9 AIR QUALITY

The Air Quality chapter of the EIR describes the potential impacts of the Rancho Del Oro Estates project (proposed project) on local and regional air quality. The chapter describes existing air quality, construction-related air quality impacts resulting from grading and equipment emissions, direct and indirect emissions associated with the proposed project, the impacts of these emissions on both the local and regional scale, and mitigation measures warranted to reduce or eliminate any identified significant impacts. This chapter is based on the *Placer County General Plan* (PCGP),[1] the *PCGP EIR*,[2] the *Granite Bay Community Plan* (GBCP),[3] and URBEMIS-2007 (Version 9.2.4) (See Appendix K for URBEMIS-2007 outputs).

Impacts that have already been identified in the Rancho Del Oro Estates Initial Study as having *less-than-significant* levels (i.e., conflict with or obstruct implementation of the applicable air quality plan; expose sensitive receptors to substantial pollutant concentrations; create objectionable odors affecting a substantial number of people) are not further addressed within this chapter. The impacts identified as *potentially significant* in the Initial Study are addressed in this chapter.

9.1 Environmental Setting

The following setting information provides an overview of the existing air quality setting in the proposed project area. In this section, the climate and topography of the region, ambient air quality standards (AAQS), attainment status for Placer County, current air quality, and sensitive receptors in the vicinity of the proposed project are discussed.

Climate and Topography

The proposed project site is located in western Placer County, which falls within the Sacramento Valley Air Basin (SVAB). Air flows into the SVAB through the Carquinez Strait, moves across the Delta and carries pollutants from the heavily populated San Francisco Bay Area into the SVAB. The climate is characterized by hot, dry summers and cool, rainy winters. Characteristic of SVAB winter weather are periods of dense and persistent low-level fog, which are most prevalent between storms. From May to October, the region's intense heat and sunlight lead to high ozone concentrations. Prevailing winds are from the south and southwest, and as a result of prevailing winds coming generally from south to southwest, air quality in the area is heavily influenced by mobile and stationary sources of air pollution located upwind in the Sacramento Metropolitan Area.

Most precipitation in the SVAB results from air masses moving in from the Pacific Ocean during the winter months. Storms usually move through the area from the west or northwest. During the winter rainy season (November through February) over half the total annual precipitation falls while the average winter temperature is a moderate 49 degrees. During the summer, daytime

temperatures can exceed 100 degrees Fahrenheit. Dense fog occurs mostly in mid-winter and rarely in the summer. Daytime temperatures from April through October average between 70 and 90 degrees with extremely low humidity. The inland location and surrounding mountains shelter the valley from much of the ocean breeze that keeps the coastal regions moderate in temperature. The only breech in the mountain barrier is the Carquinez Strait, which exposes the midsection of the valley to the coastal air mass.

Air quality in Placer County is also affected by inversion layers, which occur when a layer of warm air traps a layer of cold air, preventing vertical dispersion of air contaminants. The presence of an inversion layer results in higher concentrations of pollutants near ground level. Summer inversions are strong and frequent, but are less troublesome than those that occur in the fall. Autumn inversions, formed by warm air subsiding in a region of high pressure, have accompanying light winds that do not provide adequate dispersion of air pollutants.

Air quality in the project vicinity is influenced by both local and distant emission sources. Air pollutant sources in the immediate project vicinity include emissions from vehicle traffic on Cavitt-Stallman Road, Olive Ranch Road, and Sierra College Boulevard, as well as area sources such as agricultural and landscaping activities. Other, more distant, air pollutant sources in the area include vehicle traffic on Interstate 80 and State Route 49, as well as local commercial land uses.

Ambient Air Quality Standards

Both the U.S. Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (CARB) have established AAQS for common pollutants. The AAQS for each contaminant represent safe levels that avoid specific adverse health effects. Pollutants for which air quality standards have been established are called “criteria” pollutants.

Table 9-1 identifies the major pollutants, characteristics, health effects and typical sources. The federal and State AAQS are summarized in Table 9-2. The federal and State AAQS were developed independently with differing purposes and methods. As a result, the federal and State AAQS differ in some cases. In general, California’s AAQS are more stringent, particularly for ozone and particulate matter (PM_{10} and $PM_{2.5}$), than the federal AAQS.

