

4.3 AIR QUALITY

4.3.1 ENVIRONMENTAL SETTING

4.3.1.1 Climate and Atmospheric Conditions

The proposed project area is located in Santa Barbara County and is part of the South Central Coast Air Basin, which includes all of Ventura, Santa Barbara, and San Luis Obispo counties. The eastern Gaviota Coast climate is characterized by cool, dry summers, mild winters, and relatively low rainfall (average annual precipitation is 16 inches). Approximately 95% of the annual rainfall falls between November and April (National Oceanic and Atmospheric Administration, 1989), with January as the wettest month. Average monthly temperatures range from a high of 75 degrees Fahrenheit in September to a low of 40 degrees Fahrenheit in December.

Both local topography and meteorological conditions influence Santa Barbara County's air quality. Surface and upper-level wind flows vary both seasonally and geographically in the County, and inversion conditions common to the area can affect the vertical mixing and dispersion of pollutants. Influences important to the County's air quality include:

- A semi-permanent high pressure system that lies off the Pacific Coast leading to limited rainfall, with warm, dry summers and relatively damp winters. 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. This "marine layer" 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 warm, dry winds blow from the high inland desert and descend the slopes of the coastal mountain range. Wind speeds associated with Santa Ana winds are generally 15 to 20 miles per hour, 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 (Los Angeles region) are transported to the sea. These pollutants can then transport back onshore into Santa Barbara County in what is called a "post-Santa Ana condition." The effects of this condition can be experienced throughout the County, though it does not always result in high pollutant concentrations.
- Upper-level winds are generally from the north or northwest throughout the year, but occurrences of southerly and easterly winds do occur in winter, especially in the morning. When southerly and easterly winds do occur they are usually associated with periods of high ozone levels, as they can often transport pollutants into the County that are generated in other areas.
- 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 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 ground surface. The subsidence inversion is very common during summer along the coast, and is one of the principal causes of air stagnation.

- Air stagnation with limited air movement typically results in poor air quality. Therefore, it is reasonable to expect a higher frequency of air pollution effects in the southern portion of the County where light winds are typically observed, as opposed to in the northern portion of the County where winds are typically stronger and more persistent.

4.3.1.2 Existing Air Quality Conditions

National Ambient Air Quality Standards (AAQS) were established in 1971 for six pollutants (ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulate matter 10 micrometers or less in size (PM₁₀), and lead) with states retaining the option to add other pollutants, require more stringent compliance, or include different exposure periods. The Federal Clean Air Act Amendments of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. The EPA was charged with modifying existing standards or promulgating new standards where appropriate. The EPA subsequently developed standards for chronic ozone exposure (8 hours per day) and for very small diameter particulate matter (PM_{2.5}).

Santa Barbara County was designated an attainment area for the Federal one-hour ozone standard, and is now a designated attainment area for the 8-hour ozone standard as well (as of June 15, 2004). The County does meet the State 1-hour ozone standard but does not meet the State standard for particulate matter less than 10 microns in diameter (PM₁₀). The County is in attainment for the Federal PM_{2.5} standard. **Table 4.3-1** identifies the State and Federal air quality standards currently in effect. Although the State has not yet issued attainment designations for the recently adopted California 8-hour ozone standard, historical monitoring data suggests that Santa Barbara County will be designated as non-attainment for this standard. Air quality planning for meeting the State standard also serves as the plan for continuing to meet Federal ozone standards into the future.

The Air Pollution Control District (APCD) is required to monitor air pollutant levels to ensure compliance with federal and state air quality standards. As discussed above, air quality measurements indicate that the Santa Barbara County portion of the South Central Coast Air Basin is an attainment area for all federal and state air quality standards except for the state 8-hour ozone standard (unofficially) and the state PM₁₀ standard. Creation of ozone occurs 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 and is considered regional because it covers a wider area than that in which the pollutants are emitted. The major sources of ozone precursors (NO_x and ROG) in the County are motor vehicles, the petroleum industry, marine vessels, other combustion sources, and the use of solvents (paint, consumer products, and certain industrial processes). 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. Elevated ozone concentrations aggravate asthma, bronchitis, and other respiratory disorders. Eye irritation, nausea, headaches, coughing, and dizziness are other symptoms of ozone exposure. Ambient air quality standards are established to protect human health. The California Air Resources Board (CARB) indicates that ozone concentrations above the standards lead to lung inflammation and lung tissue damage and other medical problems.

