3.1 Air Quality and Greenhouse Gas Emissions

3.1.1 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 Project. The information in this section is based on emission estimates prepared for the proposed Project by Amec Foster Wheeler (Appendix C); an odor analysis prepared for the proposed Project by Criterion Environmental Inc. (2014) (Appendix D); a review of background documents including the 2013 Clean Air Plan (CAP) for the County of Santa Barbara, the Santa Barbara County Comprehensive Plan Land Use Element Air Quality Supplement; and using the County of Santa Barbara Environmental Thresholds and Guidelines Manual (2015).

3.1.2 Environmental Setting

This section discusses the existing conditions related to air quality and GHG emissions at the Project site. The California Air Resources Board (ARB) has divided California into regional air basins according to topographic drainage features. The Project site 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).

3.1.2.1 Topography and Meteorology

The County of Santa Barbara's climate is characterized as Mediterranean, with warm dry summers and cooler, mild winters. Approximately 90 percent of the 18 inches of average annual rainfall occurs between November and April. Precipitation in Santa Barbara County varies considerably as a function of distance from the coast, elevation, and topography, and large fluctuations in annual rainfall are common. Coastal areas of the County 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. Nighttime average minimum temperatures are 50° to 55°F over most of the County. In January, the average minimum temperatures range from 42° to 49°F along the coast.

The meteorology of the coastal areas in the County 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 system is particularly persistent in the late spring, summer, and early fall, leading to limited rainfall, 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. 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 the County occurs during migratory storms.

Santa Ana winds are northeasterly winds that occur primarily during fall and winter. Santa Ana winds are often preceded by Sundowner winds. These warm, dry winds blow from the high inland desert

and descend the slopes of the coastal mountain range. During Santa Ana conditions, pollutants emitted in the counties of Santa Barbara and Ventura, and the South Coast Air Basin (Los Angeles region) are transported to the sea. These pollutants can then transport back onshore in what is called a post-Santa Ana condition.

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.

Temperature inversions result when cool, stable air lies below warmer air aloft. 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. 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 (County of Santa Barbara 1982). Inversions act as a cap to the pollutants that are emitted below or within the inversion, 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. 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.

3.1.2.2 Sensitive Receptors

Some persons 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 of time. 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 Project site is considered a sensitive land use as it is a secondary school campus and contains a preschool and residences for 220 students as well as faculty members and their families. Other sensitive receptors near the Project site are residential uses in the Project vicinity. The closest residences are located between 300 and 1,000 feet of the Cate School campus property. Residences on adjacent lands to the north are approximately 400 feet from the Cate School campus property line. A few rural residences are located along Lillingston Canyon Road to the east, approximately 300 to 1,000 feet from the Cate School campus. There are also rural residences to the southeast along Gobernador Canyon Road, located at least 600 feet from the Cate School campus (see Figure 3.3-1).

3.1.2.3 Ambient Air Monitoring

The SBCAPCD is responsible for monitoring air quality in the Santa Barbara 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. Monitoring stations measure a number of

different variables including wind direction, wind speed, outdoor temperature, relative humidity, barometric pressure, solar radiation total hydrocarbons, ozone (O_3), nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), Hydrogen Sulfide (H_2S), particulate matter less than 2.5 microns in diameter (PM2.5), and particulate matter less than 10 microns in diameter (PM10). The stations are categorized as Prevention of Significant Deterioration (PSD) stations or State and Local Air Monitoring Stations (SLAMS). In Santa Barbara, the Carpinteria air monitoring station is the closest to the Project site and is a PSD station located approximately one mile east of the Project site, and monitors O_3 and nitrogen dioxide (NO_2). The second closest station is the Santa Barbara air monitoring station, a SLAMS station located approximately twelve miles west and monitors O_3, PM2.5, and PM10 (SBCAPCD 2014). Monitoring results for criteria pollutants at the Carpinteria and Santa Barbara air monitoring stations for the past four years, along with the state and national standards, are shown in Table 3.1-1.

Table 3.1-1. Summary of Air Quality Data

Pollutant	California Standard	Federal Primary Standard	Year	Maximum[c] Concentration	Days (Samples) State/Federal Std. Exceeded
1-hour Ozone O_3[a]	0.09 ppm for 1 hour	No Separate Standard[d]	2012 2013 2014	0.094 ppm 0.081 ppm 0.112 ppm	0/0 0/0 3/0
8-hour Ozone O_3[a]	0.070 ppm for 8 hours	0.075 ppm for 8 hours	2012 2013 2014	0.074 ppm 0.072 ppm 0.089 ppm	1/0 1/0 4/7
Fine Particulate Matter PM2.5[b]	No Separate Standard	35 µg/m³ for 24 hours	2012 2013 2014	31.0 µg/m³ 19.8 µg/m³ 24.1 µg/m³	NA/0 NA/0 NA/0
Particulate Matter PM10[b]	50 µg/m³ for 24 hours	150 µg/m³ for 24 hours	2012 2013 2014	58.7 µg/m³ 61.0 µg/m³ 55.2 µg/m³	1/NA 3/0 3/0

Source: ARB 2015.

