APPENDIX H1
Air Quality Impact Analysis

Air Quality Impact Analysis
Mancara at Robinson Ranch

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CHAPTER 1
Executive Summary

Robinson Ranch LP (project applicant) is proposing to develop the Mancara at Robinson Ranch residential project (proposed project), located in the Sand Canyon area of Santa Clarita in Los Angeles County. This comprehensive air quality assessment supports the required California Environmental Quality Act (CEQA) documentation currently under development for the proposed project. The air quality analysis addresses the impacts of the proposed project on ambient air quality and the exposure of people, especially sensitive individuals, to harmful pollutant concentrations generated by construction and operation of the proposed project. The analysis also addresses the potential for the proposed project to result in an exceedance of an applicable air quality standard or threshold set forth by the South Coast Air Quality Management District (SCAQMD), and includes a discussion of global climate change and greenhouse gas (GHG) emissions in relation to the project. The information provided in the Traffic Impact Analysis for the proposed project was used to support this analysis (Iteris, Inc. 2008).

The findings of the analysis are as follows:

- Regional emissions from construction and operation would not result in an exceedance of applicable significance thresholds established by SCAQMD.
- Localized emissions of PM_{10} and $PM_{2.5}$ from construction would result in an exceedance of applicable significance thresholds established by SCAQMD.
- The project would be consistent with air quality policies, such as those set forth by the Southern California Association of Governments (SCAG) and SCAQMD.
- The proposed project would not result in a significant impact to sensitive receptors due to emissions from operation.
- The proposed project would not result in significant odorous emissions during construction and operation.
- The proposed project, in of itself, would not result in a significant impact to global warming.
- The proposed project combined with past, present, and probable future projects, would not result in a cumulative air quality impact.

CHAPTER 2
Project Description

2.1 Project Location

As shown on **Figure 2.1,** the project site is located in the Sand Canyon area of the City of Santa Clarita. The area proposed for development is located southeast of the Oak Spring Canyon Road and Lost Canyon Road intersection, and encompasses Tentative Tract Map No 063022 and APN 2840-0-001-118 and 2840-015-025, 031 through 035, 045, and 047. The most prominent circulation throughway is the Antelope Valley Freeway (State Route 14), located north of the site.

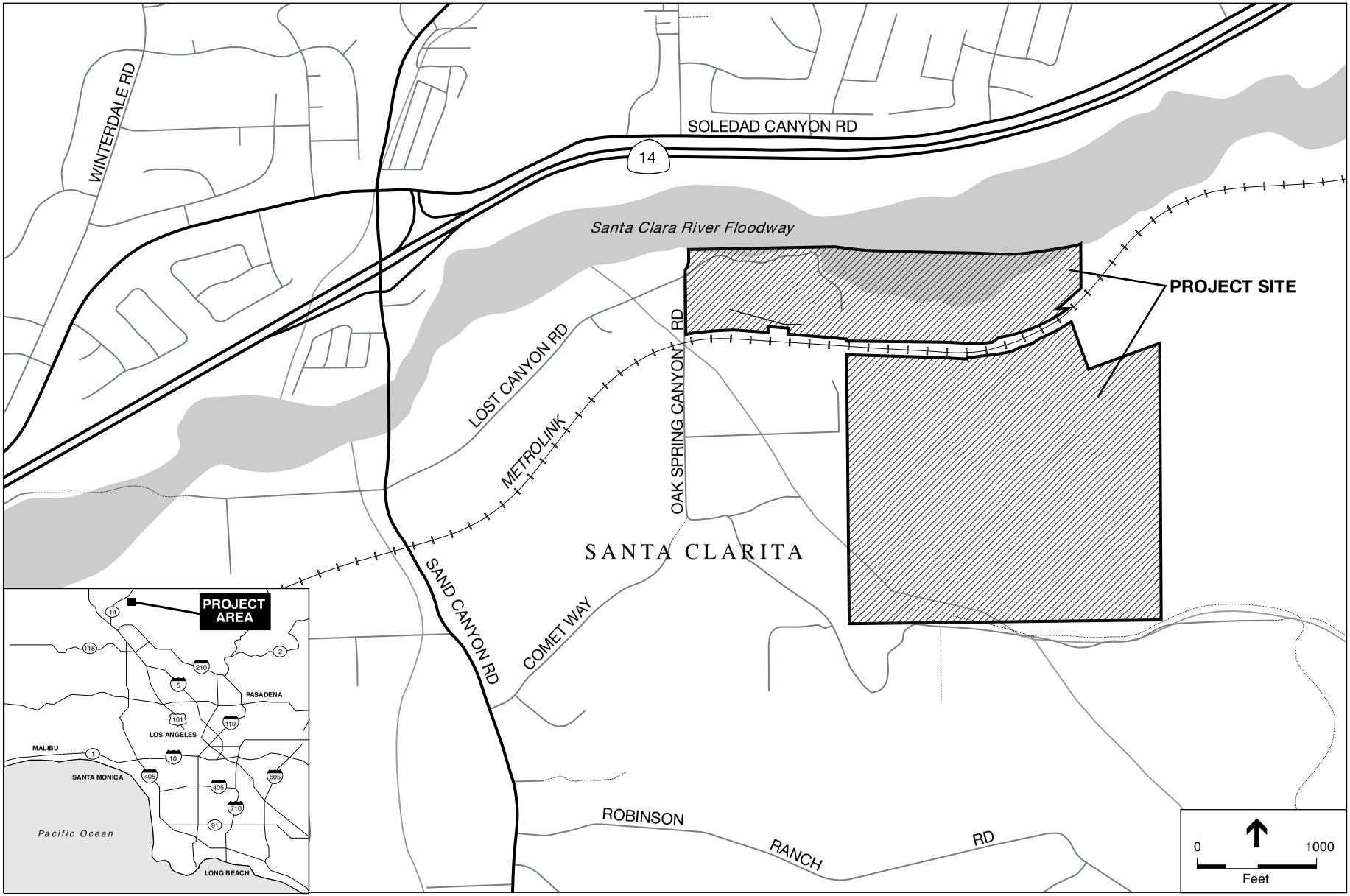
2.2 Existing Setting

As shown on **Figure 2.2,** the project site is undeveloped with the exception of disturbance from off-road vehicle use, resulting in a network of trail. The site also is transected by a Metrolink railroad right-of-way and a 100-foot-wide Southern California Gas Company gas transmission pipeline easement. The topography of the site varies from flat areas associated with the easements to rolling hills with vegetation. The soil on the site is silty-sand, sand, and gravel.

The site is bordered by Lost Canyon Road and the Santa Clara River floodway to the north, followed by the Metrolink/Union Pacific railroad tracks. An equestrian estate and the Robinson Ranch Golf Course are adjacent to the south. Undeveloped land occurs to the east and the Whitewater Canyon Road neighborhood is adjacent to the west. The land uses proposed for development are consistent with the existing general plan and zoning designations for Residential Low (density) and Residential Very Low (density) (LADRP, 2008a).

2.3 Project Components

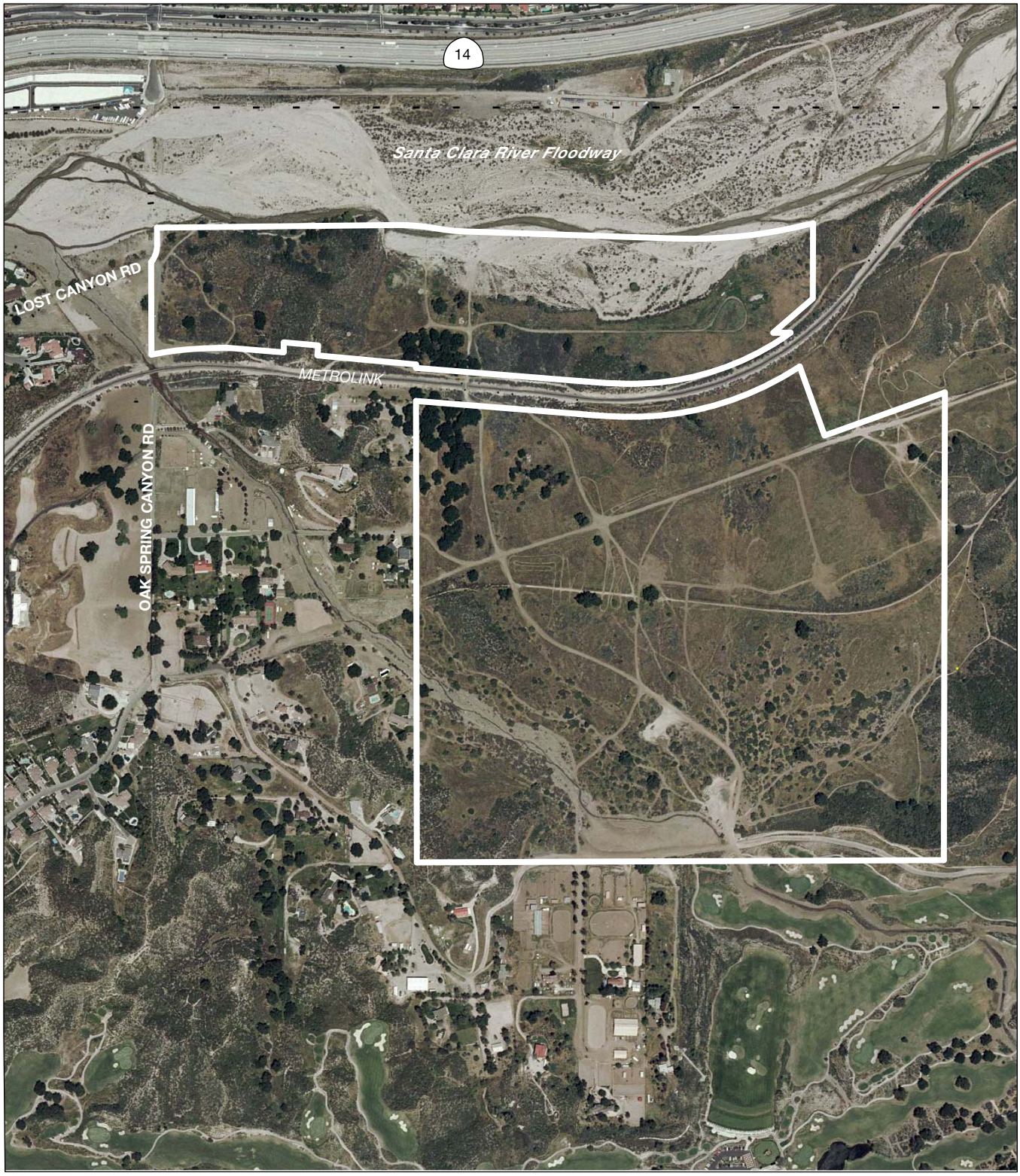
The development would provide a residential and equestrian based community, which includes development of 99 single-family residential units and open space areas within 105 lots on approximately 170 acres of land (see **Figure 2.3** for site plan). A temporary drainage/desilting water quality basin would be located along the eastern edge of the site until a roadway is extended easterly to accommodate development proposed on the adjacent property. The proposed project would provide a 5-acre city park, equestrian space, and open space near the Santa Clarita River along the northerly boundary of the property. Overall, the proposed project would maintain approximately 30 acres of open space. (Sikend Engineering, 2008)



SOURCE: ESA

Mancara AQ Study . 208500

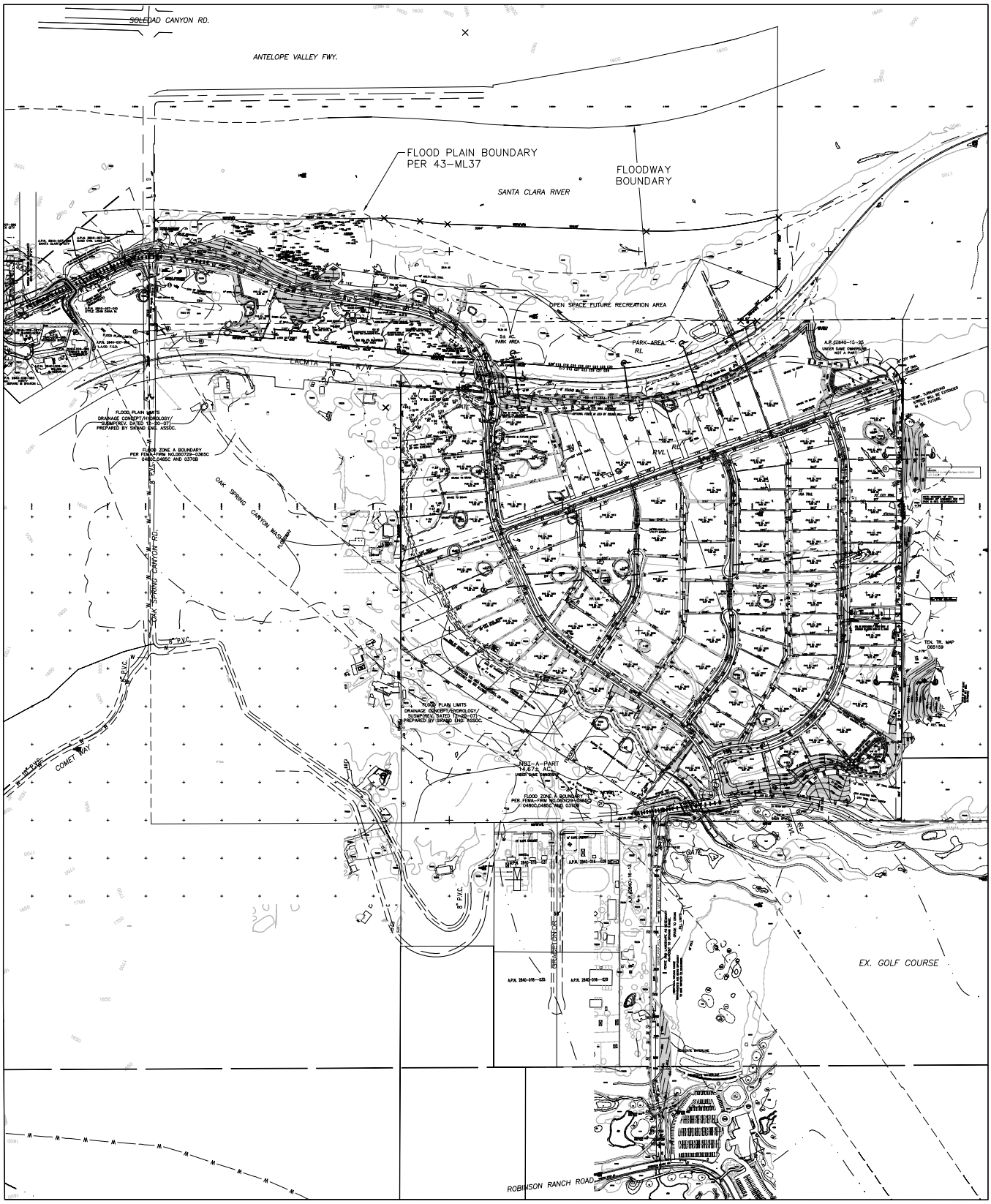
Figure 2.1
Site Location Map



SOURCE: Sikand

Mancara AQ Study . 208500

Figure 2.2
Existing Setting



SOURCE: Sikand

Mancara AQ Study . 208500

Figure 2.3
Site Plan

2.4 Access and Circulation

Access to the site would be via two-gated access points; one on Lost Canyon road and one on Oak Spring Canyon Road. In addition, private access would be provided for the two residential lots located north of the Metrolink railroad right-of-way. The proposed project would provide internal roadways as well as improvements to Oak Spring Canyon Road, which includes a new bridge over Oak Spring Canyon Wash and a new roadway connection to the Robinson Ranch Golf Club immediately south of the site. Traffic improvements include an eastward extension of Lost Canyon Road from its intersection with Oak Spring Canyon Road into the northern portion of the site. The roadway referred to as "D" street would be extended to connect the adjoining property to the east with a second access provided where the temporary desilting basin is proposed. Proposed trails and trail connections would provide equestrian, bicycle, and pedestrian access for the site.