Table 4.3-1 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards			
		Concentration	Method	Primary	Secondary	Method	
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet Photometry	
	8 Hour	0.07 ppm (137 µg/m ³)		0.075 ppm (147 µg/m ³)			
Respirable Particulate Matter (PM ₁₀)	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	20 µg/m ³		--			
Fine Particulate Matter (PM _{2.5})	24 Hour	No Separate State Standard		35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³			
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Non-Dispersive Infrared Photometry (NDIR)	
	1 Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)			
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		-			-
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	Gas Phase Chemi- luminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemilumi- nescence	
	1 Hour	0.18 ppm (339 µg/m ³)		-			
Lead	30-Day average	1.5 µg/m ³	Atomic Absorption	-	Same as Primary Standard	High Volume Sampler and Atomic Absorption	
	Calendar Quarter	-		1.5 µg/m ³			
	Rolling 3- month Average	-		0.15 µg/m ³			
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	-	Ultraviolet Fluorescence	0.030 ppm (80 µg/m ³)	-	Spectropho- tometry (Pararosaniline Method)	
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)			
	3 Hour	-		-			0.5 ppm (1,300 µg/m ³)
	1 Hour	0.25 ppm (655 µg/m ³)		-			-
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer-visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards			
Sulfates	24 Hour	25 µg/m ³	Ion Chromato- graphy				
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence				
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromato- graphy				

Source: California Air Resources Board (11/17/08)

Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter – PM₁₀, PM_{2.5}, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.
8. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

PM₁₀ is generated by a variety of sources, including mineral quarries, grading, demolition, agricultural tilling, road dust, and vehicle exhaust (primarily PM_{2.5}). Particulate matter is a respiratory irritant. CARB estimates that attaining the California ambient air quality standard for PM₁₀ would annually prevent approximately 6,500 premature deaths.

The APCD operates a network of 17 air quality monitoring stations. The closest station to the project site is the El Capitan monitoring station and its data are representative of the project site due to its location next to the coast in El Capitan State Park. There have been 11 exceedances of the federal 8-hour ozone standard and 41 exceedances of the state 8-hour ozone standard in the County since 2007. Only one of these exceedances was recorded at the El Capitan monitoring station (2007, state 8-hour ozone standard). While designated an attainment area of the state 1-hour ozone standard, there have been 12 exceedances of this standard since 2007 (five in 2009, four in 2008, and three in 2007), with only one of these exceedances having been recorded from the El Capitan monitoring station.

4.3.1.3 Global Climate Change and Greenhouse Gases

Greenhouse gases (GHGs) include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃). Combustion of fossil fuels constitutes the primary source of GHGs. GHGs accumulate in the atmosphere, where these gases trap heat near the Earth's surface by absorbing infrared radiation. This effect causes global warming and climate change, with adverse impacts on humans and the environment. Potential effects include reduced water supplies in some areas, ecological changes that threaten some species, reduced agricultural productivity in some areas, increased coastal flooding, and other effects.

In September 2004, CARB approved regulations to reduce greenhouse gas emissions from new motor vehicles (CARB, 2004). CARB took this action pursuant to Chapter 200, Statutes of 2002 (AB 1493, Pavley) which directed CARB to adopt regulations that achieve the maximum feasible and cost effective reduction in greenhouse gas emissions from motor vehicles. The regulations apply to new passenger vehicles and light duty trucks beginning with the 2009 model year. Implementation of these regulations has been delayed through opposition from the Automobile Manufacturers Association, and from the EPA who must approve a waiver from federal standards to allow California to adopt its more stringent requirements. The EPA denied the waiver request in December 2007 (formalized in the Federal Register on March 6, 2008). In January 2008, California filed a suit with the 9th U.S. Circuit Court of Appeals to reverse the waiver request denial. On June 30, 2009, the EPA granted the waiver request.