<u>Ozone</u>

Ozone is the most prevalent of a class of photochemical oxidants formed in the urban atmosphere. The creation of ozone is a result of a complex chemical reaction between reactive organic gases (ROG) and nitrogen oxide (NO_X) gases in the presence of sunshine. Unlike other pollutants, ozone is not released directly into the atmosphere from any sources. Factories, automobiles, and evaporation of solvents and fuels are the major sources of ozone precursors. Common health effects of ozone are difficulty breathing, lung tissue damage, and eye irritation.

Table 9-1
Major Criteria Pollutants

Pollutant	Characteristics	Health Effects	Examples of Sources
Ozone	A strong smelling, pale blue, reactive toxic chemical gas consisting of three oxygen atoms. Ozone exists in the upper atmosphere ozone layer (stratospheric ozone) as well as at the Earth's surface in the troposphere (ozone). Ozone in the troposphere causes numerous adverse health effects, and is a criteria air pollutant and a major component of smog.	• Breathing difficulties • Lung tissue damage • Damage to rubber and some plastics • Eye and skin irritation	Formed when reactive organic gases (ROG) and nitrogen oxides react in the presence of sunlight. ROG and NO_X sources include any source that burns fuels (e.g., gasoline, natural gas, wood, oil), solvents, petroleum processing and storage, and pesticides.
Carbon Monoxide	A colorless, odorless gas resulting from the incomplete combustion of hydrocarbon fuels. Over 80 percent of the carbon monoxide emitted in urban areas is contributed by motor vehicles.	• Chest pain in heart patients • Headaches and nausea • Reduced mental alertness • High concentration can result in death	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.
Nitrogen Dioxide	Nitrogen dioxide is typically created during combustion processes, and is a major contributor to smog formation and acid deposition.	• Lung irritation and damage • Reacts in the atmosphere to form ozone and acid rain	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.
Sulfur Dioxide	A strong smelling, colorless gas that is formed by the combustion of fossil fuels.	• Increased lung disease and breathing problems for asthmatics • Reacts in the atmosphere to form acid rain	Coal or oil burning power plants and industries, refineries, and diesel engines.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Any material, except pure water, that exists in the solid or liquid state in the atmosphere. The size of particulate matter can vary from coarse, wind-blown dust particles to fine particle combustion products.	• Increased respiratory disease • Lung damage • Premature death • Reduced visibility	Fuel combustion in motor vehicles, equipment and industrial sources, residential and agricultural burning. Particulate matter is also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).

Source: California Air Resources Board, http://www.arb.ca.gov/html/gloss.htm, accessed June 2009.

Table 9-2
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	Federal Standards	
			Primary	Secondary
Ozone	1 Hour	0.09 ppm	-	Same as primary
	8 Hour	0.07 ppm	0.075 ppm	
Carbon Monoxide	8 Hour	9 ppm	9 ppm	None
	1 Hour	20 ppm	35 ppm	
Nitrogen Dioxide	Annual Mean	0.03 ppm	0.053 ppm	Same as primary
	1 Hour	0.18 ppm	-	
Sulfur Dioxide	Annual Mean	-	0.030 ppm	-
	24 Hour	0.04 ppm	0.14 ppm	-
	3 Hour			0.50 ppm
	1 Hour	0.25 ppm		-
Respirable Particulate Matter (PM_{10})	Annual Mean	20 ug/m^3	-	Same as primary
	24 Hour	50 ug/m^3	150 ug/m^3	
Fine Particulate Matter ($PM_{2.5}$)	Annual Mean	12 ug/m^3	15 ug/m^3	Same as primary
	24 Hour	-	35 ug/m^3	
Sulfates	24 Hour	25 ug/m^3	-	-
Lead	30 Day Average	1.5 ug/m^3	-	-
	Calendar Quarter	-	1.5 ug/m^3	Same as primary
Hydrogen Sulfide	1 Hour	0.03 ppm	N/A	N/A
Vinyl Chloride	24 Hour	0.01 ppm	N/A	N/A

ppm = parts per million
ug/m^3 = micrograms per cubic meter

Source: California Air Resources Board, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, accessed June 2009.

Particulate Matter

Suspended particulate matter (airborne dust) consists of solid and liquid particles small enough to remain suspended in the air for long periods of time. “Respirable” particulate matter (PM) consists of particles less than 10 microns in diameter, and is defined as “suspended particulate matter” or PM_{10}. Particles between 2.5 and 10 microns in diameter arise primarily from natural processes, such as wind-blown dust or soil. Fine particles are less than 2.5 microns in diameter ($PM_{2.5}$). $PM_{2.5}$, by definition, is included in PM_{10}. Fine particles are produced mostly from combustion or burning activities. Fuel burned in cars and trucks, power plants, factories, fireplaces, and wood stoves produce fine particles.

