	6
1-Hour > 0.12 ppm (F)	1	0	0	1	0
8- Hour > 0.08 ppm (F)	2	2	0	2	0
Max 1-Hour Conc. (ppm)	0.14	0.11	0.12	0.17	0.10
Carbon Monoxide					
1-Hour > 20. ppm (S)	0	0	0	0	0
8- Hour > 9. ppm (S, F)	0	0	0	0	0
Max 1-Hour Conc. (ppm)	14	11	10	8	7
Max 8-Hour Conc. (ppm)	6.2	4.7	4.4	4.1	4.0
Nitrogen Dioxide					
1-Hour > 0.25 ppm (S)	0	0	0	0	0
Max 1-Hour Conc. (ppm)	0.12	0.13	0.12	0.16	0.12
PM_{10}					
24-Hour > 50 $\mu g/m^3$ (S)	8/61	9/46	5/61	6/61	7/61
24-Hour > 150 $\mu g/m^3$ (F)	0/61	0/46	0/61	0/61	0/61
Max. 24-Hour Conc. ($\mu g/m^3$)	126.	93.	69.	96.	74
$PM_{2.5}$					
24-Hour > 65 $\mu g/m^3$ (F)	6/273	1/252	1/351	3/340	0/319
Max. 24-Hour Conc. ($\mu g/m^3$)	113.9	70.8	68.6	115.5	58.9
Source: California Air Resources Board (ARB) - La Habra Air Monitoring Station; Anaheim Station for PM_{10}					

1. Photochemical smog (ozone) levels very rarely exceed standards. The 1-hour state standard was only violated a maximum of 8 times a year in the last five years near Brea. Federal standards have only been exceeded two times within the last five years. While ozone levels are still high, they are much lower than 10 to 20 years ago. Attainment of all clean air standards in the Project vicinity is not likely to occur soon, but the severity and frequency of violations are expected to continue to slowly decline during the current decade.
2. PM_{10} levels have exceeded the state 24-hour standard on approximately 12 percent of all measurement days (44 days per year). The three times less stringent federal 24-hour standard has not been exceeded. Although year to year fluctuations exist, overall PM_{10} levels seem to be declining over the last five years.
3. $PM_{2.5}$ readings have exceeded the federal 24-hour $PM_{2.5}$ ambient standard on an average of 2 to 3 days per year for four of the last five years. There were no violations in 2004 in Anaheim. Such a frequency of violations is much lower than in inland valleys in western Riverside or San Bernardino Counties where the regional $PM_{2.5}$ "hot spot" is normally found.
4. More localized pollutants such as carbon monoxide and nitrogen oxides are very low near the Project sites because background levels, even in northern Orange County, never exceed allowable levels. There is substantial excess dispersive capacity to accommodate localized vehicular air pollutants such as NO_X or CO without any threat of violating applicable AAQS.

REGULATORY SETTING

Federal Clean Air Act/South Coast Air Quality Management District

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The South Coast Air Basin (SCAB) could not meet the deadline for ozone, nitrogen dioxide, carbon monoxide, or PM_{10}. In the SCAB, the agencies designated by the governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times as earlier attainment forecasts were shown to be overly optimistic.

The 1990 Federal Clean Air Act Amendment (CAAA) required that all states with air-sheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised, and approved over the past decade. The previous clean air plan for the basin was the 1999 SIP Amendment, which accelerated the schedule for a number of new SCAQMD rules and regulations. The most current regional attainment emissions forecast for ozone precursors (ROG and NO_X) and for carbon monoxide (CO) is shown in Table 5.3-4.

Table 5.3-4
South Coast Air Basin Attainment Plan
(Emissions in Tons/Day)

	ROG	NOx	CO
Current Inventory[1]			
Stationary	304	103	246
On-Road Mobile	276	581	2,705
Off-Road Mobile	131	286	1,003
Total	**710**	**970**	**3,953**
2010 Forecast[2]			
Stationary	296	89	217
On-Road Mobile	212	434	2,048
Off-Road Mobile	122	257	1,094
Total	**630**	**780**	**3,359**
2020 Forecast[2]			
Stationary	340	90	234
On-Road Mobile	130	206	1,097
Off-Road Mobile	114	241	1,104
Total	**584**	**537**	**2,435**

[1]2005 Base Year.
[2]With current emissions reduction programs and adopted growth forecasts.
Source: California Air Resources Board, The 2005 California Almanac of Emission & Air Quality.

The Air Quality Management District (AQMD) adopted an updated clean air "blueprint" in August 2003. The 2003 AQMP was approved by the EPA in 2004. The Air Quality Management Plan (AQMP) outlines the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM_{10}) by 2006. Components of the 2003 air plan included:

- How the federal standard for CO will be maintained.
- Control measures to further reduce emissions from business, industry, and paints.
- Measures to be adopted by CARB and EPA to further reduce pollution from:
    - Cars
    - Trucks
    - Construction equipment
    - Aircraft
    - Ships
    - Consumer products

With re-designation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan will be prepared in 2006. This plan will shift most of the one-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date will "slip" from 2010 to 2021. The next attainment plan will also include strategies for ultimately meeting the federal $PM_{2.5}$ standard.