Santa Clarita Transit provides service along one route through the study area. Route 6 is an east-west local route that travels from Shadow Pines Boulevard to Stevenson Ranch via Valencia Town Center and Downtown Newhall. This route operates on weekdays, Saturdays and limited service on Sundays and minor holidays. The closest stop is at Kenroy Avenue, which is located immediately west of Sand Canyon Road along Soledad Canyon Road. The proposed project is expected to generate approximately 947 new daily trips with 75 and 100 vehicle trips in the AM and PM peak hours, respectively (Iteris, Inc., 2008).

2.5 Grading Plan

The site consist of 170 acres with grading operations expected to include approximately 770,000 cubic yards of excavation and approximately 689,000 cubic yards of remedial grading for a total of approximately 1,459,000 cubic yards. The grading is anticipated to take up to 10 months. All earthwork, including remedial grading, would be balanced on-site with no need for import or export of soils. Starting grading at the end of winter February-March would take advantage of the previous season's rain while finishing prior to the start of the next rainy season. A maximum of 10 acres per day would be disturbed during grading operations. (KOAR Institutional Advisors, LLC, 2008a)

2.6 Construction Phasing

The proposed project would include the development of 99 single-family residential units on approximately 170 acres of land. Even though the air quality analysis conservatively assumes one phase, construction would occur in up to nine phases depending on market conditions. It is anticipated that construction of the residential homes would begin in the fall of 2009, with each phase occurring for a period of approximately 12 months. Depending on market condition and financing, completion of construction and occupancy is expected no later than 2016. (KOAR Institutional Advisors, LLC, 2008b)

CHAPTER 3
Regulatory Setting

The proposed project is subject to air quality regulations developed and implemented on the federal, state, and local levels. At the federal level, the United States Environmental Protection Agency (USEPA) is responsible for implementation of the federal Clean Air Act (CAA). The California Air Resource Board (CARB) is the state agency responsible for the implementation of state and federal programs. The proposed project is located in SCAQMD's jurisdiction.

3.1 Federal Policy and Regulations

Federal Clean Air Act

The USEPA promulgates the federal CAA, last amended in 1990. The federal CAA establishes federal air quality standards, known as National Ambient Air Quality Standards (NAAQS) and specifies future dates for achieving compliance with the standard. The federal CAA also specifies future dates for achieving compliance with the NAAQS and mandates that states submit and implement a State Implementation Plan (SIP) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards would be met.

The federal CAA contains the NAAQS for ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter of 10 microns or less and 2.5 microns or less (PM_{10} and $PM_{2.5}$), carbon monoxide (CO), and lead. These pollutants are referred to as "criteria air pollutants" and have been set at levels considered safe to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly with a margin of safety; and to protect public welfare, including protection against decreased visibility. Areas that do not meet the established standards are classified as 'nonattainment'. Los Angeles Count is classified as nonattainment for O_3, PM_{10} and $PM_{2.5.}$

The CAA amendments of 1990 require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. **Table 3.1** shows the NAAQS currently in effect for each criteria pollutant.

TABLE 3.1
AMBIENT AIR QUALITY STANDARDS [a]

Pollutant	Averaging Time	California Standard [b]	Federal Primary Standard [c,d]	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
O_3 [e]	1 hour	0.09 ppm	0.12 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Primarily gasoline-powered motor vehicles.
	8 hours	0.07 ppm	0.075 ppm		
CO	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiate. CO interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
NO_2	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Increases susceptibility to respiratory infections, especially in people with asthma. NO_2 is a major component of the group of gases commonly referred to as nitrogen oxides (NO_x). The principal concern of NO_x is as a precursor to the formation of O_3.	Gasoline-powered motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm [f]	—		
SO_2	Annual Arithmetic Mean	—	0.03 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	—		
	24 hours	0.04 ppm	0.14 ppm		
PM_{10}	24 hours	50 μg/m^3	150 μg/m^3	Increases respiratory disease, irritates eyes and respiratory tract. Absorbs sunlight, reducing amount of solar energy reaching the earth. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	20 μg/m^3	50 μg/m^3		
$PM_{2.5}$	24 hours	—	35 μg/m^3	Increases respiratory disease, lung damage, cancer, premature death, and reduced visibility.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).
	Annual Arithmetic Mean	12 μg/m^3	15 μg/m^3		
Lead	Monthly	1.5 ug/m^3	—	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction (in severe cases).	Lead smelters, battery manufacturing & recycling facilities.
	Quarterly	—	1.5 ug/m^3		
Sulfates	24 hours	25 ug/m^3	—	Decrease in ventilatory functions, aggravation of asthmatic symptoms, and aggravation of cardio-pulmonary disease.	Coal or oil burning power plants and industries, refineries, diesel engines.
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility; health effect are the same as those assumed for particulate matter.	See $PM_{2.5}$.
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Although mainly affecting humans as a nuisance odor, high levels may cause headache or breathing difficulties.	Geothermal power plants, petroleum production and refining processes, and wastewater treatment plant and sewer off-gases.
Vinyl Chloride	24 hour	0.01 ppm	No National Standard	CARB identified TAC with no threshold or exposure for adverse health effects determined.	Industrial processes.

Notes: ppm = parts per million and μg/m^3 = micrograms per cubic meter.
[a] Standards are set at levels that provide a reasonable margin of safety and protect the health of the most sensitive individual in the population.
[b] CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
[c] NAAQS (other than O_3, PM, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year.
[d] This table includes updated PM_{10} and $PM_{2.5}$ standard that adopted in September 2006, and new O_3 standard promulgated in May 2008.
[e] O_3 is formed when NO_X and Reactive Organic Compounds react in the presence of sunlight. New 8-hour standard adopted by USEPA May 2008. There are no air quality standards for Reactive Organic Compounds, however Reactive Organic Compounds are recognized as pollutants of concern as they are a precursor to the formation of ozone.
[f] NO_2 standard was amended on February 22, 2007, to lower the 1-hr standard to 0.18 ppm and establish a new annual standard of 0.30 ppm.

SOURCE: CARB, 2008a (ARB Factsheet: Air Pollution Sources, Effects and Control). CARB 2008b (Ambient Air Quality Standards, Website: http://www.arb.ca.gov/aqs/aaqs2.pdf)

3.2 State Policy and Regulations

California Clean Air Act

CARB has implemented the California CAA, which establishes the California Ambient Air Quality Standards (CAAQS). As compared to the NAAQS, the CAAQS incorporate additional standards for most of the criteria pollutants and includes standards for other pollutants. In general, the CAAQS are more health protective than NAAQS, and includes standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. **Table 3.2** summarizes the current attainment status of Los Angeles County with respect to both federal and state ambient air quality standards.

The Los Angeles County portion of the South Coast Air Basin (Basin) fails to meet NAAQS for O_3 (8-hour standard), PM_{10} and $PM_{2.5}$, and therefore is considered a federal "non-attainment" area for these pollutants. For the CAAQS, the Basin is considered non-attainment for O_3 (for both the 1-hour and 8-hour standard), PM_{10} (for both the 24-hour and annual hour standard), and $PM_{2.5}$.

TABLE 3.2
CAAQS ATTAINMENT STATUS AS COMPARED TO NAAQS

Pollutant	National Status	California Status
O_3 (1-hour standard)	No Federal Standard [a]	Non-attainment
O_3 (8-hour standard)	Extreme	Non-attainment
CO	Attainment	Attainment
SO_2	Attainment	Attainment
NO_2	Attainment	Attainment
PM_{10} (24-hour)	Serious	Non-attainment
PM_{10} (annual)	No Federal Standard [b]	Non-attainment
$PM_{2.5}$	Serious	Non-attainment
Lead	Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Unclassified [c]

[a] Federal One Hour Ozone National Ambient Air Quality Standard was revoked on June 15, 2005 for all areas except Early Action Compact Areas.
[b] The NAAQS for annual PM_{10} was revoked on September 21, 2006.
[c] CARB has not identified a threshold, therefore does not make status designations.

SOURCES: CARB, 2008c. (Area Designation Maps, Website: http://www.arb.ca.gov/desig/adm/adm.htm).

State Implementation Plan

As previously discussed, areas designated as non-attainment with respect to the NAAQS standard must designate dates for achieving compliance with the NAAQS. The CAA mandates that states submit and implement a SIP for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met. Similarly, the California CAA requires development of air quality plans and strategies to meet state air quality

standards in areas designated as non-attainment (with the exception of areas designated as non-attainment for state PM standards). The SIPs are required for attainment areas that had previously been designated non-attainment in order to ensure continued attainment of the standards.

Toxic Air Contaminants

Regulation of toxic air contaminant (TACs) from mobile sources has traditionally been implemented through emissions standards for on-road motor vehicles (imposed on vehicle manufacturers) and through specifications for gasoline and diesel fuel sold in California (imposed on fuel refineries and retailers), rather than through land use decisions, air quality permits, or regulations addressing how motor vehicles are used by the general public. In August 1998, CARB identified particulate emissions from diesel-fueled engines (diesel particulate matter, or DPM) as TACs. CARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (CARB, 2000). This document provides a plan to reduce diesel particulate emissions, with the goal of reducing emissions and the associated health risks by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed diesel particulate filters and ultra low sulfur diesel fuel on diesel-fueled engines.

Both SCAQMD and CARB have monitoring networks in the SCAB that measure ambient concentrations of certain TACs associated with important health-related effects are present in appreciable concentrations in the area. SCAQMD uses this information to determine risks for a particular area. Results of the Multiple Air Toxics Exposure Study (MATES III) indicate that the Basin cancer risk is approximately 1,200-in-one-million. This risk refers to the expected number of additional cancers in a population of one million individuals that are exposed over a 70-year lifetime. Using the MATES III methodology, about 94 percent of the risk is attributed to emissions associated with mobile sources, and about 6 percent of the risk is attributed to toxics emitted from stationary sources, which include industries, and businesses such as dry cleaners and chrome plating operations. (SCAQMD, 2008)

The MATES III results indicate that diesel exhaust is the major contributor to air toxics risk, accounting on average for about 84 percent of the total risk in the Basin. A network of ten fixed sites was used to monitor TACs once every three days for two years. According to the SCAQMD's MATES III study the monitoring site nearest to the project area is the Compton site, and data shows a simulated air toxic risk area of approximately 1,200 in-one million.[1] This is largely due to diesel particulates emitted from heavy-duty trucks traveling along the I-105 and I-710 freeways, which are within four miles of the project site. (SCAQMD, 2008)

CARB Air Quality and Land Use Handbook

CARB published the *Air Quality and Land Use Handbook* in April 2005, which serves as a general guide for considering impacts to sensitive receptors from facilities that emit TAC emissions (CARB, 2005). The goal of this guidance document is to provide information to help protect sensitive receptors, such as children, the elderly, acutely ill, and chronically ill persons, from exposure to TAC emissions. The handbook highlights recent studies that have shown that

[1] *Ibid*, p. 2-19.

public exposure to air pollution can be substantially elevated near freeways and certain other facilities. However, studies show that the health risk is greatly reduced with distance. As a result, the document provides general recommendations aimed at keeping appropriate distances between sources of air pollution and sensitive land uses.

Greenhouse Gases

The accumulation of GHG has contributed to an increase in the temperature of the earth's atmosphere and contributed to global climate change. The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF6), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and water vapor (H_2O). Carbon dioxide is the reference gas for climate change because it is the predominant GHG emitted. In 2005, in recognition of California's vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide emissions of GHG would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

In 2006, California passed the *California Global Warming Solutions Act of 2006* (Assembly Bill No. 32 or AB 32), which requires CARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020 (representing an approximate 25 percent reduction in emissions) (California HSC, 2007). In addition, Secretary of California EPA created the Climate Action Team (CAT), which, in March 2006, published the *Climate Action Team Report* for Governor Schwarzenegger and the Legislature (the "2006 CAT Report") (CAT, 2006). The 2006 CAT Report identifies a recommended list of strategies that the state could pursue to reduce climate change GHG emissions. These are strategies that could be implemented by various state agencies to ensure that the Governor's targets are met and can be met with the existing authority of the State agencies.

In June 2007, CARB directed staff to pursue 37 early actions for reducing GHG emissions under the *California Global Warming Solutions Act of 2006* (AB 32) (CARB 2007). The broad spectrum of strategies to be developed – including a Low Carbon Fuel Standard, regulations for refrigerants with high global warming potential, guidance and protocols for local governments to facilitate GHG reductions, and green ports – reflects the seriousness of the threat of climate change and the need for action as soon as possible. CARB staff is recommending the expansion of the early action list to a total of 44 GHG reduction measures. The 44 recommended early actions have the potential to reduce GHG emissions by at least 42 million metric tons of CO_2 equivalent $MMTCO_2E$ emissions by 2020, representing about 25 percent of the estimated reductions needed by 2020. The 44 measures address various sectors, including fuels, transportation, forestry, agriculture, education, energy efficiency, commercial, solid waste, cement, oil and gas, electricity, and fire suppression.

In addition to identifying early actions to reduce GHGs, CARB developed the GHG mandatory reporting regulation, required by January 1, 2008 (CARB, 2007). These regulations require reporting for certain types of facilities that make up the bulk of the stationary source emissions in California. The regulation identifies major facilities as those that generate more than 25,000 metric tons of CO_2 per year (CO_2/yr.) Cement plants, oil refineries, electric generating facilities/providers, co-generation facilities, and hydrogen plants and other stationary combustion sources that emit more than 25,000 MT CO_2/yr, make up 94 percent of the point source CO_2 emissions in California (CARB, 2007b).

In relation to CEQA, the California Air Pollution Control Officers Association (CAPCOA) published Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act in January 2008. The paper evaluates tools and methodologies for estimating impacts, and summarizes mitigation measures. It has been prepared with the understanding that the programs, regulations, policies, and procedures established by the CARB and other agencies to reduce GHG emissions may ultimately result in a different approach under CEQA than the strategies considered here. In addition, AQMD published the Draft AQMD Staff CEQA Greenhouse Gas Significance Threshold, which provides a significance screening level of 3,000 metric tons/year of CO_2e (SCAQMD, 2008).

CARB Idling Rule:

CARB's idling limits provided in section 2449(d)(3) require the following limits.

(A) Idling Limit - No vehicle or engine subject to this regulation may idle for more than five consecutive minutes. Idling of a vehicle that is owned by a rental company is the responsibility of the renter or lessee, and the rental agreement should so indicate. The idling limit does not apply to:

1. idling when queuing,

2. idling to verify that the vehicle is in safe operating condition,

3. idling for testing, servicing, repairing or diagnostic purposes,

4. idling necessary to accomplish work for which the vehicle was designed (such as operating a crane),

5. idling required to bring the machine system to operating temperature, and

6. idling necessary to ensure safe operation of the vehicle.

(B) Written Idling Policy - As of March 1, 2009, medium and large fleets must also have a written idling policy that is made available to operators of the vehicles and informs them that idling is limited to five consecutive minutes or less.