Particulate matter is a complex mixture that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These tiny particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particulate matter is divided into two classes, primary and secondary. Primary particles are released directly into the atmosphere from sources of generation. Secondary particles are formed in the atmosphere as a result of reactions involving gases.

Particles greater than 10 microns in diameter can cause irritation in the nose, throat, and bronchial tubes. Natural mechanisms remove many of these particles, but smaller particles (PM_{10} and $PM_{2.5}$) are able to pass through the body's natural defenses, including the mucous membranes of the upper respiratory tract, and enter into the lungs. The particles can damage the alveoli, tiny air sacs responsible for gas exchange in the lungs. The particles may also carry carcinogens and other toxic compounds, which adhere to the particle surfaces and can enter the lungs.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, poisonous gas produced by incomplete burning of carbon-based fuels such as gasoline, oil, and wood. When CO enters the body, the CO combines with chemicals in the body, which prevents blood from carrying oxygen to cells, tissues, and organs. Symptoms of exposure to CO can include problems with vision, reduced alertness, and general reduction in mental and physical functions. Exposure to CO can result in chest pain, headaches, reduced mental alertness, and death at high concentrations.

Nitrogen Oxide Gases

NO_X are produced from burning fuels, including gasoline and coal. Nitrogen oxides react with ROG (found in paints and solvents) to form ozone, which can harm health, damage the environment, and cause poor visibility. Additionally, NO_X emissions are a major component of acid rain. Health effects related to NO_X include lung irritation and lung damage.

Sulfates

Sulfates (SO_X) are colorless gases and constitute a major element of pollution in the atmosphere. SO_X is commonly produced by fossil fuel combustion. In the atmosphere, SO_X is usually oxidized by ozone and hydrogen peroxide to form sulfur dioxide and trioxide. If SO_X is present during condensation, acid rain may occur. Exposure to high concentrations for short periods of time can constrict the bronchi and increase mucous flow, making breathing difficult. Children, the elderly, those with chronic lung disease, and asthmatics are especially susceptible to these effects.

Toxic Air Contaminants

In addition to criteria pollutants, Toxic Air Contaminants (TACs) are a category of environmental concern. Many types of TACs exist, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different TACs. In terms of health risks, the most volatile contaminants are diesel particulate, benzene, formaldehyde, 1,3-butadiene and acetaldehyde.

Public exposure to TACs can result from emissions from normal operations as well as accidental releases. Heath effects of TACs include cancer, birth defects, neurological damage, and death.

Naturally Occurring Asbestos

Naturally Occurring Asbestos (NOA) is found in some areas throughout California, most commonly where ultramafic rock or serpentinite rock is present. Because asbestos is a known carcinogen, naturally-occurring asbestos is considered a TAC. Asbestos includes fibrous minerals found in certain types of rock formations. Natural weathering or human disturbance could generate microscopic NOA fibers which are easily suspended in air. Placer County has been identified by the California Department of Conservation as an area where NOA is located.

The proposed project site is not located near any ultramafic rock formations or fault zone areas. In addition, according to the California Department of Conservation's *Special Report 190: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California*, the proposed project site is within an area classified as least likely to contain naturally occurring asbestos (See Chapter 14, Hazardous Materials and Hazards, of this Draft EIR for further detail).

Attainment Status

The Federal Clean Air Act (CAA) and the California Clean Air Act (CCAA) require all areas of California to be classified as attainment, non-attainment, or unclassified as to their status with regard to the federal and/or State AAQS. The CAA and CCAA require that the CARB, based on air quality monitoring data, designate portions of the State where the federal or State AAQS are not met as "nonattainment areas." Because of the differences between the national and State standards, the designation of nonattainment areas is different under the federal and State legislation. The CCAA requires local air pollution control districts to prepare air quality attainment plans. These plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods or, provide for adoption of "all feasible measures on an expeditious schedule."

Under the CAA, Placer County has been designated nonattainment for the ozone 8-hour standard, and unclassified for other federal AAQS. In addition, Placer County is designated nonattainment for the State AAQS for ozone and PM_{10}, and attainment or unclassified for other pollutants (See Table 9-3). The entire State is currently designated unclassified for $PM_{2.5}$ and will continue to be until sufficient monitoring data has been collected.