City of Brea General Plan: Community Resources Element

Both Sites

The Community Resources Element of the General Plan contains the following policies related to air quality:

- *Policy CR-13.1: Implement City-wide traffic flow improvements.*
- *Policy CR-13.2: Promote energy conservation and recycling by public and private sectors.*
- *Policy CR-13.3: Integrate air quality planning with land use, economic development, and transportation planning.*
- *Policy CR-13.4: Encourage the expansion and retention of local-serving retail businesses (e.g., restaurants, family medical offices, drug stores) to reduce the number and length of automobile trips to comparable services located in other jurisdictions.*
- *Policy CR-13.5: Encourage alternative modes of transportation, such as walking, biking, and public transportation to reduce emissions associated with automobile use.*

- *Policy CR-13.6: Cooperate with the South Coast Air Quality Management District and Southern California Association of Governments in their efforts to implement the regional Air Quality Management Plan.*

5.3.3 Thresholds of Significance

According to the CEQA Guidelines, air quality impacts are considered potentially significant if they cause clean air standards to be violated where they are currently met, or if they measurably contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the CEQA Guidelines offers the following five tests of air quality impact significance. A project would have a potentially significant impact if it:

a. Conflicts with or obstructs implementation of the applicable air quality plan.

b. Violates any air quality standard or contributes substantially to an existing or projected air quality violation.

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

d. Exposes sensitive receptors to substantial pollutant concentrations.

e. Creates objectionable odors affecting a substantial number of people.

The Notice of Preparation (Appendix A) determined that during construction there would be short-term impacts to adjacent properties from diesel exhaust odors, but these impacts would be transient and would not be anticipated to result in a substantial nuisance. The NOP also indicated that no objectionable long-term odors would be expected from operation of the Project. These would be considered less than significant impacts, therefore they are not addressed further in this EIR.

Consistency with City plans and policies will also be addressed along with the thresholds of significance noted above. The following sections describe in greater detail the significance criteria that are used in the air quality impact analysis.

Primary Pollutants

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many

particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM_{10}, an aggressive dust control program is required to control fugitive dust.

Secondary Pollutants

Many pollutants require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source and their incremental regional impact is small on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is thus based on a specified amount of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating impact significance independent of chemical transformation processes. Projects in the SCAB with daily emissions that exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant:

Table 5.3-5
SCAQMD Emissions Significance Thresholds
(lbs/day)

Pollutant	Construction	Operations
ROG	75	55
NO_X	100	55
CO	550	550
PM_{10}	150	150
SO_X	150	150
Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.		

Additional Indicators

In its CEQA handbook, the SCAQMD also states that additional indicators should be used as screening criteria to determine the need for further analysis with respect to air quality. The additional indicators are as follows:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation
- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.
- Project could generate vehicle trips that cause a CO hot spot.

The SCAQMD CEQA Handbook also identifies various secondary significance criteria related to toxic, hazardous, or odorous air contaminants. Such pollutants may be

associated with prior use of the Project sites for petrochemical research and production. Hazardous air contaminants are also contained within the small diameter particulate matter ("$PM_{2.5}$") fraction of diesel exhaust. Such exhaust will be generated by heavy construction equipment and by diesel-powered delivery trucks.

For $PM_{2.5}$ exhaust emissions, recently adopted policies require the gradual conversion of delivery fleets to diesel alternatives, or the use of "clean" diesel if emissions are demonstrated to be as low as those from alternative fuels. Because health risks from toxic air contaminants (TACs) are cumulative over an assumed 70-year lifespan, measurable off-site public health risk from diesel TAC exposure would occur for only a brief portion of a project lifetime, and only in dilute quantity.

Sensitive Receptors

Air quality impacts are analyzed relative to those persons with the greatest sensitivity to air pollution exposure. Such persons are called "sensitive receptors." Sensitive population groups include young children, the elderly, and the acutely and chronically ill (especially those with cardio-respiratory disease).

Residential areas are considered to be sensitive to air pollution exposure because they may be occupied for extended periods, and residents may be outdoors when exposure is highest. Schools are similarly considered to be sensitive receptors. Commercial uses are considered less sensitive to air pollution exposure because they are populated by mainly healthy adults for limited periods in an indoor environment. Residential uses are located in proximity to both Project sites and are incorporated in the proposed Project as well. In addition, a new K-6 school and City sports complex is in the early planning stages at the northeast corner of Valencia Avenue and Birch Street adjacent to the La Floresta Village site.