In September 2006, the California Legislature enacted the Global Warming Solutions Act (Assembly Bill 32). The purpose of AB 32 is to create a statewide program to cap carbon emissions at 1990 levels by 2020. AB 32 does the following:

- Defines “greenhouse gases” as carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride. AB 32’s intended goal is to have CARB create limits based on annual emissions “expressed in tons of carbon dioxide equivalence,” with every other gas evaluated on an equivalency level as one unit of carbon dioxide. The typical unit that is used to express greenhouse gas emissions is million metric tons of carbon dioxide equivalent (a metric ton is about 2.2 English tons).
- Requires CARB to adopt regulations for reporting and verification of greenhouse gas emissions by January 1, 2008.
- Requires that, prior to January 1, 2008, CARB determine what California’s statewide greenhouse gas emissions level was in 1990 and approve that level as the statewide limit to be achieved prior to 2020. Using the CEC greenhouse gas inventory as a starting point, CARB staff determined the State’s 1990 greenhouse gas emissions level by conducting a comprehensive review of all greenhouse gas emitting sectors. The seven sectors are: Transportation, Electricity Generation, Industrial, Residential, Agriculture, Commercial, and Forestry. CARB adopted a 1990 level and 2020 cap of 427 million metric tons of carbon dioxide equivalents on December 6, 2007¹.
- Requires CARB to adopt a “scoping plan” prior to January 1, 2009 (adopted on December 12, 2008), the purpose of which is to develop the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions from specific sources or categories of sources by 2020. AB 32 requires CARB to consult with numerous agencies and the public in developing and implementing this plan.
- Requires CARB to implement regulations prior to January 11, 2011, which will take effect one year later, that will implement reduction measures described in the scoping plan.

CARB was also required to publish by June 30, 2007 a list of discrete early action GHG emission reduction measures that can be implemented by 2010. On June 21, 2007, the Air Resources Board did adopt three Discrete Early Action Measures which involve implementation of the

¹ <http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm>

state low carbon fuel standard, reductions of HFC134a emissions by phasing out the non-professional servicing of motor vehicle air conditioning units, and improved landfill gas capture programs. Together, these measures are expected to reduce California's GHG emissions between 13 and 26 million metric tons of carbon dioxide equivalents (CARB 2007). Many other GHG emission reduction strategies have been identified, which will be considered for implementation as the AB 32 program unfolds.

Estimates of the current GHG emissions in California are also prepared by the CARB, and the most recent estimates indicate that emissions in 2004 were about 484 million metric tons of carbon dioxide equivalents (CARB 2007). Thus, in general terms, the goal of AB 32 will be to identify measures to reduce GHG emissions in California from their current level of about 484 MMT to the estimated 1990 level of about 427 MMT. The Scoping Plan that was adopted by the Air Resources Board in 2008 proposes a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health, with specific measures to be developed over the next two years and to be in place by 2012.

Key elements of California's recommendations for reducing its greenhouse gas emissions to 1990 levels by 2020 include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long term commitment to AB 32 implementation.

4.3.2 REGULATORY FRAMEWORK

Air quality problems in Santa Barbara County are addressed through the effort of federal, state, regional, and local government agencies. These agencies work to improve air quality through legislation, regulations, policy making, education, and enforcement. The individual roles these agencies play in regulating air quality is described below:

U.S. Environmental Protection Agency (USEPA)

The USEPA establishes and enforces the federal (national) standards for atmospheric pollutants.

California Air Resources Board (CARB)

CARB ensures implementation of the California Clean Air Act and responds to the federal Clean Air Act. The federal Clean Air Act permits states to establish their own set of air quality standards, which must be at least as stringent as federal standards. CARB is responsible for regulating emissions from motor vehicles and consumer products, as well as oversight and

development of the state's greenhouse gas emissions regulations as discussed in Section 4.3.1.3 above.

Santa Barbara County Air Pollution Control District (APCD)

The APCD is responsible for comprehensive air pollution control for stationary sources in the Santa Barbara County portion of the South Central Coast Air Basin. As required under the federal and state Clean Air Acts, APCD prepares and periodically updates its County of Santa Barbara Clean Air Plan (CAP) that provides an overview of air quality and sources of air pollution within the County. The CAP identifies pollution-control measures needed to meet federal and state air quality standards. The CAP guides the development of APCD rules and regulations and must be considered in transportation and land use planning decisions. As a responsible agency under CEQA, APCD reviews and approves environmental documents prepared by other lead agencies or jurisdictions to reduce or avoid impacts to air quality and to ensure that the lead agency's environmental document is adequate to fulfill CEQA requirements. As a concerned agency, the APCD comments on environmental documents and suggests mitigation measures to reduce air quality impacts.