Current Air Quality

As stated above, air quality in the SVAB complies with most state and federal air quality standards, but the SVAB is designated a non-attainment area for ozone and PM_{10} standards. Air quality is monitored for the portion of Placer County that is located within the SVAB by two active air pollutant monitoring stations. The air quality monitoring stations measure hourly pollutants and record sufficient data to meet U.S. EPA and/or CARB criteria for quality assurance. One air quality monitoring station is located at the DeWitt Center and only monitors ozone concentrations; the other is located in Roseville on North Sunrise Boulevard, and monitors ozone, PM_{10}, $PM_{2.5}$, CO, and nitrogen dioxide. However, only monitoring data for ozone, PM_{10}, and $PM_{2.5}$ are publicly available via the CARB website.

Table 9-3
Placer County Attainment Status Designations

Pollutant	Federal Designation	State Designation
Ozone	Nonattainment	Nonattainment
Particulate Matter (PM_{10})	Unclassified	Nonattainment
Particulate Matter ($PM_{2.5}$)	Unclassified	Unclassified
Carbon Monoxide	Unclassified	Unclassified
Nitrogen Dioxide	Unclassified	Attainment
Sulfur Dioxide	Unclassified	Attainment
Sulfates	No Federal Standard	Attainment
Lead	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility Reducing Particulates	No Federal Standard	Unclassified

Source: www.arb.ca.gov, accessed June 2009.

Summaries of the annual air quality measurements from the two monitoring sites are shown in Tables 9-4 and 9-5, respectively.

Table 9-4
Air Quality Data Summary for the Auburn-Dewitt Center Air Quality Monitoring Site (2006-2008)

Pollutant	Standard	Days Standard Was Exceeded		
		2006	2007	2008
Ozone	State 1-Hour	25	1	14
Ozone	State 8-hour	67	21	36
Ozone	Federal 8-Hour	56	9	21

Source: California Air Resources Board, Aerometric Data Analysis and Management (ADAM) System, accessed June 2009.

Table 9-5
Air Quality Data Summary for the Roseville-North Sunrise Boulevard Air Quality Monitoring Site (2006-2008)

Pollutant	Standard	Days Standard Was Exceeded		
		2006	2007	2008
Ozone	State 1-Hour	16	4	20
Ozone	State 8-hour	38	20	38
Ozone	Federal 8-Hour	25	8	22
PM_{10}	State 24-Hour	5.8	0	6.1
PM_{10}	Federal 24-Hour	0	0	0
$PM_{2.5}$	24-Hour	11.5	0	6.5

Source: California Air Resources Board, ADAM System, accessed June 2009.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Residential areas are considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercising places a high demand on respiratory functions, which can be impaired by air pollution. The project site is located in an area characterized by existing rural residential land uses, and residences surround the project site on the south and west sides. Development activities associated with implementation could expose existing residents to increased air pollutant levels.

9.2 Regulatory Setting

Air quality is monitored through the efforts of various federal, State, and local government agencies. These agencies work jointly and individually to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. In addition to federal, State, and local air quality standards, the proposed project will be evaluated in the context of policies related to air quality contained in the GBCP.

Federal

United States Environmental Protection Agency

The U.S. EPA is responsible for enforcement of the federal AAQS. The U.S. EPA has adopted policies requiring states to prepare State Implementation Plans (SIP) that demonstrate attainment and maintenance of the federal AAQS. After a review of the SIP, the U.S. EPA will further classify non-attainment areas according to a district's projected date of attainment. Districts that project attainment of standards in three to five years would be classified as near-term non-attainment, whereas districts that cannot meet standards within five years would be classified as long-term non-attainment. For an area to be classified as near-term non-attainment, the district would be required to demonstrate that pollutant reductions of three percent per year are obtainable and that maintenance of standards could occur for ten years.

In 1997, the U.S. EPA adopted new national air quality standards for ground-level ozone and for $PM_{2.5}$. The standards determined that the existing 1-hour ozone standard of 0.12 parts-per-million (ppm) would be phased out and replaced by an 8-hour standard of 0.08 ppm. New national standards for $PM_{2.5}$ were established for 24-hour and annual averaging periods.

The established PM_{10} standards were retained, but the method and form for determining compliance with the standards were revised. Implementation of the new ozone and Particulate Matter standards was delayed by a lawsuit. On May 14, 1999 the Court of Appeals for the District of Columbia Circuit issued a decision ruling that the CAA, as applied in setting the new public health standards for ozone and particulate matter, was unconstitutional and an improper delegation of legislative authority to the U.S. EPA. The United States Supreme Court revised the

District of Columbia Circuit's decision in 2001, clearing the way for implementation of the new standards.

