4.14 AIR QUALITY

This section describes existing air quality conditions in the project area and relevant air quality regulations, assesses potential project impacts on air quality, and recommends mitigation measures to reduce project impacts.

4.14.1 Existing Conditions

4.14.1.1 Overview

This section provides an overview of existing air quality, meteorology, and odors for the overall project area, including the proposed Comstock Homes Development site, the Coronado Butterfly Preserve, the Goleta Union School District site, and the Ellwood Mesa Open Space Plan area. The project area is located on the south coast in Santa Barbara County (County).

4.14.1.1.1 Climate and Atmospheric Conditions. The Goleta area climate is characterized by relatively low rainfall, with warm summers and mild winters. Annual precipitation averages 16 inches, with approximately 95 percent of that falling between November and April (National Oceanic and Atmospheric Administration, 1989). Average monthly temperatures range from a high of 75 degrees Fahrenheit (°F) in September to a low of 40°F in December.

Air quality in the project region is influenced by both local topography and meteorological conditions. Surface and upper-level wind flow varies both seasonally and geographically in the County, and inversion conditions common to the area can affect the vertical mixing and dispersion of pollutants. The prevailing wind flow patterns in the County are not necessarily those that cause high ozone values. In fact, high ozone values are often associated with unusual wind flow patterns. Meteorological and topographical influences that are important to air quality in the County are as follows:

- Semi-permanent high pressure that lies off the Pacific Coast leads to limited rainfall; warm, dry summers; and relatively damp winters. Maximum summer temperatures average about 70°F near the coast and in the high 80s to low 90s inland. During winter, average minimum temperatures range from the 40s along the coast to the 30s inland. Additionally, cool, humid, marine air causes frequent fog and low clouds along the coast, generally during the night and morning hours in the late spring and early summer. The fog and low clouds can persist for several days until broken up by a change in the weather pattern.
- Santa Ana winds are northeasterly winds that occur primarily during fall and winter, but occasionally in spring. These are warm, dry winds blown from the high inland desert that descend down the slopes of a mountain range. Wind speeds associated with Santa Ana winds are generally 15 to 20 miles per hour (mph), though they can sometimes reach speeds in excess of 60 mph. During Santa Ana conditions, pollutants emitted in Santa Barbara County, Ventura County, and the South Coast Air Basin (the Los Angeles region) are moved out to sea. These pollutants can then be moved back onshore into Santa Barbara County in what is

called a "post-Santa Ana condition." The effects of the post-Santa Ana condition can be experienced throughout the County. Not all post-Santa Ana conditions, however, lead to high pollutant concentrations in the County.

- Upper-level winds (measured at Vandenberg Air Force Base once each morning and afternoon) are generally from the north or northwest throughout the year, but occurrences of southerly and easterly winds do occur in winter, especially during the morning. Upper-level winds from the south and east are infrequent during the summer. When they do occur, they are usually associated with periods of high ozone levels. As with the surface winds, upper level winds can move pollutants that originate in other areas into the County.
- Surface temperature inversions (0 to 500 feet above ground surface) are most frequent during the winter, and subsidence inversions (1,000 to 2,000 feet) are most frequent during the summer. Inversions are an increase in temperature with height and are directly related to the stability of the atmosphere. Inversions act as a cap to the pollutants that are emitted below or within them, and ozone concentrations are often higher directly below the base of elevated inversions than they are at the earth's surface. For this reason, elevated monitoring sites will occasionally record higher ozone concentrations than sites at lower elevations. Generally, the lower the inversion base height and the greater the rate of temperature increase from the base to the top, the more pronounced effect the inversion will have on inhibiting vertical dispersion. The subsidence inversion is very common during summer along the California coast, and is one of the principal causes of air stagnation (high stability/ restricted air movement).
- Poor air quality is usually associated with "air stagnation." Therefore, it is reasonable to expect a higher frequency of pollution effects in the southern portion of the County where light winds are frequently observed, as opposed to the northern part of the County where the prevailing winds are usually strong and persistent.

4.14.1.1.2 Existing Air Quality Conditions.

Air Quality Standards. The State of California has established ambient air quality standards to protect human health. The federal government has also established health-based standards ("primary" standards), which are generally less protective of public health than state standards. In addition, the federal government has established "secondary" standards to protect public welfare. State and federal standards have been established for ozone, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, suspended particulate matter 10 micrometers or less in size (PM_{10}), and lead. On July 18, 1997, federal standards were promulgated for ozone (8-hour) and suspended particulate matter 2.5 micrometers or less ($PM_{2.5}$) in size. In March 2002, the U.S. Court of Appeal for the District of Columbia Circuit rejected all remaining challenges to the 8-hour standard allowing EPA to begin implementing requirements. EPA is required by consent decree to designate attainment and nonattainment areas by April 15, 2004. States have submitted their recommendations for nonattainment, including the boundaries of those areas; the EPA is in the process of reviewing those submittals. In addition, California has standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. All applicable state and federal standards are presented in Table 4.14-1.