Many mobile air pollutants require additional transformation to convert into their most unhealthful forms. That conversion process occurs several hours later and miles away. Localized sensitive receptor impacts thus derive mainly from "primary" pollutants that require no additional transformation. Primary pollutants include particulate matter (both from soil dust and from diesel exhaust) and carbon monoxide (CO). Project-related emissions of nitrogen oxides (NOx) or reactive organic gases (ROG), contributors to regional smog formation, are less critical in local sensitive receptor exposure.

5.3.4 Project Impacts and Mitigation Measures

CONSISTENCY WITH APPLICABLE REGULATIONS AND PLANS

Federal Clean Air Act

Both Sites

In Southern California, federal clean air regulations and plans are implemented by the South Coast Air Quality Management District (SCAQMD). The proposed Project is considered to be in compliance with the Regional Air Quality Management Plan

(AQMP). Consistency with SCAQMD regulations is discussed further in the following sections regarding construction impacts, operational impacts and microscale impacts.

Level of Significance: Less than significant.

Mitigation Measures: None are required.

Level of Significance after Mitigation: Not applicable.

City of Brea General Plan: Community Resources Element

Both Sites

The Project would conform to all of the General Plan policies listed in Section 5.3.2 under Regulatory Setting, including traffic improvements, energy conservation, planning integration, local business retention, alternative transportation modes, and regional coordination.

Development, such as the proposed Project, does not directly relate to the AQMP in that there are no specific air quality programs or regulations governing "general" development. Conformity with adopted plans, forecasts, and programs relative to population, housing, employment and land use is the primary yardstick by which the impact significance of master planned growth is determined. If a given project incorporates available transportation control measures that can be implemented on a project-specific basis, and if the scope and phasing of a project are consistent with adopted growth forecasts as shown in the Regional Comprehensive Plan (RCP), then the regional air quality impact of project growth would not be significant because of a policy inconsistency. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant simply because the proposed development is consistent with regional growth projections. Air quality impact significance for the proposed Project has therefore been analyzed on a project-specific basis.

The La Floresta Village development is consistent with the Mixed Use II land use designation in the General Plan, but the Birch Hills development would require a General Plan amendment to change the current land use designation of the site to "Birch Hills Specific Plan," high density residential and public facility. The Birch Hills Specific Plan would allow these proposed uses; thus, the proposed Project is not inconsistent with local land use policy. The actual intensity/density of development proposed is actually less intense than existing General Plan and zoning designations would allow. Consequently, neither component of the Project addressed by this EIR is considered inconsistent with growth projections or regional planning policy that is the basis of the AQMP and RCP.

The proposed Project supports General Plan Policies CR-13.1 through 13.5 through the incorporation of commercial, mixed-use development, and a system of bikeways and trails into the La Floresta Village development, which would reduce the number and length of vehicle trips and encourage alternative modes of travel such as public transit, bicycles and walking. The Birch Hills development would also support these policies by providing a critical trail link through the site connecting to a planned regional trail network.

The Project also supports the City's efforts to implement Policy CR-13.6 by requiring an air quality study as part of this EIR and ensuring that the Project complies with the mitigation measures described in this chapter.

Level of Significance: Less than significant.

Mitigation Measures: None are required.

Level of Significance after Mitigation: Not applicable.

CONSTRUCTION AIR QUALITY IMPACTS

Both Sites

Single-family residential uses adjoin the La Floresta Village site to the south and southeast. A 40-acre site planned for a new K-6 school and sports park are located immediately to the northwest of the La Floresta Village site, at the intersection of Valencia Avenue and Birch Street. The Birch Hills site has single-family and multi-family residential uses to the west and north. The potential air quality impacts to these sensitive receptors during construction are analyzed below.

Dust is normally the primary concern during construction of new buildings and infra-structure. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions." Emission rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). These parameters are not known with any reasonable certainty prior to project development and may change from day to day. Any assignment of specific parameters to an unknown future date is speculative and conjectural.

Because of the inherent uncertainty in the predictive factors for estimating fugitive dust generation, regulatory agencies typically use one universal "default" factor based on the area disturbed assuming that all other input parameters into emission rate prediction fall into midrange average values. This assumption may or may not be totally applicable to site-specific conditions on the sites. As noted previously, emissions estimation for project-specific fugitive dust sources is therefore characterized by a considerable degree of imprecision.

Average daily PM_{10} emissions during site grading and other disturbance are stated in the SCAQMD Handbook to be 26.4 pounds/acre. This estimate is based upon required dust control measures in effect in 1993 when the AQMD CEQA Air Quality Handbook was prepared. Rule 403 was subsequently strengthened to require use of a greater array of fugitive dust control on construction projects. All construction projects in the Los Angeles Basin are required to use strongly enhanced control procedures. Use of enhanced dust control procedures such as continual soil wetting, use of supplemental binders, early paving, etc. can achieve a substantially higher PM_{10} control efficiency. Daily emissions with use of best available control measures (BACMs) for PM_{10} can reduce emission levels to around 10 pounds per acre.