State

California Air Resources Board

The CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing California's own air quality legislation, the CCAA, which was adopted in 1988. The CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the U.S. EPA.

California Clean Air Act

The CCAA requires that air quality plans be prepared for areas of the State that have not met State air quality standards for ozone, CO, nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). Areas that met standards by 1994 were classified as moderate, areas that attained standards between 1994 and 1997 were classified as serious, and areas that could not attain standards until after 1997 were classified as severe. In order to implement the transportation-related provisions of the CCAA, local air pollution control districts have been granted explicit authority to adopt and implement transportation controls.

Local

Sacramento Regional Ozone Attainment Plan

The CCAA requires that non-attainment areas develop air quality plans that contain strategies for achieving attainment. Because the SVAB has been designated non-attainment with respect to federal ozone standards, the Sacramento Regional Ozone Attainment Plan was prepared by Air Quality Management Districts (AQMDs) and Air Pollution Control Districts (APCDs) in the Sacramento region, including Placer County. Compliance with the Sacramento Regional Ozone Attainment Plan is intended to reduce ozone levels, particularly levels of ROG and NO_X. In order to reduce ROG and NO_X emissions, the Sacramento Regional Ozone Attainment Plan includes land use and transportation control measures for development projects.

Placer County Air Pollution Control District (PCAPCD)

The PCAPCD adopts and enforces regulations to control emissions from stationary sources of air pollutants, while the CARB has the authority to regulate emissions from motor vehicles. Stationary sources include non-specific sources associated with typical operation of a land use (e.g., gasoline-powered lawn mowers or woodburning fireplaces), as well as individual pieces of equipment (e.g., power generators). Emissions from individual stationary sources are regulated through a permit process, while emissions from non-specific sources are regulated during Placer County's development approval process.

In order to evaluate stationary and area source emissions, the PCAPCD has established thresholds for emissions of ROG, NO_X, SO_X, PM_{10} and CO. Should emissions from area or stationary sources exceed the thresholds, the PCAPCD requires application of Best Available Control Technology on both new and modified emissions sources. The thresholds, listed in Table 9-6, serve as air quality standards in the evaluation of air quality impacts associated with proposed development projects.

Table 9-6
Placer County Air Pollution Control District Standards

Pollutant	Operational Threshold (lbs/day)	Cumulative Threshold (lbs/day)
ROG	82	10
NO_X	82	10
SO_X	82	10
PM10	82	82
CO	550	550

Source: Placer County Air Pollution Control District, 2009.

The thresholds are expressed in "pounds per day," which allows for comparison between the thresholds and URBEMIS-2007 modeling results. Emissions attributable to the proposed project, as calculated by URBEMIS-2007, which exceed the thresholds could have a significant effect on regional air quality and the attainment of the federal and State AAQS. The thresholds apply to both short-term and long-term air pollutant emissions. Pursuant to the standards of significance listed in the Impacts and Mitigation Measures section below, any project that is determined to have the potential to generate emissions exceeding the thresholds would have a significant impact on air quality.

Granite Bay Community Plan

The following are the applicable GBCP goals and policies related to air quality:

Resources

Conservation Element

Goal 4 Protect the high quality of air and water resources consistent with adopted federal, State, and local standards.

Policy 28 Control of fugitive dust at construction sites by the use of water and other reasonable dust controls shall be required.

Policy 29 Developers shall be required to comply with additional mitigation measures that may be required by the Air Quality Plan Update.

Policy 30 Developers shall be required to submit a CALINE4 CO hotspot computer analysis for all new projects and provide additional mitigation, if required by the Air Pollution Control District.

Policy 31 The contribution of vegetation and water areas in maintaining the air quality shall not be overlooked in any major land use proposals.

9.3 IMPACTS AND MITIGATION MEASURES

Standards of Significance

For the purposes of this EIR, the following standards of significance were adapted from Appendix G of the CEQA Guidelines. Impacts are considered significant if implementation of the proposed project would do one or more of the following:

- Exceed the following PCAPCD thresholds for regional emissions:
  - Reactive Organic Gases (ROG) – 82 lbs/day;
  - Nitrogen Oxides (NO_X) – 82 lbs/day;
  - Particulate Matter (PM_{10}) – 82 lbs/day;
  - Carbon Monoxide (CO) – 550 lbs/day;
- Generate localized concentrations of CO that exceed the 1-hour 20 ppm or the 8-hour 9 ppm air quality standards;
- Result in a cumulatively considerable net increase of any criteria for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Method of Analysis

The following section discusses the methods utilized to determine the project's impacts.