4.3.3 THRESHOLDS OF SIGNIFICANCE

The County's *Environmental Thresholds and Guidelines Manual* identifies criteria for evaluating the significance of a project's impact on the environment. Air quality criteria were revised in 2006. According to the revised guidelines, a proposed project will not have a significant effect on air quality if operation of the project will:

- Emit (from all project sources, mobile and stationary) less than the daily trigger for offsets set in the APCD New Source Review (NSR) Rule, for any pollutant. For ozone precursor emissions (ROG or NO_x), the APCD NSR threshold is 55 pounds per day from all project sources (stationary sources and mobile sources) or 25 pounds per day from mobile sources only. For long-term operational particulate emissions (PM-10), the APCD NSR threshold is 80 pounds per day from all project sources;
- Not cause or contribute to a violation of any California or National Ambient Air Quality Standard;
- Not exceed the APCD health risk public notification thresholds adopted by the APCD; or
- Be consistent with the adopted Federal and State Air Quality Plans.

Impacts relating to carbon monoxide concentrations are considered significant if the project would create a CO "hot spot" where the California 1-hour standard of 20 parts per million (ppm) or the 8-hour standard of 9 ppm is exceeded. However Santa Barbara County has been in attainment of the State CO standard for many years and ambient CO levels have declined significantly. Projects that generate fewer than 800 peak hour trips do not require a CO "hot spot" analysis.

According to the Santa Barbara County *Environmental Thresholds and Guidelines Manual*, no quantitative threshold has been established for short-term, construction-related PM-10; however, the effects of PM-10 should be discussed in all environmental documents for projects involving ground disturbance, and dust control measures are required for most projects following the County's Grading Ordinance. Additionally, the County violates the State standard for PM-10; therefore dust mitigation measures are required for all discretionary construction activities.

Short-term thresholds for NO_x and ROG emissions from construction activities are not established in the Santa Barbara County *Environmental Thresholds and Guidelines Manual*. NO_x emissions from construction equipment in the County are estimated at 1,000 tons per year, and when compared to the total County NO_x emission inventory of nearly 17,000 tons per year, construction emissions comprised approximately six percent of the 1990 County-wide NO_x emission inventory. This amount is considered insignificant, as stated in the Santa Barbara County *Environmental Thresholds and Guidelines Manual*.

Consistent with Senate Bill 97, the State Office of Planning and Research (OPR) promulgated new regulations on March 18, 2010 amending the CEQA Guidelines to address evaluation of green house gas (GHG) emissions in CEQA documents. Section 15064.4 of the State CEQA Guidelines provides the following guidelines for determining the significance of impacts from greenhouse gas emissions:

- (a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:
 - (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or
 - (2) Rely on a qualitative analysis or performance based standards.
- (b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:
 - (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
 - (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
 - (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Santa Barbara County's methodology to address Global Climate Change in CEQA documents is evolving. The County is currently working to develop an inventory of GHG emissions and a Climate Action Strategy and Climate Action Plan based on this data. Until County-specific data becomes available and significance thresholds applicable to GHG emissions are developed and formally adopted, the County will follow an interim approach to evaluating GHG emissions. This interim approach will look to criteria adopted by the Bay Area Air Quality Management

District (BAAQMD), summarized below, for guidance on determining significance of GHG emissions.

Significance Determination Criteria	
GHG Emission Source Category	Operational Emissions
Non-stationary Sources	1,100 Metric Tons(MT) of CO ₂ e/yr OR 4.6 MT CO ₂ e/SP*/yr (residents + employees)
Stationary Sources	10,000 MT/yr
Plans	6.6 MT CO ₂ e/SP*/yr (residents + employees)

* SP refers to Service Population, the number of new residents and employees that the project would result in.

According to the BAAQMD, the 1,100 metric ton significance criteria is equivalent to approximately 60 single-family residences or average annual household GHG emissions of approximately 18.3 metric tons/household/year.² This is consistent with the EPA's estimate of average annual per capita GHG emissions of 16,008 lbs (7.26 metric tons) per person. Based on this equivalency, for purposes of evaluation of GHG emissions from residential projects in Santa Barbara County during this interim period, emissions from residential developments of 10 or fewer residences are considered to be less than significant without further, more detailed justification or analysis. More detailed, factually specific analysis is only required for residential developments of above size. The BAAQMD does not include any standards for construction-related emissions.