Table 4.14-1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]	National Standards[2]	
		Concentration[3]	Primary[2,4]	Secondary[2,5]
Ozone	1 Hour	0.09 ppm (180 µg/m^3)	0.12 ppm (235 µg/m^3)	Same as Primary
	8 Hour	--	0.08 ppm (157 µg/m^3)	Same as Primary
Carbon Monoxide	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	Same as Primary
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
Nitrogen Dioxide	Annual Average	--	0.053 ppm (100 µg/m^3)	Same as Primary
	1 Hour	0.25 ppm (470 µg/m^3)	--	--
Sulfur Dioxide	Annual Average	--	80 µg/m^3 (0.03 ppm)	--
	24 Hour	0.04 ppm[6] (105 µg/m^3)	365 µg/m^3 (0.14 ppm)	--
	3 Hour	--	--	1,300 µg/m^3 (0.5 ppm)
	1 Hour	0.25 ppm (655 µg/m^3)	--	--
Suspended Particulate Matter (PM_{10})	Annual Geometric Mean	30 µg/m^3	--	--
	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary
	Annual Arithmetic Mean	--	50 µg/m^3	--
Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	--	15 µg/m^3	Same as Primary
	24 Hour	--	65 µg/m^3	Same as Primary
Sulfates	24 Hour	25 µg/m^3	--	--
Lead	30 Day Average	1.5 µg/m^3	--	--
	Calendar Quarter	--	1.5 µg/m^3	Same as Primary
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	--	--
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 µg/m^3)	--	--

Table 4.14-1. Ambient Air Quality Standards (continued)

Pollutant	Averaging Time	California Standards[1]	National Standards[2]	
		Concentration[3]	Primary[2,4]	Secondary[2,5]
Visibility Reducing Particles	1 Observation	Insufficient amount to reduce the prevailing visibility[7] to less than 10 miles when the relative humidity is less than 70%	--	--

[1] California standards for ozone, carbon monoxide, sulfur dioxide (1 hour), nitrogen dioxide, and particulate matter (PM_{10}), and visibility reducing particles are values that are not to be exceeded. Sulfur dioxide (24-hour), sulfates, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded.

[2] National standards, other than ozone, are those based on annual averages or annual arithmetic means, and are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parenthesis are based upon a reference temperature of 25°C and a reference pressure of 750 mm of mercury. All measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas, $\mu g/m^3$ (microgram per cubic meter).

[4] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the U.S. Environmental Protection Agency (EPA).

[5] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the implementation plan is approved by the EPA.

[6] At locations where the state standards for ozone and/or suspended particulate matter are violated. National standards apply elsewhere.

[7] This standard is intended to limit the frequency and severity of visibility impairment due to regional haze, and is equivalent to a 10-mile nominal visual range when relative humidity is less than 70%.

***Federal Clean Air Act Mandates*.**

- Redesignation: As of August 8, 2003 the SBCAPCD has successfully reached a formal redesignation status as attainment for the federal one-hour ozone standard.
- State Implementation Plans: These plans, submitted to the EPA and adopted at the state level, contain outlines of County-specific enforceable limitations set to maintain attainment status, air quality monitoring plans, resource requirements, and air permitting regulatory updates.
- Maintenance Plans: Detailed plans that outline how attainment will be maintained for redesignated pollutants.
- Conformity: Plans designed to ensure that transportation and other projects requiring federal agency approval are consistent with regional attainment requirements.

- Emission Inventory: The most recently updated emission inventory for the County, in 1999, is used to demonstrate maintenance of ambient air quality standards through 2015 including future growth and controls.
- Reasonably Available Control Technology (RACT): RACT rules and standards have been submitted and since codified to reduce volatile organic compounds (VOC) and nitrogen oxides (NO_X) emissions, due to the continuing non-compliance with state-level ozone standards.
- Enhanced Ozone Monitoring: SBCAPCD had to develop an enhanced ozone monitoring system, called the Photochemical Assessment Monitoring System (PAMS), as a means to more accurately monitor ozone levels.
- Transportation Control Measures: The SBCAPCD was required to provided detailed data on vehicle use, emission, and congestion levels, and document how these mobile sources impact attainment demonstration. If the actual level exceeds the projected levels, then the SBCAPCD must submit plans for further reductions.
- Contingency Measures: SBCAPCD had to develop contingency control measures that must be implemented if an area fails to make reasonable further progress.

California Clean Air Act Mandates.

- Triennial Progress Report: The SBCAPCD must assess the success of its overall program every three years. Following this assessment, identified deficiencies in measures of progress must be developed, and new projections must be established.
- Overall Plan Requirements: Including regional transportation mitigation planning, cost effective strategy reviews, demonstration of nonattainment pollutant reductions, updated contingency measures (same as federal), and detailed outlines for air quality maintenance.

4.14.1.1.3 Background Air Quality. The SBCAPCD is required to monitor air pollutant levels to assure that federal and state air quality standards are being met. Air quality measurements indicate that the South Central Coast Air Basin is a "nonattainment" area for the federal and state ozone and PM_{10} standards. The air basin is in an "attainment" area for all other federal and state air quality standards.

Ozone is formed in the atmosphere through a series of chemical reactions involving NO_X, reactive organic gases (ROG), and sunlight. Ozone is classified as a "secondary" pollutant because it is not emitted directly into the atmosphere. The major sources of ozone in the County are motor vehicles, the petroleum industry, and the use of solvents (paint, consumer products, and certain industrial processes). PM_{10} is generated by a variety of sources, including windblown dust grading, agricultural tilling, road dust, and quarries.

The SBCAPCD has a network of 20 air quality monitoring stations. Prior to July 1998, the Exxon-10 air monitoring station, located at the University West Campus, monitored a full

complement of criteria air pollutants except CO. However, that ambient station was decommissioned, and it was replaced with the "Venoco West Campus" monitoring station which measures only sulfur dioxide, hydrogen sulfide, and total hydrocarbons.