Short-Term Impacts

Short-term construction emissions of ROG and NO_X were estimated using the URBEMIS-2007 (Version 9.2.4) computer program. The URBEMIS-2007 program is designed to model construction emissions for land use development projects and allows for the input of project-specific information. For development sites greater than 10 acres, URBEMIS modeling default parameters assume that one-quarter of the project area could be constructed on any given day. To ensure a conservative analysis, modeling was based on the maximum estimated area of daily disturbance, based on a comparison of data provided by the project applicant and the default parameters contained in the URBEMIS-2007 model. Construction schedules were based on

estimated construction schedules provided by the project applicant. Building construction is anticipated to occur in one phase, over an approximate 18-month period, with grading of the site lasting for approximately six months and roadway paving being completed in approximately 30 days. All other modeling parameters, including equipment usage requirements, were based on URBEMIS-2007 model defaults.

Long-Term Impacts

Regional area- and mobile-source emissions associated with the proposed project were estimated using the URBEMIS-2007 computer program, which includes options for the estimation of operational emissions for land use development projects. Emissions were calculated for both summer and winter conditions based on the default parameters contained in the model. Default trip generation rates contained in the model were revised to correspond with predicted trip generation rates identified in the traffic analysis prepared for this project.

As stated earlier, impacts identified as *potentially significant* within the Initial Study are addressed below. All other impacts related to the Standards of Significance listed above have previously been addressed in the Initial Study and have been identified as having *no impact*, a *less-than-significant* impact, or include mitigation measures to reduce the proposed project's potential for an adverse impact to a *less-than-significant* level.

Project-Specific Impacts and Mitigation Measures

9-1 Impacts related to fugitive particulate matter emissions from project-associated construction activities.

Maximum construction emissions would occur during the first phases of construction when clearing, earthmoving, and grading occur. Table 9-7 shows the expected maximum daily construction emissions for the project without the incorporation of mitigation. According to Table 9-7, PM_{10} emissions generated by the project would exceed the PCAPCD thresholds. In addition, particulate matter emitted during construction activities would occur near existing residences, thereby causing a nuisance. Residences currently exist to the south and west of the project site.

Table 9-7
Maximum Construction-Related Daily Emissions of PM_{10} (Unmitigated)

	PM_{10}
Project Construction	602.56 lbs/day
PCAPCD Significance Threshold	**82.0 lbs/day**

Source: Raney Planning & Management, Inc., May 2009.

The majority of the PM_{10} from construction would be soil particles, while a small fraction (approximately one percent) of the PM_{10} would be from diesel exhaust (during construction, various diesel-powered vehicles and equipment would be used on the site). Diesel exhaust particulate is a pollutant that has come under increased scrutiny in recent years. The CARB has identified PM from diesel-fueled engines as a TAC. The CARB

has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines. High volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic were identified as having the highest associated health risks. Health risks from TACs are a function of both the concentration of emissions and the duration of exposure. The emissions resulting from construction are temporary, affecting a specific receptor for a period of days or perhaps weeks. Emissions from diesel powered equipment on the site would be spread over the site and would not affect any specific receptor for an extended period of time.

Because the proposed project would exceed the PCAPCD threshold established for PM_{10} emissions, a ***potentially significant*** impact would occur.

Mitigation Measure(s)

The PCAPCD provides recommended mitigation measures to reduce impacts related to short-term emissions of pollutants that would be associated with construction of a project. Implementation of the following recommended mitigation measures would reduce emissions of PM_{10} to approximately 66.8 pounds per day. Therefore, with implementation of Mitigation Measures 9-1(a) through 9-1(k), the project would result in a *less-than-significant* impact from construction-related fugitive dust.

9-1(a) *Prior to the approval of Improvement Plans, the applicant shall submit a Construction Emission / Dust Control Plan to the Placer County APCD. This plan must address the minimum Administrative Requirements found in section 300 and 400 of APCD Rule 228, Fugitive Dust. The applicant shall not break ground prior to receiving APCD approval of the Construction Emission I Dust Control Plan.*

9-1(b) *Prior to the approval of Improvement Plans, the applicant shall include the following standard note on the Improvement Plans: The prime contractor shall submit to the District a comprehensive inventory (i.e. make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower of greater) that will be used an aggregate of 40 or more hours for the construction project. The inventory shall be updated, beginning 30 days after any initial work on site has begun, and shall be submitted on a monthly basis throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least three business days prior to the use of subject heavy-duty off-road equipment, the project representative shall provide the District with the anticipated construction timeline including start date, and name and phone number of the property owner, project manager, and on-site foreman.*

9-1(c) *Prior to approval of Improvement Plans, the applicant shall provide a plan to the Placer County APCD for approval by the District demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and*

subcontractor vehicles, will achieve a project wide fleet-average 20 percent NO_X reduction and 45 percent particulate reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, aftertreatment products, and/or other options as they become available.

