CANYON HILLS

AIR QUALITY REPORT

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THE PROJECT

The proposed project consists of the construction of 280 single-family homes clustered on approximately 194 acres of an 887-acre site in the Verdugo Mountains in the northeastern San Fernando Valley in the City of Los Angeles. Elevations within the project site range from approximately 1,160 feet above mean sea level along La Tuna Canyon Road to approximately 2,064 feet mean sea level along the northerly ridgeline. The Foothill Freeway, Interstate Highway 210 (I-210), bisects the project in an east-west direction, dividing it into a northern subarea of approximately 492 acres and a southern subarea of approximately 395 acres. Development is proposed on approximately 142 acres of the northern subarea ("Development Area A") and approximately 52 acres in the southern subarea ("Development Area B").

The project site is unimproved and largely covered with desert sage, trees, scrub and grass. Fire roads and breaks currently crisscross the project site. Houses of various styles and sizes, some dating back to the 1950s, bound the project site on the north and northeast. A large portion of the land to the south is designated permanent open space. West of the project site, the land is largely undeveloped and the Hansen Dam recreational complex is nearby.

Construction of the project site would begin in 2004 and would be completed in 2009. Development Area A would contain 211 homes of mixed architectural styles and sizes. Development Area B would include 69 homes, also of mixed styles and sizes. The proposed project also includes a 3-acre equestrian park adjacent to La Tuna Canyon Road that would be accessible to the public. Other permanent open space areas and private recreation facilities will be provided within both Development Areas A and B (collectively, the "Development Areas").

The proposed project would require the grading of approximately 245 acres in the Development Areas. The Developer has proposed balanced grading for the two Development Areas so that no soil import or export would be required. The Development Areas would be graded independently, probably in a series of sub-phases. However, it is possible that grading could occur simultaneously in both Development Areas. Grading of Development Area A would require the movement of approximately 3.4 million cubic yards of dirt. Remedial grading would add approximately 20%, for a total of 4,069,362 cubic yards.

Grading of Development Area B would require moving approximately 1.2 million cubic yards of dirt. Remedial grading would increase this amount by an additional 20%, for a total of 1,451,130 cubic yards. There would also be a total of 5,423 cubic yards moved for the equestrian park. The total amount of dirt moved for the entire project would be 5,525,915 cubic yards.

ENVIRONMENTAL SETTING

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The City of Los Angeles is in the South Coast Air Basin (SCAB), a 6,600-square-mile area comprised of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The SCAB's climate and topography are highly conducive to the formation and transport of air pollution. Peak ozone concentrations in the SCAB over the last two decades have occurred at the base of the mountains around Azusa and Glendora in Los Angeles County and at Crestline in the mountains above the City of San Bernardino. Both peak ozone concentrations and the number of days the standards were exceeded decreased everywhere in the SCAB throughout the 1990s. Carbon monoxide concentrations also dropped significantly throughout the SCAB as a result of strict new emission controls and reformulated gasoline sold in winter months.

Regulatory and Planning Requirements for the South Coast Air Basin

Federal Attainment Status

The SCAB, the nation's only "extreme" ozone (O_3) non-attainment area until the EPA "bumped up" the San Joaquin Valley Air Basin from "severe" to "extreme" in October 2001, has until 2010 to achieve the national 1-hour ozone standard. The SCAB is designated a "serious" non-attainment area for both carbon monoxide (CO) and respirable particulate matter (PM_{10}). The federal Clean Air Act sets CO and PM_{10} attainment deadlines in "serious" non-attainment areas at 2000 and 2005, respectively. The 8-hour CO standard was not met in 2000. Although no CO standard was exceeded anywhere in the SCAB in 2001, the 8-hour federal standard was exceeded twice in 2000 in the South Central Los Angeles County Source-Receptor Area. EPA regulations specify that the CO standard is attained when there are two years of data with no more than one exceedance at any one station. The Draft 2003 AQMP states that the CO attainment requirements were met in 2002. The national nitrogen dioxide (NO_2) standard was regularly exceeded in Los Angeles County until 1992, and the SCAB was the only area in the nation still designated an NO_2 non-attainment area in 1998 when it was redesignated "attainment" by the EPA.

In July 1997, the EPA promulgated a new 8-hour standard for ozone and a new standard for fine particulate matter ($PM_{2.5}$). The EPA is currently developing an implementation policy for the 8-hour ozone standard, with adoption of the policy anticipated sometime in 2003 and designation of non-attainment areas now scheduled for late 2003 or early 2004. Designation of $PM_{2.5}$ non-attainment areas is expected in late 2004 or sometime in 2005. Until these designations are made and the clock for meeting these new standards starts running, the existing federal 1-hour ozone and PM_{10} standards are the only ozone and particulate standards of reference for determining attainment of national standards.

State Standards

California standards are generally stricter than national standards, but have no penalty for non-attainment. California and national ambient air standards are shown on Table 1.