The next closest stations to the project site are the Goleta-Fairview station and the El Capitan monitoring station. In general, the El Capitan monitoring station data are more representative of the project site due to its location next to the coast in the El Capitan State Park. The Goleta-Fairview station is in a more urban setting. Data for both monitoring stations are presented in Table 4.14-2. The maximum values for each station spanning five recent years of data are highlighted.

There have been no exceedences of the federal ozone standards in the County. The state standard has been exceeded several times during the five-year period. On April 21, 1998, both the Goleta and El Capitan monitoring stations measured ozone concentrations that exceeded the state one-hour standard of 0.09 parts per million (ppm).

In October 1999, the Goleta air monitoring station exceeded the state ambient air quality standard for ozone. The El Capitan station almost, but not quite, exceeded the standard. In August 1998 and again in October 2001, the Goleta monitoring station reflected a one-hour ozone value that almost exceeded the state standard.

The state particulate matter standard for PM_{10} was exceeded six times in the County in 1999. However, only one exceedence (1999) was observed at the El Capitan monitoring station (PM_{10} is not measured at the Goleta monitoring station). The data suggest a trend of improving air quality overall.

The 2001 smog season was the first in which the County did not exceed the federal one-hour ozone standard (0.12 ppm) since monitoring began in 1971.

The Clean Air Plan for the County has been prepared and is updated by the SBCAPCD. The 1998 Clean Air Plan, which was prepared in response to the requirements of the California Clean Air Act and the Federal Clean Air Act, has been adopted as part of the State Implementation Plan. The 2001 Clean Air Plan is the most recent plan for the County to be adopted by the SBCAPCD Board.

Attainment Pollutants. The Federal Clean Air Act establishes air quality standards for the following "criteria" air pollutants: ozone, nitrogen dioxide, sulfur dioxide, CO, PM_{10}, and lead. State standards also exist for each of these criteria pollutants. In addition, state standards are in place for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride; with the exception of ozone and $PM_{10,}$ the County complies with all state and federal air quality standards.

Pollutants That Violate Standards. The County currently violates the state ozone and PM_{10} standards. As of August 8, 2003, the County has been re-designated as a federal ozone attainment area for the one-hour ozone standard. The following sections discuss these pollutants.

Table 4.14-2. Project Area Air Quality Data (parts per million)

Pollutant	1998	1999	2000	2001	2002[1]
Ozone					
1-Hour					
El Capitan	0.099	0.088	0.094	0.092	0.075
Goleta	0.095	0.103	0.082	0.082	0.070
No. of Exceedences (Federal Std.)	0	0	0	0	0
No. of Exceedences (State Std.)	1	1	0	0	0
8-Hour					
El Capitan	0.085	0.072	0.068	0.078	0.068
Goleta	0.077	0.076	0.067	0.066	0.060
No. of Exceedences	0	0	0	0	0
NO_2					
1-Hour					
El Capitan	0.047	0.057	0.047	0.046	0.045
Goleta	0.064	0.059	0.057	0.054	0.063
No. of Exceedences	0	0	0	0	0
8-Hour					
El Capitan	0.008	0.009	0.008	0.008	0.008
Goleta	0.011	0.013	0.012	0.010	0.011
No. of Exceedences	0	0	0	0	0
Carbon Monoxide (ppm)					
1-Hour					
Goleta	4.6	3.5	3.1	5.1	2.7
No. of Exceedences	0	0	0	0	0
8-Hour					
Goleta	2.23	1.86	1.55	1.94	1.13
No. of Exceedences	0	0	0	0	0
Sulfur Dioxide (ppm)					
1-Hour					
El Capitan	0.004	0.006	0.005	0.007	N/A
Goleta	0.005	0.010	0.009	0.010	N/A
West Campus	0.005	0.009	0.013	0.007	N/A
No. of Exceedences	0	0	0	0	N/A

Table 4.14-2. Project Area Air Quality Data (parts per million) (continued)

Pollutant	1998	1999	2000	2001	2002[1]
24-Hour					
El Capitan	0.001	0.002	0.001	0.002	0.001
Goleta	0.002	0.002	0.001	0.003	0.001
West Campus	0.001	0.002	0.002	0.002	0.001
No. of Exceedences	0	0	0	0	0
Annual			No Data Available		
PM_{10} (micrograms per cubic meter)					
24-Hour					
El Capitan	50.3	51.0	45.8	40.3	22.6
No. of Exceedences (Federal Std.)	0	0	0	0	0
No. of Exceedences (State Std.)	0	1	0	0	0
Annual Geometric (State)					
El Capitan	17	19	19	17	17
No. of Exceedences	0	0	0	0	0
Annual Geometric (Federal)					
El Capitan	19	21	21	19	19
No. of Exceedences	0	0	0	0	0

[1]All 2002 data are from the California Air Resources Board's ADAM database.

Ozone. Ozone has been monitored in the County for over 25 years. Data collected at monitoring stations, in conjunction with the various air quality studies performed in the region, provide valuable insight into the County's ozone problem.

Ozone is formed in the atmosphere through a series of chemical reactions involving NO_X and reactive organic compound (ROG), and sunlight occurring over a period of several hours. The major source of NO_X in the County is combustion of fossil fuels for transportation, energy, and heat. ROG sources include natural seeps of oil and gas, solvents in paints, consumer and industrial products, mobile sources, natural vegetation, and processes in the petroleum industry. Since ozone is not emitted directly into the atmosphere, but is formed as a result of chemical reactions in the atmosphere, it is classified as a "secondary" pollutant and is considered "regional" because it occurs over a wider area than that in which the pollutants are emitted. Because ozone-forming photochemical reactions take time, peak ozone levels are often found several miles or more downwind of major source areas. This is particularly true when winds are persistent from one direction.