3.3 Regional and Local Policy and Regulations

Air Toxics Hot Spots Program

Locally, SCAQMD administers the Air Toxics Hot Spots program (AB 2588), which is intended to reduce public exposure to TACs from stationary sources in the SCAB. The Air Toxics "Hot Spots" Information and Assessment Act, codified in the California Health and Safety Code, requires operators of specified facilities to submit comprehensive emissions inventories and reports to SCAQMD by specified dates. SCAQMD reviews the reports and then places the facilities into high-, intermediate-, and low-priority categories, based on the potency, toxicity, quantity, and volume of emissions and on the proximity of receptors, including sensitive receptors, to the facility. Facilities designated as high priority must prepare a health risk assessment. If the risk is above specified levels, facilities are required to notify the surrounding population and may be required to develop and implement a risk reduction plan.

SCAG Regional Comprehensive Plan and Guide

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial counties. SCAG addresses regional issues relating to transportation, the economy, community development, and the environment. SCAG is the federally-designated metropolitan planning organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. As the designated MPO, SCAG is mandated by the federal government to develop and implement regional plans that address transportation, growth management, hazardous waste management, and air quality issues. With respect to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide (RCPG) for the Los Angeles County region, which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation components of the Air Quality Management Plan (AQMP) and are utilized in the preparation of air quality forecasts and the consistency analysis that is included in the AQMP.

SCAQMD Air Quality Management Plan

SCAQMD and SCAG are responsible for preparing the AQMP for the District, which addresses federal and state CAA requirements. The 2007 AQMP details goals, policies, and programs for improving air quality and establishes thresholds for daily operation emissions. The current AQMP was adopted by the SCAQMD Governing Board on June 1, 2007 (SCAQMD, 2007). The purpose of the 2007 AQMP is to set forth a comprehensive program that will lead the region into compliance with federal 8-hour ozone and $PM_{2.5}$ air quality standards. The 2007 AQMP proposes attainment of the federal $PM_{2.5}$ standards through a more focused control of SO_x, $PM_{2.5}$, and NO_x supplemented with a stringent regulation of volatile organic compounds (VOCs) by 2015. The 8-hour ozone control strategy builds upon the $PM_{2.5}$ strategy, augmented with additional NO_x and VOCs reductions to meet the standard by 2024. The 2007 AQMP also builds upon the approaches taken in the 2003 AQMP for the South Coast Air Basin for the attainment of the federal ozone air quality standard. However, this Plan highlights the significant amount of reductions needed and

the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under federal CAA.

SCAQMD Land Use Planning Guidelines

SCAQMD has adopted a guidance document for Addressing Air Quality Issues in General Plans and Local Planning, which also considers impacts to sensitive receptors from facilities that emit TACs emissions (SCAQMD, 2005). SCAQMD's distance recommendations are the same as CARB's in that a 500-foot siting distance for sensitive receptors is recommended in proximity of freeways and high-traffic roads, and SCAQMD's criteria includes siting distances for distribution centers and dry cleaning facilities. SCAQMD's document introduces land use related policies that rely on design and distance parameters to minimize emissions and lower potential health risk. SCAQMD's guidelines are voluntary initiatives recommended for consideration by local planning agencies. Additionally, SCAQMD is in the process of developing an "Air Quality Analysis Guidance Handbook" to replace the *CEQA Air Quality Handbook* approved by the AQMD Governing Board in 1993 (SCAQMD, 1993). The new Handbook is intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts, pursuant to the CEQA.

SCAQMD Additional Rules and Regulations

SCAQMD rules that apply to construction or operation of the project are as follows.

SCAQMD Rule 403 (Fugitive Dust) requires that fugitive dust be controlled with the best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. Two options are presented in Rule 403; monitoring of particulate concentrations or active control. Monitoring involves a sampling network around a project with no additional control measures unless emissions are exceeded.

SCAQMD Rule 402 (Nuisance) also would apply to the proposed project and requires that air pollutant emissions not be a nuisance off-site. 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.

SCAQMD Rule 1113 (Odor). Potential sources that may emit odors during construction activities include the use of architectural coatings and solvents. SCAQMD Rule 1113 limits the amount and type of volatile organic compounds from architectural coatings and solvents, therefore reducing odors and assuring odor thresholds are met.

Los Angeles County Congestion Management Plan

The Congestion Management Plan (CMP) for the County of Los Angeles was developed to meet the requirements of Section 65089 of the California Government Code. In enacting the CMP

statute, the state legislature noted the increasing concern that urban congestion was influencing the economic vitality of the state and diminishing the quality of life in many communities. The CMP was created to further the following objectives:

- To link land use, transportation and air quality decisions.
- To develop a partnership among transportation decision makers to encourage appropriate transportation solutions include all modes of travel.
- To propose transportation projects which are eligible for state gas tax funds.

Santa Clarita Valley Area Plan

The proposed project is located within the jurisdiction of Los Angeles County. Policies of the Los Angeles County General Plan are presented in the Santa Clarita Valley Area Plan, developed in 1984 and amended in 1990. The following policies from the Santa Clarita Valley Area Plan are relevant to the proposed project:

Land Use Element

Policy 9.4 - Encourage the development of a public transportation system to meet resident requirements for access to public and private services, employment, and activity centers consistent with demand.

Economic Development Element

Policy 1.3 - Support infrastructure improvements in appropriate locations that contribute to development or expansion of employment producing uses.

City of Santa Clarita

The Air Quality Element of the City of Santa Clarita General Plan establishes goals and policies that would help to reduce regional air pollutant emissions through physical improvements, action programs, and educational programs (City of Santa Clarita, 2000). The following goals and policies from the Air Quality element are relevant to the proposed project:

Air Quality Element

Policy 6.1: Encourage new development, through the project review process, to incorporate appropriate building and site design criteria to minimize vehicular emissions, such as those resulting from onsite circulation patterns.

Policy 10.2: Develop and encourage efficient transportation systems and land use patterns, which minimize total trips and vehicle miles traveled.

Policy 10.4: Encourage land use patterns that integrate neighborhood commercial centers with surrounding residential uses.

Policy 10.7: Encourage transit-friendly and pedestrian-friendly improvements and design in commercial, industrial, and residential development to provide convenient alternatives to single-occupancy vehicle travel.

CHAPTER 4
Environmental Setting

4.1 Regional Air Quality Conditions

The City of Santa Clarita is located within the South Coast Air Basin (Basin), which includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties. The City lies in Los Angeles County north of the San Fernando Valley, surrounded by the Santa Susana and San Gabriel mountain ranges on the south, east, and west, and the Sierra Pelona Mountains on the north. Santa Clarita lies in the transitional microclimatic zone of the Basin, located between two climate types, termed “valley marginal” and “high desert”. Air pollution is directly related to a region’s topographic features and the Basin is a coastal plain with connecting broad valleys and low hills. Situated far enough from the ocean to usually escape coastal damp air and fog, the summers are hot and the winters sunny and warm.

Santa Clarita's climate is relatively mild. Annual average daytime temperatures range from 89.7\ degrees Fahrenheit (F) in summer to 63.6 degrees F in winter. Low temperatures average 58.9 degrees F in summer and 41.3 degrees F in winter. In wintertime during calm, clear nights, the localized mountain/valley drainage flow is enhanced and cool air drains downslope towards the valley floor. Annual precipitation for Santa Clarita is 13.10 inches, which occurs almost exclusively from late October to early April (City of Santa Clarita, 2000). Winds across the project area are an important meteorological parameter since they control the initial rate of dilution of locally generated air pollutant emissions, as well as their regional trajectory. Predominant wind patterns for the Santa Clarita area generally follow those described for a mountain/valley regime. During the day, effects of the onshore flow reach inland and are enhanced by a localized up valley or mountain pass wind. During the night, surface radiation cools the air in the mountains and hills, which flows downvalley, producing a gentle periodic winds.

The air quality within the Basin is primarily influenced by a wide range of emissions sources—such as dense population centers, heavy vehicular traffic, and industry—and meteorology. Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

4.2 Local Air Quality Conditions

Existing Pollutant Levels at Nearby Monitoring Stations

SCAQMD maintains a network of air quality monitoring stations located throughout the Basin. The closest monitoring station to the project area is the Santa Clarita Valley Monitoring Station (Newhall), located four miles southeast of the project site. Criteria pollutants, including O_3, CO, PM_{10}, and NO_2 are monitored at this station. The nearest monitoring station where $PM_{2.5}$ and SO_2 are measured is located in the City of Burbank, approximately 20 miles southeast of the project site. The most recent annual data available from these monitoring stations encompasses the years 2004 to 2007. The ambient monitoring data in **Table 4.1** shows the following pollutant trends:

TABLE 4.1
POLLUTANT STANDARDS AND AMBIENT AIR QUALITY DATA[a]
FROM REPRESENTATIVE MONITORING STATIONS[b]

Pollutant/Standard	2004	2005	2006	2007
O_3				
O_3 (1-hour)				
Maximum Concentration (ppm)	0.16	0.17	0.16	0.14
Days > CAAQS (0.09 ppm)	69	65	62	31
Days > NAAQS (0.12 ppm)[c]	13	11	20	2
O_3 (8-hour)	0.13	0.14	0.12	0.11
Maximum Concentration (ppm)	52	47	40	17
Days > NAAQS (0.08 ppm)				
PM_{10}				
PM_{10} (24-hour)				
Maximum Concentration ($\mu g/m^3$)[d,e]	54	55	53	167
Days > CAAQS (50 $\mu g/m^3$)[f]	1	1	1	1
Days > NAAQS (150 $\mu g/m^3$)[f]	0	0	0	1
PM_{10} (Annual Average)				
Annual Arithmetic Mean (50 $\mu g/m^3$)[e]	28	26	23	32
$PM_{2.5}$				
$PM_{2.5}$ (24-hour)				
Maximum Concentration ($\mu g/m^3$)	60	63	51	57
Days > NAAQS (65 $\mu g/m^3$)	0	0	0	0
$PM_{2.5}$ (Annual)				
Annual Arithmetic Mean (15 $\mu g/m^3$)	n/a	n/a	n/a	n/a
CO				
CO (1-hour)				
Maximum Concentration (ppm)	3.3	5.2	3.7	3.5
Days > CAAQS (20 ppm)	0	0	0	0
Days > NAAQS (35 ppm)	0	0	0	0
CO (8-hour)				
Maximum Concentration (ppm)	3.7	1.3	1.3	1.2
Days > CAAQS (9.0 ppm)	0	0	0	0
Days > NAAQS (9 ppm)	0	0	0	0
NO_2				
NO_2 (1-hour)				
Maximum Concentration (ppm)	0.09	0.09	0.08	0.08
Days > CAAQS (0.18 ppm)	0	0	0	0
NO_2 (Annual)				
Annual Arithmetic Mean (0.053 ppm)	0.02	0.02	0.02	0.02

TABLE 4.1 (CONT.)
POLLUTANT STANDARDS AND AMBIENT AIR QUALITY DATA[a]
FROM REPRESENTATIVE MONITORING STATIONS[b]

Pollutant/Standard	2004	2005	2006	2007
SO_2				
SO_2 (1-hour)				
Maximum Concentration (ppm)	n/a	n/a	n/a	n/a
Days > CAAQS (0.25 ppm)	n/a	n/a	n/a	n/a
SO_2 (24-hour)				
Maximum Concentration (ppm)	0.009	0.006	0.004	0.003
Days > CAAQS (0.04 ppm)	0	0	0	0
Days > NAAQS (0.14 ppm)	0	0	0	0
SO_2 (Annual)				
Annual Arithmetic Mean (0.03 ppm)	0.0003	0.002	0.001	0.001

[a] ppm = parts per million; $\mu g/m^3$= micrograms per cubic meter; N/A = not available

[b] Ambient data for O_3, CO, PM_{10}, and NO_x was obtained from the monitoring station closest to the project site (Santa Clarita Valley Monitoring Station, located at 2224 Placerita Canyon Road, Santa Clarita, four miles southeast of the project site). Ambient data for $PM_{2.5}$ and SO_2 was obtained from the Burbank Monitoring Station, located on 228 West Palm Avenue, approximately 20 miles southeast of the project site.

[c] The national 1-hour ozone standard was revoked in June 2005 and is no longer in effect.

[d] Measurements are usually collected every six days.

[e] Based on national statistics for PM_{10} levels measured at the Santa Clarita monitoring station.

[f] The number of days in which the PM_{10} standards were exceeded include the days that a measurement was greater than the level of the standard and have not been adjusted for days in which measurements were not taken.

SOURCE: CARB, 2008. Summaries of Air Quality Data, 2004 - 2007; http://www.arb.ca.gov/adam/cgi-bin/db2www/polltrendsb.d2w/start.

Background emission for the project area are primarily related to mobile sources.[2] The primary pollutants of concern for the Basin are O_3, PM_{10} and $PM_{2.5}$. As shown on Table 4.1, the California standard for O_3 was exceeded between 31 and 69 times annually between 2004 and 2007 and the national standard was exceeded between two and 20 times annually. The highest recorded 24-hour PM_{10} concentration recorded was 167 $\mu g/m^3$ in 2007. The maximum recorded 24-hour $PM_{2.5}$ concentration was 63 $\mu g/m^3$ and was recorded in 2005.

Sensitive Receptors

In Chapter 5 of the CEQA *Air Quality Handbook,* the SCAQMD defines typical sensitive receptors as residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, convalescent centers, and retirement homes. These population groups are considered more sensitive to air pollution than others. The project is located in an area primarily developed by residential and recreational land uses. The nearest sensitive receptor is residential development, which occurs within 500 feet of the eastern and southern project boundary (see Figure 4.2). There are currently no known schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, or retirement homes, located within 0.25 mile of the project area.

[2] Pollutant emissions are classified as stationary and mobile sources. Stationary sources occur at an identified location and are usually associated with manufacturing and industry. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road.

CHAPTER 5
Methodology and Impacts

5.1 Significance Criteria and Methodology

The criteria used to determine the significance of a project's air quality impact are based on Appendix G of the *CEQA Guidelines*.

The project would result in a significant impact if it would:

- 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;
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people, or
- Conflict with the state goal of reducing GHG emissions in California to 1990 levels by 2020, as established in AB 32 (California Global Warming Solutions Act of 2006).

SCAQMD has established the regional air pollution emissions criteria shown in **Table 5.1,** below, for determining the significance of an impact during project construction and operation.

TABLE 5.1
SCAQMD REGIONAL SIGNIFICANCE THRESHOLDS

Air Contaminant	Construction (pounds per day)	Operations (pounds per day)
CO	550	550
NOx	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55

SOURCE: SCAQMD, *CEQA Air Quality Handbook*, 1993; SCAQMD, Final LST Methodology ($PM_{2.5}$), 2006.

Air quality impacts due from the proposed project were evaluated for both project construction and operations. Construction emissions were compiled using URBEMIS 2007 (version 9.2.4),

which is an emissions estimation/evaluation model developed by CARB that is based, in part, on SCAQMD's *CEQA Air Quality Handbook* guidelines and methodologies (1993). The URBEMIS 2007 software was also used to compile long-term project operational emissions from mobile sources and other on site area sources (such as natural gas combustion for space and water heating, landscaping, use of consumer products, etc.). **Appendix A** provides of the URBEMIS 2007 model outputs for both construction and operation.