TABLE 1
AMBIENT AIR QUALITY STANDARDS

Air Pollutant	State Standard	National Standards		Health Effect
		Primary	Secondary	
Ozone (O_3)	0.09 ppm, 1-hr. avg.	0.12 ppm, 1-hr. avg. 0.08 ppm, 8-hr. avg.	0.12 ppm, 1-hr. avg. 0.08 ppm, 8-hr. avg.	Aggravation of respiratory and cardiovascular diseases; Impairment of cardiopulmonary function
Carbon Monoxide (CO)	9.0 ppm, 8-hr. avg. 20 ppm. 1-hr. avg.	9 ppm, 8-hr. avg. 35 ppm, 1-hr. avg.	None	Aggravation of respiratory diseases (asthma, emphysema)
Nitrogen Dioxide (NO_2)	0.25 ppm, 1-hr. avg.	0.0534 ppm, annual avg.	0.0534 ppm, annual avg.	Aggravation of respiratory illness
Sulfur Dioxide (SO_2)	.25 ppm 1-hr. 0.04 ppm, 24-hr. avg.	0.03 ppm, annual avg. 0.14 ppm, 24-hr. avg.	0.50 ppm, 3-hr. avg.	Aggravation of respiratory diseases (asthma, emphysema)
Respirable Particulate Matter (PM_{10})	50 Φg/m^3, 24-hr. avg. 20 Φg/m^3 AGM[1]	150 Φg/m^3, 24-hr. avg. 50 Φg/m^3 AAM	150 Φg/m^3, 24-hr. avg.; 50 Φg/m^3 AAM	Increased cough and chest discomfort; Reduced lung function; Aggravation of Respiratory and cardio-respiratory diseases
Fine Particulate Matter ($PM_{2.5}$)	No 24-hr, State std. 12 Φg/m^3 AGM[1]	65 Φg/m^3, 24-hr. avg. 15 Φg/m^3 AAM	65 Φg/m^3, 24-hr. avg. 15 Φg/m^3 AAM	
Sulfates (SO_4)	25 Φg/m^3, 24-hr. avg.			Increased morbidity and mortality in conjunction with other pollutants
Lead (Pb)	1.5 Φg/m^3, monthly avg.	1.5 Φg/m^3, calendar quarter	1.5 Φg/m^3	Impairment of blood and nerve function; Behavioral and hearing problems in children
Hydrogen Sulfide (H_2S)	0.03 ppm, 1-hr. avg.			Toxic at very high concentrations
Vinyl Chloride	0.010 ppm, 24-hr. avg.			Carcinogenic
Visibility-Reducing Particles	In sufficient amount to reduce prevailing visibility to less than 10 miles at relative humidity less than 70%, 1 observation			

[1]Will become effective after approval by the Office of Administrative Law, expected in May 2003.

Note: ppm = parts per million by volume
Φg/m^3 = micrograms per cubic meter
AAM = annual arithmetic mean
AGM = annual geometric mean

Source: California Air Resources Board, March 2003

State Planning

CARB approves the regional plans from each planning area in California for incorporation in the State Implementation Plan (SIP) for California. It also is responsible for preparing the portions of the SIP related to mobile and many area source control measures.

Regional Planning

The South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG) jointly prepare the Air Quality Management Plan (AQMP) for the SCAB. The AQMP contains measures to meet California and federal requirements. When approved by CARB and the federal EPA, the AQMP becomes part of the SIP.

The agencies adopted new AQMPs in 1989 to meet national standards and in 1991 to meet California standards and revised them in 1994 and 1997. The EPA approved the 1994 AQMP in 1996 as part of the SIP. After the EPA announced that it had concerns about the ozone control strategies in the 1997 AQMP, the SCAQMD revised the document in 1999 to address the EPA issues. The revised plan, now known as the 1997/1999 AQMP, was approved by the EPA on May 10, 2000, and replaced the 1994 AQMP as the federally enforceable SIP for the SCAB. The SCAQMD and SCAG have revised the 1999 AQMP and are expected to adopt the new revision later in 2003 after the completion of public review.

EXISTING AIR QUALITY

The SCAQMD is responsible for monitoring air quality in the SCAB, and for adopting controls, in conjunction with CARB, to improve air quality. The SCAQMD has established "source-receptor" areas for monitoring air pollution, based on topographical and meteorological barriers. The project site is just east of the border between SRA 7, the East San Fernando Valley, and SRA 8, the West San Gabriel Valley. The crest of the Verdugo Mountains runs in a diagonal line between the two SRAs. The proposed project is in SRA 8

Overall, air quality has improved considerably throughout the SCAB since 1990. In that year, the peak ozone concentration in SRA 8 was 0.26 ppm and the State ozone standard was exceeded 118 times. In 2001, the peak reading at that same station was 0.16 ppm and the State standard was exceeded 28 times. These improvements have occurred despite extensive population growth in the SCAB during these eleven years.

The EPA has adopted new standards for fine particulates ($PM_{2.5}$) and for 8-hour ozone. However, neither standard will be operational in the SCAB until the EPA completes its database on existing $PM_{2.5}$ concentrations and the 1-hour ozone standard is attained. The EPA expects to finalize the 8-hour ozone implementation procedures sometime in 2003 and to designate non-attainment areas in late 2003 or early 2004. The EPA expects to designate $PM_{2.5}$ non-attainment areas in 2004 or 2005.