Elevated ozone concentrations aggravate asthma, bronchitis, and other respiratory disorders. Eye irritation, nausea, headaches, coughing, and dizziness are other symptoms of ozone

exposure. Ozone also interferes with photosynthesis, thereby damaging natural and ornamental vegetation and agricultural crops.

Ozone studies prepared by the SBCAPCD have shown that ozone exceedences can occur under a wide variety of meteorological conditions. Additionally, based on analyses of ozone episodes occurring during the past 10 years (1990 through 1999), there is an indication that state exceedences may be related to meteorological conditions that are conducive to high ozone formed locally combined with the transport of pollutants from outside the County.

PM_{10}. PM_{10} is generated by a wide variety of natural and man-made sources. Particulate matter is a respiratory irritant. Large particles are effectively filtered in the upper respiratory tract, but particles smaller than 10 microns can cause serious health effects. The chemical makeup of the particles is an important factor in determining the health effect.

PM_{10} is produced either by direct emissions of particulates from a source (primary PM_{10}), or by the formation of aerosols as a result of chemical reactions in the atmosphere involving precursor pollutants (secondary PM_{10}). Based on emissions data, the largest single source of PM_{10} emissions in the County is entrained paved road dust. Other major sources include dust from construction, demolition, agricultural tilling, entrained road dust from unpaved roads, natural dust and sea-salt, and particulate matter released during fuel combustion. The County violates both the state PM_{10} 24-hour and annual standards. As a result, the County is currently designated nonattainment for the state PM_{10} standard. The County does not exceed the federal PM_{10} standards.

To investigate the County's PM_{10} problem, the SBCAPCD started a specialized sampling and analysis study in 1989 called the Santa Barbara County Particulate Matter Emission Reduction Study. The study collected and analyzed ambient samples of PM_{10} at sites located throughout the County to identify chemical constituents, and identified potential source characteristics and assessed control strategies for reducing PM_{10} concentrations. The major findings of the study include: 1) background sources (primarily sea-salt) are major contributors to PM_{10} concentrations; 2) on average, 70 percent of the locally generated PM_{10} (primary) is directly emitted; 3) locally generated geological dust and motor vehicle exhaust are the most significant sources of primary PM_{10} in the County; and 4) potential control measures should concentrate on these primary sources of PM_{10}.

4.14.1.1.4 Pre-Existing Odor Issues in the Area. There have been a number of historical odor sources in the relative vicinity of the project area, which are summarily listed below:

- Offshore seeps are naturally occurring sources of mercaptans and hydrocarbons along the University and Ellwood Mesa coastline. Odors from offshore seeps are relatively frequent and can be quite strong. There is nothing practical that can be done to control these odors.
- Venoco's Platform Holly has been a source of hydrogen sulfide (H_2S) emissions in the region. However, according to the SBCAPCD, the frequency of H_2S releases have been

reduced dramatically due to the installation of a gas flare stack and an assortment of other system improvements in 1999-2000.

- Venoco's Ellwood processing plant has been a source of mercaptan releases over the years. However, similar to Platform Holly, these odorous emissions have been greatly reduced; in this case due to the installation of a thermal oxidizer, which replaced a much less efficient control system of carbon canisters.
- Water wells on the Ellwood Mesa properties have been a source of odor from sour water emanating from sewer pipes and water released in a gulley. According to some sources, this water was stored and released in order for the current landowners to establish a history of water use on the site. Due to numerous complaints, improved piping was established and water is no longer released in the gulley.
- Water wells with sour water in Goleta Valley/Winchester Canyon agricultural properties continues to be an issue on an inconsistent basis. The SBCAPCD is working with the agricultural community to reduce these sources of odor.
- The Ellwood Marine Terminal at Coal Oil Point has historically been a source of two different sources of odors: 1) fugitive emissions/odors from oil storage tanks and 2) odors released during the loading of barges (barges now have odor control systems).

With the exception of the natural seeps, the SBCAPCD has previously or is currently addressing the sources of all these odors (Broughton, 2003).

4.14.2 Regulatory Framework

4.14.2.1 California Coastal Act §30000 et seq.

As described in Section 1, the Coastal Act is the only set of policies that apply to development projects within the City of Goleta's Coastal Zone, pending certification of the City of Goleta's Local Coastal Plan. Relevant Coastal Act policies require consideration of air quality impacts in coastal development projects, consistent with established state and federal guidelines.

4.14.2.2 City of Goleta Coastal Zoning Ordinance

As described in Section 1, the Santa Barbara County's Coastal Zoning Ordinance and other implementing ordinances (including subdivision, and grading ordinances) were adopted by the City but have not been certified by the California Coastal Commission. The Coastal Zoning Ordinance provides guidance for those areas of the City of Goleta within the Coastal Zone. Relevant Coastal Zoning Ordinance procedures require consideration of air quality impacts in coastal development projects, consistent with established state and federal guidelines.

4.14.3 Project Impacts and Mitigation

4.14.3.1 Thresholds of Significance

The Santa Barbara County Environmental Thresholds and Guidelines Manual (Thresholds Manual) (Santa Barbara County, 2002a) has been adopted by the City as an administrative guideline for conducting CEQA analysis, pending the City of Goleta's development of new thresholds specific to the City of Goleta. The Thresholds Manual lists the following criteria for determining whether or not a significant air quality impact would occur as a result of a particular project:

1. Long-term, operational emissions exceed 25 pounds per day of ROG or NO_X from combined stationary and mobile sources.
2. A project will have a significant air quality impact if it causes, by adding to the existing background CO levels, a carbon monoxide "hotspot" where the California one-hour standard of 20 parts per million (ppm) or the 8-hour CO standard of 9 ppm is exceeded.

