Section 3.2
Air Quality and Greenhouse Gas Emissions

3.2.1 Introduction

This section describes the affected environment and regulatory setting for air quality and greenhouse gas (GHG) emissions. It also describes the impacts on air quality and GHG emissions that would result from implementation of the Proposed Project or alternatives. The information in this section is based on the 1982 Final Environmental Impact Report (EIR), associated studies, information provided by the Dunes Center and the City of Santa Maria, regional information available in previous environmental impact reports prepared by the County, and air quality modeling for the Shell Guadalupe Dunes Gravel Remediation In-Lieu Proposal and alternatives prepared by AMEC in March 2014 (provided in Appendix D).

3.2.2 Environmental Setting

This section discusses the existing conditions related to air quality and GHG emissions in the Project Site. The California Air Resources Board (ARB) has divided California into regional air basins according to topographic drainage features. The Proposed Project is located in the South Central Coast Air Basin (SCCAB) and is within the jurisdiction of the Santa Barbara County Air Pollution Control District (SBCAPCD).

3.2.2.1 Topography and Meteorology

The meteorology of the coastal areas in Santa Barbara and San Luis Obispo Counties is strongly influenced by the Pacific Ocean. A persistent, broad cell of high pressure commonly resides over the ocean several hundred miles offshore. This high pressure is particularly persistent in the late spring, summer, and early fall. The presence of this high pressure system to the west tends to oppose nighttime offshore winds and enhance afternoon and evening onshore winds. On westward-facing coastlines, such as those between Point Conception and Pismo Beach, the dominant daytime flow is out of the west-northwest at the surface. Further inland the flow tends to align itself with the east-west orientation of the coastal valleys. The wind patterns associated with the high pressure system off the coast occur less frequently during the winter months. Low pressure systems or storms migrate through the area during the winter months and provide vigorous mixing of the air. Strong winds and deep mixing layers are associated with these storms.

Most of the total annual precipitation in Santa Barbara and San Luis Obispo Counties occurs during these migratory storms. Measurements of surface wind speed and direction are made at numerous airports and air quality monitoring stations throughout Santa Barbara and San Luis Obispo Counties. The air quality monitoring stations that are equipped to measure wind speed and direction are discussed later in this section. Measurements of upper air winds are made at Santa Maria Airport and Vandenberg Air Force Base. The coastal areas of Santa Barbara and San Luis Obispo Counties have very mild daily and annual temperature variations. These temperature variations increase further inland as the effect of the ocean decreases. In July, maximum temperatures average 65 degrees Fahrenheit (°F) to 73°F along most of the coast. In the interior valleys and plains, the

average maximum temperatures in July range from 90° to 98°F. Nighttime average minimum temperatures are 50° to 55°F over most of Santa Barbara and San Luis Obispo Counties. In January, the average minimum temperatures range from 42° to 49°F along the coast and are near freezing in the interior valleys and plains.

As was mentioned previously, precipitation occurs primarily in the winter. Ninety percent of the annual precipitation occurs in the months from November through April. Annual precipitation averages are as low as 6 inches at some inland measuring stations and as high as 30 inches in some areas of the coastal mountains. Summer months are generally quite dry, with thundershowers occasionally providing rainfall. As is typical of regions receiving small amounts of precipitation, large fluctuations in annual rainfall are common. Precipitation inland varies considerably as a function of distance from the coast, elevation, and topography.

Temperature inversions result when cool, stable air lies below warmer air aloft. These inversion layers limit the vertical mixing height and confine pollutants emitted below the inversion. Inversions also tend to confine horizontal flow through passes and valleys that are below the inversion height. Recorded data of inversions at Vandenberg Air Force Base show that the frequency of inversions below 500 feet is much greater in the morning than in the afternoon. As the surface is heated during the day, the inversion base tends to lift. In general, mixing heights remain mostly below 2,000 feet .[1]

3.2.2.2 Sensitive Receptors

Some people are considered more sensitive to air pollutants than others, including those with pre-existing health problems, those who are close to the emissions source, or those who are exposed to air pollutants for long periods of time. Land uses such as primary and secondary schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because the very young, the old, and the infirm are more susceptible to respiratory infections and other air quality–related health problems than the general public. Residential areas are considered sensitive to poor air quality because people in residential areas are often at home for extended periods. Recreational land uses are moderately sensitive to air pollution because vigorous exercise associated with recreation places a high demand on the human respiratory function.

The nearest sensitive receptors to the Proposed Project are the residential uses in the town of Guadalupe approximately 3 miles east of the Project Site, as well as two schools in the town: Kermit McKenzie Junior High School and Mary Buren Elementary School. Potential impacts on these receptors were analyzed for the Proposed Project. Results of the analysis are presented in Section 3.2.4.3.

3.2.2.3 Ambient Air Monitoring

The SBCAPCD is responsible for monitoring air quality in the Santa Barbara County portion of the SCCAB to determine whether pollutant concentrations meet state and national air quality standards. The SBCAPCD has 18 air monitoring stations in the County. In Santa Barbara County, the Santa Maria air monitoring station is the closest to the Guadalupe Dunes and the Project Site, approximately 12 miles to the east of the Project Site, and monitors ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and particulate matter less than 10 microns in diameter PM_{10}. In San Luis Obispo County, the Mesa Monitoring station is the

[1] County of Santa Barbara, 1982. Final Environmental Impact Report, Husky Oil - SMV Minerals Lease, Oil and Gas Drilling/Production, Mussel Rock Dunes, Santa Barbara County.

closest to the Project Site, approximately 7 miles northeast of the Guadalupe Dunes, and monitors SO_2, $PM_{2.5}$, and PM_{10}. Monitoring results for criteria pollutants at the Mesa2 and Santa Maria air monitoring stations for the past 3 years, along with the state and national standards, are shown in Table 3.2-1.