In the interim, the SCAQMD is monitoring levels of 8-hour concentrations of ozone and of $PM_{2.5.}$ Where readings are available, the 8-hour ozone and the $PM_{2.5}$ concentrations are shown in Table 2 for information purposes. Readings for SRA 8 for the past five years, together with the applicable State and national standards, are shown in Table 2. PM_{10} readings are from SRA 9, the East San Gabriel Valley, because the SCAQMD does not monitor PM_{10} in SRA 8.

TABLE 2
SUMMARY OF AIR QUALITY DATA
WEST SAN GABRIEL VALLEY (SRA 8)
AIR MONITORING STATION

Pollutant Standards	1997	1998	1999	2000	2001
Ozone (O_3)					
State standard (1-hr. avg. 0.09 ppm)					
National standard (1-hr. avg. 0.12 ppm)					
National standard (8-hr. avg 0.08 ppm)					
Maximum 1-hr concentration (in ppm)	0.14	0.17	0.12	0.16	0.16
Maximum 8-hr concentration (in ppm)	0.11	0.14	0.10	0.13	0.12
Number of days state standard exceeded	24	31	15	19	28
Number of days national 1-hr. standard exceeded	5	14	0	7	1
Number of days national 8-hr. standard exceeded	8	17	4	14	9
Carbon Monoxide (CO)					
State standard (1-hr. avg. 20 ppm)					
National standard (1-hr. avg. 35 ppm)					
State standard (8-hr. avg. 9.0 ppm)					
National standard (8-hr. avg. 9 ppm)					
Maximum concentration 1-hr. period (in ppm)	8	8	9	8	7
Maximum concentration 8-hr. period (in ppm)	6	6.3	6.6	6.1	5
Number of days state/nat'l 1-hr. standards exceeded	0	0	0	0	0
Number of days state/nat'l 8-hr. standard exceeded	0	0	0	0	0
Nitrogen Dioxide (NO_2)					
State standard (1-hr avg. 0.25 ppm)					
National standard (0.0534 AAM in ppm)					
Annual arithmetic mean (in ppm)	0.0341	0.0351	0.0379	0.0296	0.0345
Percent national standard exceeded	0	0	0	0	0
Maximum 1-hr concentration	0.17	0.16	0.16	0.17	0.15
Number of days state 1-hr. standard exceeded	0	0	0	0	0
Suspended Particulates (PM_{10})[1]					
State standard (24-hr. avg. 50 $\mu g/m^3$)					
National standard (24-hr. avg. 150 $\mu g/m^3$)					
Maximum 24-hr. concentration	116	87	103	94	106
Percent samples exceeding state standard	40	28	35	42	38
Percent samples exceeding national standard	0	0	0	0	0
Suspended Particulates ($PM_{2.5}$)					
National standard (24-hr. avg. 65 $\mu g/m^3$)					
Maximum 24-hr. concentration	NM	NM	73	66	80
Percent samples exceeding national standard			1	1	1.3

[1] SR 9 East San Gabriel Valley (PM_{10} not monitored in SRA 8)
ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter
NM = Not Monitored. $PM_{2.5}$ monitoring began in 1999.

Source: SCAQMD Air Quality Data—1997 through 2001

Summary of Existing Air Quality

Pollutant concentrations have remained approximately the same throughout the past five years at the SRA 8 monitoring station. The area experiences moderate ozone pollution. Carbon monoxide levels have not exceeded state and national standards in the period. Particulate readings are relatively constant and well below national PM_{10} standards, although they exceed State standards. The new national $PM_{2.5}$ standard would have been exceeded occasionally.

SIGNIFICANCE THRESHOLDS

A project's air quality impacts can be separated into short-term impacts due to construction and long-term permanent impacts from project operations. Determination of significant impact is the responsibility of the lead agency, which is the City of Los Angeles (the "City").

The City prepared the Draft L.A. CEQA Thresholds Guide in 1998. For air quality, the City has not adopted specific citywide significance thresholds but instead relies on significance thresholds recommended by the SCAQMD in its CEQA Air Quality Handbook (the "SCAQMD CEQA Handbook"), as revised in November 1993 and approved by the SCAQMD's Board of Directors.

The SCAQMD's emission thresholds apply to all federally regulated air pollutants except lead, which is not exceeded in the SCAB. Construction and operational emissions are considered by the SCAQMD to be significant if they exceed the thresholds shown in Table 3.

TABLE 3
EMISSION THRESHOLDS OF SIGNIFICANCE

Pollutant	Construction		Operations
	pounds/day	tons/quarter	pounds/day
Carbon Monoxide (CO)	550	24.75	550
Sulfur Oxides (SO_x)	150	6.75	150
Particulate Matter (PM_{10})	150	6.75	150
Nitrogen Oxides (NO_x)	100	2.5	55
Volatile organic compounds (VOC)	75	2.5	55

Source: SCAQMD CEQA Air Quality Handbook, 1993

Carbon monoxide emissions from a project are significant if they cause CO concentrations at impacted locations to exceed a national or State standard or, in an area that already exceeds a standard, to increase CO concentrations by more than one part per million (ppm) averaged over one hour or 0.45 ppm averaged over eight hours.