4.3.4 PROJECT IMPACTS AND MITIGATION

Impact AQ-1: Construction PM₁₀ Emissions.

There are no significance thresholds in the County for PM₁₀ emissions from construction activities, though the County violates State standards for this pollutant. Grading and construction activity associated with the proposed project and future development would generate PM₁₀ emissions. Airborne dust is normally the primary concern during construction of new buildings and infrastructure, especially during grading and site preparation. Because such emissions cannot be collected and routed to an air pollution control device, they are called "fugitive emissions." No mass grading of large portions of the project site is expected to occur as part of the proposed project. The project involves grading and construction associated with the proposed access roads, public access parking lot, as well as future residential construction within the seven development envelopes, as described in Section 2.0 Project Description.

For the proposed project, grading associated with roadway improvements and other infrastructure is estimated at 7,850 cubic yards of cut and 6,750 cubic yards of fill. In addition, future residential development would generate grading associated with building pad preparation. The majority of the identified development envelopes are located on relatively flat areas of the site, thereby minimizing grading associated with future residential development. Additional cut and fill is expected to be required to provide access to future residential development on proposed Parcel 6, though exact quantities are unknown since the location of the development envelope is not identified.

² BAAQMD Thresholds of Significance (May 2010), at 60.

Construction-related air quality impacts occur mainly in close proximity to the area of project disturbance. However, there may be some “spill-over” into the surrounding areas. This may occur from vehicles dropping or picking up dirt or silt derived from the project site, which can be subsequently pulverized from other vehicles creating off-site dust impacts. Spill-over may also be associated with additional vehicle trips generated during construction activities (trucks and contractor employee commuting). Vehicle exhaust from internal combustion engines used by construction equipment and vehicles results in emissions of CO, ROG, NO_x, and PM₁₀. In addition to contributing to overall particulate concentrations, fine particulate emissions from vehicle and equipment exhaust are classified as carcinogenic by the State of California.

A small fraction of PM₁₀ is composed of PM_{2.5}. PM_{2.5}, referring to fine particulate matter less than 2.5 micrometers in diameter, is considered to be more of a concern for human health as smaller particles can be respired more deeply into the lungs (Molly Pearson, APCD, pers. comm. 2010). PM_{2.5} is a potentially serious concern because carcinogenic diesel equipment exhaust particulates are primarily in the PM_{2.5} size range. Daily PM₁₀ emissions would include approximately 12 pounds of PM_{2.5}. The relatively small level of PM_{2.5} emissions and the dispersed number of source locations associated with construction activities would minimize any localized PM_{2.5} health impacts. Use of standard dust control and equipment measures would reduce the fugitive dust impacts and particulate emissions during grading and construction to the maximum extent feasible.

URBEMIS 2007 (Version 9.2.4) was used to estimate emissions of particulates and other pollutants from grading and construction (see **Table 4.3-2** below). Input data to the model include total acreage and maximum daily acreage disturbed, construction vehicle/equipment fleet mix, truck travel, and daily equipment run times. These estimates assume that grading and construction would occur over a three year period³, starting in 2011 and that the maximum daily acreage disturbed would be 7.75 acres. Though it is possible that construction of future residences would extend beyond 2013, these estimates represent typical emissions experienced in a single year assuming ongoing construction activity and therefore are applicable to future years as well. The results, based on the mitigated maximum daily emissions for 2011, are summarized below in pounds per day.

Table 4.3-2. Summary of Construction-Related Air Emissions (lbs/day)

Activity	ROG	NO _x	CO	SO ₂	PM-10	CO ₂
Grading	3.99	31.77	18.98	0.00	36.84	3166.31
Trenching	2.01	16.56	9.80	0.00	0.83	1841.70
Paving	2.52	14.59	11.67	0.00	1.26	1409.26
Construction	3.45	15.94	12.45	0.00	1.15	1760.32
Daily Total	11.97	78.85	52.90	0.01	40.09	8177.60
Tons Per Year	1.59	14.39	9.65	0.002	7.37	1,492.41

Source: URBEMIS 2007 (Version 9.2.4)

³ The three-year horizon is used for modeling purposes. A longer or delayed construction period would not alter the validity of the model results.