For the proposed Project, the Air Resource Board URBEMIS2002 computer model predicts that 42.5 acres could be under simultaneous heavy construction at some point during the build-out lifetime of the Project. With the use of only minimum construction dust control, daily PM-10 emissions during site grading could reach 1,122 pounds per day (42.5 X 26.4 = 1,122 lb/day). The SCAQMD significance threshold of 150 pounds per day would be exceeded. With the use of Best Available Control Measures (BACM), daily PM-10 emissions are reduced to 425 pounds per day (42.5 X 10 = 425 lb/day), still in excess of allowable standards by 183%.

Use of best available control measures (BACMs) alone would not be able to achieve a less-than-significant dust (PM_{10}) emission rate. Restricting of simultaneous grading activities to smaller parcels would reduce the daily PM_{10} generation rate, but could extend the project construction period. Grading of smaller parcels over a longer period of time may also entail operation of construction equipment near already completed businesses or homes rather than grading large tracts before any buildings are built/occupied. PM_{10} grading emissions impacts would thus be significant and cannot be mitigated to less-than-significant levels.

Current research in particulate-exposure health effects suggests that the most adverse effects derive from ultra-small diameter particulate matter comprised of chemically reactive pollutants such as sulfates, nitrates, or organic material. A new national clean air standard for particulate matter of 2.5 microns or smaller in diameter (called "$PM_{2.5}$) was adopted in 1997. Very little construction activity particulate matter is in the $PM_{2.5}$ range. Soil dust is also more chemically benign than typical urban atmospheric $PM_{2.5}$. Although worst-case, project-related construction activity PM_{10} is predicted to temporarily exceed the 150-pound/day threshold, the absence of much $PM_{2.5}$ within this dust generation level suggests a minimal potential health impact despite substantial amounts of PM10.

In addition to fine particles that remain suspended in the atmosphere semi-indefinitely, construction activities generate many larger particles with shorter atmospheric residence times. This dust is comprised mainly of large diameter inert silicates that are chemically non-reactive and are further readily filtered out by human breathing passages. These fugitive dust particles are therefore more of a potential soiling nuisance as they settle out on parked cars, outdoor furniture, or landscape foliage rather than being any adverse health hazard. The deposition distance of most such dust particles is very close to the source (typically 100 feet). There are several concentrations of dust-sensitive receptors within the primary dust deposition impact zone. Enhanced nuisance control must thus be practiced when grading near existing homes.

Exhaust emissions would also result from on and off-site heavy equipment. The types and numbers of equipment will vary among contractors such that such emissions cannot be quantified with certainty. Equipment exhaust emissions were calculated presuming that grading would be balanced on-site, and that initial heavy grading and infrastructure development would gradually shift toward building construction and then for finish construction, paving, landscaping, etc.

The URBEMIS 2002 computer model was used to calculate emissions from the following prototype construction equipment fleet for Phase I:

Demolition/Grading	Construction and Finish
Dozer (2)	Off Highway Tractors (1)
Off Highway Tractors (2)	Rough Terrain Forklift (1)
Scrapers (8)	Tractor/ Loader/Backhoes (2)
Grader (2)	Grader (1)
Tractor/ Loader/Backhoes (2)	Trencher (1)

Table 5.3-6 shows construction related emissions predicted by the URBEMIS2002 computer model. During grading activities, NO_X emissions could exceed the SCAQMD significance thresholds by approximately 198%. Mitigation in the form of regular equipment tune-ups and limits in equipment idling can reduce NO_X emissions by about 10%, but cannot reduce NO_X grading emissions to below threshold standards. Grading activity NO_X diesel emissions are a significant, but temporary, impact unless the size of the equipment fleet is reduced. A substantial equipment fleet reduction would reduce NO_X emissions, but would require much longer to grade the Project. Nuisance impacts from the dirt spillage, erosion, or blowing dust during windy conditions could offset any NO_X emissions reductions benefit from extending the grading duration.

Table 5.3-6
Construction Activity Emissions (pounds/day) -
La Floresta Development Proposal

Activity	ROG	NOx	CO	SO_2	PM_{10} Total	PM_{10} Exhaust	PM_{10} Dust
Clearing/Grading	45.3	298.2	376.8	0.0	437.6	12.6	425.0
Construction & Paving	75.5	48.2	144.5	0.0	3.1	1.7	1.4
SCAQMD Threshold	75	100	550	150	150	-	-
Source : Giroux & Associates, August 2006							

"Excess" NO_X is a regional ozone concern because NOx is an ozone precursor which has been shown to cause adverse health effects. The following NO_X and ozone-related health effects are as shown in Table 5.3-2 (page 5.3-5) for sensitive receptors and for emergent plant tissue:

- Aggravation of respiratory illness
- Reduced visibility
- Reduced plant growth
- Formation of acid rain
- Aggravation of respiratory and cardiovascular diseases
- Irritation of the eyes
- Impairment of cardiopulmonary function
- Plant leaf injury

ROG emissions may exceed the SCAQMD threshold by a very minute amount during construction and paving, even with application of low-VOC paintings and coatings.