In addition, the SCAQMD CEQA Handbook lists additional indicators of potential air quality impacts (Secondary Effects), including:

- $ Conflict with or obstruct implementation of the applicable air quality plan?

- $ Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

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

- $ Expose sensitive receptors to substantial pollutant concentrations?

- $ Create objectionable odors affecting a substantial number of people?

If the total population accommodated by a new project, together with the existing population and the projected population from all other planned projects in the subarea, does not exceed the growth projections for that subarea incorporated in the most recently adopted AQMP, the completed project is consistent with the AQMP. The entire City of Los Angeles is considered to be one subarea. The AQMP is region-wide and accounts for, and offsets, cumulative increases in emissions that are the result of anticipated growth throughout the region..

Sensitive receptors may warrant additional mitigation even when emissions are below the significance thresholds established by the SCAQMD. Ambient air standards are established to protect the average person from health effects associated with air pollution. The standards include an "adequate margin of safety." However, some people are particularly sensitive to some pollutants. These sensitive people include persons with respiratory illnesses or impaired lung function because of other illnesses, the elderly, and children. Facilities and structures where these sensitive people live or spend considerable amounts of time are known as sensitive receptors. The SCAQMD is currently revising its CEQA Handbook, which will be renamed the Air Quality Analysis Guidance Handbook when the revisions are complete. Chapters of the new Handbook are posted on the SCAQMD website as they are completed. To date, the following chapters have been revised:

Chapter 2 – Improving Air Quality and the AQMD's Role

Chapter 3 – Basic Air Quality Information

Chapter 4—Early Consultation and Sensitive Receptor Siting Criteria

None of the chapters that address significance thresholds, emission factors, modeling, assessment procedures, etc. have been revised. Chapter 4 defines land uses considered to be sensitive receptors as long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, child care centers and athletic facilities.

Odors associated with some projects may cause a nuisance that is not covered by the SCAQMD's emission thresholds. These odors may result during construction from disturbing soil that has formerly been saturated with an odoriferous substance or they may be associated with new uses that would occur after the project is completed.

CONSTRUCTION IMPACTS

Construction impacts may be regional or local and include airborne dust from demolition, grading, excavation and dirt hauling and gaseous emissions from the use of heavy equipment, delivery and dirt hauling trucks, employee vehicles, and paints and coatings. Regional pollutants, such as ozone, are those where emissions from many sources combine in the atmosphere and impact areas far removed from the emission sources. Local pollutants are those where the impacts occur very close to the source. Examples of the latter include carbon monoxide or large particulate matter (fugitive dust) that settles in the vicinity of the source and does not become airborne.

Construction impacts were assessed in accordance with procedures contained in the SCAQMD CEQA Handbook. Formulas in the Handbook were updated with current CARB emission factors.

Construction is anticipated to occur over 6 days each week. Peak day emissions are shown in Table 4 and peak quarter emissions in Table 5. These tables are based on the analysis described below.

Grading and Excavation

Soil may be disturbed during grading and excavation or while storing project-related equipment. Table A9-9 of the SCAQMD CEQA Handbook states that there would be 26.4 pounds of PM_{10} for each acre of graded surface. The soil on the project site is relatively thin, approximately 20 to 30 feet to bedrock granite. Most of it is considered rippable, similar to that found when the nearby I-210 was constructed. Some blasting may be required in small, localized areas. Rock would be crushed on the project site and compacted, together with excavated soil, to form building pads.

Grading of Development Area A would affect approximately 177 acres and require the movement of about 4,069,362 cubic yards of dirt. The grading of Development Area A is expected to occur over 19 months, or 494 working days, for an average of approximately 8,238 cubic yards a day. Soil would be balanced onsite. The civil engineers for the project estimate that approximately 25-30% of the project site would be exposed on a daily basis.

The grading of Development Area B would affect approximately 65 acres and require moving and compacting approximately 1,451,130 cubic yards of dirt. Grading is expected to take place over nine months, or 234 working days, for a daily average of approximately 6,201 cubic yards. It is possible that construction activities could be conducted simultaneously in both Development Areas. Therefore, this analysis is based on the worst-case assumption that maximum emissions would occur if both Development Areas were graded at the same time. In addition, the 3-acre equestrian park, which is located to the west of Development Area B, would also be graded during this period.

Since only a portion of the Development Areas would be graded on any given day, the analysis assumes that under worst-case conditions, 30% of the 245 acres, or a total of 73.5 acres, would be graded on the peak day. This analysis also assumes that any area that has been previously graded and is not being worked on has been sealed with a dust retardant so that only emissions during active grading are included in the peak day and peak quarter totals.