Dust generation associated with project construction would be temporary and grading specifically associated with residential development would likely be spaced out over multiple years as each lot is developed separately. Therefore, dust impacts during project grading and construction activities are considered *adverse but less than significant (Class III)*. Use of standard dust control measures identified below, applied to all discretionary projects, would reduce the fugitive dust impacts during grading and construction to the maximum extent feasible.

Mitigation Measures

AQ 1: Construction-Generated Airborne Dust (PM₁₀). The applicant shall prepare a Construction Management Plan to control PM₁₀ emissions during grading and construction. At a minimum the Plan shall include the following dust control measures:

- ~~During construction, water trucks or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this should include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency shall be required whenever the wind speed exceeds 15 mph. Reclaimed water should be used whenever possible. However, reclaimed water should not be used in or around crops grown for human consumption.~~
- Minimize the amount of disturbed area and reduce onsite vehicle speeds to 15 mph per hour or less.
- ~~Gravel pads must be installed at all access points to prevent tracking of mud on to public roads and internal private roads where applicable.~~ All access points shall be stabilized using methods designed to reduce transport of sediment off site. Stabilizing measures may include but are not limited to use of gravel pads, steel rumble plates, temporary paving, etc.
- If importation, exportation, and stockpiling of fill material are involved, soil stockpiled for more than two days shall be covered, kept moist or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site shall be covered with a tarp from the point of origin.
- After clearing, grading, earthmoving, or excavation is completed, the disturbed area shall be treated by watering, revegetating, or spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.
- The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust off site. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the SBCAPCD prior to approval of permits for map recordation and for finish grading for any structures.

Plan Requirements/Timing: These measures shall be noted on all grading and building plans and approved by the County Planning and Development department prior to approval of follow on permits. These dust control requirements shall be noted on a separate informational sheet to be recorded with the maps.

MONITORING: The County building/grading inspector shall perform periodic site inspections throughout the grading and construction period.

Residual Impacts

The residual impact of AQ-1 is **less than significant (Class III)** and reduced to the maximum extent feasible upon compliance with the above mitigation.

Impact AQ-2: Construction-related NO_x and ROG Emissions.

Heavy equipment used during proposed construction activities, including roadway improvements and other infrastructure to support future residential development, would produce emissions in the form of NO_x and ROG as well as other criteria pollutants. However, emissions from the construction of development projects are accounted for in the County ozone attainment planning process.

There are no quantitative thresholds established in Santa Barbara County for short-term, construction-related NO_x and ROG emissions, though 25 tons per year is used as a rule of thumb to gauge whether construction impacts from a project would be significant. Emissions of NO_x from construction equipment countywide are estimated at 1,000 tons per year. When compared to the total NO_x emission inventory for the County of approximately 17,000 tons per year, construction emissions comprise approximately six percent of the 1990 countywide levels (County of Santa Barbara, 2006a). In general, this amount is considered less than significant. Though there is an absence of pollutant significance thresholds, for full disclosure, construction impacts have been identified.

The proposed project involves the grading and construction of approximately ~~6,000~~4,145 linear feet of new access roads to serve future development, as well as the widening and/or paving ~~improvement~~ of approximately ~~10,380~~12,240 linear feet of existing ranch roads. The types and numbers of equipment associated with grading and construction will vary among contractors and are dependent on the timing of future development such that such emissions cannot be quantified with certainty. The URBEMIS 2007 (Version 9.2.4) computer model was used to estimate the daily emissions associated with grading and construction (see **Table 4.3-2** above). See **Appendix D** for the model results.

As indicated by the emission data in the table above, estimated emissions associated with grading and construction would not exceed the rule of thumb of 25 tons per year of ROG or NO_x and the other pollutants are minor relative to County-wide emission inventories. Short-term construction-related air emissions are considered ***adverse but less than significant (Class III)***. However, mitigation is recommended to ensure that proper standard air quality conditions are incorporated into the project to minimize diesel emission impacts to the maximum extent feasible.

Mitigation Measure

The impact is less than significant and no mitigation is required. However, the following condition is *recommended* to reduce construction-related air emissions to the maximum extent feasible.

AQ 2: Construction-Related Emissions. The applicant shall prepare a Construction Management Plan to control diesel emissions during construction. At a minimum the Plan shall incorporate the following mitigation measures:

- All portable diesel-fired construction engines rated at 50 brake-horsepower or

greater must have either statewide Portable Equipment Registration Program (PERP) certificates or APCD permits prior to operation. Construction engines with PERP certificates are exempt from APCD permit, provided they will be on-site for less than 12 months.