Table 3.2-1. Summary of Air Quality Data

Pollutant	California Standard	Federal Primary Standard	Year	Maximum[3] Concentration	Days (Samples) State/Federal Std. Exceeded
1-hour Ozone (O_3)[1]	0.09 ppm for 1 hour	N/A[6]	2010 2011 2012	0.070 ppm 0.065 ppm 0.057 ppm	0/0 0/0 0/0
8-hour Ozone (O_3)[1]	0.070 ppm for 8 hours	0.075 ppm for 8 hours	2010 2011 2012	0.052 ppm 0.061 ppm 0.059 ppm	0/0 0/0 0/0
1-hour Carbon Monoxide (CO)[2, 7]	35 ppm for 1 hour	20 ppm for 1 hour	2010 2011 2012	1.9 ppm 3.1 ppm N/A	0/0 0/0 N/A
8-hour Carbon Monoxide (CO)[1]	9.0 ppm for 8 hours	9.0 ppm for 8 hours	2010 2011 2012	1.11 ppm 1.14 ppm 0.97 ppm	0/0 0/0 0/0
Nitrogen Dioxide(NO_2)[1]	0.18 ppm for 1 hour	0.100 ppm for 1 hour	2010 2011 2012	0.047 ppm 0.053 ppm 0.048 ppm	0/0 0/0 0/0
Fine Particulate Matter ($PM_{2.5}$)[2, 5]	No Separate Standard	35 µg/m^3 for 24 hours	2010 2011 2012	32.6 µg/m^3 24.1 µg/m^3 36.9 µg/m^3	0/NA 0/NA 1/NA
Particulate Matter (PM_{10})[2, 4, 5]	50 :g/m^3 for 24 hours	150 µg/m^3 for 24 hours	2010 2011 2012	144.3 µg/m^3 123.7 µg/m^3 150.4 µg/m^3	45/0 32/0 41/0

Source: Aerometric Data Analysis and Measurement System (ADAM), summaries from 2009 to 2011, http://www.arb.ca.gov/adam.

[1] Data collected from the Santa Maria monitoring station located at 906 South Broadway, Santa Maria, California 93454.

[2] Data collected from the Mesa2 monitoring station located at 906 1300 Guadalupe Rd., Nipomo, California 1300

[3] Maximum concentration is measured over the same period as the California standards.

[4] PM_{10} exceedances are based on state thresholds established prior to amendments adopted on June 20, 2002.

[5] PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.

[6] The federal standard was revoked in June 2005.

[7] Source: Annual Air Quality Report, Santa Barbara County Air Pollution Control District, http://www.sbcapcd.org/sbc/aqreport.htm

Abbreviations:

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

In January 1998, the U.S. Environmental Protection Agency (EPA) designated Santa Barbara County as a "serious" ozone nonattainment area for its exceedence of the federal ozone standards. However,

the County is now an attainment area for the federal 1-hour and 8-hour ozone standards, but continues to be a nonattainment area for the state ozone and particulate matter 10 microns or less (PM_{10}) standards.

3.2.2.4 Santa Barbara County Air Quality Attainment Plan

As previously described, the County of Santa Barbara was an area which exceeded the federal ambient air quality standard for ozone, a regional pollutant. As such an area, the County prepared an Air Quality Attainment Plan (AQAP) in 1979 under the mandates of the federal Clean Air Act (CAA) Amendments of 1977. The 1979 AQAP demonstrated that the area could not attain the federal ozone standard by the required attainment date of 1982 despite the implementation of all reasonably available control techniques on stationary sources. The 1977 CAA Amendments require that air quality plans include "... such other measures as may be necessary to insure attainment and maintenance of such primary or secondary standards (for which the area is in a nonattainment status), including, but not limited to transportation controls..." Since the success of certain aspects of transportation planning is an integral part of land use planning, and since emission growth from population-related sources contributes to the overall emission growth in the County, land use control measures have been included in the AQAP to aid in future air quality planning efforts. The land use measures present a coordinated approach to integrating air quality planning techniques into the County's land use planning program (Santa Barbara County 2009).

3.2.2.5 Common Air Pollutants

The following is a general description of the physical and health effects from the governmentally regulated air pollutants.

Ozone. Ozone (O_3) occurs in two layers of the atmosphere. The layer surrounding the Earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric (the "good" ozone) layer extends upward from about 10 to 30 miles and protects life on Earth from the sun's harmful ultraviolet rays (UV-B). "Bad" ozone is a photochemical pollutant, and needs volatile organic compounds (VOCs), Nitrogen Oxides (NO_x), and sunlight to form; therefore, VOCs and NO_x are ozone precursors. VOCs and NO_x are emitted from various sources throughout the County. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems (such as forests and foothill plant communities) and damages agricultural crops and some human-made materials (such as rubber, paint, and plastics). Societal costs from ozone damage include increased healthcare costs, the loss of human and animal life, accelerated replacement of industrial equipment and reduced crop yields.

Carbon Monoxide. Carbon monoxide (CO) is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95% of all CO emissions. At high concentrations, CO can reduce the oxygen-carrying capacity of the blood and cause headaches, dizziness, and unconsciousness.

Nitrogen Dioxide. Nitrogen oxides are a family of highly reactive gases that are a primary precursor to the formation of ground-level O_3, and react in the atmosphere to form acid rain. Nitrogen Dioxide (NO_2) (often used interchangeably with NO_x) is a reddish-brown gas that can cause breathing difficulties at high levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations).

NO_2 can irritate and damage the lungs, and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_2 concentrations that are typically much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

Coarse Particulate Matter (PM_{10}). PM_{10} refers to suspended particulate matter, which is smaller than 10 microns or 10 one-millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate the lungs and can potentially damage the respiratory tract. On June 19, 2003, ARB adopted amendments to the statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (Senate Bill [SB] 25).

Fine Particulate Matter ($PM_{2.5}$). Due to recent increased concerns over health impacts related to fine particulate matter (particulate matter 2.5 microns in diameter or less), both state and federal $PM_{2.5}$ standards have been created. Particulate matter impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In 1997, EPA announced new $PM_{2.5}$ standards. Industry groups challenged the new standard in court and the implementation of the standard was blocked. However, upon appeal by the EPA, the U.S. Supreme Court reversed this decision and upheld the EPA's new standards.

On June 20, 2002, ARB adopted amendments for statewide annual ambient particulate matter air quality standards. These standards were revised/established due to increasing concerns by ARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current state standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging.