SCAQMD Rule 403 governs fugitive dust emissions from construction projects. This rule sets forth a list of control measures that must be undertaken for all construction projects to insure that no dust emissions from the project are visible beyond the property boundaries. In addition, large projects, which are defined as active operations on property which contains in excess of 100 acres of disturbed surface area or any operation which exceeds a daily earth-moving or throughput volume of 10,000 cubic yards three times over a 365-day period, must file a fugitive dust emissions control plan with the SCAQMD prior to beginning grading. Because the proposed project exceeds 100 acres and could move at least 10,000 cubic yards of dirt three or more times in a year during construction, the proposed project would be required to file a Rule 403 fugitive dust emissions control plan.

SCAQMD Rule 402, Nuisance, also would apply to this project. Most of the fugitive dust associated with construction is comprised of particles larger than 10 microns in diameter. While these larger particles settle out quickly and do not cause the health effects associated with the smaller sized particles (PM_{10} and $PM_{2.5}$), they can damage plants and property sufficiently to qualify as a nuisance. Rule 402 prohibits visible dust emissions from extending beyond the project boundaries. The same mitigation measures used to control PM_{10} also control the larger particles.

Dirt Moving

The analysis assumes the soil and crushed rock would be moved onsite by large scrapers with 30-cubic-foot pans. Based on the formula in Table A9-9 of the SCAQMD CEQA Handbook for cut and fill operations, this would result in approximately 414 pounds a day and approximately 16 tons per quarter of PM_{10} emissions, before mitigation.

Equipment

Crosby, Mead, Benton and Associates, the project engineer, divided the grading process into four phases and provided lists of equipment and trucks required for grading each of the phases. The first phase, which requires the largest amount of heavy equipment, would extend for 7 months in Development Area A and

5 months in Development Area B. This phase constitutes the peak construction period for air quality impacts.

The equipment listed for the first phase for Development Area A includes eight twin diesel Cat 657 scrapers, four off-highway rock trucks, two Cat loaders, six D-9/10 dozers, two water trucks, and one excavator. The grading for Development Area B would require six Cat 657 twin-diesel scrapers, four off-highway rock trucks, two Cat loaders, four D-9/10 dozers, two water trucks and one excavator. The project engineer estimates that all equipment would operate above idle for 15 minutes each hour during an 8-hour construction day.

The need for and amount of blasting required is uncertain. If required, it would be limited to small, localized areas. Rock-crushing equipment could also be required infrequently. The analysis assumes that one rock crusher equipped with an internal water spraying device to eliminate particulate emissions during crushing would be needed. Because the rock crusher would not be used every day, the analysis assumes an average of one hour per day throughout the peak period.

Emission estimates are derived from formulas contained in Tables A9-8-A and B in the SCAQMD CEQA Handbook.

Trucks

Although there would be no dump trucks used in the project development, this analysis assumes there would be 16 round trips per day of diesel powered heavy-duty trucks bringing equipment and 16 round trips per day by gasoline powered pick-up trucks. Trips were assumed to average 20 miles each way.

Employee Vehicles

Different workers would be on the project site at different phases of construction. This analysis assumes there would be 200 workers per day during the peak construction period. Worker vehicle trips are assumed at the regional average vehicle ridership (AVR) of 1.135 and the trip length of 11.2 miles each way listed in the SCAQMD CEQA Handbook. Emission factors are from the CARB emission model, EMFAC2002, using summertime conditions. Calculation sheets are contained in the Air Quality Technical Appendix.

Sensitive Receptors

Single-family homes border the north and northeast sides of Development Area A. Because some people who occupy these homes may be particularly sensitive to air pollutants, including fugitive dust, these existing homes are defined by the SCAQMD as sensitive receptors and could be significantly impacted by dust. The nearest homes range from 250 to 500 feet from the closest construction area. Protection would be afforded through the SCAQMD's Nuisance Regulation, Rule 402, which requires that the project applicant apply sufficient mitigation measures to prevent a nuisance from occurring off the premises, and by Rule 403, Fugitive Dust, which requires that there be no visible emissions beyond the property line.

Implementation of these regulations will protect sensitive receptors when grading occurs in the vicinity of the single-family homes.

Cumulative Construction Impacts

The City has identified 13 related projects in the general vicinity of the proposed project. Construction of these projects could result in additional cumulative impacts on local air quality, particularly fugitive dust impacts, if all were constructed simultaneously. However, only the Duke project is located near enough to the project site that fugitive dust emissions could potentially combine with those of the proposed project. The nearest construction area for the Duke project is 2,000 feet from the closest construction area in the proposed project. At that distance, it is unlikely that the local area would experience cumulative impacts from the two projects, even if both were under construction at the same time. Also, the 1997/1999 AQMP projected construction-related regional emissions for the population growth anticipated through the year 2020 and incorporated control measures to offset the increase in regional emissions that would result from this construction

TABLE 4
MAXIMUM DAILY CONSTRUCTION EMISSIONS
(in pounds per day)