- Diesel construction equipment meeting the California Air Resources Board's Tier 1 emission standards for off-road heavy-duty diesel engines shall be used. Equipment meeting Tier 2 or higher emissions standards should be used to the maximum extent feasible.
- Diesel catalytic converters, diesel oxidation catalysts, and diesel particulate filters, as certified and/or verified by EPA or California, shall be installed on equipment operating on-site, if available.
- Diesel-powered equipment should be replaced by electric equipment whenever feasible.
- Idling of heavy-duty diesel trucks during loading and unloading should be limited to five minutes; auxiliary power units should be used whenever possible.
- Construction worker's trips should be minimized by requiring carpooling where feasible and by providing for lunch on site.
- The engine size of construction equipment shall be the minimum practical size.
- The amount of construction equipment operating simultaneously shall be minimized through efficient construction management practices to ensure that the smallest practical number is operating at any one time.
- Construction equipment shall be maintained per the manufacturer's specifications.
- Construction equipment operating on site shall be equipped with two or four degree engine timing retard or pre-combustion chamber engines.
- Catalytic converters shall be installed on gasoline-powered equipment, if feasible.

Plan Requirements/Timing: These measures shall be noted on all construction plans and approved by the County Planning and Development department prior to approval of Coastal Development Permits and/or Land Use Permits.

MONITORING: The County building/grading inspector shall perform periodic site inspections throughout the construction period.

Residual Impacts

The residual impact of AQ-2 is **less than significant (Class III)** and reduced to the maximum extent feasible upon compliance with the above mitigation.

Impact AQ-3: Long-term Emissions

Long-term emissions generated by the proposed project would primarily result from vehicular travel by future residents and public users of the beach access. There are no activities included as part of the project that would be significant sources of long-term air emissions, though wood-burning fireplaces, space heating, water heating, and other residential activities and products

do emit a certain level of contaminants into the air. The URBEMIS 2007 (Version 9.2.4) computer model was used to estimate the operational emissions associated with future residential use of the site and public recreation, including mobile source emissions (i.e. vehicles) and project area sources (i.e. wood fireplaces). Input data to the model include vehicle trips, vehicle fleet mix, summer and winter temperatures, trip characteristics, emission factors, and trip distances. The model's conservative default data were applied to the project input data for the modeling analysis. The computer model estimates peak daily emissions for both summer and winter seasons. This analysis has relied on the summer season emissions estimates since that is Santa Barbara County's peak ozone season. A summary of the peak daily emissions estimated during the summer season for the 2011 analysis year are provided in **Table 4.3-3** below. The complete emissions data are included in **Appendix D**.

As identified in **Table 4.3-3**, daily operational emissions generated by the project, including both mobile and stationary sources, are well below the County's thresholds for ROG, NO_x, and PM-10. Impacts are considered *adverse but less than significant* (Class III).

Table 4.3-3. Summary of Operational Air Emissions (lbs/day)

Source	ROG	NO _x	CO	PM-10	SO _x	CO ₂
Area Source Emissions	0.56	0.10	1.84	0.01	0.00	99.22
Operational (Vehicle) Emissions	2.08	2.86	24.43	3.54	0.02	1835.21
TOTAL	2.64	2.96	26.27	3.55	0.02	1934.43
Significance Threshold - Mobile and Stationary Sources	55	55	N/A	80	N/A	N/A
Significance Threshold - Mobile Sources	25	25	N/A	N/A	N/A	N/A
Exceeds Threshold (?)	No	No	N/A	No	N/A	N/A

Mitigation Measure

The impact is less than significant and no mitigation is required. However, the following mitigation measure is *recommended* to help reduce air emissions to the maximum extent feasible.

AQ 3: Energy Conservation Measures. The applicant shall incorporate the following energy conservation measures into future residential building plans unless the applicant or future landowner proves to the satisfaction of P&D that incorporation of a specific measure is infeasible:

1. Exceed the California Title 24 Energy Code requirements by 20% or greater for all relevant applications, including energy efficient appliances and lighting.
2. Apply water-based paint on all structures.
3. Low NO_x residential and commercial water heaters and space heaters per specifications in the 1991 Air Quality Attainment Plan;
4. Solar panels for residential water heating systems and other facilities or use of on-demand water heater(s); Include design elements that maximize the use of natural lighting and passive solar cooling/heating.