The City does not have quantitative emission significance thresholds for short-term construction activities, as construction emissions from land development projects have been accounted for in the 2001 Clean Air Plan. However, since Santa Barbara County currently violates the state standard for PM_{10}, construction activities that generate fugitive dust (PM_{10}) emissions would be required to implement SBCAPCD standard dust control measures to ensure that these emissions remain less than significant.

Mitigation measures were based in part on the County Planners Guide to Approval and Mitigation Measures (County of Santa Barbara, 2002b)

4.14.3.2 Project Impacts

4.14.3.2.1 Comstock Homes Development.

Impact AQ-1. Ground disturbances and equipment operation during construction activities would produce potentially significant but feasibly mitigated short-term PM_{10} emissions. Implementation of the proposed project would generate construction-related air pollutant emissions from two general activity categories, entrained dust and vehicle emissions. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} emissions. Vehicle exhaust results from internal combustion engines used by construction equipment and vehicles which results in emissions of CO, ROG, NO_X, and PM_{10}.

Although the City currently has no quantitative significance criteria for construction-generated PM_{10} emissions because such fugitive dust would be short term and would only last during the duration of the construction period, such PM_{10} emissions would be considered problematic since they could cause a public nuisance or exacerbate the existing PM_{10} nonattainment situation in the

City of Goleta and the County. Therefore, dust mitigation measures are required for all discretionary construction activities regardless of the significance of impacts based on policies in the County's 1979 Air Quality Attainment Plan. Therefore, impacts would be considered *potentially significant, but feasibly mitigated (Class II).*

Impact AQ-2. Heavy equipment used during proposed construction activities would produce adverse, but less than significant, combustive NO_X and ROG emissions. The use of heavy equipment during proposed construction activities would produce emissions in the form of NO_X and ROG. However, emissions from construction of development projects have been accounted for in the County ozone attainment planning process. Impacts from ROG and NO_X emissions from construction equipment would be adverse but *less than significant (Class III).*

Impact AQ-3. Operations of the project would produce significant ROG emissions from all combined residential project sources, including vehicular traffic, wood burning stoves and fireplaces (as applicable), space heating and cooling, water heating, and consumer products. The project would generate operational vehicle emissions mainly due to commuting activities. The air quality analysis assumed that the project would be fully built-out by the year 2005. The air quality analysis employed the URBEMIS2002 model (Version 7.4) to estimate daily emissions from proposed vehicular sources. Input data to URBEMIS2002 include incremental vehicle trips, vehicle fleet mix, winter and summer temperatures, trip characteristics, variable start information, emission factors, and trip distances. Vehicle trip data was input into the model consistent with the traffic analysis presented in Section 4.12 (Table 4.12-4). Default data were conservatively used for the other model inputs. In addition to estimating mobile source emissions, the URBEMIS2002 model was also used to estimate emissions from the project area sources. Appendix D includes data and assumptions used to generate operational emissions from the project area. Note that the URBEMIS2002 model predicts peak daily emissions for both summer and winter seasons. The air pollutant emissions predicted for the winter season are higher than those for the summer season in 2005. Therefore, the peak daily emissions predicted for the winter season are summarized in Table 4.14-3. The combined project source emissions of 122.22 pounds per day of ROG would exceed the County's daily threshold of 25 pounds per day. NO_X emissions at 20.88 are below the tpd threshold.

As shown in Table 4.14-3, during winter days, the main sources of project emissions would be wood-burning fireplaces/stoves if they are allowed and installed. Elimination of the wood-burning fireplaces/stoves or conversion of the fireplaces/stoves to natural gas burning design would substantially reduce the project ROG emissions. Separate model analyses were conducted to estimate air pollutant emissions associated with eliminating wood-burning fireplaces and stoves. The estimated project operational air pollutant emissions after elimination of wood-burning fireplaces/stoves are also provided in Table 4.14-3. As is shown, ROG emissions would be below the County daily emission threshold with the elimination of wood-burning fireplaces/ stoves. While the URBEMIS model does not have a specific natural gas fireplace emission factor, it does include a factor for natural gas combustion emissions in households, which has been accounted for in Table 4.14-3.

Table 4.14-3. Summary of Estimated Operational Air Pollutant Emissions

Emission Sources	Maximum Daily Emissions with Wood Burning Stoves/Fireplaces (lb/day)					Maximum Daily Emissions without Wood Burning Stoves/Fireplaces (lb/day)				
	ROG	NO_x	CO	SO_x	PM_{10}	ROG	NO_x	CO	SO_x	PM_{10}
Area Sources										
Natural Gas Combustion	0.08	0.98	0.42	-	0.00	0.08	0.98	0.42	-	0.00
Wood Stoves	20.41	3.20	163.53	0.53	26.68	0.00	0.00	0.00	0.00	0.00
Wood Fireplace	87.37	0.99	96.37	0.15	13.20	0.00	0.00	0.00	0.00	0.00
Landscaping Maintenance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	3.82	-	-	-	-	3.82	-	-	-	-
Area Source Total	111.67	5.17	260.32	0.69	39.88	3.89	0.98	0.42	0.00	0.00
Vehicular Source Total	10.55	15.71	113.05	0.10	9.70	10.55	15.71	113.05	0.10	9.70
Total	**122.22**	**20.88**	**404.47**	**0.81**	**52.24**	**15.54**	**18.32**	**125.28**	**0.11**	**10.71**
Emission Thresholds	**25**	**25**	**-**	**-**	**-**	**25**	**25**	**-**	**-**	**-**
Exceed Threshold	**Yes**	**No**				**No**	**No**			

[1] The daily emissions were estimated using URBEMIS2002 (Version 7.4) (YSAQMD, 2003).