Mitigation of this impact may be accomplished by using pre-coated building materials and using high pressure-low volume (HPLV) paint applicators.

As noted above, PM_{10} emissions from fugitive dust released during site grading, plus the diesel exhaust particulates, would exceed the SCAQMD CEQA Handbook threshold. During prevailing daytime airflow from the SW to NW there may be residential dust-sensitive receptors downwind of the site. Therefore, enhanced dust control measures are needed to mitigate the dispersion of PM_{10} emissions by atmospheric processes.

Carbon monoxide (CO) levels have dropped dramatically throughout the region over the last several decades. Baseline levels can accommodate substantial local emissions increases without creation of any CO "hot spots," It has been demonstrated in the regional CO attainment/maintenance plan that even the most congested intersection with the highest traffic volumes anywhere in the basin no longer poses any risk of a CO "hot spot." Construction equipment CO exhaust would be spread over a much larger area than those from thousands of vehicles at major congestion nodes. Levels of CO emissions in excess of SCAQMD thresholds during construction therefore do not create any adverse health risks.

Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. Public exposure to heavy equipment operating in the distance would be an extremely small fraction of the above dosage assumption. Diesel equipment is also becoming progressively "cleaner" in response to air quality rules on new off-road equipment. Diesel exhaust emissions from up to 16 pieces of heavy equipment operating on-site would be somewhat masked by ambient diesel particulate matter (DPM) levels throughout the SCAB, particularly refuse trucks along Imperial Highway and Valencia Avenue delivering to the Olinda-Alpha Landfill site, as well as other industrial area diesel trucks. Any public health risk associated with project-related heavy equipment operations exhaust is not quantifiable. However, because of the cumulative impact from elevated ambient levels and equipment exhaust emissions associated with this Project, use of reasonably available control measures to reduce equipment-related ambient diesel particulate matter (DPM) levels throughout the SCAB from project construction equipment is recommended.

Construction activity air quality impacts occur mainly in close proximity to the surface disturbance area. There may, however, be some "spill-over" into the surrounding community. That spill-over may be physical as vehicles drop or carry out dirt or silt is washed into public streets. Passing non-project vehicles then pulverize the dirt to create off-site dust impacts. "Spillover" may also occur via congestion effects.

Construction may entail roadway encroachment, detours, lane closures and competition between construction vehicles (trucks and contractor employee commuting) and ambient traffic for available roadway capacity. Emissions controls require good housekeeping procedures and a construction traffic management plan that would maintain such "spill-over" effects at a less-than-significant level.

Level of Significance: Potentially significant.

Mitigation Measures:

AQ-1 Construction Air Pollution Control

a. *Prior to the issuance of any grading permits, the Applicant shall prepare and submit for the approval of the Director of Development Services (or his designee) a Fugitive Dust Emission Control Plan in compliance with SCAQMD Rule 403. The Plan shall identify methods to control fugitive dust through implementation of reasonable available control measures in sufficient frequencies and quantities to prevent visible emissions from crossing the property line of the proposed facility. Provisions of the plan shall include the stipulation that all areas of active grading shall be watered at least twice daily. The plan shall also stipulate that disturbed areas at the construction site shall be treated with dust suppressants when activities have ceased for 30 days as well as control techniques listed below as determined appropriate.*

   The Building Official shall ensure that the applicant adheres to the following requirements during construction activities, which shall also be placed as conditions on any grading or building permit.

   (1) Application of chemical stabilizers to unpaved roads and vehicle parking areas;

   (2) Application of sufficient water prior to initiating any earth movement;

   (3) Sweeping and/or cleaning streets where vehicles exit construction sites;

   (4 Installation of wheel washers where vehicles exit disturbed surface areas onto paved roads;

   (5) Paving of construction access roads;

   (6) Paving of all roads on a construction site once final elevations have been reached or at the earliest feasible time;

   (7) All stockpiles for material export shall be watered twice daily. Stockpiles that may be used for long-term on-site soil storage shall be planted and watered twice daily until such plants take root.