Reactive Organic Gases and Volatile Organic Compounds. Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including reactive organic gases (ROGs) and VOCs. Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).

3.2.2.6 Global Climate Change

The natural process through which heat is retained in the troposphere is called the "greenhouse effect." The greenhouse effect traps heat in the troposphere through a three-fold process, summarized as follows: short wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long wave (thermal) radiation; and GHGs in the upper

atmosphere absorb this long wave radiation and emit this long wave radiation into space and toward the Earth. This "trapping" of the long wave radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

The most abundant GHGs are water vapor and carbon dioxide (CO_2). Many other trace gases have greater ability to absorb and re-radiate long wave radiation; however, these gases are not as plentiful. For this reason, and to gauge the potency of GHGs, scientists have established a Global Warming Potential for each GHG based on its ability to absorb and re-radiate long wave radiation.

GHGs include, but are not limited to, the following.

- *Water Vapor (H_2O)*. Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Natural processes, such as evaporation from oceans and rivers, and transpiration from plants, contribute 90% and 10% of the water vapor in our atmosphere, respectively.

  The primary human-related source of water vapor comes from fuel combustion in motor vehicles; however, this is not believed to contribute a significant amount (less than 1%) to atmospheric concentrations of water vapor. The Intergovernmental Panel on Climate Change (IPCC) has not determined a Global Warming Potential for water vapor.

- *Carbon Dioxide (CO_2)*. CO_2 is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, the concentration of CO_2 in the atmosphere has increased 36%. CO_2 is the most widely emitted GHG and is the reference gas (Global Warming Potential of 1) for determining Global Warming Potentials for other GHGs.

- *Methane (CH_4)*. Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane are landfills, natural gas systems, and enteric fermentation. Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The Global Warming Potential of methane is 21.

- *Nitrous Oxide (N_2O)*. N_2O is produced by both natural and human-related sources. Primary human-related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The Global Warming Potential of N_2O is 310.

- *Hydrofluorocarbons (HFCs)*. HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing, as the continued phase out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The Global Warming Potentials of HFCs range from 140 for HFC-152a to 11,700 for HFC-23.

- *Perfluorocarbons (PFCs)*. Perfluorocarbons are compounds consisting of carbon and fluorine. They are primarily created as a by-product of aluminum production and semi-conductor manufacturing. PFCs are potent GHGs with a Global Warming Potential several thousand times that of CO_2, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years). The Global Warming Potentials of PFCs range from 6,500 to 9,200.

- *Sulfur hexafluoride (SF_6)*. SF_6 is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and

distributes electricity. $SF_6$is the most potent GHG that has been evaluated by the IPCC with a Global Warming Potential of 23,900. However, its global warming contribution is not as high as the Global Warming Potential would indicate due to its low mixing ratio compared to CO_2 (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm]).

In addition to the six major GHGs discussed above (excluding water vapor), many other compounds have the potential to contribute to the greenhouse effect. Some of these substances were previously identified as stratospheric O_3 depletors; therefore, their gradual phase out is currently in effect. The following is a listing of these compounds.

- *Hydrochlorofluorocarbons (HCFCs)*. HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, all developed countries that adhere to the Montreal Protocol are subject to a consumption cap and gradual phase out of HCFCs. The United States is scheduled to achieve a 100% reduction to the cap by 2030. The Global Warming Potentials of HCFCs range from 93 for HCFC-123 to 2,000 for HCFC-142b.
- *1,1,1 trichloroethane*. 1,1,1 trichloroethane, or methyl chloroform, is a solvent and degreasing agent commonly used by manufacturers. The Global Warming Potential of methyl chloroform is 110 times that of CO_2.
- *Chlorofluorocarbons (CFCs)*. CFCs are used as refrigerants, cleaning solvents, and aerosol spray propellants. CFCs were also part of the EPA's Final Rule (*Federal Register* [FR], volume 57, page 3374) for the phase out of O_3-depleting substances. Currently, CFCs have been replaced by HFCs in cooling systems and a variety of alternatives for cleaning solvents. Nevertheless, CFCs remain suspended in the atmosphere, contributing to the greenhouse effect. CFCs are potent GHGs with Global Warming Potentials ranging from 4,600 for CFC 11 to 14,000 for CFC 13.

3.2.3 Regulatory Setting

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

3.2.3.1 Ambient Air Quality Standards

Federal and State Standards

Both the state and the federal governments have established ambient air quality standards for several different pollutants, a summary of which is provided in Table 3.2-2. For some pollutants, separate standards have been set for different time periods. Most standards have been set to protect public health. However, for other pollutants, standards have been based on some other value (such as protection of crops, protection of materials, or avoidance of nuisance conditions).

Table 3.2-2. Federal and California Ambient Air Quality Standards

Pollutant	Averaging Time	California[1] Standard[3]	Federal[2] Standards[3,4]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	N/A
	8 Hours	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)
Particulate Matter (PM_{10})	24 Hours	50 µg/m^3	150 µg/m^3
	Annual Arithmetic Mean	20 µg/m^3	N/A
Fine Particulate Matter ($PM_{2.5}$)	24 Hours	No Separate State Standard	35 µg/m^3
	Annual Arithmetic Mean	12 µg/m^3	15.0 µg/m^3
Carbon Monoxide (CO)	8 Hours	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
Nitrogen Dioxide (NO_2)[5]	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	53 ppb (100 µg/m^3)
	1 Hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)
Lead (Pb)[7,8]	30 days average	1.5 µg/m^3	N/A
	Calendar Quarter	N/A	1.5 µg/m^3
Sulfur Dioxide (SO_2)[6]	24 Hours	0.04 ppm (105 µg/m^3)	N/A
	3 Hours	N/A	N/A
	1 Hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)
Visibility-Reducing Particles[9]	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	No Federal Standards
Sulfates	24 Hour	25 µg/m^3	
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	
Vinyl Chloride[7]	24 Hour	0.01 ppm (26 µg/m^3)	

Source: Appendix D.

[1] California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, 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 O_3, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact EPA for further clarification and current national 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 degrees Celsius (°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] National Primary Standards: the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[5] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.