9-1(d) *Prior to the approval of Improvement Plans, the applicant shall include the following standard note on the Improvement Plans: The contractor shall suspend all grading operations when fugitive dust exceeds Placer County APCD Rule 228 (Fugitive Dust) limitations. The prime contractor shall be responsible for having an individual who is CARB-certified to perform Visible Emissions Evaluations (VEE). This individual shall evaluate compliance with Rule 228 on a weekly basis. It is to be noted that fugitive dust is not to exceed 40 percent opacity and not go beyond property boundary at any time. If lime or other drying agents are utilized to dry out wet grading areas they shall be controlled as to not to exceed Placer County APCD Rule 228 Fugitive Dust limitations.*

9-1(e) *Prior to the approval of Improvement Plans, an enforcement plan shall be established, and submitted to the APCD for review, in order to weekly evaluate project-related on- and off-road heavy-duty vehicle engine emission opacities, using standards as defined in California Code of Regulations, Title 13, Sections 2180-2194. An Environmental Coordinator, CARB-certified to perform Visible Emissions Evaluations (VEE), shall routinely evaluate project-related off-road and heavy duty on-road equipment emissions for compliance with this requirement. Operators of vehicles and equipment found to exceed opacity limits will be notified and the equipment must be repaired within 72 hours.*

9-1(f) *Prior to the approval of Improvement Plans, the applicant shall include the following standard note on the Improvement Plans: The prime contractor shall suspend all grading operations when wind speeds (including instantaneous gusts) exceed 25 miles per hour and dust is impacting adjacent properties.*

9-1(g) *Prior to the approval of Improvement Plans, the applicant shall include the following standard note on the Improvement Plans: Construction equipment exhaust emissions shall not exceed District Rule 202 Visible Emission limitations. Operators of vehicles and equipment found to exceed opacity limits are to be immediately notified to cease operations and the equipment must be repaired within 72 hours. Additional information regarding Rule 202 can be found at: http://www.placer.ca.gov/Deuartments/Air/Rule.*

9-1(h) *Prior to the approval of Improvement Plans, the applicant shall include the following standard note on the Improvement Plans: During construction, no open burning of removed vegetation shall be allowed. All removed vegetative material shall be either chipped on site or taken to an appropriate disposal site.*

9-1(i) *Prior to the approval of Improvement Plans, the applicant shall include the following standard note on the Improvement Plans: The prime contractor shall be responsible for keeping adjacent public thoroughfares clean of silt, dirt, mud, and debris, and shall "wet broom" if silt, dirt, mud or debris is carried over to adjacent public thoroughfares. Dry mechanical sweeping is prohibited.*

9-1(j) *Prior to the approval of Improvement Plans, the applicant shall include the following standard note on the Improvement Plans: During construction, traffic speeds on all unpaved surfaces shall be limited to 15 miles per hour or less.*

9-1(k) *Prior to the approval of Improvement Plans, the applicant shall include the following standard note on the Improvement Plans: The contractor shall apply water to control dust, as required by Rule 228, Fugitive Dust, to prevent dust impacts offsite. Operational water truck(s) shall be onsite, at all times, to control fugitive dust. Construction vehicles leaving the site shall be cleaned to prevent dust, silt, mud, and dirt from being released or tracked off-site.*

9-1(l) *Prior to the approval of Improvement Plans, the applicant shall include the following standard note on the Improvement Plans: During construction, the contractor shall minimize idling time to a maximum of 5 minutes for all diesel powered equipment.*

9-1(m) *Prior to the approval of Improvement Plans, the applicant shall include the following standard note on the Improvement Plans: The contractor shall use CARB ultra low diesel fuel for all diesel-powered equipment. In addition, low sulfur fuel shall be utilized for all stationary equipment.*

9-1(n) *Prior to the approval of Improvement Plans, the applicant shall include the following standard note on the Improvement Plans: The contractor shall utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators.*

9-1(o) *Prior to the approval of Improvement Plans, the applicant shall include the following standard note on the Improvement Plans: All on-site stationary equipment which is classified as 50 hp or greater shall either obtain a State-issued portable equipment permit or a Placer County APCD issued portable equipment permit.*

9-2 Impacts related to a temporary increase in NO_X emissions.