Source Category	Pollutant				
	Carbon Monoxide (CO)	Volatile Organic Compounds (VOC)	Oxides of Nitrogen (NOx)	Oxides of Sulfur (SOx)	Particulate Matter (PM_{10})
Earthmoving/Grading (FugitiveDust)					1,927
Dirt Moving					414
Diesel-Powered Equipment	110	45	484	47	36
Trucks	28	3	15	0	1
Employee Vehicles	62	6	5	0	0
MAXIMUM DAILY CONSTRUCTION EMISSIONS	200	54	504	47	2,378
SCAQMD Significance Thresholds for Construction	550	75	100	150	150
Significant?	NO	NO	YES	NO	YES

TABLE 5 PEAK QUARTER CONSTRUCTION EMISSIONS (in tons per quarter)					
Source Category	Pollutant				
	Carbon Monoxide (CO)	Volatile Organic Compounds (VOC)	Oxides of Nitrogen (NOx)	Oxides of Sulfur (SOx)	Particulate Matter (PM_{10})
Earthmoving/Grading (Fugitive Dust)					75.16
Dirt Moving					16.14
Diesel-Powered Equipment	4.28	1.77	18.9	1.85	1.39
Trucks	0.92	0.09	0.49	0.01	0.02
Employee Vehicles	2.02	0.21	0.15	0	0
MAXIMUM QUARTER CONSTRUCTION EMISSIONS	7.22	2.07	19.54	1.86	92.71
SCAQMD Significance Thresholds for Construction	24.75	2.5	2.5	6.75	6.75
Significant?	NO	NO	YES	NO	YES

Summary of Construction Impacts

As shown in Tables 4 and 5, emissions of NOx and PM_{10} would be significant on the peak day and in the peak quarter without mitigation. Without mitigation, fugitive dust emissions could have a significant impact on sensitive receptors. There are no known sources of odors onsite that would be released during construction.

CONSTRUCTION MITIGATION MEASURES

The project qualifies as a "large project" under SCAQMD Rule 403; therefore, the applicant is required to file a fugitive dust emissions control plan with the SCAQMD, and the SCAQMD must approve the plan prior to the commencement of grading. The Rule 403 Implementation Handbook contains compliance guidelines for large operations and suggests dust control measures for incorporation in the fugitive dust emissions control plans, where applicable. These include:

A. Moisten soil not more than 15 minutes prior to moving soil and three times a day, or four times a day under windy conditions, in order to maintain soil moisture of 12%.

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B. On the last day of active operations prior to a weekend or holiday or before beginning grading on another portion of the project site, apply water or a chemical stabilizer to maintain a stabilized surface. Maintain this surface crust as long as the disturbed soil remains uncovered.

C. Water excavated soil piles hourly or cover piles with temporary coverings.

D. Cease grading during periods when winds exceed 25 miles per hour.

E. Operate vehicles on unpaved roads at 15 mph or less.

The SCAQMD CEQA Handbook lists the amount of control expected by each measure. Adherence to all measures shown above would result in a reduction of PM_{10} emissions of approximately 60%.

TABLE 6
MAXIMUM DAILY CONSTRUCTION EMISSIONS
AFTER MITIGATION
(in pounds per day)

Source Category	Pollutant				
	Carbon Monoxide (CO)	Volatile Organic Compounds (VOC)	Oxides of Nitrogen (NOx)	Oxides of Sulfur (SOx)	Particulate Matter (PM_{10})
Total Daily Emissions Before Mitigation	200	54	504	47	2,378
Earthmoving/ Grading (Fugitive Dust) (60% reduction)					1,156
Dirt Moving (60% reduction)					248
MAXIMUM DAILY CONSTRUCTION EMISSIONS	200	34	504	47	974
SCAQMD Significance Thresholds for Construction	550	75	100	150	150
Significant?	NO	NO	YES	NO	YES

TABLE 7 PEAK QUARTER CONSTRUCTION EMISSIONS AFTER MITIGATION (in tons per quarter)					
Source Category	Pollutant				
	Carbon Monoxide (CO)	Volatile Organic Compounds (VOC)	Oxides of Nitrogen (NOx)	Oxides of Sulfur (SOx)	Particulate Matter (PM_{10})
Total Peak Quarter Emissions Before Mitigation	7.22	2.07	19.54	1.86	92.71
Earthmoving/Grading (Fugitive Dust) (60% reduction)					45.10
Dirt Moving (60% reduction)					9.68
PEAK QUARTER EMISSIONS AFTER MITIGATION	7.22	2.07	19.54	1.86	37.93
SCAQMD Significance Thresholds for Construction	24.75	2.5	2.5	6.75	6.75
Significant?	NO	NO	YES	NO	YES

Construction Emissions After Mitigation

As shown in Tables 6 and 7, the recommended control measures would substantially reduce PM_{10} emissions. However, emissions of NOx and PM_{10} would remain significant after mitigation. Adherence to SCAQMD regulations, combined with distance from the source, will reduce PM_{10} emissions to levels that would not constitute significant adverse impacts on sensitive receptors.