SCAQMD recommends that concentrations of NO_2, CO, PM_{10} and $PM_{2.5}$ generated by a proposed project be analyzed according to methods outlined in its localized significance threshold (LST) guidance (SCAQMD, 2003 and 2006). This guidance recommends the use of the USEPA approved dispersion model Industrial Source Complex – Short Term, ISCST3. However, as of December 9, 2006, the AERMOD modeling system has replaced ISCST3 as the USEPA preferred dispersion model. Therefore, AERMOD was used in this analysis to determine potential concentrations of the criteria pollutants previously mentioned. The LST analysis is provided in **Appendix B.**

Local area CO concentrations for roadways were evaluated using the CALINE-4 traffic pollutant dispersion model, developed by California Department of Transportation (Caltrans), in combination with Emfac2002 emission factors. The analysis of roadway CO impacts followed the protocol recommended by Caltrans and published in the document titled *Transportation Project-Level Carbon Monoxide Protocol*, December 1997. The analysis is consistent with procedures identified through SCAQMD's CO modeling protocol (Christopher A. Joseph & Associates, 2006). The criteria pollutant emissions calculation worksheet and air quality modeling output files are provided in Appendix A. CO hotspot analysis modeling output files are provided in **Appendix C**.

5.2 Impacts and Mitigation Measures

Impact 1: Project development would not conflict with or obstruct implementation of an applicable air quality management plan or policy (Less Than Significant)

The 2007 AQMP, discussed previously, was prepared to accommodate growth, to reduce the high levels of pollutants within the areas under the jurisdiction of SCAQMD, to return clean air to the region, and to minimize the impact on the economy. Projects that are considered to be consistent with the AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the AQMP. Therefore, projects, uses, and activities that are consistent with the applicable assumptions used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed SCAQMD's recommended daily emissions thresholds.

SCAQMD's *CEQA Handbook* suggests an evaluation of the following two criteria to determine whether a project involving a legislative land use action (such as the proposed project) would be consistent or in conflict with the AQMP:

(1) The project will not generate population and employment growth that would be inconsistent with SCAG's growth forecasts.

(2) The project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

Consistency Criterion No. 1 refers to SCAG's growth forecasts and associated assumptions included in the 2007 AQMP (or based on the applicable AQMP during project build-out phase). The future air quality levels projected in the 2007 AQMP are based on several assumptions. For example, SCAQMD assumes that new development within the Basin will occur in accordance with population growth and transportation projections identified by SCAG in its most current version of the RCPG. SCAG derives its assumptions, in part, from the general plans of cities located within the SCAG region. Therefore, if a project is consistent with the growth projections in the General Plan, it is considered consistent with the growth assumptions in the AQMP.

As discussed in Section 2.2 (Existing Setting), the proposed project is consistent with the existing City of Santa Clarita General Plan and Zoning designations of Residential Low and Residential Very Low. As a result, the intended land uses resulting from the proposed project are consistent with the current land use designations and would not require a General Plan amendment. In addition, SCAQMD also highlights "jobs-housing balance" as a strategy to reduce vehicle trips and vehicle miles traveled (VMT), when sufficient jobs are available locally to balance the employment demands of the community, and when commercial services are convenient to residential areas. The proposed project would provide greater density to the area and would be developed near public transportation (Metro Link station location directly north of the project site).

SCAG estimates that population within the Santa Clarita Valley will increase from 213,178 persons in 2000 to 313,290 persons by 2020. The proposed project involves the development of 99 single-family residential units and open space areas on currently undeveloped land at the eastern edge of the City of Santa Clarita. Using the California State Department of Finance average household size of 3.056 persons,[3] the 99 new residential units would generate an average resident population of 302.5 persons (99 units x 3.056 person/unit = 302.5 persons). The increase in population is considered minimal, as it would represent 0.10% of the City's projected growth for 2020.

The 0.10% population growth would not be considered to constitute substantial growth or concentration of beyond current growth projections established by SCAG for the Santa Clarita Valley and City of Santa Clarita. Because, the proposed project would be consistent with the AQMP population forecasts for the City of Santa Clarita and the Santa Clarita Valley, and it would not jeopardize attainment of State and national ambient air quality standards in the Basin and the Los Angeles County portion of the Basin. The proposed project would not generate

[3] California State Department of Finance, Official State Estimates; website: http://www.dof.ca.gov/research/demographic/reports/estimates/e-4_2001-07/, August 2008.

population and employment growth that would be inconsistent with SCAG's growth and impacts would be less than significant.

Consistency Criterion No. 2 refers to the CAAQS, and CO is the best indicator pollutant for determining whether air quality violations would occur since it is most directly related to automobile traffic. The CO hotspot analysis (described below) indicates that the proposed project would not exacerbate existing violations of the State 1-hour and 8-hour CO concentration standards and no significant adverse impacts are anticipated. Therefore, the proposed project is consistent with Consistency Criterion No. 2.

In summary, proposed project development would be consistent with applicable air quality management plans and policies, such as the growth projections and assumptions of the AQMP, and land use assumptions in applicable general plans. Impacts would be less than significant.

Mitigation Measures*:* None required.

Monitoring*:* None required.

Significance: Less than Significant.

Impact 2: Construction activities could result in a violation of an air quality standard or contribute to an existing or projected air quality violation. (Less Than Significant with Mitigation Incorporated)

Construction of the proposed project has the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the project site. In addition, fugitive dust emissions would result from grading and construction activities. There are no buildings on site requiring demolition; therefore, demolition activities would not be required. The initial phase would be to clear the site of vegetation and ground cover, requiring approximately one month.

The grading operations expected to include approximately 770,000 cubic yards of excavation and approximately 689,000 cubic yards of remedial grading for a total of approximately 1,459,000 cubic yards. The grading is anticipated to take up to 10 months. All earthwork, including remedial grading, would be balanced on-site with no need for import or export of soils. Starting grading at the end of winter February-March would take advantage of the previous season's rain while finishing prior to the start of the next rainy season. A maximum of 10 acres per day would be disturbed during grading operations. (KOAR Institutional Advisors, LLC, 2008a)

The proposed project would include the development of 99 single-family residential units on approximately 170 acres of land. The air quality analysis conservatively assumes construction would be complete in 2011. The actual construction would depend on market conditions; completion of construction and occupancy is expected no later than 2016. (KOAR Institutional Advisors, LLC, 2008b).

As provided in the URBEMIS 2007 computer model output sheets provided in Appendix A, construction equipment would vary depending on the construction phase, but would typically include excavators, graders, dozers, loaders, water trucks, and scrapers. The construction assumptions utilized for this analysis are summarized below, with additional information provided in Appendix A.

- Land uses include 99 residential single-family units and ancillary/recreational uses;
- Mass grading emissions from cut and fill operations assumed that 170 acres would be disturbed, with a maximum daily disturbance of 10 acres; and
- Grading would require movement of a total of 1,459,000 cubic yards of soils, which would be balanced on site.

As presented in **Table 5.2,** construction-related daily emissions would not exceed SCAQMD significance thresholds with the implementation of mitigation measures.

TABLE 5.2
ESTIMATE OF REGIONAL CONSTRUCTION EMISSIONS [a]
(UNMITIGATED AND MITIGATED - POUNDS/DAY)

Year of Construction (Phase)	ROC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	CO_2
2009 (mass grading, grading) Unmitigated	9	74	37	<1	886	188	6,745
Mitigated	9	74	37	<1	53	15	6,745
2010 (mass grading, fine grading, building construction) Unmitigated	12	88	61	<1	886	188	10,429
Mitigated	12	88	61	<1	53	15	10,429
2011 (building construction) Unmitigated	13	45	42	<1	4	4	6,352
Mitigated	13	45	42	<1	4	4	6,352
2011 (building construction, paint, paving) Unmitigated	5	<1	<1	<1	<1	<1	28
Mitigated	5	<1	<1	<1	<1	<1	28
Worse Case Daily Mitigated Emissions	**13**	**88**	**61**	**1**	**53**	**15**	**10,429**
Regional Daily Significance Threshold	***75***	***100***	***550***	***150***	***150***	***55***	**N/A**
Over/(Under)	**(50)**	**(4)**	**(482)**	**(149)**	**(193)**	**(33)**	**N/A**
Exceed Threshold?	***No***	***No***	***No***	***No***	***No***	***No***	***No***

[a] Compiled using the URBEMIS 2007 emissions inventory model. The equipment mix and use assumption for each phase is provided in Appendix A.

[b] PM_{10} emissions estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.

SOURCE: ESA, 2008.

The project would be required to comply with regional rules that assist in reducing air pollutant emissions, calculations assume that appropriate dust control measures would be implemented during each phase of development, as required by SCAQMD Rule 403—Fugitive Dust. To ensure regional construction emissions are below SCAQMD's thresholds, **Mitigation Measure AIR-1** will be implemented to (1) implement requirements of SCAQMD Rule 403 (Fugitive Dust), (2) set forth a program of air pollution control strategies designed to reduce the proposed project's air quality impacts to the extent feasible during construction, and (3) minimize potential impacts to sensitive receptors.

Mitigation Measure AIR-1:

The Applicant and General Contractors shall ensure the following:

- Implement a fugitive dust control program pursuant to the provisions of SCAQMD Rule 403.
- Notify the District in writing by submitting a large operation notification (Form 403N) with the appropriate site map within 7 days of qualifying as a large operation to South Coast Air Management District Rule 403 Compliance at 21865 E. Copley Drive Diamond Bar, CA 91765. Rule 403 also requires large operation to notify the SCAQMD 30-days after no longer qualifying as a large operation by submitting a project completion form (Form 403C). If the project last more that 1 year the project is requirement to submit a Statement of No Change (Form 403NC).
- The contractor shall install and comply with all SWPPP requirements on the approved Erosion Plan. Install a 30 x 50 ft gravel pad (1-inch diameter crushed rock at least 6-inches deep) with wheel shaker plates at each of the site entrances. Install silt fence at the property line and gravel bags at areas were water may leave the site.
- Implement the Rule 403 Table 2 and Table 3 control action for each on-site source of dust. Prepare daily records of control actions, implementation and maintain recordkeeping on site for the duration of the project and then give the records to the owner to store for 3 years.
- Apply dust suppressants (e.g., polymer emulsion) to actively disturbed areas upon completion of clearing and grading.
- Replace ground cover in disturbed areas as quickly as possible.
- Water disturbed sites three times daily (locations where grading is to occur will be thoroughly watered prior to earth moving).
- All trucks hauling dirt, sand, soil, or other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches.
- Traffic speeds on all unpaved roads shall be reduced to 15 mph or less.
- During construction, trucks and vehicles in loading and unloading queues would turn their engines off when not in use to reduce vehicle emissions; all construction vehicles shall be prohibited from idling in excess of five minutes, both on- and off-site.
- Require minimum soil moisture of 12 percent for earthmoving by use of a moveable sprinkler system or a water truck. Moisture content can be verified by lab sample or moisture probe.
- Construction emissions will be scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.
- Maintain and operate construction equipment to minimize exhaust emissions; all construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.
- At the end of each workday, the disturbed area(s) shall either be covered with plastic sheeting or sprayed with water containing an approved chemical dust suppressant (see SCAQMD Rule 403 approved list) to prevent fugitive dust. Disturbed and/or finished areas that are covered or sprayed to prevent fugitive dust from leaving the site would mitigate control methods required during the non-work hours of the project.

- Post project signs within 50 feet at each entrance. This includes not only the grading contractor but also all contractors following the grading operation. Rule 403 is not limited to grading only but remains effective and enforceable until the project is completed.

In addition, the following mitigation measure will be implemented as required in the *Plan for Air Quality/Earthwork Tentative Tract No. 063022* (KOAR, 2008):

Mitigation Measure AIR-2:

- The consultant shall have a full time personal (Dust Control Supervisor) on site to perform the measurement of airborne dust levels using real-time data-logging monitors. A Dust Trak Aerosol Monitor (Model 8535) or similar monitoring equipment shall be used to record real time monitoring of the site's air quality.
- Airborne concentrations of dust shall be monitored at the following general locations: 1) upwind at the site perimeter or other upwind location as appropriate based on a review of available prevailing wind data and 2) at a minimum of three other downwind locations.
- One week prior to the initiation of field activities background sampling shall be conducted from the upwind monitoring station(s) to evaluate background concentrations at different locations of the site.
- Five monitors shall be used: two shall be placed upwind and three downwind. The results of the initial days reading shall be evaluated to determine if the sampling locations need to be adjusted. The purpose of this background sampling is to provide additional baseline background data before grading activities start. Once grading activities have been initiated, the upwind monitoring station shall provide daily background information.
- Due to the size of the site (170 acres) and to mitigate fugitive dust, grading and remedial activities shall be conducted within smaller subareas (10 acres or less). Based on the remedial activity required only two or three subareas shall be actively undergoing earthmoving activities at any particular time. Air monitoring locations will be selected based on the particular subarea involved in active earthmoving operations and current wind conditions.
- A Dust Control Supervisor shall be trained and certified per SCAQMD instruction to identify fugitive dust and other nuisance conditions and take the necessary actions for enforcement when any are encountered. The Dust Control Supervisor shall form a Patrol that is composed of persons responsible for other monitoring activities (SWPPP). The Patrol shall constantly monitor for airborne dust and erosion prevention and shall act as the first alert. Monitoring shall extend from the grading activity to the site's perimeter in step with the daily operations schedule, and shall take place continually during all site activity.
- Onsite meteorological data and real-time air sampling data shall also be reviewed several times per day by the Dust Control Supervisor and representatives of the owner and grading contractor to ensure that the Patrol routes remain focused on the areas with the highest potential for fugitive dust conditions. A record of dust observations (daily report) by the Dust Control Supervisor and the grading contractor shall be kept on site for review by SCAQMD. At the end of the project, these reports shall be delivered to the owner who shall keep them on file for a minimum of three years.
- The Site Dust Control Supervisor shall have the authority to stop work in the event onsite activities generate fugitive dust levels that exceed the site or community action levels. The Dust Control Supervisor shall monitor onsite meteorological instrumentation and coordinate with offsite meteorological professionals to identify conditions that require cessation of work (i.e., winds in excess of 25 mph). At weekly onsite meetings, the Dust

Control Supervisor and representatives of the owner and grading contractor shall review the projected 7-day forecast for rain or wind (more than 25 mph). A plan of action for the anticipated weather for the upcoming week shall be devised including an off-hours (non-working hours including evening, weekends and holidays) plan for the contractor to provide continuous measures on-site to control fugitive dust.

- In bidding, the project only contractors with California Emission Compliant Equipment or equipment that has been updated with the latest approved smog emission engines shall be pre-qualified to bid the project. The contractor shall have on-site personal who have been certified in the SCAQMD field class for fugitive dust and SWPPP training. The bid package should include grading plans, erosion control plans, storm water pollution prevention plan (SWPPP), soil report, EIR, SCAQMD permits, the requirements for LACMTA, Gas Company, and insurance requirements for the project, and a schedule for the start and end dates and any other significant milestone date(s). The grading contactor shall summit a work plan that shows where they are starting to clear, a pre-water plan, dirt movement plan, and a finish plan as part of their bid. Additionally the contractor shall provide a weekly two-week look-ahead schedule at each job site weekly meeting.
- Timing of the grading should preferably be scheduled at the end of the winter rain season when the soil has a higher percent of moisture content.
- A practice of clearing the site in subareas of approximately ten acres at any one time should be part of the contractors work plan. Clearing should be on an as needed basis to minimize disturbed surface areas. Clearing the site after the winter rains will help minimize the dust, but water trucks should be anticipated to wet surfaces on the access ways and as part of the clearing process to keep dust from leaving the limits of the site. All vehicles including those engaged in the clearing and hauling of the wastes off-site shall not exceed the maximum speed limit on-site of 15 mph. All vehicles leaving the site with wastes shall be covered to prevent any fly-off of materials.
- The water source(s) used to pre-water the sub-areas (approximately 10 acres) shall be capable of applying a large quantity of water (approximately 600 gallons per minute [gpm]). Pre-watering should continue until the moisture content of the proposed grading (either cut or remedial) has penetrated to the bottom of the proposed excavation. The project's soils engineer should verify the moisture content to be at least twelve percent or the required moisture content at the recommended depths as per Rule 403 requirements (see SCAQMD Rule 403 Soil Moisture Testing Methods ASTM Standard Test Method D-2216 and ASTM D-1557) prior to the start of the grading operation in any given area. The contractor may at their option phase the depth of pre-watering, grading but at no time shall the contractor grade in materials that fall below the SCAQMD Rule 403 moisture requirement. The contractor may pre-water/grade more than one area at any one time as long as air quality and moisture content of the materials remain within the acceptable range outlined in Rule 403.
- If work has stopped for more than one week the Dust Control Supervisor shall revisit the site weekly and check the exposed area(s) for conditions that may result in fugitive dust. If needed additional coverage with water containing an approved chemical dust suppressant shall be applied or other approved measures shall be taken.
- To minimize the dust during the grading multiple water trucks/pulls shall be utilized to maintain minimum moisture content requirements. The number of trucks/pull shall be determined as required to the work area(s) and the daily yardage moved. In addition to the pre-watering water trucks/pulls shall spray water on the days proposed work areas prior to daily work activities, during excavation, stockpiling and loading activities as necessary to maintain dust concentrations below action levels and moisture content equal to or above

minimum standards. Watering equipment will be continuously available to provide proper dust control in proportion to the area(s) worked and the quantity of materials being moved.