[2] The modeled peak daily emissions for the winter season in 2005 are shown in the table.

However, wood burning fireplaces/stoves are currently part of the project description. Therefore, air quality impacts associated with the proposed project would be *significant and unavoidable (Class I).*

Impact AQ-4. The project would result in an adverse, but less than significant, impact by increasing the number of people exposed to sources of odors within the region. Venoco's Ellwood onshore oil and gas processing plant, located approximately 0.5 mile west of the project site, is a source of odorous emissions in close proximity to the project site. Additionally, other occasional odor sources in the region include Venoco's Platform Holly, natural offshore seeps, and sour water from agricultural water wells. Venoco has recently invested in technologies designed to significantly reduce the risk of odorous emissions in the region.

Locating new residences in proximity to these odorous emissions may create nuisance complaint situations and would represent adverse, but *less than significant, impacts (Class III).*

Impact AQ-5. The project would result in an adverse, but less than significant, impact by increasing the number of people exposed to sources of Hazardous Air Pollutants (HAP) emissions within the region. The Venoco oil and gas processing facility, located approximately 0.5 mile west of the project site, is a source of HAP emissions in close proximity to the project site. The most recent health risk assessment performed on emissions that occurred from the Venoco facility in 1998 determined that the footprint of acute health impact was greater than the SBCAPCD's "significant risk" threshold. As per the SBCAPCD definition, a significant risk facility is a business operation that releases toxic substances into the air, when those substances

have the potential to cause health problems to people who live and work nearby. Health risks can be cancer or non-cancer related, and non-cancer health risks are further divided into acute (short-term) and chronic (long-term) risks. Under the California Air Toxic Hot Spots and Information Act (AB 2588), significant risk facilities are required to notify the public of the risks they create and are required to reduce those risks to less-than-significant levels.

In response to SBCAPCD directives issued pursuant to this program, Venoco submitted a Risk Reduction Audit and Plan (RRAP) in 1999, with corresponding revisions in 2000 and 2001. As of October 2003, Venoco and the SBCAPCD had not reached agreement on how to move forward, although there is currently a RRAP implementation deadline of June 30, 2004 (SBCAPCD, 2003).

Prospective residents of the proposed project would potentially be subject to levels of acute non-cancer airborne HAPs (hydrogen sulfide in this specific case) greater than the SBCAPCD risk program thresholds if the RRAP is not implemented by the time construction of the development is complete. It is also possible that the RRAP will no longer be required (meaning risks no longer exceed SBCAPCD thresholds) as Venoco improves upon emission reduction and estimation techniques.

Because there is no threshold related to the significance of acute health risks, this impact would represent an adverse, but *less than significant impact (Class III).*

Consistency with the 2001 Clean Air Plan (CAP). The SBCAPCD 2001 CAP provides a detailed estimate of long-range emissions for the region consistent with regional growth and development plans. The project site is within the jurisdiction of the City of Goleta. Because the project is compliant with growth projections and other plan elements within the Coastal Act and City of Goleta Zoning Ordinance, the project is considered to be consistent with the SBCAPCD 2001 CAP.

4.14.3.2.2 Phelps Ditch Trail. Modifications to the Phelps Ditch Trail, if implemented, would involve minimal construction activities for a short duration. There would be no air quality impacts once the trail has been upgraded.

No adverse air quality impacts are anticipated from the Phelps Ditch Trail component of the project.

4.14.3.2.3 Coronado Butterfly Preserve. No adverse air quality impacts are anticipated from the proposed rezone of three parcels within the Coronado Preserve area from residential to recreation. No adverse air quality impacts are anticipated from the ongoing maintenance of the open space amenities within the Coronado Butterfly Preserve area (including the City of Goleta's maintenance of the Neighborhood Trail [Trail 20]), provided that the management practices contained in the Open Space Plan and the Coronado Butterfly Preserve Management Plan are adhered to.

4.14.3.2.4 Ellwood Mesa Open Space Plan Area.

Impacts AQ-6. Ground disturbances and equipment operation during construction activities would produce *potentially significant, but feasibly mitigated short-term PM_{10} emissions (Class II).* Construction of the parking lot, restrooms, and trail improvements would generate construction-related air pollutant emissions from two general activity categories, entrained dust and vehicle and equipment emissions. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} emissions. Vehicle exhaust results from internal combustion engines used by construction equipment and vehicles which result in emissions of CO, ROG, NO_X, and PM_{10}.

Although the County currently has no quantitative significance criteria for construction-generated PM_{10} emissions, such PM_{10} emissions would be considered problematic since they could cause a public nuisance or exacerbate the existing PM_{10} nonattainment situation in the County. Therefore, dust mitigation measures are required for all discretionary construction activities regardless of the significance in impacts based on policies in the County's 1979 Air Quality Attainment Plan.

There are no anticipated adverse air emission impacts related to continued passive recreational use of the Ellwood Mesa Open Space Plan area, Coronado Butterfly Preserve, and Goleta Union School District site.