OPERATIONAL IMPACTS

Regional

When completed, the proposed project would consist of 280 single-family homes and an equestrian park. The primary source of operational emissions would be vehicle travel to and from the Development Areas. Based on the traffic report for the project, there would be 2,693 total daily trips. A small amount of gaseous emissions would occur from use of natural gas and other area sources. There would also be some indirect emissions from electricity usage. Vehicle and area emissions were calculated with the California Air Resources Board model (URBEMIS2001), adjusted with total trips for the project in 2009 supplied by the traffic consultant. Emissions were calculated for both summer and winter conditions. NOx emissions are higher in winter because of heating with natural gas; ROC emissions are slightly higher in

summer because of landscaping. To show a worst case, the higher number for each pollutant is used in Table 8. Electricity emissions were calculated using Table A9-12 in the SCAQMD CEQA Handbook.

TABLE 8
OPERATIONAL EMISSIONS
(pounds per day)

Source Category	Pollutant				
	Carbon Monoxide (CO)	Volatile Organic Compounds (VOC)	Oxides of Nitrogen (NO_x)	Sulfur Dioxide (SO_2)	Particulate Matter (PM_{10})
Traffic Emissions	373	35	41	--	22
Consumer Products and Landscaping	2	14	4	--	--
Natural Gas Emissions	1	--	4	--	--
Electricity Emissions	--	--	3	--	--
TOTAL PROJECT EMISSIONS	376	49	52	--	22
SCAQMD Significance Thresholds for Operation	550	55	55	150	150
Significant?	NO	NO	NO	NO	NO

-- less than 0.5 pound
Emissions (except electricity) calculated with URBEMIS2001
Electricity emissions: SCAQMD CEQA Handbook 1993, Tables A9-12 A and B

Significance

As shown in Table 8, operation of the proposed project would not result in significant emissions of any pollutant on a regional scale. There would be some odors, such as from cooking and gardening, associated with residential uses, but those odors are not considered significant on a regional scale. Local odors would be no different than in any other residential area in the city and would not be significant.

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Local

The purpose of the local analysis is to determine if the proposed project could cause or contribute to carbon monoxide hot spots (locations where the CO concentrations exceed a State or national CO standard). Because of carbon monoxide controls that have been implemented in the past decade, the number of potential CO hotspots has greatly decreased everywhere in the SCAB. The potential hotspots

will continue to decline in the foreseeable future as background levels go down. Because the SCAB has been an attainment area for all 1-hour CO standards for more than five years, the 8-hour CO standards are the critical standards for assessing hotspots.

The traffic consultant's estimates of future traffic volume were used to determine the potential for future hotspots developing as a result of the proposed project. All of the future traffic projections in the traffic report include the cumulative traffic impacts resulting from related projects that could be built in the project vicinity between now and the future year.

Consistent with SCAQMD requirements, future CO concentrations at the SRA 8 monitoring station must be added to modeled concentrations to account for any CO which may be in the ambient air. The SCAQMD CEQA Handbook projects future CO concentrations only to the year 2000. However, the SCAQMD, subsequent to the issuance of the Handbook, predicted future concentrations to the year 2020 and posted these predicted concentrations on its website. For the West San Gabriel Valley (SRA 8), the predicted monitored 8-hour CO concentration is 4.8 ppm for the year 2010 and thereafter. Because the modeled concentration includes all traffic at the intersection and because CO dissipates a short distance from the source, adding the full monitored or predicted monitored CO concentration measured in Pasadena overestimates the actual concentration at an intersection in SRA 8 that is some distance away.

The SCAQMD CEQA Handbook states that an intersection will not experience a CO hotspot if the Level of Service (LOS) is C or better. For a proposed project to cause a significant CO hotspot to occur, there must be a combination of high traffic volume, local roadway configurations that cause heavy congestion, high background CO concentrations, and sufficient project-related traffic to cause a change in traffic conditions. All intersections analyzed in the traffic study were reviewed for traffic volume, congestion (as measured by the LOS), and the number of project-related vehicles to determine which intersection had the greatest potential for a CO hotspot. If no hotspot would occur at the most impacted intersection, there would be no hotspots at less impacted intersections.

The greatest total traffic volume would occur at the intersection of the I-210 Westbound Ramps and Sunland Boulevard. However, that intersection would receive only 19 project-related vehicles in the peak morning and peak afternoon traffic periods, a number too small to show an increase in CO in the model, and would operate at LOS F and LOS C in the year 2009, whether or not the proposed project is constructed. The greatest number of project-related trips occurs at the intersection of Tujunga Canyon Boulevard and La Tuna Canyon Road/Honolulu Avenue. However, because of improvements to the roadway currently being made by the City of Los Angeles, that intersection would operate at LOS A or B, with or without the project. Therefore, the increased traffic at that intersection would not cause a significant impact on CO levels, even when predicted future monitored concentrations are added to modeled concentrations.

The intersection of Tujunga Canyon Boulevard and Foothill Boulevard was selected for analysis because it would operate at LOS E, would have a total volume of traffic in the PM peak hour almost as high as the I-210 Westbound Ramps, and would receive a high number of project-related vehicles in the peak traffic hours. This intersection is the most likely to show that a CO standard is exceeded, or that the proposed

project could cause a standard to be exceeded, when predicted future monitored CO concentrations are added. If there were no significant impact at this intersection, there would not be a significant impact at the other intersections.