Table 3.2-2. Federal and California Ambient Air Quality Standards (Continued)

[6] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[7] 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.

[8] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[9] In 1989, ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Abbreviations:

$\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million; ppb = parts per billion; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; N/A = Not Applicable

3.2.3.2 State

California Clean Air Act

ARB ensures implementation of the California Clean Air Act (CCAA) and responds to the federal CAA. ARB is responsible for the control of vehicle emission sources, while the local air district is responsible for enforcing standards and regulating stationary sources.

California Legislation on Climate Change

California legislation on climate change includes the following.

- Assembly Bill (AB) 1493—requires ARB to define standards for cars and light trucks manufactured after 2009.
- Executive Order S-3-05—announced GHG emission reduction targets.
- AB 32 (Global Warming Solutions Act of 2006)—requires ARB to adopt regulations to evaluate statewide GHG emissions and then create a program and emission caps to limit statewide emissions to 1990 levels.
- Executive Order S-01-07—requires a statewide goal be established to reduce the carbon intensity of the California's transportation fuels.
- SB 97—acknowledges that climate change analysis is to occur in conjunction with the California Environmental Quality Act (CEQA) process and that the Office of Planning and Research (OPR) will develop CEQA Guidelines.

- SB 375—creates a process whereby local governments and other stakeholders work together within their region to achieve reduction of GHG emissions.
- Climate Change Scoping Plan—designed to reduce overall carbon emissions in California.
- ARB GHG Emission Inventory—creates GHG emissions limits and requires an emissions inventory for the industries determined to be significant sources of GHG emissions (OPR 2008).

3.2.3.3 Local

Santa Barbara County Air Pollution Control District

SBCAPCD monitors air quality and regulates stationary emission sources in Santa Barbara County. As a responsible agency under CEQA, SBCAPCD reviews and approves environmental documents prepared by other lead agencies or jurisdictions to reduce or avoid impacts on air quality and to ensure that the lead agency's environmental document is adequate to fulfill CEQA requirements. As a concerned agency, the SBCAPCD comments on environmental documents and suggests mitigation measures to reduce air quality impacts.

County of Santa Barbara Clean Air Plan

The federal CAA Amendments of 1990 and the CCAA of 1988 mandate the preparation of Clean Air Plans (CAPs) that provide an overview of air quality and sources of air pollution, and identify pollution-control measures needed to meet federal and state air quality standards. The SBCAPCD and the Santa Barbara County Association of Governments (SBCAG) are responsible for formulating and implementing the CAP for Santa Barbara County. The CAP provides an overview of the regional air quality and sources of air pollution, and identifies the pollution-control measures needed to meet clean-air standards. The schedule for plan development is outlined by state and federal requirements, and is influenced by regional air quality. CAPs affect the development of SBCAPCD rules and regulations and other programs. They also influence a range of activities outside the district including transportation planning, allocation of monies designated for air-quality projects, and more.

The SBCAPCD 2010 Clean Air Plan is the 3 year update required by the state to show how SBCAPCD plans to meet the state 8-hour O_3 standard. The 2010 CAP includes a climate protection chapter, with an inventory of CO_2 emissions in the County. CO_2 is the most prevalent GHG, and the one for which the SBCAPCD has the most accurate data. The SBCAPCD Board adopted the 2010 CAP and certified the EIR at its January 20, 2011, meeting. The 2010 CAP satisfies both state and federal planning requirements.

Other Local Governments

Other local agencies have the authority and responsibility to reduce air pollution through their police power and land use decision-making authority. In accordance with CEQA requirements and the CEQA review process, local governments assess air quality impacts and required mitigation of potential air quality impacts, and monitor and enforce implementation of such mitigation.

3.2.4 Environmental Impact Analysis

This section discusses the potential air quality and GHG emissions impacts associated with the construction and operation of the Proposed Project and alternatives. Air quality and GHG emissions impacts associated with the Proposed Project and alternatives are summarized in Table 3.2-9.

3.2.4.1 Methodology

Proposed Project

Because the Proposed Project would not involve any pollutant emissions, it is analyzed qualitatively and no modeling was conducted.

Alternatives

Construction Emissions

Construction emissions consist of vehicle and equipment exhaust and fugitive dust. Approximately 5 to 7 months of construction is anticipated for the No Project alternative, and 2 to 3 months for the Partial Gravel Removal Alternative.

The SBCAPCD has not established short-term construction-related thresholds for PM_{10} (which makes up 50 percent of the total dust). However, the SBCAPCD requires discussion of these emissions for all projects that would include ground-disturbance activities. Additionally, the SBCAPCD has not established short-term thresholds for NO_x and ROG emissions from construction equipment. Emissions of NO_x from construction equipment in the County are estimated at 1,000 tons per year. When compared to the total NO_x emission inventory for the County (approximately 17,000 tons per year), construction emissions comprise approximately 6 percent of the 1990 County-wide emission inventory for NO_x. In general, the County considers this amount to be less than significant.

Fugitive Dust Emissions

The California Emissions Estimator Model (CalEEMod) was used to calculate fugitive dust emissions (PM_{10} and $PM_{2.5}$) for both of the Project Alternatives. The potential sources of fugitive dust considered in the analysis include the wet screening process, vehicles and equipment driving on paved and unpaved roads, and other construction activities.

Paved Roads. Dust emissions from vehicles traveling on paved roads were calculated for the alternatives using CalEEMod; refer to Appendix D. This method involves using average vehicle weights, road silt, moisture information, and a particle size factor to determine the fugitive dust emissions.

Unpaved Roads. For the construction phases, fugitive dust emissions from vehicles traveling on unpaved onsite access roads constructed within the Project Site are not calculated separately because emissions associated with these roads are included in the calculations for site grading. Following initial construction, the onsite unpaved access roads would be watered at least twice daily so that additional dust generated by driving on these roads would be reduced.

Off-Road Equipment

Off-road equipment is defined as equipment powered by an EPA-defined non-road engine. The off-road equipment exhaust emissions were calculated with the CalEEMod model. Off-road equipment exhaust emissions are included in the construction emissions presented in Table 3 of Appendix D.