NO_X is a type of ozone precursor and, as such, could contribute to the creation of smog within the SVAB. Construction-generated emissions of NO_X are short-term and of temporary duration, lasting only as long as construction activities occur, but possess the potential to represent a significant air quality impact. The construction and development of the proposed land uses would result in the temporary generation of emissions resulting from vehicles associated with site grading and excavation, road paving, building construction, worker trips, and the movement of construction equipment.

As shown below in Table 9-8, vehicles and equipment associated with the construction of the proposed project would emit up to 101.26 pounds per day of NO_X.

Table 9-8
Maximum Construction-Related Daily Emissions of ROG and NO_X (Unmitigated)

	ROG	NO_X
	13.27	101.26
PCAPCD Significance Threshold	**82.0 lbs/day**	**82.0 lbs/day**

Source: Raney Planning & Management, Inc., May 2009.

Therefore, construction emissions associated with buildout of the project would exceed the PCAPCD threshold of 82 pounds per day for NO_X. As a result, implementation of the proposed project would result in a ***potentially significant*** impact.

Mitigation Measure(s)
The following mitigation measure would reduce the short-term NO_X emissions associated with construction of the proposed project to approximately 74.83 pounds per day, which is below the PCAPCD threshold of 82 pounds per day. Therefore, with implementation of Mitigation Measure 9-2, the project would result in a *less-than-significant* impact related to a temporary increase in NO_X emissions.

9-2 During construction, the project contractor shall use only low-VOC architectural coatings and asphalt in compliance with PCAPCD Rules and Regulations, for review by the County Building Official.

9-3 Development of the project would result in increases in CO emissions.

Concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. Future concentrations of CO are determined by two opposing factors. The overall rate of emission of CO for the vehicle fleet has been, and is expected to continue, decreasing as older, more polluting vehicles are retired and replaced with newer, cleaner vehicles. At the same time increased traffic volumes, deterioration in average speed and increased delay (and resulting idling emissions) all act to increase emissions within and near intersections.

The PCAPCD requires a CALINE4 CO "hotspot" computer analysis for any project that would result in the degradation of LOS at a signalized intersection to LOS E or worse. Because implementation of the project would not result in degradation of LOS at any signalized intersections in the vicinity of the project site to LOS E or worse, a CALINE analysis is not required to be performed for the proposed project.

Pursuant to the PCAPCD air quality thresholds, the project would result in a significant impact if construction or operation of the project would result in CO concentrations that exceed 550 pounds per day. According to the URBEMIS-2007 modeling for the proposed project (See Appendix K), the project would result in 66.38 pounds per day of CO. The estimation, based on worst-case concentrations of CO, does not exceed or approach the PCAPCD threshold of 550 pounds per day; therefore, the proposed project's impacts related to an increase in local CO concentrations would be ***less-than-significant***.

Mitigation Measure(s)
None required.

9-4 Impacts related to long-term increases of criteria air pollutants.

Implementation of the proposed project would result in the construction of 89 new residential units, which would result in the addition of approximately 934 new weekday vehicle trips to surrounding roadways. Furthermore, project traffic emissions would not only have an effect on local air quality, but also air quality outside the project vicinity. Trips to and from the project site would result in air pollutant emissions within the air basin. In addition, the new residences associated with the project would result in an increased number of area pollutant sources, such as natural gas combustion, fireplace/woodstove emissions, and maintenance equipment.

The results of the URBEMIS-2007 modeling, as shown below in Table 9-9, demonstrate that operation of the proposed project would not exceed the PCAPCD thresholds of significance for ROG, NO_X, and PM_{10}. Therefore, project regional air quality impacts would be considered ***less-than-significant***.

Table 9-9
Estimated New Regional Emissions (pounds/day)

Alternative	ROG	NO_X	PM_{10}
Proposed Project	11.42	6.40	24.94
PCAPCD Significance Threshold	**82.0**	**82.0**	**82.0**
Source: Raney Planning & Management, Inc., May 2009.			

Mitigation Measure(s)
None required.

Endnotes

[1] Placer County, *Placer County General Plan*, August 1994.
[2] Placer County, *Placer County General Plan EIR*, October 1993.
[3] Placer County, *Granite Bay Community Plan*, May 1989, amended through March 2008.