   (8) Any other measures as approved by the Planning Department.

b. *All heavy equipment shall be maintained in a proper state of tune as per the manufacturer's specifications.*

c. *Heavy equipment shall not be allowed to remain idling for more than five minutes duration.*

d. *Trucks equipment shall not be allowed to remain idling for more than two minutes duration.*

e. *Electric power shall be used to the exclusion of gasoline or diesel generators whenever feasible.*

f. *The Applicant shall specify that the contractor use only paints and coatings low in Reactive Organic Gas (ROG) content in order to minimize such emissions and vapors.*

g. *All paints and coatings shall be applied either using high volume, low pressure (HVLP) spray equipment or by hand application in order to minimize dispersion of vapors and spray.*

h. *All known and observed hazardous materials shall be remediated in accordance with the recommendations included in Section 5.6 of this document. If locations where spillage of fluids from prior activities or hazardous materials are discovered during construction activities, these construction activities shall be curtailed until the area is evaluated and remediated as determined appropriate by all regulatory agencies. Removal of petroleum contamination will also alleviate the generation of hydrogen sulfide and its attendant odor. These activities would fall under the direction of both local and State agencies that would "sign off" on the remediation effort upon completion.*

Level of Significance after Mitigation: Even with the mitigation described above, impacts would remain significant.

FILL HAULING IMPACTS

Both Sites

The two projects combined would require the import of 125,000 cubic yards of fill material. The fill trucks would travel along the 57 Freeway, and then along Imperial Highway to the site (turning on Kraemer Boulevard. to the Birch Hills site). The haul truck capacity is approximately 25 cubic yards for a bottom dump and trailer. The import of fill would require 5,000 truck trips. The daily truck volume is not known. For purposes of analysis, fill import has been assumed to occur over 50 work-days (two months). The average daily trucking activity would be 100 trips, or 2,500 cubic yards per day. Because the origin of the fill is unknown, air quality impacts have only been evaluated on a local scale.

The round-trip travel distance on local streets for the Birch Hills site is 2.5 miles. The round-trip distance from the freeway to the La Floresta Village site is 4.1 miles. The overall local travel distance is as follows:

Birch Hills Site – 1,000 trips x 2.5 miles = 2,500 VMT

La Floresta Village Site – 4,000 trips x 4.1 miles = 16,400 VMT

Total = 18,900 VMT

Average Daily VMT (18,900/50 days) = 378 VMT/day

Excess local construction activity emissions from 378 VMT per day were calculated using the EMFAC 2002 computer model for heavy duty diesel trucks (> 33,000 pounds) as shown in Table 5.3-7.

Table 5.3-7
Estimated Emissions from Hauling Activities -
La Floresta Development Proposal

Pollutant	EMFAC (lb/mile)	Emissions (lb/day)
ROG	0.001227	0.5
CO	0.005520	2.1
NO_X	0.035635	13.5
PM_{10}	0.000644	0.2
SO_X	0.000046	<0.1
Source: Giroux & Associates, August 2006		

The on-road NO_X emissions would slightly exacerbate the temporary construction activity impacts from on-site grading equipment. NO_X is an ozone precursor such that the on-road NOx emissions would have an impact far from Brea. Any possible local impacts would derive mostly from the 0.2 pounds per day of PM_{10}.

Diesel particulate matter (DPM) is a known carcinogen. The DPM concentration at the roadway edge of the haul route was calculated for 100 daily round trips. The exposure was calculated using the CALINE4 roadway model. The worst-case DPM exposure and associated individual excess cancer risk on the sidewalk along the haul route was compared to the SCAQMD risk significance threshold of a probability of 10 in one million as follows:

1-Hour DPM Concentration – 0.60 $\mu g/m^3$

8-Hour DPM Concentration – 0.42 $\mu g/m^3$

24-Hour DPM Concentration – 0.14 $\mu g/m^3$

Lifetime adjustment (50 days/365/70) – 0.002

Lifetime exposure (0.14 x 0.002) – 0.00028

Cancer Risk ($0.00028 \times 300 \times 10^{-6}$) – 0.08×10^{-6}

The excess cancer risk from 50 haul days is less than 0.1 in a million on the sidewalk along Imperial Highway. It is assumed there will be no receptors located on the sidewalk for 8 hours per day for 50 days of hauling. One truck inbound and one outbound every five minutes would not create measurable local traffic congestion that would promote any

air pollution "hot spots" near major intersections. Fill hauling activity impacts are therefore locally less-than-significant.

Level of Significance: Less than significant.

Mitigation Measures: None required other than those discussed previously under Construction Impacts.

Level of Significance after Mitigation: Not applicable.

REGIONAL MOBILE SOURCE OPERATIONAL IMPACTS AFTER PROJECT COMPLETION

Note: Subsequent to the preparation of the air quality technical study the proposed mix of land uses in the La Floresta Village development was modified, resulting in an estimated increase in Average Daily Traffic (ADT) from 14,574 to 15,216 trips at Project buildout. This change represents a daily traffic increase of 4%, and would not cause the conclusions in the air quality analysis to differ substantially from those presented in the following discussion and in the Appendix C to this EIR.