5. Construct parking areas with concrete or other non-polluting materials instead of asphalt.
6. Develop landscape plans that use landscaping to shade buildings and parking areas where feasible.

Plan Requirements and Timing: The applicant shall incorporate the listed provisions into building and improvement plans or shall submit proof of infeasibility prior to approval of Coastal Development Permits and/or Land Use Permits for individual residences.

MONITORING: Building and Safety shall site inspect to ensure development is in accordance with approved plans prior to Final Building Inspection Clearance. Planning staff shall verify landscape installation in accordance with approved landscape plans.

Residual Impact

The residual impact of AQ-3 is **less than significant (Class III)** and reduced to the maximum extent feasible with incorporation of the above recommended mitigation measure.

Impact AQ-4: Carbon Monoxide Hot Spots

Locally, changes in the location of any concentrations of vehicles or changes in the number of vehicles or travel speeds could have an impact on the micro-scale air quality by creating local carbon monoxide hot spots. The County of Santa Barbara *Environmental Thresholds and Guidelines Manual* specifically states that projects contributing less than 800 peak hour trips do not need to model for CO hot spots. The proposed project would generate an estimated 170 average daily trips and 16 peak hour trips associated with residents and users of the beach access, well below this threshold. Impacts are considered *adverse but less than significant (Class III)*.

Mitigation Measures

The impact is less than significant and no mitigation is required.

Residual Impact

No mitigation is necessary and the residual impact of AQ-4 is **less than significant (Class III)**.

4.3.5 CUMULATIVE IMPACTS

Impact AQ-5: Cumulative Air Quality

On a cumulative basis, other planned, pending and future projects as identified in Section 3.0 would incrementally add to the generation of air pollutants from construction activities and long-term traffic generation. Vehicles trips generated by traffic associated with these projects would contribute incrementally to the County air emissions; however the burden contributed by any single project-generated vehicular use is added to that from thousands of other vehicles. The impact of a single project or collection of projects is very small on a regional scale. Cumulative impacts are therefore often addressed in terms of project compatibility with the County air quality plans. With projects that have been properly accounted for or anticipated in the County-wide growth projections used as a basis for regional air quality planning, there would be no significant cumulative impact as a result of unanticipated growth. The 2007 Clean Air Plan indicates that the County is projected to reach attainment status even with continued

growth as currently forecasted; based upon a menu of air pollution reduction strategies to be implemented on small and large scales, including the application of standard emission controls applied to development projects, increased vehicle emission standards, and alternative transportation programs. The proposed project is consistent with plan elements and land use designations included as part of the County Comprehensive Plan and Coastal Land Use Plan. As such, the proposed project as well as other related projects do not create a significant increase in unanticipated growth and are thus consistent with the 2007 Clean Air Plan. Since the project's air quality impacts are less than significant and the project is consistent with the Clean Air Plan, its contribution to cumulative air quality impacts is *not cumulatively considerable*.

Impact AQ-6: Greenhouse Gas Emissions

Given the global nature of climate change resulting from GHG emissions, GHG emission impacts are inherently cumulative in nature. The determination of whether a project's GHG emissions impacts are significant depends on whether emissions would represent a cumulatively considerable contribution to the significant cumulative impact. In 2004, California emitted 484 million metric tons of GHGs (CARB 2007). The proposed project would contribute incrementally to cumulative greenhouse gas emissions through the release of carbon dioxide from vehicle use and indirectly through energy consumption for the residences and other uses.

According to the BAAQMD, the 1,100 metric ton significance criteria is equivalent to approximately 60 single-family residences given average annual household GHG emissions of approximately 18.3 metric tons/household/year.⁴ This estimate is consistent with the EPA's estimate of average annual per capita GHG emissions of 16,008 lbs (7.26 metric tons) per person. Based on the equivalency above, for purposes of evaluating GHG emissions from residential projects in Santa Barbara County, emissions from residential developments of 10 or fewer residences (even large sized homes) are considered to be less than significant without further, more detailed justification or analysis. The proposed project would result in the development of up to seven new single family dwellings. Therefore, the project's contribution to cumulative impacts as a result of GHG emissions would *not be cumulatively considerable (Class III)*.

⁴ BAAQMD Thresholds of Significance (May 2010), at 60.