4.14.3.3 Cumulative Impacts

Impact AQ-7. PM_{10} emissions from project construction would result in a potentially significant, but feasibly mitigated *(Class II)* contribution to cumulative PM_{10} impacts in the area. The County's Environmental Thresholds & Guidelines Manual (2002a), as adopted by the City of Goleta, states that a project's contribution to cumulative air quality impacts, either regional or localized, should be evaluated based on existing programs and plans, including the County's Air Quality Attainment Plan (AQAP). Although Santa Barbara County is currently in non-attainment of state standards for PM_{10} emissions, and project generated PM_{10} emissions could exacerbate such non-attainment, implementation of standard County Grading Ordinance and SBCAPCD dust control measures based on the County's AQAP would ensure that the project's contribution to cumulative levels of PM_{10} emissions would be adverse, but less than significant.

Impact AQ-8. NO_X and ROG emissions from project construction would result in an adverse, but less than significant (Class III), contribution to cumulative emissions of NO_X and ROG within the South Central Coast Air Basin. The County's Environmental Threshold & Guidelines Manual states that as a result of the Santa Barbara County's current non-attainment status of state and federal ozone standards, and the regional nature of ozone, if a project's total emission of ozone precursors such as NO_X and ROG exceed the long-term threshold of 25 pounds per day, then the project's contribution to cumulative ozone levels would be considered significant. However, because project construction-related generation of ROG and NO_X emissions has already been accounted for in the County's ozone attainment planning process (e.g., the

County's 2001 CAP), the project's contribution to regional cumulative ozone levels would be considered adverse, but *less than significant (Class III).*

Impact AQ-9. Emissions of ROG from project operations would result in *significant and unavoidable* contributions to cumulative air quality impacts in the South Central Coast Air Basin *(Class I).* Regional emissions would increase as a result of the proposed project. While NO_X emissions resulting from the project-generated vehicular traffic and non-vehicular operational aspects are below significance thresholds as discussed under Impact AQ-3, ROG emissions exceed the County's 25 pounds per day significance threshold. While proposed mitigation measures to prohibit wood-burning stoves have been included, it is unclear if this measure would be incorporated in the project description. Therefore, significant adverse air quality impacts related to ROG emissions would occur.

Impact AQ-10. Implementation of the proposed project would not expose sensitive receptors to substantial CO concentrations (or "hotspots"). This impact would represent an *adverse but less than significant impact (Class III).*

The traffic analysis presented in Section 4.12 showed that cumulative traffic contributions are anticipated to exceed 800 peak hour trips per lane at the Storke/Hollister intersection, the only intersection in the study area to exceed this threshold. This is also the only study area intersection to forecast a Level of Service (LOS) D designation during peak hours under cumulative plus project conditions.

Consistent with technical guidance from the Santa Barbara County Air Pollution Control District (SBCAPCD), CO hotspots are not anticipated to occur at intersections rated as LOS C or better, or have fewer than 800 peak hour trips per lane. The traffic analysis showed that all study-area intersections except Storke/Hollister would be LOS C or better, and expect fewer than 800 peak hour trips per lane. The Storke/Hollister intersection exceeds both of these criteria and therefore additional analysis was required.

CO concentrations at congested intersections can be estimated using air quality impact models such as CALINE4, a computer model developed by Caltrans. Using worst-case assumptions for traffic volumes, emission factors, meteorology (wind speed, direction, etc.), intersection or roadway parameters, the CALINE4 model can predict carbon monoxide concentrations at the receptors.

A simplified CALINE4 screening procedure was used to predict future CO concentrations at the Hollister/Storke intersection for the year 2005. Results, presented in Table 4.14-4, are well below the national and state 8-hour ambient air quality standard of 9 ppm.

Implementation of the proposed project would not expose any sensitive receptors located in close proximity to these intersections to substantial CO pollutant concentrations. Therefore this impact would be *adverse but less than significant (Class III).*

Table 4.14-4. Cumulative Future Scenario – CO Concentrations at Storke/Hollister

Intersection	8-Hour CO Concentrations in Parts Per Million		
	25 feet	50 feet	100 feet
Storke Road/Hollister Avenue	2.8	2.4	2.1

Notes:
National and state 8-hour ambient air quality standard is 9.0 ppm
Source: EIP Associates, 2004. Calculation sheets are provided in Appendix D

4.14.3.4 Mitigation Measures

4.14.3.4.1 Comstock Homes Development.

Mitigation AQ-1. Dust generated by project construction shall be kept to a minimum by following the dust control measures listed below (*addresses Impacts AQ-1, AQ-6, and AQ-7*):

a. Water trucks or sprinkler systems shall be used during construction as appropriate to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, such areas shall be watered down in the late morning and after completion of work at the end of the day. Reclaimed water shall be used whenever possible.

b. The frequency of watering shall be increased when wind speeds exceed 15 mph if soils are not completely wet. If wind speeds increase to the point that the dust control measures cannot prevent dust from leaving the site, construction activities shall be suspended.

c. Gravel pads shall be installed at all access points to prevent tracking of mud onto public roads.

d. The project proponent shall provide street cleaning along Hollister Avenue if soil track-out occurs on this street.

e. If importation, exportation, or stockpiling of fill is involved, soil stockpiled for more than two days shall be covered and kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site shall be tarped from the point of origin.

f. After clearing, grading, earth moving, or excavation is completed, the disturbed area shall be treated by watering, revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.

g. A person or persons shall be designated by the contractor or builder to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Such monitoring responsibilities shall include holiday and weekend periods when work may not be in progress. The contractor shall provide the name and telephone number of such person to the SBCAPCD and the City of Goleta prior to approval of any Land Use Permit for any project grading or construction activities.