On-Road Vehicles and Trucks

CalEEMod was used to estimate emissions from the use of on-road vehicle and trucks, which are included in the construction emissions presented in Table 3 of Appendix D, which includes emissions from delivering gravel from the Project Site to the two potential drop-off locations: Greka Energy, at 1700 Sinton Road, Santa Maria, CA and Granite Gardner Ranch Facility at 400 U.S. 101, Buelton, CA. These routes are approximately 10 and 43 miles long, respectively. Hauling activities would involve an estimated 62 round trips for the No Project Alternative and 35 round trips for the Partial Gravel Removal Alternative.

Emissions of ozone precursors (NO_x and ROG) during project construction would result primarily from the onsite use of heavy earthmoving equipment and truck deliveries. Due to the limited period of time that grading activities and deliveries would occur on the Project Site, construction-related emissions of NO_x and ROG would not be significant on a project-specific or cumulative basis. However, due to the nonattainment status of the air basin for ozone, measures recommended by the SBCAPCD should be implemented to reduce construction-related emissions of ozone precursors to the extent feasible. Compliance with these measures is routinely required for all new development in the County.

GHG Emissions

CalEEMod was used to estimate GHG emissions emitted during gravel separation and transport for the No Project Alternative and the Partial Gravel Removal Alternative.

3.2.4.2 Thresholds of Significance

CEQA Guidelines

Significance criteria for evaluating impacts on air quality and GHG emissions associated with the Project Site are based on Appendix G of the State CEQA Guidelines. Implementation of the Proposed Project would have a significant impact on air quality and GHG emissions if the Proposed Project would result in any of the following.

- Conflict with or obstruct implementation of the SBCAPCD's adopted Clean Air Plan.
- Violate any air quality standard or contribute substantially to an existing air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for O_3 precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

Santa Barbara County Thresholds

According to the County's *Environmental Thresholds and Guidance Manual* (County of Santa Barbara 2008) a project will have a significant impact if it individually or cumulatively results in any of the following.

- Interferes with progress toward the attainment of the ozone standard by releasing emissions which equal or exceed the established long-term quantitative thresholds for NO_x and reactive organic compounds (ROC) (otherwise referred to as VOCs or ROGs).
- Equals or exceeds the state or federal ambient air quality standards for any criteria pollutant (as determined by modeling).
- Produces emissions which may affect sensitive receptors (e.g. children, elderly or acutely ill).
- Produces toxic or hazardous air pollutants in amounts which may increase cancer risk for the affected population.
- Creates odor or another air quality nuisance problem impacting a considerable number of people.

The manual also lists screening criteria for determining the significance of operational (long-term) emissions. However, neither this project nor its alternative would result in long-term operational emissions, and therefore none of these are relevant.

No quantitative thresholds exist for short-term construction emissions. Short-term emissions are considered insignificant by the County Planning and Development Department because construction emissions only comprise approximately 6 percent of the 1990 County-wide emission inventory for NO_x, and the emissions are temporary and short-term in nature (County of Santa Barbara 2008).

The evaluation of climate change impacts in CEQA documents is a new requirement, and methodologies for conducting such analyses have not been promulgated by state agencies. Despite the absence of adopted analysis procedures or thresholds of significance, CEQA requires that lead agencies inform decision-makers and the public about potential significant environmental effects of a proposed project. Therefore, the significance of impacts from GHG emissions for a proposed project is determined by the following.

- The extent to which the project could help or hinder attainment of the state's goals of reducing GHG emissions to 1990 levels by the year 2020 as stated in AB 32.

The recommended approach for GHG analysis included in OPR's June 2008 release is to: (1) identify and quantify GHG emissions, (2) assess the significance of the impact on climate change, and (3) if significant, identify alternatives and/or mitigation measures to reduce the impact below a level of significance. The June 2008 OPR guidance provides some additional direction regarding planning documents as follows:

> *CEQA can be a more effective tool for GHG emissions analysis and mitigation if it is supported and supplemented by sound development policies and practices that will reduce GHG emissions on a broad planning scale and that can provide the basis for a programmatic approach to project-specific CEQA analysis and mitigation....For local government lead agencies, adoption of general plan policies and certification of general plan EIRs that analyze broad jurisdiction-wide impacts of GHG emissions can be part of an effective strategy for addressing cumulative impacts and for streamlining later project-specific CEQA reviews.*

Pursuant to SB 97, the Natural Resources Agency certified and adopted the following direction regarding determination of significant impacts from GHG emissions (Section 15064.4), which was proposed by OPR.

> (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 on available information, 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 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; or
> >
> > (2) Rely on a qualitative analysis or performance based standards.
>
> (b) A lead agency may consider the following 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 regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that 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.

State CEQA Guidelines Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further, states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

Individual projects incrementally contribute toward the potential for global climate change on a cumulative basis in concert with all other past, present, and probable future projects. While individual projects are unlikely to measurably affect global climate change, each project incrementally contributes toward the potential for global climate change on a cumulative basis, in concert with all other past, present, and probable future projects.

Santa Barbara County interim guidance recommends that the Bay Area Air Quality Management District (BAAQMD) adopted thresholds of significance for GHG emissions be used as a guideline in evaluating Santa Barbara County projects (SBCAPCD 2011). The BAAQMD has adopted a significance threshold for industrial projects of 10,000 metric tons of CO_2 equivalent per year (MT CO_2e/yr). CEQA allows lead agencies, when adopting significance thresholds, to consider thresholds of

significance previously adopted or recommended by other public agencies, where supported by substantial evidence (CEQA Guidelines Section 15064.7[c]).

3.2.4.3 Project Impacts

The Proposed Project would not involve any construction-related or operational impacts to air quality. Because no construction activity at the Project Site or elsewhere is required for implementation of the Proposed Project, there will be no short-term emissions related to construction activities, such as fugitive dust and diesel emissions. The Proposed Project would not result in any operational changes at the site, and therefore would not result in any long-term increase or decrease in emissions of any criteria pollutants.