- Subsequent to an area being finished, the contractor shall spray the area with water containing an approved chemical dust suppressant to crust over the finished area. No equipment will be allowed in areas that have been completed and sealed. The finished slopes shall be sprayed with a seed mix and binder or install landscaping to comply with the SWPPP requirements and Rule 403.
- Excavation activities will cease in the event two wind gusts exceeding 25 miles per hour are observed in any 30-minute period or wind conditions change, creating an uncontrollable condition. More stringent excavation controls shall be in place when wind direction is such that residences are downwind from the site. In the event two wind gusts exceeding 20 miles per hour are observed in any 30-minute period or wind conditions change, creating an uncontrollable condition all grading/clearing activities shall cease and only measures taken to reduce/control fugitive dust shall be maintained.

Monitoring: The project applicant shall verify implementation of appropriate mitigation measures during construction activities.

Significance after Mitigation Incorporated: Less than Significant.

Impact 3: Construction of the proposed project would not result in temporary impacts to localized air quality that would violate an existing or projected air quality standard. (Less Than Significant With Mitigation Incorporated)

In addition to regional impacts from construction emissions, the localized effects from daily emissions were evaluated using the SCAQMD's LST methodology, which is designed to determine potential impacts to nearby sensitive receptors. This methodology recommends the use of dispersion modeling when evaluating impacts from sites that are larger than five acres in size. Therefore, the USEPA approved dispersion model AERMOD was used to determine construction impacts on localized air quality. Meteorological data from the Newhall monitoring station was obtained from the SCAQMD's website for use in AERMOD. Since opaque cloud cover is not available for this site, data from the Los Angeles International Airport was used to supplement this data for use in the model. Source and receptor elevations were derived from the 7.5 minute Mint Canyon digital elevation model. (see **Appendix B** for model output).

Emissions from construction equipment were modeled as a series of volume sources with a release height of 5 meters as suggested in the SCAQMD's LST guidance document. Fugitive dust emissions were modeled as area sources with an initial vertical dimension of 1 meter (SCAQMD, 2003). Due to the size of the site, emissions were modeled assuming that activities would concentration on sites of approximately ten acres. Sites closest to sensitive receptors were modeled to determine localized impacts from construction emissions.

Daily emission rate estimates generated by URBEMIS were used in this analysis. However, the emissions from worker and vendor trips were not included as part of this analysis since these emissions are made on a regional rather than local scale.

As shown in **Table 5.3**, the concentrations of NO_2, CO, PM_{10} and $PM_{2.5}$ would not exceed applicable thresholds. Impacts would be less than significant.

TABLE 5.3
LOCALIZED POLLUTANT CONCENTRATIONS FROM CONSTRUCTION EMISSIONS

Concentrations	NO_2 1-Hour	CO 1-Hour	CO 8-Hour	PM10 24-Hour	PM2.5 24-Hour
Project generated	**0.05 ppm**	**0.1 ppm**	**0.01 ppm**	**10.3 µg/m^3**	**3.1 µg/m^3**
Background	**0.08 ppm**	**2.0 ppm**	**1.2 ppm**	**NA**	**NA**
Total (project + background)	**0.13 ppm**	**2.1 ppm**	**1.21 ppm**	**NA**	**NA**
Localized Significance Threshold	***0.18 ppm***	***20.0 ppm***	***9.0 ppm***	***10.4* µg/m^3**	***10.4* µg/m^3**
Over (Under) Threshold	(0.05 ppm)	(17.9 ppm)	(7.79 ppm)	(0.1 µg/m^3)	(7.3 µg/m^3)
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**

Notes: ppm = parts per million and µg/m^3 = micrograms per cubic meter.

SOURCE: ESA, January 2009.

Mitigation Measures

Mitigation Measure AIR-1 and **AIR-2** would be implemented to reduce potential impacts on sensitive receptors during construction activities.

Monitoring: The project applicant shall verify implementation of appropriate mitigation measures during construction activities.

Significance after Mitigation Incorporated: Less Than Significant.

Impact 4: Project operations would not result in a violation of an air quality standard and contribute to an existing or projected air quality violation. (Less Than Significant)

Operational emissions generated primarily by mobile sources would result from day- to day-activities on the project site after completion. Because the site was previously undeveloped, there would be new traffic trips to the project site and the vicinity resulting in additional air pollutant emissions. In addition, there would be a slight increase in emissions from operations due to energy use and maintenance activities (i.e., building maintenance and painting, and equipment used in landscaping applications, such as lawn mowers, weed trimmers, and leaf blowers). Criteria pollutant emissions from project operations were calculated using the URBEMIS 2007

emissions inventory model, which multiplies an estimate of daily vehicle miles traveled by applicable EMFAC2007 emissions factors.

The URBEMIS model assumed that the land uses proposed (e.g. 99 single-family units) and used the daily trips assumed in the traffic study (e.g. the proposed project is expected to generate approximately 947 new daily trips with 75 and 100 vehicle trips in the AM and PM peak hours, respectively).[4] Detailed operational assumptions and URBEMIS outputs for project operations are provided in Appendix A. As shown in **Table 5.4**, net regional emissions resulting from the proposed project would not exceed regional SCAQMD emission thresholds. Thus, regional operations emissions would not result in a significant long-term regional air quality impact.

TABLE 5.4
ESTIMATE OF OPERATIONAL EMISSIONS [a]
(POUNDS/DAY)

	ROC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	CO_2
Future Project Conditions (full buildout)							
Area Sources	7	2	5	<1	<1	<1	2,066
Mobile Sources	8	11	101	<1	17	4	9,899
Stationary Sources	<1	<1	<1	<1	<1	<1	<1
Total	**15**	**13**	**106**	**1**	**17**	**4**	**11,965**
SCAQMD Significance Threshold	**55**	**55**	**550**	**150**	**150**	**55**	**NA**
Exceed Threshold?	***No***	***No***	***No***	***No***	***No***	***No***	***No***

[a] Compiled using the URBEMIS 2007 emissions inventory model. The land use assumptions are provided in Appendix A.

SOURCE: ESA, 2008.

Mitigation Measures: None required.

Monitoring: None required.

Significance: Less than Significant.

Impact 5: The proposed project would generate mobile emissions that could increase CO concentrations at intersections in and around the project site. (Less than Significant)

Project traffic during the operational phase of the proposed project would have the potential to create local area CO impacts. Consequently, the highest CO concentrations are generally found within close proximity to congested intersection locations. Under typical meteorological conditions, CO concentrations tend to decrease as distance from the emissions source (i.e., congested intersections) increase. SCAQMD recommends a hot-spot evaluation of potential localized CO impacts when volume- to capacity- ratios are increased by two percent at

[4] Meyer, Mohaddes Associates, Mancara at Robinson Ranch Residential Development Traffic Impact Study, City of Santa Clarita (Final Report), March 2006.

intersections with a level of service (LOS) of D or worse. The SCAQMD also recommends a CO hot-spot evaluation when an intersection worsens in LOS by one level, beginning when LOS changes from an LOS of C to LOS of D. To present potential CO impacts in areas where traffic conditions would result in LOS of D or worse, localized CO impacts are quantified as shown on **Table 5.5.** The detailed modeling results are provided in **Appendix C**.

TABLE 5.5
LOCAL AREA CARBON MONOXIDE DISPERSION ANALYSIS (2010)

Intersection	CO Concentration Existing Conditions (ppm) [a, b]	CO Concentration 2010 Conditions (ppm) [a, b]	Significance Criteria (ppm)	Impact?
Sand Canyon Road at Lost Canyon Road				
1-Hour Concentration	7.7	8.1	20	No
8-Hour Concentration	5.3	5.6	9.0	No
Sand Canyon Road at SR-14 NB Ramps				
1-Hour Concentration	6.5	8.0	20	No
8-Hour Concentration	4.6	5.5	9.0	No
Sand Canyon Road at Soledad Canyon Road				
1-Hour Concentration	7.3	9.2	20	No
8-Hour Concentration	5.1	6.2	9.0	No
SR-14 SB Ramps at Soledad Canyon Road				
1-Hour Concentration	7.1	8.2	20	No
8-Hour Concentration	5.0	5.6	9.0	No

ppm = parts per million

[a] CO concentrations are presented for the maximum AM or PM peak hour concentrations.
[b] Depending on the analyzed intersection, 2010 CO concentrations may be lower than 2006 concentrations. The reduction in CO concentrations over time is due to a lower emitting fleet mix. As vehicles age and no longer function properly, they are replaced in the overall fleet by newer, less polluting vehicles. However, at some intersections the increase of traffic from 2006 to 2010 conditions offsets the lower emissions from newer vehicles and higher emissions result in year 2010 than year 2006.

SOURCE: Chris Joseph and Associates, Air Quality Study for Mancara at Robinson Ridge, August 2006.

As shown, the CO emissions are under the applicable thresholds. Therefore, sensitive receptors would not be significantly affected by CO emissions generated by the net increase in traffic under the proposed project. As the proposed project does not cause an exceedance of a localized CO concentration standard, the proposed project's localized operational air quality impacts would be less than significant.

Mitigation Measures: None required.

Monitoring: None required.

Significance: Less than Significant.

Impact 6: The proposed project emissions would generate GHG emissions and would contribute to the phenomenon of global warming. (Less Than Significant)

The proposed project would contribute to global climate change as a result of emissions of GHGs, primarily CO_2, emitted by trucks, earthmoving equipment, and on-road vehicles associated with construction and operation activities. The proposed action would contribute to global climate change as a result of emissions of GHGs, primarily CO_2, emitted by trucks, earthmoving equipment, and on-road vehicles associated with construction and vehicles during project operation. The AQMD has published the *Draft AQMD Staff CEQA Greenhouse Gas Significance Threshold,* which provides a significance screening level of 6,500 metric tons/year of CO_2e (SCAQMD, 2008).

Project-related emissions of GHGs were calculated using CARB's URBEMIS 2007 model and the *General Reporting Protocol* of the California Climate Action Registry. The CO_2e emissions are presented in **Table 5.6** and worksheets are provided in Appendix A.

TABLE 5.6
ESTIMATED EMISSIONS OF GREENHOUSE GASES FROM THE PROPOSED ACTION

Emission Source	Emissions (metric tons of CO_2e per year)			
	Transportation [a]	Onsite Area Sources [a, c]	Electricity Generation [b]	Total
Project Build-Out	1,588	342	222	2,152

a Based on URBEMIS 2007 modeling for the project.
b Based on statewide population based emission rates and population estimates for the project.
c Includes emissions from natural gas combustion for space and water heating, fireplaces and landscape maintenance.

SOURCE: ESA, 2008.

The project would not be classified as a major source of greenhouse gas emissions. Operational emissions would be significantly less than SCAQMD's proposed threshold, which is 6,500 metric tons/year of CO_2e. As the Proposed Action would not conflict with the CARB's early action strategies and is lower than SCAQMD's significance screening threshold, a potential adverse effect would not occur.

Mitigation Measures: None required.

Even though no mitigation measures are required, the following mitigation measures will be considered during project design and implementation:[5]

- Design buildings to be energy efficient (e.g., take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use), as feasible.
- Promote efficient lighting and lighting control systems and use daylight as an integral part of lighting systems in buildings; install light emitting diodes (LEDs) for traffic, street, and other outdoor lighting.

5 California Department of Justice, The CEQA Addressing Global Warming Impacts at the Local Agency Level, May 21, 2008.

- Install light colored "cool" roofs, cool pavements, and strategically placed shade trees, as feasible.
- Install energy efficient heating and cooling systems, appliances and equipment, and control systems.
- Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).
- Provide interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas, as feasible.
- Promote ride sharing programs, e.g., by designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading and waiting areas for ride sharing vehicles, and providing a web site or message board for coordinating rides, as feasible.

Monitoring: None required.

Significance: Less than Significant.

Impact 7: The proposed project could expose sensitive receptors to substantial pollutant concentrations, including increased levels of TACs. (Less Than Significant with Mitigation Incorporated)

Health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime would contract cancer, based on the use of standard risk-assessment methodology. Construction would be accomplished in less than three years and the proposed project would not result in a long-term (i.e., 70 years) substantial source of TAC emissions related to construction activities. In addition, as described in Impact 3B1 above, construction of the proposed project would not result in a significant regional air pollution impact. Even so, as discussed in Impact 3B1 above, project construction could expose nearby sensitive receptors to substantial PM_{10} and $PM_{2.5}$ concentrations. As such, project-related construction impacts to sensitive receptors would be less than significant.

During project operation, project traffic would have the potential to create local area CO impacts to sensitive receptors. The SCAQMD recommends a hot-spot evaluation of potential localized CO impacts when volume-to-capacity (V/C) ratios are increased by two percent at intersections with a level of service (LOS) of D or worse. The SCAQMD also recommends a CO hot-spot evaluation when an intersection decreases in LOS by one level beginning when LOS changes from an LOS of C to D. Intersections were analyzed based on information provided in the traffic study prepared for the proposed project.

Table 5-5 presents one-hour and eight-hour CO concentrations for the peak hour. CO concentrations were estimated for existing (year 2008) conditions and the proposed project (year 2016) conditions. Even with cumulative growth in traffic volumes, CO concentrations would be

lower in 2016 compared to existing conditions. The reduction in CO concentrations over time is due to a lower emitting fleet mix than what currently exists. As vehicles age and no longer function properly, they are replaced in the overall fleet by newer, less polluting vehicles.[6] This impact would be less than significant and no mitigation measures are required.

Mitigation Measure AIR-1 and **AIR-2** would be implemented to reduce potential impacts on sensitive receptors during construction activities.

Monitoring: The project applicant shall verify implementation of appropriate mitigation measures during construction activities.

Significance after Mitigation Incorporated: Less Than Significant.

Impact 8: The proposed project would not create objectionable odors affecting a substantial number of people. (Less than Significant)

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not include any uses identified by the SCAQMD as being associated with odors. While the proposed project does include a restaurant, compliance with industry standard odor control practices, SCAQMD Rule 402 (Nuisance), and SCAQMD Best Available Control Technology Guidelines would limit potential objectionable odor impacts during the proposed Project's long-term operations phase to a less than significant level.