Plan Requirement and Timing. The applicant shall include these measures as notes on a separate sheet attached to the residential grading plans that shall be reviewed and approved prior to approval of any Land Use Permit for grading or structural development. The measures shall be implemented at the commencement of, during, and after project construction, as appropriate.

Monitoring. The City of Goleta shall ensure said measures are included on all plans. City building and safety grading inspectors and permit compliance staff shall perform periodic site inspections. SBCAPCD inspectors shall respond to nuisance complaints.

Mitigation AQ-2. The applicant shall submit a record of contact with the Metropolitan Transit District (MTD) to determine if additional bus service and/or bus stops adjacent to the project site would increase the ability of project residences to use the MTD bus system (*addresses Impacts AQ-3 and AQ-9*).

Plan Requirement and Timing. The applicant shall obtain a letter from the MTD describing options to accommodate bus usage by project residents. Agreement on approach must be made with MTD prior to approval of the Land Use Permit. Copies of the transit information and agreed upon design features shall be reviewed and approved by the City of Goleta prior to Land Use Permit approval for the residential project.

Monitoring. The City of Goleta shall check for inclusion of agreed upon design features on the Final Development Plan and shall review and approve project codes, covenants, and restrictions (CC&Rs) for inclusion of specific requirements for maintaining such information on a long-term basis prior to approval of any Land Use Permit for final map recordation. City of Goleta shall review MTD agreement prior to occupancy clearance. Permit Compliance shall spot check for installation of agreed upon design features prior to occupancy clearance.

Mitigation AQ-3. The applicant shall incorporate the following energy conservation measures into project building plans unless the applicant proves that incorporation of a specific measure is infeasible (*addresses Impacts AQ-3 and AQ-9*):

a. Heat transfer modules shall be installed in all furnaces.

b. Light colored, water-based paint and roofing materials shall be used on all structures.

c. If feasible, the use of solar panels for water heating systems and water heater systems that heat water only on demand shall be incorporated into the design of all habitable structures.

d. If feasible, the applicant shall modify building plans to include the installation of electrical hookups for vehicles in garages.

e. Building plans submitted for approval of building permits shall include design elements that maximize the use of natural lighting.

f. All parking lots shall be constructed of concrete or other non-polluting materials instead of asphalt.

g. Building plans submitted for approval of building permits shall include provisions of the installation of energy efficient appliances and lighting.

h. The project landscape plan shall be revised where necessary to use landscaping to shade all buildings and parking lots.

Plan Requirement and Timing. Prior to approval of any Land Use Permit for construction of residential dwelling units and/or accessory habitable structures, the City of Goleta shall review the project building plans and provide recommendations on increasing energy efficiencies in project design. Where feasible, the proposed energy conservation measures shall be incorporated into the project building plans prior to the approval of any Land Use Permit or building permit for construction of residential units and the Final Development Plan/final landscaping plan shall be revised to address items #b, c, d, e, f, g, and h above prior to approval of the Final Development Plan.

Monitoring. City building inspectors shall site inspect for inclusion of City of Goleta approved energy conservation measures during project construction.

Mitigation AQ-4. To reduce significant daily ROG, NO_X, and PM_{10} emissions during winter days from combined project sources, only natural gas fireplaces shall be allowed (a*ddresses Impacts AQ-3 and AQ-9*).

Plan Requirement and Timing. All plans submitted for approval of building permits shall indicate which units will be equipped with a fireplace(s) and specify that said fireplace(s) are natural gas burning only. The proposed fireplace designs shall be incorporated into the project building plans prior to approval of any Land Use Permit for residential dwelling construction.

Monitoring. The City shall review and approve project CC&Rs for inclusion of specific requirements for maintaining such restrictions on a long-term basis prior to approval of any Land Use Permit for final map recordation. City building inspectors shall inspect to verify that installed fireplaces are natural gas burning only.

Mitigation AQ-5. The applicant shall notify potential buyers of potential odor problems in the project area (*addresses Impacts AQ-4 and AQ-5*).

Plan Requirement and Timing. A buyer notification shall be recorded on a separate information sheet with the final map that notifies potential buyers of potential odor problems in the project area. The notification to buyers shall be reviewed and approved by the City of Goleta and prior to approval of any Land Use Permit for final map clearance.

Monitoring. The City of Goleta shall review and approve the information sheet plans.

4.14.3.5 Residual Impacts

With the implementation of mitigation measure AQ-1, the residual impacts of AQ-1, AQ-6, and AQ-7, the generation of construction dust, would be *less than significant.*

The residual impact of AQ-2 and AQ-8, the generation of NO_X and ROG emissions from the use of onsite construction equipment, would be *less than significant.*

The residual effect of impact AQ-3 and AQ-9, the generation of emissions from combined residential sources, would be mitigated by the implementation of mitigation measures AQ-2, AQ-3, and AQ-4. However, the applicant is not proposing to use gas-burning fireplaces and stoves in the residential development, so Mitigation Measure AQ-4 may not be implemented. Without this mitigation measure, the residual impacts of Impact AQ-3 and Impact AQ-9 remain *significant (Class I).*

The residual effect of Impact AQ-4 would be less than significant, as the odor sources are location specific.

The residual effect of Impact AQ-5 would be less than significant, as Hot Spot isopleths are location specific.

The residual impact of AQ-10, the formation of CO hotspots, would be *less than significant.*