3.2.4.4 No Project Alternative

Impact ALT1-AQ-1. Increased Air Emissions from Processing and Hauling activities

The No Project Alternative would remove all the remnant gravel from the Project Site (Upper Area, Road Site, Site 2, and Site D), pursuant to Permit Condition #31 of 82-CP-75(cz). Activities associated with this alternative would include mining of the sand areas containing gravel, an on-site mobile wet screening operation, off-site disposal of the gravel, and return of sand to the mining areas.

On-site equipment for the gravel removal would include a flatbed work truck with a small attached hydro-crane lifting unit and a service truck with a 4 to 6 person work crew; front end loaders with 4.5 cubic yard buckets; and a screen/sifter unit. The on-site process plant would consist of a double deck, high frequency vibrating screen conveyor belt machine, with the material brought by rubber tire bucket loaders. The process plant located within the Project Site and would be powered by two on-site generators. The No Project Alternative would result in emissions of the air pollutants ROG, NO_x, CO, PM_{10}, $PM_{2.5}$, and SO_2 (see Tables 3.2-3 and 3.2-4) from fuel combustion and exhaust from construction equipment as well as vehicle traffic, grading, and the use of toxic materials (e.g., paints and lubricants). Emissions estimates are based on assumptions provided in the air quality impact analyses for the Project Site (see Appendix D).

With regard to off-site emissions, removal of 1,237 cubic yards (cy) of gravel with 20 cy hauling trucks would result in a total of 62 round trips for hauling. The 2 identified potential drop off locations for the gravel are: Greka Santa Maria facility, at 1700 Sinton Road, Santa Maria, CA; and The Granite Gardner facility at 400 U.S. 101, Buellton, CA. These routes are approximately 10 and 43 miles long respectively. Additionally, the emissions model assumes that there would be 8 workers traveling to and from the site in vehicles every day. The emissions from these activities are also included in Table 3.2-3 and Table 3.2-4.

Table 3.2-3. Estimated Annual Mitigated Construction Emissions, Gravel Transport to Greka Site

No Project Granite Site On-site	Mitigated Construction emissions (tons/year)						
Year	**ROG**	**NOx**	**CO**	**SO_2**	**PM_{10} Total**	**$PM_{2.5}$ Total**	**Total CO_2**
2014	0.0575	0.6609	0.2973	8.00E-04	0.27609	0.03924	81.03
2015	0.0709	0.795	0.381	1.04E-03	0.62239	0.04584	105.31
Mitigated Construction Off-Site							
2014 Hauling	3.30E-04	2.90E-03	4.30E-03	0.00E+00	0.04005	0.00406	0.4601
2014 Worker	2.45E-03	4.07E-03	0.0351	4.00E-05	3.49174	3.48803	2.50E-04
2014 Total	0.00278	0.00697	0.0394	0.00004	3.53179	3.49209	0.46035
2015 Hauling	3.70E-04	3.36E-03	5.09E-03	1.00E-05	0.04	4.10E-03	0.59
2015 Worker	2.80E-03	4.60E-03	0.04	6.00E-05	4.5498	0.4545	4.35E+00
2015 Total	0.00317	0.00796	0.04509	0.00007	4.5898	0.4586	4.9457
Note: See Appendix D. MT CO_2e includes all known GHGs and normalizes their greenhouse effect relative to that of CO_2. For example, as CH_4 has a greater greenhouse effect than CO_2 it has a CO_2e value greater than 1.							

Table 3.2-4. Estimated Mitigated Construction Emissions, Gravel Transport to Granite Site

No Project Granite Site On-site	Mitigated Construction emissions (tons/year)						
Year	**ROG**	**NOx**	**CO**	**SO_2**	**PM_{10} Total**	**$PM_{2.5}$ Total**	**Total CO_2**
2014	0.0575	0.6609	0.2973	8.00E-04	0.27609	0.03924	81.03
2015	0.0709	0.795	0.381	1.04E-03	0.62239	0.04584	105.31
Mitigated Construction Off-Site							
2014 Hauling	6.90E-04	1.16E-02	7.50E-03	2.00E-05	0.1733	0.0176	1.9184
2014 Worker	2.45E-03	4.07E-03	0.0351	4.00E-05	3.49174	3.48803	2.50E-04
2014 Total	0.00314	0.01567	0.0426	0.00006	3.66504	3.50563	1.91865
2015 Hauling	7.70E-04	1.31E-02	8.80E-03	3.00E-05	0.1733	1.76E-02	2.47
2015 Worker	2.80E-03	4.60E-03	0.04	6.00E-05	4.5498	0.4545	4.35
2015 Total	0.00357	0.0177	0.0488	0.00009	4.7231	0.4721	6.8217
Note: See Appendix D. MT CO_2e includes all known GHGs and normalizes their greenhouse effect relative to that of CO_2. For example, as CH_4 has a greater greenhouse effect than CO_2 it has a CO_2e value greater than 1.							

As discussed previously, the County has not established short-term construction-related thresholds for PM_{10} (which accounts for 50% of total dust). However, the SBCAPCD requires discussion of these emissions for all projects that would include ground-disturbance activities. Therefore, fugitive dust emissions are included in the construction emissions presented in Table 3.2-3 and Table 3.2-4, which presents the No Project Alternative's total annual air emissions from construction that are fully addressed with compliance of Standard County conditions for dust control. Fugitive dust from screening operations constitutes a portion of the PM_{10} $PM_{2.5}$ emissions presented in the table, in conjunction with exhaust emissions from equipment and generators. The CalEEMod air quality

model used for this Supplemental Environmental Impact Report (SEIR) assumes fugitive dust emissions will be addressed by watering of the affected area. Standard County conditions which ensure compliance with County dust control measures would further minimize air quality impacts associated with fugitive dust emissions from construction, see Section 3.2.4.6.

Additionally, the SBCAPCD has not established short-term thresholds for NO_x and ROG emissions from construction equipment. Emissions of NO_x from construction equipment in the County are estimated at 1,000 tons per year. When compared to the total NO_x emission inventory for the County (approximately 17,000 tons per year), construction emissions comprise approximately 6% of the 1990 County-wide emission inventory for NO_x (County of Santa Barbara 2008). In general, the County considers this amount to be less than significant (Class III).