Potential sources that may emit odors during construction activities include asphalt paving and the use of architectural coatings and solvents. SCAQMD Rules 1108 and 1113 limits the amount of VOCs from cutback asphalt and architectural coatings and solvents, respectively. Via mandatory compliance with SCAQMD Rules, no construction activities or materials are proposed which would create a significant level of objectionable odors. As such, potential impacts during short-term construction would be less than significant.

Mitigation Measures: None required.

Monitoring: None required.

Significance: Less than Significant.

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[6] This discussion is consistent with CO mobile source emission factors used in CARB's EMFAC2007 emissions inventory model.

Impact 9: The proposed project emissions would not result in a cumulatively considerable increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. (Less Than Significant)

The SCAQMD cumulative analysis focuses on whether a specific project would result in cumulative considerable emissions. Per CEQA Guidelines §15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable.

As displayed in Table 5.2, Table 5.3, and Table 5.4, regional emissions would be less than the applicable SCAQMD thresholds, which are designed to assist the region in attaining the applicable State and national ambient air quality standards. Therefore, the proposed project would not contribute to a cumulatively considerable construction air quality impact. SCAQMD's approach for assessing cumulative impacts in relation to criteria pollutants is based on the AQMP forecasts of attainment of ambient air quality standards. In addition, an accepted approach is if project specific emissions for criteria pollutants are less than significant, cumulative impacts for those emissions are also deemed less than significant. As such, cumulative impacts would be less than significant.

While the foregoing analysis provides a calculation of GHG emissions in metric tons and calculates the proposed project's contribution to GHG emissions, it is not possible to quantify the project's cumulative impact upon climate change and global warming. As discussed earlier, the project is generally consistent with growth management and air quality planning policies to reduce vehicle miles traveled and attendant emissions, including GHG emissions. The project also incorporates mitigation measures to increase energy efficiency. The proposed project is generally consistent with adopted GHG reduction strategies including CAT recommended strategies and ARB early action strategies. In view of these factors, the incremental contribution towards cumulative worldwide GHG emissions and global warming is considered less than significant.

Mitigation Measures

Mitigation Measure AIR-1 would be implemented to reduce potential impacts on sensitive receptors during construction activities.

Monitoring: The project applicant shall verify implementation of appropriate mitigation measures during construction activities.

Significance after Mitigation Incorporated: Less Than Significant.

CHAPTER 6
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Appendix A
URBEMIS Model Output Worksheets

ESA

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Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: \\Lax-file01\esadata\Projects\208xxx\D208500.00 - Mancara Air Quality Study\06 Project Library\urbemis.urb924

Project Name: Mancara Residential

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (lbs/day unmitigated)	9.02	73.76	37.70	0.00	882.59	3.76	886.36	184.32	3.46	187.78	6,745.09
2009 TOTALS (lbs/day mitigated)	9.02	73.76	37.70	0.00	53.31	3.76	57.07	11.14	3.46	14.60	6,745.09
2010 TOTALS (lbs/day unmitigated)	11.79	88.32	61.49	0.03	882.59	4.57	886.15	184.32	4.20	187.59	10,429.35
2010 TOTALS (lbs/day mitigated)	11.79	88.32	61.49	0.03	53.31	4.57	56.86	11.14	4.20	14.41	10,429.35
2011 TOTALS (lbs/day unmitigated)	13.13	45.06	42.81	0.03	0.12	3.42	3.54	0.04	3.14	3.18	6,352.65
2011 TOTALS (lbs/day mitigated)	13.13	45.06	42.81	0.03	0.12	3.42	3.54	0.04	3.14	3.18	6,352.65
2012 TOTALS (lbs/day unmitigated)	5.06	0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.86
2012 TOTALS (lbs/day mitigated)	5.06	0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.86

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AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	6.36	1.66	5.11	0.00	0.01	0.01	2,065.79

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	8.19	11.05	100.45	0.10	16.54	3.22	9,899.93

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	14.55	12.71	105.56	0.10	16.55	3.23	11,965.72

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Urbemis 2007 Version 9.2.4

Summary Report for Winter Emissions (Pounds/Day)

File Name: \\Lax-file01\esadata\Projects\208xxx\D208500.00 - Mancara Air Quality Study\06 Project Library\urbemis.urb924

Project Name: Mancara Residential

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (lbs/day unmitigated)	9.02	73.76	37.70	0.00	882.59	3.76	886.36	184.32	3.46	187.78	6,745.09
2009 TOTALS (lbs/day mitigated)	9.02	73.76	37.70	0.00	53.31	3.76	57.07	11.14	3.46	14.60	6,745.09
2010 TOTALS (lbs/day unmitigated)	11.79	88.32	61.49	0.03	882.59	4.57	886.15	184.32	4.20	187.59	10,429.35
2010 TOTALS (lbs/day mitigated)	11.79	88.32	61.49	0.03	53.31	4.57	56.86	11.14	4.20	14.41	10,429.35
2011 TOTALS (lbs/day unmitigated)	13.13	45.06	42.81	0.03	0.12	3.42	3.54	0.04	3.14	3.18	6,352.65
2011 TOTALS (lbs/day mitigated)	13.13	45.06	42.81	0.03	0.12	3.42	3.54	0.04	3.14	3.18	6,352.65
2012 TOTALS (lbs/day unmitigated)	5.06	0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.86
2012 TOTALS (lbs/day mitigated)	5.06	0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.86

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AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	5.56	1.61	0.69	0.00	0.00	0.00	2,058.69

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	8.84	13.33	95.85	0.08	16.54	3.22	8,971.63

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	14.40	14.94	96.54	0.08	16.54	3.22	11,030.32

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: \\Lax-file01\esadata\Projects\208xxx\D208500.00 - Mancara Air Quality Study\06 Project Library\urbemis.urb924

Project Name: Mancara Residential

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 12/1/2009-12/31/2009 Active Days: 23	9.02	73.76	37.70	0.00	53.31	3.76	57.07	11.14	3.46	14.60	6,745.09
Mass Grading 12/01/2009-08/28/2010	9.02	73.76	37.70	0.00	53.31	3.76	57.07	11.14	3.46	14.60	6,745.09
Mass Grading Dust	0.00	0.00	0.00	0.00	53.29	0.00	53.29	11.13	0.00	11.13	0.00
Mass Grading Off Road Diesel	8.91	73.57	34.51	0.00	0.00	3.75	3.75	0.00	3.45	3.45	6,403.03
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.10	0.19	3.19	0.00	0.02	0.01	0.03	0.01	0.01	0.01	342.06
Time Slice 1/1/2010-8/27/2010 Active Days: 171	8.50	69.41	36.70	0.00	53.31	3.55	56.86	11.14	3.27	14.41	6,744.98
Mass Grading 12/01/2009-08/28/2010	8.50	69.41	36.70	0.00	53.31	3.55	56.86	11.14	3.27	14.41	6,744.98
Mass Grading Dust	0.00	0.00	0.00	0.00	53.29	0.00	53.29	11.13	0.00	11.13	0.00
Mass Grading Off Road Diesel	8.41	69.23	33.70	0.00	0.00	3.55	3.55	0.00	3.26	3.26	6,403.03
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.10	0.18	2.99	0.00	0.02	0.01	0.03	0.01	0.01	0.01	341.94

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Time Slice 9/1/2010-10/29/2010 Active Days: 43	6.98	61.52	29.66	0.00	6.05	2.74	8.79	1.26	2.52	3.79	5,932.00
Fine Grading 09/01/2010-11/01/2010	6.98	61.52	29.66	0.00	6.05	2.74	8.79	1.26	2.52	3.79	5,932.00
Fine Grading Dust	0.00	0.00	0.00	0.00	6.04	0.00	6.04	1.26	0.00	1.26	0.00
Fine Grading Off Road Diesel	6.92	61.40	27.76	0.00	0.00	2.73	2.73	0.00	2.52	2.52	5,714.39
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.11	1.90	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.60
Time Slice 11/1/2010-11/1/2010 Active Days: 1	11.79	**88.32**	**61.49**	0.03	6.15	**4.57**	10.72	1.30	**4.20**	5.50	**10,429.35**
Building 11/01/2010-11/01/2011	4.81	26.80	31.84	0.02	0.10	1.83	1.93	0.04	1.68	1.71	4,497.35
Building Off Road Diesel	4.08	23.31	14.31	0.00	0.00	1.67	1.67	0.00	1.54	1.54	2,259.28
Building Vendor Trips	0.23	2.57	2.02	0.00	0.02	0.11	0.13	0.01	0.10	0.11	465.43
Building Worker Trips	0.50	0.92	15.50	0.02	0.08	0.05	0.13	0.03	0.04	0.07	1,772.64
Fine Grading 09/01/2010-11/01/2010	6.98	61.52	29.66	0.00	6.05	2.74	8.79	1.26	2.52	3.79	5,932.00
Fine Grading Dust	0.00	0.00	0.00	0.00	6.04	0.00	6.04	1.26	0.00	1.26	0.00
Fine Grading Off Road Diesel	6.92	61.40	27.76	0.00	0.00	2.73	2.73	0.00	2.52	2.52	5,714.39
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.06	0.11	1.90	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.60
Time Slice 11/2/2010-12/31/2010 Active Days: 44	4.81	26.80	31.84	0.02	0.10	1.83	1.93	0.04	1.68	1.71	4,497.35
Building 11/01/2010-11/01/2011	4.81	26.80	31.84	0.02	0.10	1.83	1.93	0.04	1.68	1.71	4,497.35
Building Off Road Diesel	4.08	23.31	14.31	0.00	0.00	1.67	1.67	0.00	1.54	1.54	2,259.28
Building Vendor Trips	0.23	2.57	2.02	0.00	0.02	0.11	0.13	0.01	0.10	0.11	465.43
Building Worker Trips	0.50	0.92	15.50	0.02	0.08	0.05	0.13	0.03	0.04	0.07	1,772.64

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Time Slice 1/3/2011-1/31/2011 Active Days: 21	8.07	45.05	42.58	0.03	0.12	3.42	3.54	0.04	3.14	3.18	6,323.78
Asphalt 01/01/2011-12/28/2011	3.64	20.03	12.30	0.00	0.02	1.70	1.71	0.01	1.56	1.57	1,826.80
Paving Off-Gas	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.02	18.25	10.34	0.00	0.00	1.62	1.62	0.00	1.49	1.49	1,418.81
Paving On Road Diesel	0.14	1.71	0.69	0.00	0.01	0.07	0.08	0.00	0.07	0.07	252.60
Paving Worker Trips	0.04	0.07	1.27	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.40
Building 11/01/2010-11/01/2011	4.43	25.02	30.28	0.02	0.10	1.72	1.82	0.04	1.58	1.62	4,496.98
Building Off Road Diesel	3.77	21.85	13.95	0.00	0.00	1.57	1.57	0.00	1.45	1.45	2,259.28
Building Vendor Trips	0.21	2.32	1.87	0.00	0.02	0.10	0.12	0.01	0.09	0.10	465.44
Building Worker Trips	0.45	0.85	14.46	0.02	0.08	0.05	0.13	0.03	0.04	0.07	1,772.26
Time Slice 2/1/2011-11/1/2011 Active Days: 196	**13.13**	45.06	42.81	**0.03**	0.12	3.42	3.54	0.04	3.14	3.18	6,352.65
Asphalt 01/01/2011-12/28/2011	3.64	20.03	12.30	0.00	0.02	1.70	1.71	0.01	1.56	1.57	1,826.80
Paving Off-Gas	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.02	18.25	10.34	0.00	0.00	1.62	1.62	0.00	1.49	1.49	1,418.81
Paving On Road Diesel	0.14	1.71	0.69	0.00	0.01	0.07	0.08	0.00	0.07	0.07	252.60
Paving Worker Trips	0.04	0.07	1.27	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.40
Building 11/01/2010-11/01/2011	4.43	25.02	30.28	0.02	0.10	1.72	1.82	0.04	1.58	1.62	4,496.98
Building Off Road Diesel	3.77	21.85	13.95	0.00	0.00	1.57	1.57	0.00	1.45	1.45	2,259.28
Building Vendor Trips	0.21	2.32	1.87	0.00	0.02	0.10	0.12	0.01	0.09	0.10	465.44
Building Worker Trips	0.45	0.85	14.46	0.02	0.08	0.05	0.13	0.03	0.04	0.07	1,772.26
Coating 02/01/2011-01/28/2012	5.06	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.87
Architectural Coating	5.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.87

Time Slice 11/2/2011-12/28/2011 Active Days: 41	8.70	20.05	12.53	0.00	0.02	1.70	1.72	0.01	1.56	1.57	1,855.67
Asphalt 01/01/2011-12/28/2011	3.64	20.03	12.30	0.00	0.02	1.70	1.71	0.01	1.56	1.57	1,826.80
Paving Off-Gas	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.02	18.25	10.34	0.00	0.00	1.62	1.62	0.00	1.49	1.49	1,418.81
Paving On Road Diesel	0.14	1.71	0.69	0.00	0.01	0.07	0.08	0.00	0.07	0.07	252.60
Paving Worker Trips	0.04	0.07	1.27	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.40
Coating 02/01/2011-01/28/2012	5.06	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.87
Architectural Coating	5.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.87
Time Slice 12/29/2011-12/30/2011 Active Days: 2	5.06	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.87
Coating 02/01/2011-01/28/2012	5.06	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.87
Architectural Coating	5.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.87
Time Slice 1/2/2012-1/27/2012 Active Days: 20	5.06	0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.86
Coating 02/01/2011-01/28/2012	5.06	0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.86
Architectural Coating	5.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.86

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 9/1/2010 - 11/1/2010 - Default Fine Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

The following mitigation measures apply to Phase: Mass Grading 12/1/2009 - 8/28/2010 - Default Mass Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

Phase Assumptions

Phase: Fine Grading 9/1/2010 - 11/1/2010 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 172

Maximum Daily Acreage Disturbed: 5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 7 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

2 Scrapers (313 hp) operating at a 0.72 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

2 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 12/1/2009 - 8/28/2010 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 170

Maximum Daily Acreage Disturbed: 10

Fugitive Dust Level of Detail: Low
Onsite Cut/Fill: 6632 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day
On Road Truck Travel (VMT): 0
Off-Road Equipment:
6 Graders (174 hp) operating at a 0.61 load factor for 7 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 7 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
3 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/1/2011 - 12/28/2011 - Default Paving Description
Acres to be Paved: 43
Off-Road Equipment:
1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 11/1/2010 - 11/1/2011 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day
3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 2/1/2011 - 1/28/2012 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: \\Lax-file01\esadata\Projects\208xxx\D208500.00 - Mancara Air Quality Study\06 Project Library\urbemis.urb924

Project Name: Mancara Residential

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	8.19	11.05	100.45	0.10	16.54	3.22	9,899.93
TOTALS (lbs/day, unmitigated)	8.19	11.05	100.45	0.10	16.54	3.22	9,899.93

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2010 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	172.00	9.57	dwelling units	99.00	947.43	9,571.70
					947.43	9,571.70

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.6	1.1	98.7	0.2

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck < 3750 lbs	6.8	2.9	94.2	2.9
Light Truck 3751-5750 lbs	22.8	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.0	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.5	0.0	86.7	13.3
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.3	69.6	30.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: \\Lax-file01\esadata\Projects\208xxx\D208500.00 - Mancara Air Quality Study\06 Project Library\urbemis.urb924

Project Name: Mancara Residential

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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CONSTRUCTION EMISSION ESTIMATES