The analysis was conducted with CARB's Caline 4 computer model, updated with the newest CARB emission factors (EMFAC 2002). Consistent with Caltrans and CARB modeling protocol, 8-hour concentrations are assumed at 70% of the modeled 1-hour concentration. Adjusted concentrations include both the monitored or predicted monitored concentration and the modeled concentration. To determine the future projected monitored concentrations in 2009, 10% of the expected decrease in CO concentrations at SRA 8 between 2000 and 2010 was added to the projected concentrations for 2010.

Results of the analysis are shown in Table 9 for existing (2002) and future (2009) 1-hour and 8-hour CO concentrations. The first column shows the time of day (AM or PM); the second column shows the CO concentration monitored at SRA8 in 2001; the third column shows the CO concentration predicted by the Caline model; based on 2002 traffic, and the fourth column shows the existing CO concentration if both the monitored CO concentration and the modeled concentration were added together. The fifth column shows the CO concentration that the SCAQMD predicts will occur at the SRA 8 monitoring station in 2009; the sixth column shows the CO concentration predicted by the Caline model, based on projected traffic at the intersection in 2009 without the proposed project; the seventh column shows the CO concentration, based on projected traffic at the intersection in 2009 with the project; the eighth column shows the adjusted CO concentration in 2009 with the project after adding the SCAQMD-predicted monitored CO concentration for 2009, and the ninth column shows the national/State CO ambient air standards for comparison.

Both the 1-hour and 8-hour future CO concentrations shown in Table 9 for 2009 are well below national and State standards with or without the project, even when predicted future monitored concentrations are added. All other impacted intersections would show lower CO concentrations. Therefore, the project, when operational, would not have a significant adverse impact on local air quality.

TABLE 9
PEAK ONE-HOUR AND EIGHT-HOUR
CO CONCENTRATIONS
AT TUJUNGA CANYON BLVD./FOOTHILL BLVD.
(in ppm)

Time	2002			2009				National. Standard/ California Standard
	Monitored[a]	Modeled Existing Intersection	Adjusted Existing Intersection	Predicted Monitored[b]	Modeled Concentration No Project	Modeled Concentration With Project	Adjusted Concentration With Project	
One-Hour								
AM	7	4	11	6.7	2.2	2.3	9	35/20
PM	7	5.6	12.6	6.7	3.6	3.7	10.4	35/20
Eight-Hour								
AM	5	2.8	7.8	4.95	1.54	1.61	6.56	9/9.0
PM	5	3.92	8.92	4.95	2.52	2.59	7.54	9/9.0

[a] Source: SCAQMD. 2001 Air Quality Data. Peak 1-hr. CO concentration at the SRA 8 monitoring station.
[b] Source: SCAQMD website Year 2009 CO concentration at SRA 8, extrapolated from 2010 projected concentrations

Summary of Operational Impacts

As shown in Table 8, the project would not have a significant adverse impact on regional emissions. Table 9 shows there would be no significant adverse impacts on local air quality with operation of the project. Therefore, no mitigation is required.

CUMULATIVE IMPACTS

Construction Impacts. Only one of the related projects listed in the traffic study, the Duke project, is sufficiently near the proposed project to potentially impact local fugitive dust emissions. That site is 2,000 feet from the nearest construction area in the proposed project. At this distance, and because of mitigation measures that would be required by Rule 403 for both projects, it is very unlikely that fugitive dust emissions from the two projects would cumulatively impact local air quality. Cumulative regional construction impacts are considered in the adopted AQMP and control measures have been included to offset these cumulative construction emissions.

Regional Operational Impacts. The1997/1999 AQMP is based on population growth through the year 2020 developed by each of the cities and counties in the region and incorporated by SCAG into the regional AQMP. All projects in the region contribute to regional pollution and the emissions associated with these projects are modeled by the SCAQMD to determine future air quality without additional controls. If pollutant concentrations are shown by the model to exceed State or national ambient air standards, the SCAQMD, SCAG and CARB develop additional control strategies to offset emissions and reduce concentrations to below the standards. The project is in the Los Angeles City subarea. The City has projected growth to the year 2020 in the 1997/1999 AQMP. SCAG has determined that as long as the new population accommodated by a project is within the total population forecast for the subarea for the buildout year, the proposed project is consistent with the AQMP and cumulative impacts are offset by the AQMP. Since the AQMP forecasts growth through the year 2020 and the proposed project is anticipated to be completed by the year 2009, the proposed project is consistent with the total population forecast in the AQMP. Therefore, the project would not have a significant cumulative adverse impact on air quality.

Local Operational Impacts. The traffic study for the project contains a list of proposed new projects in the vicinity of the project site. Traffic from these related projects was included in the analysis of local traffic impacts and potential carbon monoxide hotspots. Since future 1-hour and 8-hour CO concentrations would be below national and State ambient air standards when the traffic from the proposed project and the other related projects is included in the analysis, the project would not have a significant cumulative adverse impact on local air quality.