Impact ALT1-AQ-2. Consistency with the Air Quality Attainment Plan

Consistency with local and regional plans, such as the AQAP, is required under CEQA. Consistency with the AQAP means that stationary and vehicle emissions associated with the No Project Alternative are accounted for in the AQAP's emissions growth assumptions. The AQAP generally relies on the land use and population projections provided in the SBCAG Regional Growth Forecast.

There would be no long term operational emissions associated with the No Project Alternative, as it would only involve short-term mining, screening, and hauling activities. After the project is complete, there would be no changes in pollutant emissions. Therefore, the No Project Alternative would not conflict with applicable air quality plans and would be less than significant (Class III).

Impact ALT1-AQ-3. Greenhouse Gas Emissions from Construction Activities

GHG emissions are only quantified for those emissions generated during construction activities (Table 3.2-5), as there are no long-term operational emissions associated with this alternative. While the No Project Alternative would occur during years 2014 and 2015, the duration of construction is only expected to last 5 to 7 months; therefore, to get the total annual GHG emissions for this alternative, emissions from 2014 and 2015 are considered together. The annual amount generated would be an estimated 195.61 MT CO_2e/yr including gravel transport to the Greka Site, and 198.61 MT CO_2e/yr including gravel transport to the Granite Site, both of which are less than 30 percent of the threshold for significance of 1,150 MT CO_2e/yr and below the screening threshold of 10,000 MT CO_2e/yr.

When amortized over an approximate 30-year lifetime per state guidance, estimated GHG emissions for the No Project Alternative, assuming gravel disposal at either the Greka Site or the Granite Site, would be approximately 6.52 MT CO_2e/yr and 6.62 MT CO_2e/yr respectively, both less than 1 percent of the 1,150 MT CO_2e/yr threshold. Consequently, this impact would be less than significant (Class III).

Table 3.2-5. Estimated Annual GHG Emissions from Construction

No Project Alternative	**MT/yr CO_2e**	
Mitigated Construction On-Site	Greka Site	Granite Site
Year	CO_2e	
2014	81.21	81.21
2015	105.54	105.54
Mitigated Construction Off-Site		
2014 Hauling	0.4602	1.9187
2014 Worker	3.4462	3.4462
2014 Both	3.9064	
2015 Hauling	0.59	2.47
2015 Worker	4.3602	4.3602
2015 Both	4.952	6.8283
Total	195.61	198.61

3.2.4.5 Partial Gravel Removal Alternative

Impact ALT2-AQ-1. Increased Air Emissions from Processing and Hauling activities

The Partial Gravel Removal Alternative would involve removing the remnant gravel from Site D and the eastern portion of the Road Site. This would result in the complete removal of gravel from Site D and from the eastern portion of the Road Site. Activities associated with this alternative would include mining of the sand areas containing gravel, an on-site mobile wet screening operation, off-site disposal of the gravel, and return of sand to the mining areas.

On-site equipment for the gravel removal would include a flatbed work truck with a small attached hydro-crane lifting unit and a service truck with a 4 to 6 person work crew; front end loaders with 4.5-cy buckets; and a screen/sifter unit. The on-site process plant would consist of a double deck, high frequency vibrating screen conveyor belt machine, with the material brought by rubber tire bucket loaders. The process plant would be located at the Project Site and would be powered by 2 on-site generators. Similar to the No Project Alternative, the Partial Removal Alternative would result in emissions of the air pollutants ROG, NO_x, CO, PM_{10}, $PM_{2.5}$, and SO_2 from fuel combustion and exhaust from construction equipment as well as vehicle traffic, grading, and the use of toxic materials (e.g., paints and lubricants). Emissions estimates are based on assumptions provided in the air quality impact analyses for the Project Site (see Appendix D).

With regards to off-site emissions, removal of 688 cy of gravel with 20-cy hauling trucks would result in a total of 35 round trips for hauling. The 2 identified potential drop off locations for the gravel are: Greka Santa Maria facility, at 1700 Sinton Road, Santa Maria, CA; and The Granite Gardner facility at 400 U.S. 101, Buellton, CA. These routes are approximately 10 and 43 miles long respectively. Additionally, the emissions model assumes that there will be 8 workers traveling to and from the site in vehicles every day. The emissions from these activities are included in Table 3.2-6 and Table 3.2-7.

Table 3.2-6. Estimated Annual Mitigated Construction Emissions, Gravel Transport to Greka Site

Partial Removal Granite Site On-site	Mitigated Construction emissions (tons/year)						
Year	**ROG**	**NOx**	**CO**	**SO_2**	**PM_{10} Total**	**$PM_{2.5}$ Total**	**Total CO_2**
2014	0.0575	0.6609	0.2973	8.00E-04	0.15106	0.03384	81.03
Mitigated Construction Off-Site							
2014 Hauling	4.30E-04	3.85E-03	5.58E-03	1.00E-05	0.227	2.33E-03	0.598
2014 Worker	2.45E-03	4.07E-03	0.0351	4.00E-05	3.4917	3488	3.441
2014 Total	2.88E-03	7.92E-03	4.07E-02	5.00E-05	3.72	3.49E+03	4.04
Source: Appendix D.							

Table 3.2-7. Estimated Mitigated Construction Emissions, Gravel Transport to Granite Site

Partial Removal Granite Site On-site	Mitigated Construction emissions (tons/year)						
Year	**ROG**	**NOx**	**CO**	**SO_2**	**PM_{10} Total**	**$PM_{2.5}$ Total**	**Total CO_2**
2014	0.0575	0.6609	0.2973	8.00E-04	0.15106	0.03384	81.03
Mitigated Construction Off-Site							
2014 Hauling	8.90E-04	0.0151	9.74E-03	3.00E-05	0.0981	0.0101	2.494
2014 Worker	2.45E-03	4.07E-03	0.0351	4.00E-05	3.4917	3488	3.441
2014 Total	3.34E-03	1.92E-02	4.48E-02	7.00E-05	3.59	3.49E+03	5.94
Source: Appendix D.							