	CO2
2009 TOTALS (tons/year unmitigated)	77.57
2009 TOTALS (tons/year mitigated)	77.57
Percent Reduction	0.00
2010 TOTALS (tons/year unmitigated)	808.39
2010 TOTALS (tons/year mitigated)	808.39
Percent Reduction	0.00
2011 TOTALS (tons/year unmitigated)	727.03
2011 TOTALS (tons/year mitigated)	727.03
Percent Reduction	0.00
2012 TOTALS (tons/year unmitigated)	0.29
2012 TOTALS (tons/year mitigated)	0.29
Percent Reduction	0.00

AREA SOURCE EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	377.01

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OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	1,750.27

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	2,127.28

Greenhouse Gas (GHG) Emissions Calculations

Greenhouse Gas (GHG) Emissions from Area Sources and Vehicles

	Annual Emissions		
	pounds (lbs.)	Tons	Metric Tons
URBEMIS2007 Area Emissions	754,000	377	342
URBEMIS2007 Vehicle Emissions	3,500,000	1,750	1,588
Total Emissions (area sources + vehicles)	**4,254,000**	**2,127**	**1,930**

Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

Estimated Project Annual Electrical Use: 557,023 kWh (kilowatt hours)/year
557 mWh (megawatt hours)/year

		Annual		CO2	Annual
	Emission Factor	Project	GHGs	Equivalent	CO2 Equivalent
Indirect GHG gases	lb/mWh	Electricity mWh	metric tons	Factor	Emissions (metric tons)
Carbon Dioxide (CO2)	878.71	557	222	1	222
Nitrous Oxide (N2O)	0.0037	557	0.0	296	0
Methane (CH4)	0.0067	557	0.0	23	0
		Total Indirect GHG Emissions from Project Electricity Use=			**222**

Total Annual Greenhouse Gas (GHG) Emission from Project Operations -- All Sources (CO2 equivalent Metric Tons)

Area Sources	**342**	15.9%
Vehicles	**1,588**	73.8%
Electrical Use	**222**	10.3%
Total=	**2,152**	100.0%

Notes and References:

Total Emissions from Indirect Electricity Use
Formula and Emission Factor from The California Climate Action Regiustry Report Protocol 2006

Pg. 32 (CCARRP) gives Equations

Pg. 36 (CCARRP - April 2008 update) gives CO2 output emission rate (lbs/mWh)
878.71 (lbs/mWh)

Pg. 85 (CCARRP) gives CO2 equivalency factors

Pg. 87 (CCARRP) gives Methane and Nitrous Oxide electricity emission factors (lbs/mWh)
Methane - 0.0067 (lbs/mWh)
Nitrous Oxide - 0.0037 (lbs/mWh)

lbs/metric ton = 2204.62

Percentage of 25,000 8.6%
Percentage of 174 Million 0.001%

	Tons from URBEMIS	Metric Tons
Construction CO2	257	233

Appendix B
Localized Significance Analysis

ESA

PROJECT TITLE:

CO Concentrations During Project Construction

PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: GROUP2 PPM

2.000 2.020 2.040 2.060 2.080 2.100 2.120 2.140

COMMENTS:

As shown, under worst case conditions, the 1-hour state CO standard of 20.0 ppm would not be exceeded at nearby sensitive receptors. Concentrations shown include a background concentration of 2.0 ppm.

SOURCES:

12

RECEPTORS:

329

MAX:

2.13976 PPM

COMPANY NAME:

Environmental Science Associates

SCALE: 1:2,000

0 0.05 km

DATE:

8/21/2008

ISC-AERMOD View - Lakes Environmental Software

PROJECT TITLE:

CO Concentrations During Project Construction

PLOT FILE OF HIGH 1ST HIGH 8-HR VALUES FOR SOURCE GROUP: GROUP2 PPM

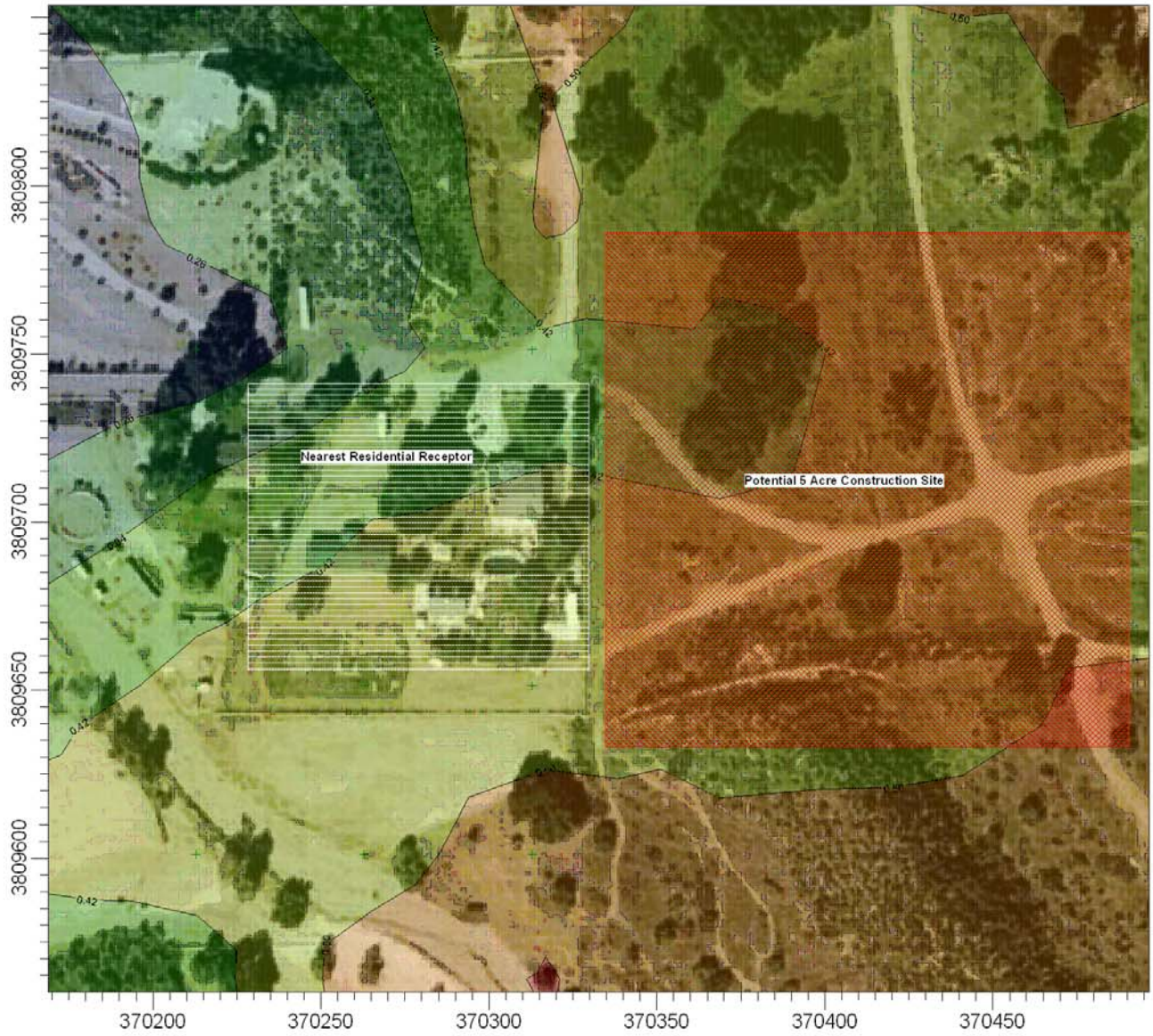
1.200 1.202 1.204 1.206 1.208 1.210 1.212 1.214 1.216 1.218 1.220

COMMENTS: As shown, under worst case conditions, the 8-hour state CO standard of 9.0 ppm would not be exceeded at nearby sensitive receptors. Concentrations shown include a background concentration of 1.2 ppm.	SOURCES: **12**	COMPANY NAME: **Environmental Science Associates**	
	RECEPTORS: **329**		
		SCALE: 1:2,000 0 0.05 km	
	MAX: **1.21747 PPM**	DATE: **8/21/2008**	

ISC-AERMOD View - Lakes Environmental Software

PROJECT TITLE:

NO2 Concentrations During Project Construction



PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: GROUP2 PPM

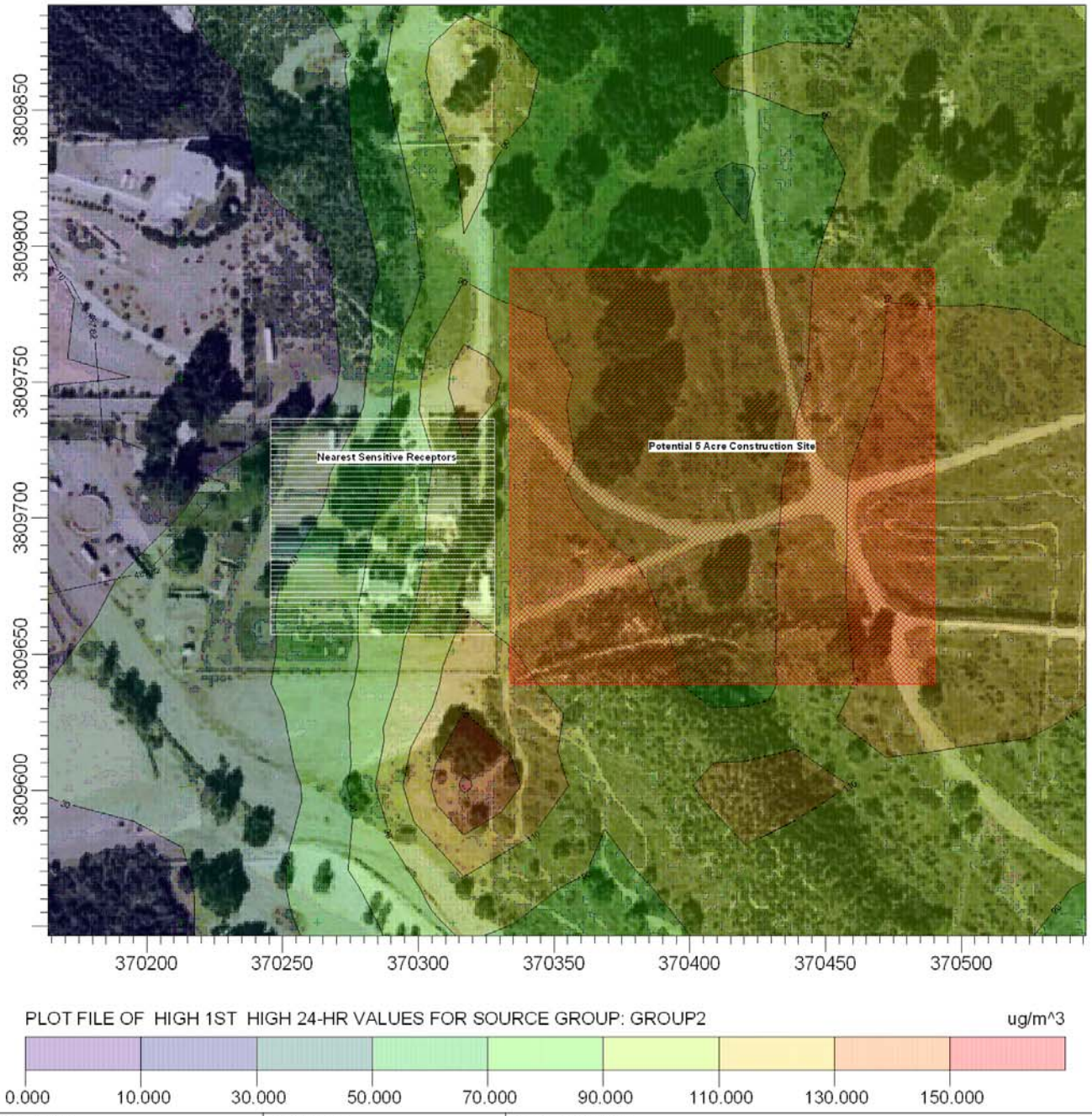
0.100 0.180 0.260 0.340 0.420 0.500 0.580

COMMENTS: As shown, under worst case conditions, the 1-hour state NO2 standard of 0.18 ppm could be exceeded at nearby sensitive receptors. Concentrations shown include a background concentration of 0.08 ppm.	SOURCES: **12**	COMPANY NAME: **Environmental Science Associates**	
	RECEPTORS: **329**		
		SCALE: 1:2,000 0 0.05 km	
	MAX: **0.604 PPM**	DATE: **8/21/2008**	

ISC-AERMOD View - Lakes Environmental Software

PROJECT TITLE:

PM10 Concentrations from Project Construction

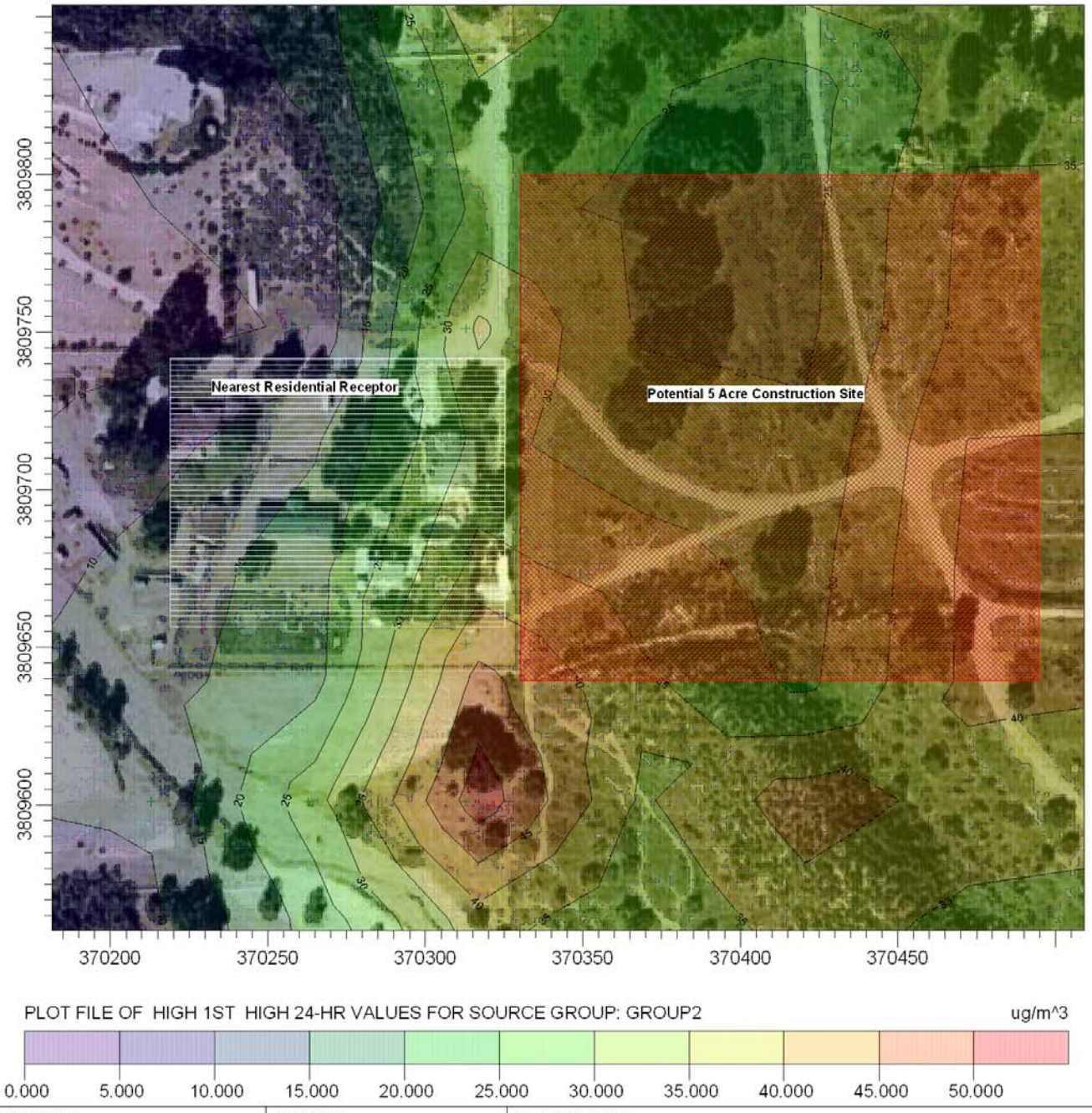


COMMENTS: As shown, under worst case conditions, PM10 concentrations could exceed the recommended threshold of 10.4 ug/m3 at nearby receptors.	SOURCES: **15**	COMPANY NAME: **Environmental Science Associates**	
	RECEPTORS: **329**		
		SCALE: 1:2,333 0 0.05 km	
	MAX: **155.50319 ug/m^3**	DATE: **8/21/2008**	