Both Sites

Project-related air quality concerns derive primarily from the mobile source emissions that would be generated from the residential and commercial uses proposed.. The air quality analysis is based upon estimated daily trip generation of 14,574 ADT at Project build-out. Project energy demand met by burning fossil fuels in regional power plants would add a small NO_X increment from Project operations and add very minute amounts of other pollutants. Residential uses also generate small quantities of organic compounds from cleaning products, personal care products, landscape maintenance, cooking, etc. The individual residential contribution of each such source is small, but becomes significant when summed over the total residential build-out planned in the Project.

Operational emissions for project-related traffic were calculated using a computerized procedure developed by the California Air Resources Board (CARB) for urban growth source emissions. The URBEMIS2002 model was run using the trip generation factors specified by the project traffic consultant for this specific project. Project build-out is anticipated to occur between 2010 and 2015. The computer model was used to calculate area source emissions and the resulting vehicular operational emissions for years 2010 and 2015. The results are shown in Table 5.3-8.

As shown, Emissions of CO, ROG, NO_X and PM_{10} are all forecast to exceed their respective SCAQMD significance thresholds by a substantial margin. By Project build-out in 2015, project-related emissions from both sites combined would compare to SCAQMD thresholds as follows:

ROG +310%

NO_X +148%

CO +140%

PM_{10} + 93%

These levels of emissions in excess of standards would presumably occur at other new developments planned in Orange County if not with this Project. While the Project represents a significant regional emissions contributor, it does not generate emissions that have not been adequately anticipated in the regional air quality plan. The Project's level of development has been anticipated in the Brea General Plan and therefore in the Regional Comprehensive Plan, which predicts substantial population growth as well as housing jobs growth in the City of Brea and the Orange County region between 2005 and 2015.

Table 5.3-8
Average Daily Project Mobile Source Air Pollution Emissions* -
La Floresta Development Proposal

Year 2010	ROG	NO_X	CO	PM_{10}	SO_X
Area Source Emissions	99.8	13.7	23.8	0.1	0.2
Mobile Source Emissions	105.4	111.7	1,211.4	139.3	0.9
Total	**205.2**	**125.4**	**1,235.2**	**139.4**	**1.1**
SCAQMD Significance Threshold	55	55	550	150	150
Exceeds Threshold?	Yes	Yes	Yes	No	No
Percent of Threshold	373	228	225	93	<1

Year 2015	ROG	NO_X	CO	PM_{10}	SO_X
Area Source Emissions	99.8	13.7	23.8	0.1	0.2
Mobile Source Emissions	70.7	67.9	748.1	139.0	0.9
Total	**170.5**	**81.6**	**771.9**	**139.1**	**1.1**
SCAQMD Significance Threshold	55	55	550	150	150
Exceeds Threshold?	Yes	Yes	Yes	No	No
Percent of Threshold	310	148	140	93	1

*Pounds per day
Source: Giroux & Associates: URBEMIS2002, Output in Appendix C.

The Project would add 1,335 residential units to Brea housing (1,088 dwelling units from the La Floresta Village Development and 247 dwelling units from the Birch Hills Development). This represents approximately 87% of the total forecast housing growth for Brea between 2005 and 2015. Additionally the Project would add 156,800 square feet of commercial and office space. The typical job creation from commercial uses is 3 jobs per 1,000 square feet. The Project would thus add approximately 470 jobs to the City of Brea. Because Orange County is jobs rich and housing poor, the Project would help to improve the existing jobs/housing imbalance by providing a higher proportion of residential development than employment generating land uses.

Although mobile source emissions from the Project would have a regionally significant and non-mitigable air quality impact, the positive effect on the regional jobs-housing

balance would be beneficial to air quality in the basin and would act to partially offset total emissions generated by the Project.

In addition to mobile sources, this Project causes smaller amounts of air pollution to be generated from on-site energy consumption (natural gas combustion) and from other "area source" emissions. Area source emissions for an assumed 2015 Project build-out by themselves would exceed the ROG significance threshold by 81 percent. The inclusion of such emissions adds substantially to the total significant project-related emissions burden as shown in Table 5.3-8.

The area source emissions calculations do not take into account the on-going programs to reduce area-source emissions from reformulation of cleaning products, hairspray, deodorants, insecticides, herbicides, charcoal starters, spray paint, etc. that have occurred in the last decade and will continue into the future. The actual "area source" emissions would be substantially lower than shown in Table 5.3-7 because the URBEMIS2002 computer model has not been updated to keep pace with these developments in area source reductions. Although non-mobile source emissions would be less than shown in Table 5.3-8 because of computer model deficiencies, they would nevertheless be far in excess of adopted significance thresholds.

Level of Significance: Potentially Significant.

Mitigation Measures:

AQ-2 Trip Reduction Measures

The applicant shall incorporate the following trip reduction measures into the final design of the non-residential portions of the Project to reduce vehicular traffic, energy consumption, and air emissions.