As discussed above, the County has not established short-term construction-related thresholds for PM_{10} (which accounts for 50 percent of total dust). However, the SBCAPCD requires discussion of these emissions for all projects that would include ground-disturbance activities. Fugitive dust emissions are included in the construction emissions presented in Table 3.2-6 and Table 3.2-7, which presents the Partial Gravel Removal Alternative's total annual air emissions from construction that are fully addressed with compliance of Standard County conditions for dust control. The CalEEMod air quality model used for this SEIR assumes fugitive dust emissions will be addressed by watering of the affected area. Standard County conditions which ensure compliance with County dust control measures would further minimize air quality impacts associated with fugitive dust emissions from construction, see Section 3.2.4.6.

Additionally, the SBCAPCD has not established short-term thresholds for NO_x and ROG emissions from construction equipment. Emissions of NO_x from construction equipment in the County are estimated at 1,000 tons per year. When compared to the total NO_x emission inventory for the County (approximately 17,000 tons per year), construction emissions comprise approximately 6% of the 1990 County-wide emission inventory for NO_x (County of Santa Barbara 2008). In general, the County considers this amount to be less than significant (Class III).

Impact ALT2-AQ-2. Consistency with the Air Quality Attainment Plan

Consistency with local and regional plans, such as the AQAP, is required under CEQA. Consistency with the AQAP means that stationary and vehicle emissions associated with the No Project

Alternative are accounted for in the AQAP's emissions growth assumptions. The AQAP generally relies on the land use and population projections provided in the SBCAG Regional Growth Forecast.

There would be no long term operational emissions associated with the Partial Gravel Removal Alternative, as it would only involve short-term mining, screening, and hauling activities. After the project is complete, there would be no changes in pollutant emissions. Therefore, the Partial Gravel Removal Alternative would not conflict with applicable air quality plans and would be less than significant (Class III).

Impact ALT2-AQ-3. Greenhouse Gas Emissions from Construction Activities

GHG emissions are only quantified for those emissions generated during construction activities (Table 3.2-8), as there are no long-term operational emissions associated with the Alternative. The amount generated would be an estimated 85.25 MT CO_2e/yr for the Greka Site and 87.15 MT CO_2e/yr, both of which are less than 30 percent of the threshold for significance of 1,150 MT CO_2e/yr.

Table 3.2-8. Estimated Annual GHG Emissions from Construction

No Project Alternative	**MT/yr CO_2e**	
Mitigated Construction On-Site	**Greka Site**	**Granite Site**
2014	81.21	81.21
Mitigated Construction Off-Site		
2014 Hauling	0.5983	2.4945
2014 Worker	3.4462	3.4462
2014 Both	4.04	5.94
Total	**85.25**	**87.15**

When amortized over an approximate 30-year lifetime per state guidance, estimated GHG emissions for the Partial Gravel Removal Alternative assuming gravel disposal at either the Greka Site or the Granite Site would be approximately 2.84 MT CO_2e/yr and 2.91 MT CO_2e/yr respectively, both less than 1 percent of the 1,150 MT CO_2e/yr threshold and below the screening threshold of 10,000 MT CO_2e/yr. Consequently, this impact would be less than significant (Class III).

3.2.4.6 Standard County Conditions

Standard County Dust Control Measures

The Applicant shall comply with the following dust control components at all times including weekends and holidays:

a. Dust generated by the development activities shall be kept to a minimum with a goal of retaining dust on the site.

b. During clearing, grading, earth moving, excavation, or transportation of cut or fill materials, use water trucks or sprinkler systems to prevent dust from leaving the site and to create a crust after each day's activities cease.

c. During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site.

d. Wet down the construction area after work is completed for the day and whenever wind exceeds 15 miles per hour (mph).

e. When wind exceeds 15 mph, have site watered at least once each day including weekends and/or holidays.

f. Order increased watering as necessary to prevent transport of dust off-site.

g. Cover soil stockpiled for more than 2 days or treat with soil binders to prevent dust generation. Reapply as needed.

h. If the site is graded and left undeveloped for over 4 weeks, the Owner/Applicant shall immediately:

   i. Seed and water to re-vegetate graded areas; and/or

   ii. Spread soil binders; and/or

   iii. Employ any other method(s) deemed appropriate by P&D or Air Pollution Control District (APCD).

PLAN REQUIREMENTS: These dust control requirements shall be noted on all grading plans.

PRE-CONSTRUCTION REQUIREMENTS: The contractor or builder shall provide P&D monitoring staff and APCD with the name and contact information for an assigned onsite dust control monitor(s) who has the responsibility to:

a) Assure all dust control requirements are complied with including those covering weekends and holidays.

b) Order increased watering as necessary to prevent transport of dust offsite.

c) Attend the pre-construction meeting.

TIMING: The dust monitor shall be designated prior to issuance of grading permit. The dust control components apply from the beginning of any grading or construction throughout all development activities until Final Building Inspection Clearance is issued.

MONITORING: P&D processing planner shall ensure measures are on plans. P&D grading inspectors shall spot check grading to ensure compliance onsite. APCD inspectors shall respond to nuisance complaints.

Table 3.2-9. Summary of Air Quality and GHG Emission Impacts

Air Quality and Greenhouse Gas Emissions Impacts	Mitigation Measure	Residual Significance
Proposed Project		
No Impacts	N/A	N/A
No Project Alternative		
Impact ALT1-AQ-1. Increased Air Emissions from Processing and Hauling activities	Standard County Dust Control Measures	Less than Significant (Class III)
Impact ALT1-AQ-2. Consistency with the Air Quality Attainment Plan	No mitigation required	Less than Significant (Class III)
Impact ALT1-AQ-3. Greenhouse Gas Emissions from Construction Activities	No mitigation required	Less than Significant (Class III)
Partial Gravel Removal Alternative		
Impact ALT2-AQ-1. Increased Air Emissions from Processing and Hauling activities	Standard County Dust Control Measures	Less than Significant (Class III)
Impact ALT2-AQ-2. Consistency with the Air Quality Attainment Plan	No mitigation required	Less than Significant (Class III)
Impact ALT2-AQ-3. Greenhouse Gas Emissions from Construction Activities	No mitigation required	Less than Significant (Class III)