ISC-AERMOD View - Lakes Environmental Software

PROJECT TITLE:

PM2.5 Concentrations During Project Construction



PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: GROUP2 ug/m^3

0.000 5.000 10.000 15.000 20.000 25.000 30.000 35.000 40.000 45.000 50.000

COMMENTS: As shown, under worst case conditions, PM2.5 concentrations could exceed the recommended threshold of 10.4 ug/m3 at nearby receptors.	SOURCES: **15**	COMPANY NAME: **Environmental Science Associates**	
	RECEPTORS: **329**		
		SCALE: 1:2,000 0 0.05 km	
	MAX: **53.57573 ug/m^3**	DATE: **8/21/2008**	

ISC-AERMOD View - Lakes Environmental Software

Appendix C
CO Hotspot Analysis

ESA

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Title: Mancara at Robinson Ranch

Background Information

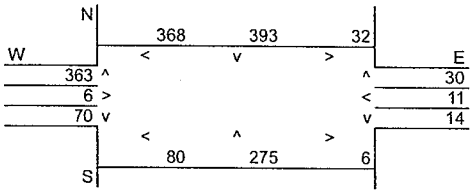
Nearest Air Monitoring Station measuring CO:	Santa Clarita
Background 1-hour CO Concentration (ppm):	5.0
Background 8-hour CO Concentration (ppm):	3.7
Persistence Factor:	0.6
Analysis Year:	2006

Roadway Data

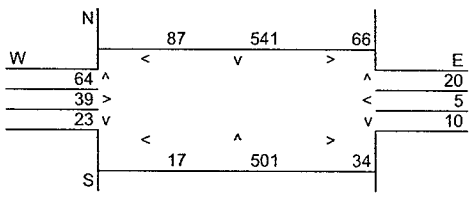
Intersection: 1. Sand Canyon Road at Lost Canyon Road
Analysis Condition: Existing Traffic Volumes

		Roadway Type	No. of Lanes	Average Speed A.M.	Average Speed P.M.
North-South Roadway:	Sand Canyon Road	At Grade	2	5	5
East-West Roadway:	Lost Canyon Road	At Grade	2	5	5

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	1,461	N-S Road:	1,279
E-W Road:	898	E-W Road:	235

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000[1]

Roadway	A_1 E.O.R.	A_2 Reference CO Concentrations 25 Feet	A_3 50 Feet	A_4 100 Feet	B Traffic Volume	C Emission Factors[2]	Estimated CO Concentrations E.O.R.	25 Feet	50 Feet	100 Feet
A.M. Peak Traffic Hour										
North-South Road	14.0	7.6	5.7	4.0	1,461	11.39	2.33	1.26	0.95	0.67
East-West Road	3.7	2.7	2.2	1.7	898	11.39	0.38	0.28	0.23	0.17
P.M. Peak Traffic Hour										
North-South Road	14.0	7.6	5.7	4.0	1,279	11.39	2.04	1.11	0.83	0.58
East-West Road	3.7	2.7	2.2	1.7	235	11.39	0.10	0.07	0.06	0.05

[1] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).
[2] Emission factors from EMFAC2002 (2003).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration[2]
8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration[2]

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
Roadway Edge	7.7	7.1	5.3
25 Feet from Roadway Edge	6.5	6.2	4.6
50 Feet from Roadway Edge	6.2	5.9	4.4
100 Feet from Roadway Edge	5.8	5.6	4.2

[2] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Title: Mancara at Robinson Ranch

Background Information

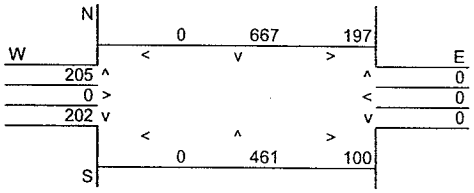
Nearest Air Monitoring Station measuring CO:	Santa Clarita
Background 1-hour CO Concentration (ppm):	5.0
Background 8-hour CO Concentration (ppm):	3.7
Persistence Factor:	0.6
Analysis Year:	2006

Roadway Data

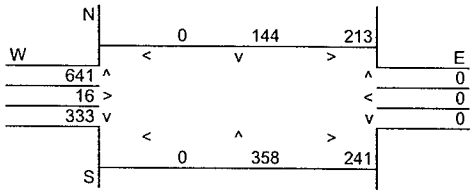
Intersection: 2. Sand Canyon Road at SR-14 NB Ramps
Analysis Condition: Existing Traffic Volumes

		Roadway Type	No. of Lanes	Average Speed A.M.	Average Speed P.M.
North-South Roadway:	Sand Canyon Road	At Grade	4	15	15
East-West Roadway:	SR-14 NB Ramps	At Grade	2	15	15

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	1,530	N-S Road:	1,356
E-W Road:	407	E-W Road:	990

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000[1]

Roadway	A_1 E.O.R.	A_2 Reference CO Concentrations 25 Feet	A_3 50 Feet	A_4 100 Feet	B Traffic Volume	C Emission Factors[2]	Estimated CO Concentrations E.O.R.	25 Feet	50 Feet	100 Feet
A.M. Peak Traffic Hour										
North-South Road	11.9	7.0	5.4	3.8	1,530	7.55	1.38	0.81	0.62	0.44
East-West Road	3.7	2.7	2.2	1.7	407	7.55	0.11	0.08	0.07	0.05
P.M. Peak Traffic Hour										
North-South Road	11.9	7.0	5.4	3.8	1,356	7.55	1.22	0.72	0.55	0.39
East-West Road	3.7	2.7	2.2	1.7	990	7.55	0.28	0.20	0.16	0.13

[1] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).
[2] Emission factors from EMFAC2002 (2003).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration[2]
8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration[2]

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
Roadway Edge	6.5	6.5	4.6
25 Feet from Roadway Edge	5.9	5.9	4.3
50 Feet from Roadway Edge	5.7	5.7	4.1
100 Feet from Roadway Edge	5.5	5.5	4.0

[2] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Title: Mancara at Robinson Ranch

Background Information

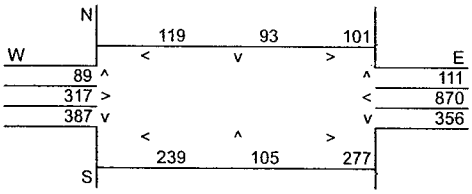
Nearest Air Monitoring Station measuring CO:	Santa Clarita
Background 1-hour CO Concentration (ppm):	5.0
Background 8-hour CO Concentration (ppm):	3.7
Persistence Factor:	0.6
Analysis Year:	2006

Roadway Data

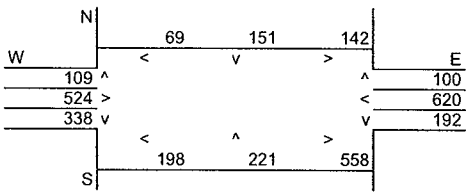
Intersection: 3. Sand Canyon Road at Soledad Canyon Road
Analysis Condition: Existing Traffic Volumes

		Roadway Type	No. of Lanes	Average Speed A.M.	Average Speed P.M.
North-South Roadway:	Sand Canyon Road	At Grade	4	15	15
East-West Roadway:	Soledad Canyon Road	At Grade	4	15	15

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	1,457	N-S Road:	1,658
E-W Road:	2,032	E-W Road:	2,136

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000[1]

Roadway	A_1 E.O.R.	A_2 Reference CO Concentrations 25 Feet	A_3 50 Feet	A_4 100 Feet	B Traffic Volume	C Emission Factors[2]	Estimated CO Concentrations E.O.R.	25 Feet	50 Feet	100 Feet
A.M. Peak Traffic Hour										
North-South Road	3.3	2.6	2.2	1.7	1,457	7.55	0.36	0.29	0.24	0.19
East-West Road	11.9	7.0	5.4	3.8	2,032	7.55	1.83	1.07	0.83	0.58
P.M. Peak Traffic Hour										
North-South Road	3.3	2.6	2.2	1.7	1,658	7.55	0.41	0.33	0.28	0.21
East-West Road	11.9	7.0	5.4	3.8	2,136	7.55	1.92	1.13	0.87	0.61

[1] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).
[2] Emission factors from EMFAC2002 (2003).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration[2]
8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration[2]

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
Roadway Edge	7.2	7.3	5.1
25 Feet from Roadway Edge	6.4	6.5	4.6
50 Feet from Roadway Edge	6.1	6.1	4.4
100 Feet from Roadway Edge	5.8	5.8	4.2

[2] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Title: Mancara at Robinson Ranch

Background Information

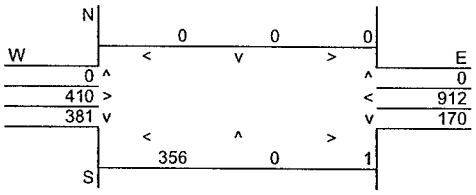
Nearest Air Monitoring Station measuring CO:	Santa Clarita
Background 1-hour CO Concentration (ppm):	5.0
Background 8-hour CO Concentration (ppm):	3.7
Persistence Factor:	0.6
Analysis Year:	2006

Roadway Data

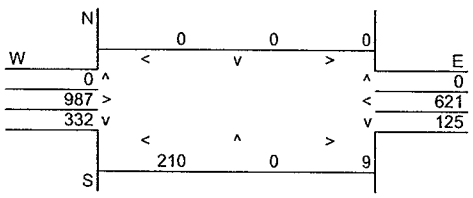
Intersection: 4. SR-14 SB Ramps at Soledad Canyon Road
Analysis Condition: Existing Traffic Volumes

		Roadway Type	No. of Lanes	Average Speed A.M.	Average Speed P.M.
North-South Roadway:	SR-14 SB Ramps	At Grade	2	15	15
East-West Roadway:	Soledad Canyon Road	At Grade	4	15	15

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	908	N-S Road:	676
E-W Road:	2,059	E-W Road:	2,150

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000[1]

Roadway	A_1 E.O.R.	A_2 Reference CO Concentrations 25 Feet	A_3 50 Feet	A_4 100 Feet	B Traffic Volume	C Emission Factors[2]	Estimated CO Concentrations E.O.R.	25 Feet	50 Feet	100 Feet
A.M. Peak Traffic Hour										
North-South Road	3.7	2.7	2.2	1.7	908	7.55	0.25	0.19	0.15	0.12
East-West Road	11.9	7.0	5.4	3.8	2,059	7.55	1.85	1.09	0.84	0.59
P.M. Peak Traffic Hour										
North-South Road	3.7	2.7	2.2	1.7	676	7.55	0.19	0.14	0.11	0.09
East-West Road	11.9	7.0	5.4	3.8	2,150	7.55	1.93	1.14	0.88	0.62

[1] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).
[2] Emission factors from EMFAC2002 (2003).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration[2]
8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentration[2]

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
Roadway Edge	7.1	7.1	5.0
25 Feet from Roadway Edge	6.3	6.3	4.5
50 Feet from Roadway Edge	6.0	6.0	4.3
100 Feet from Roadway Edge	5.7	5.7	4.1

[2] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

Appendix D
Greenhouse Gas Analysis

ESA

Greenhouse Gas (GHG) Emissions Calculations

Project Name: Mancara

Greenhouse Gas (GHG) Emissions from Area Sources and Vehicles

	Annual Emissions		
	pounds (lbs.)	Tons	Metric Tons
URBEMIS2007 Area Emissions	754,000	377	342
URBEMIS2007 Vehicle Emissions	3,500,000	1,750	1,588
Total Emissions (area sources + vehicles)	**4,254,000**	**2,127**	**1,930**

Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (indirect Power Plant Emissions)

Estimated Project Annual Electrical Use: 557,024 kWh (kilowatt hours)/year
557 mWh (megawatt hours)/year

		Annual		CO2	Annual
	Emission Factor	Project	GHGs	Equivalent	CO2 Equivalent
Indirect GHG gases	lb/mWh	Electricity mWh	metric tons	Factor	Emissions (metric tons)
Carbon Dioxide (CO2)	878.71	557	222	1	222
Nitrous Oxide (N2O)	0.0037	557	0.0	296	0
Methane (CH4)	0.0067	557	0.0	23	0
		Total Indirect GHG Emissions from Project Electricity Use=			**222**

Total Annual Greenhouse Gas (GHG) Emission from Project Operations -- All Sources (CO2 equivalent Metric Tons)

Area Sources	**342**	15.9%
Vehicles	**1,588**	73.8%
Electrical Use	**222**	10.3%
Total=	**2,152**	100.0%

Notes and References:

Total Emissions from Indirect Electricity Use
Formula and Emission Factor from The California Climate Action Regiustry Report Protocol 2006

Pg. 32 (CCARRP) gives Equations

Pg. 36 (CCARRP - April 2008 update) gives CO2 output emission rate (lbs/mWh)
878.71 (lbs/mWh)

Pg. 85 (CCARRP) gives CO2 equivalency factors

Pg. 87 (CCARRP) gives Methane and Nitrous Oxide electricity emission factors (lbs/mWh)
Methane - 0.0067 (lbs/mWh)
Nitrous Oxide - 0.0037 (lbs/mWh)

lbs/metric ton = 2204.62

Percentage of 25,000 8.6%
Percentage of 174 Million 0.001%

	Tons from URBEMIS	Metric Tons
Construction CO2	257	233

Annual kWh Calculations for Project Emissions of Electricty Used by the project

Project Name: Mancara

Total GHG Emissions From Commercial Electricity Use Average monthly consumption (kWh)		
Residential* (kWh/sq ft or unit /Year)	square footage/units**	kWhours per year
5,626.50	99	557,024

*Electricity Usage Rates from Table A9-11-A South Coast AQMD CEQA Air Quality Handbook 1993 - Usage Rate is Average for SCE and LADWP

**Design Research Center 48,183 sf, Tyler Addition 42,226 sf.

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Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: \\Lax-file01\esadata\Projects\208xxx\D208500.00 - Mancara Air Quality Study\06 Project Library\urbemis.urb924

Project Name: Mancara Residential

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	CO2
2009 TOTALS (tons/year unmitigated)	737.06
2009 TOTALS (tons/year mitigated)	737.06
Percent Reduction	0.00
2010 TOTALS (tons/year unmitigated)	146.71
2010 TOTALS (tons/year mitigated)	146.71
Percent Reduction	0.00

AREA SOURCE EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	377.01

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OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	1,750.27

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	CO2
TOTALS (tons/year, unmitigated)	2,127.28