- Preferential carpool and vanpool parking
- Bicycle storage facilities
- Electric vehicle charging stations

AQ-3 Transit Coordination

The applicant shall coordinate with the Orange County Transportation Authority and the City Engineering Department to provide bus turnouts and shelters where appropriate.

Level of Significance after Mitigation: Even with the mitigation described above, project related regional mobile source air quality impacts would remain significant.

MICROSCALE AIR QUALITY IMPACTS

Both Sites

Single-family residential uses adjoin the La Floresta Village site to the south and southeast. A 40-acre site planned for a new K-6 school and sports park is located immediately to the northwest of the La Floresta Village site, at the intersection of Valencia Avenue and Birch Street. The Birch Hills site has single-family and multi-family residential uses to the west and north. The potential microscale air quality impacts to these sensitive receptors are analyzed below.

Micro-scale air quality impacts have traditionally been analyzed in environmental documents where the air basin was a non-attainment area for carbon monoxide (CO). However, the SCAQMD has demonstrated in the CO attainment redesignation request to EPA that there are no "hot spots" anywhere in the air basin, even at intersections with much higher volumes, much worse congestion, and much higher background CO levels than anywhere in the Project area. If the worst-case intersections in the air basin have no "hot spot" potential, any local impacts near the facility would be well below thresholds with an even larger margin of safety.

To verify this conclusion, a CO screening analysis was performed at the most congested intersections surrounding the Project sites. One-hour CO concentrations were calculated on the sidewalks adjacent to these intersections. PM peak one-hour levels (ppm above background) were as shown in Table 5.3-9. Existing peak one-hour local CO background levels in 2004 were 7.0 ppm. Combined worst-case background (7.0 ppm) plus local (2.7 ppm) equate to one-hour CO levels of 9.7 ppm which are far below the one-hour standard of 20 ppm. Micro-scale impacts are therefore not significant.

Table 5.3-9
One-Hour CO Concentrations (ppm) -
La Floresta Development Proposal

Intersections	Existing	2012 No Project	2012 w/Project	2025 No Project	2025 W/Birch Hills Only	2025 W/ LF Village Only	2025 Entire Project
PM Peak Hours							
Kramer/Birch	1.3	0.9	1.0	0.6	0.6	0.6	0.6
Kramer/Imperial	2.7	1.6	1.7	0.9	0.9	0.9	0.9
Source: Giroux & Associates, August 2006							

Level of Significance: Less than significant.

Mitigation Measures: None are required.

Level of Significance after Mitigation: Not applicable.

5.3.5 Cumulative Impacts

Both Sites

The context for cumulative impacts to air quality is the South Coast Air Basin, which includes all of Orange County, as well as the greater metropolitan Los Angeles/ Riverside/San Bernardino county area. Cumulative projects include local development as well as on-going growth within the basin. The greatest cumulative source of emissions would be from vehicular traffic throughout the region as well as within the local area. From an air quality standpoint, the cumulative effect of other regional growth would affect the project area much more than the development of the proposed Project especially since meteorological patterns could influence emission concentrations.

The Project is located in a non-attainment area for both ozone and PM10 (particulate matter). Construction and operation of cumulative projects would further degrade the local air quality, as well as the regional air quality of the South Coast Air Basin. Air quality would be degraded during construction activities that occur separately or simultaneously, but only for the duration of these activities. A greater cumulative impact on the regional air quality is anticipated from incremental increases in traffic from residential, commercial, and industrial development. Long-term mobile emissions would further exacerbate non-attainment conditions in the South Coast Air Basin.

Mitigation measures identified previously would reduce project-specific impacts and would aid in mitigating cumulative air quality impacts to the extent similar control measures are applied consistently to other new development projects within the region as well. With mitigation measures outlined under Construction-related Impacts, cumulative air quality impacts would be reduced, but remain significant on a project-specific basis.

While the overall effectiveness of mitigation measures may in some cases be limited, their aggressive and diligent implementation would reduce the overall regional air quality burden. In accordance with SCAQMD methodology, any project that produces a significant air quality impact in a non-attainment area adds to the cumulative impact, and is considered potentially significant.

With respect to emissions that exceed State and Federal standards, CO hot spot analysis was performed for Year 2025 traffic when area build-out is expected. The results of this analysis show that cumulative growth in the area would not violate air quality standards for localized CO concentrations, and are not a significant cumulative impact.

Level of Significance: Potentially significant.

Mitigation Measures: Project-specific mitigation measures are listed in the previous discussion of construction-related air quality impacts. No other mitigation is considered feasible to address cumulative air quality impacts.

Level of Significance after Mitigation: Even with the identified mitigation measures, cumulative impacts are considered significant.

5.3.6 Significant Unavoidable Impacts

Both Sites

Even with implementation of all feasible mitigation measures discussed above, both project-specific construction-related and long term operational mobile source emissions as well as cumulative impacts to air quality would remain significant.