[a] Data collected from the Carpinteria monitoring station located at Gobernador Canyon Road, Carpinteria, California 93013.

[b] Data collected from the Santa Barbara monitoring station located at 700 East Canon Perdido, Santa Barbara, California 93101.

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

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

Abbreviations: ppm = parts per million; µg/m³= micrograms per cubic meter

In April 2012, the County was designated unclassifiable/attainment for the 2008 federal 8-hour O_3 standard. In 2006, the State of California implemented a statewide 8-hour O_3 standard of which the County is currently in violation. The County of Santa Barbara is also in violation of the state standard for PM10 and designated as unclassifiable/attainment for the federal PM2.5 standard and unclassified for the state PM2.5 standard (based on monitored data from 2007 – 2009) (SBCAPCD 2013). Table 3.1-2 identifies the attainment and nonattainment pollutant designations for Santa Barbara County.

Table 3.1-2. Santa Barbara County Attainment/Nonattainment Classification Summary 2013

	California		Federal	
Pollutant	**Standard**	**Attainment Status**	**Primary Standard**	**Attainment Status**
1-hour O_3	0.09 ppm	N	N/A	--
8-hour O_3	0.070 ppm	N	0.075 ppm	U/A[1]
1-hour CO	20 ppm	A	35 ppm	A
8-hour CO	9.0 ppm	A	9.0 ppm	A
1-hour NO_2[3]	0.18 ppm	A	0.100 ppm	U/A
Annual Average NO_2[3]	0.03 ppm	A	0.053 ppm	U/A
1-hour SO_2	0.25 ppm	A	Revoked	--[4]
24-hour SO_2	0.04 ppm	A	Revoked	--
24-hour PM2.5	No Separate Standard	--	35 $\mu g/m^3$ [2]	U/A
24-hour PM10[2,]	50 $\mu g/m^3$	N	150 $\mu g/m^3$	A

Source: SBCAPCD 2013.

[1] The U.S. Environmental Protection Agency (USEPA) strengthened the 8 hour ozone standard from the 1997 level of 0.08 ppm to 0.075 ppm on May 27, 2008, but delayed implementation of the standard. Designations for the 2008 standard were finalized on April 30, 2012. For more information, see USEPA's website.

[2] USEPA strengthened the 24-hour fine particle standard from the 1997 level of 65 $\mu g/m^3$ to 35 $\mu g/m^3$ on September 21, 2006. The annual standard was strengthened from 15 to 12.0 $\mu g/m^3$ on January 15, 2013.

[3] The state NO_2 ambient air quality standard was amended on February 22, 2007, to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. On January 22, 2010, USEPA set a new 1-hour NO_2 standard of 100 ppb. They also retained the annual NO_2 standard of 53 ppb.

[4] USEPA has not yet made final designations on attainment status. For more information, see USEPA's website.
Abbreviations: A=Attainment; N=Nonattainment; U=Unclassified; U/A=Unclassifiable/Attainment; mg/m^3=milligrams per cubic meter; ppm=parts per million; $\mu g/m^3$=micrograms per cubic meter

3.1.2.4 Common Air Pollutants

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

Ozone: O_3 occurs in two layers of the atmosphere, the troposphere and the stratosphere. The layer surrounding the Earth's surface is the troposphere, which 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 that forms from complex chemical reactions involving volatile organic compounds (VOCs), nitrogen oxides (NO_x), and sunlight. VOCs and NO_x are referred to as ozone precursors and 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 NO_x and VOC emissions 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 percent 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. NO_2 (often reported as total 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 (*PM10*):* PM10 refers to suspended particulate matter, which is smaller than 10 microns or 10 one-millionths of a meter. PM10 arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM10 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 (*PM2.5*):* 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 PM2.5 standards have been created. Particulate matter impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. 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).

3.1.2.5 Odors

Odors often consist of a mixture or blend of various odorous and/or volatile organic compounds. A human's odor detection sensitivity varies from person to person and also differs between genders and among age groups. Since the detection of odors is widely variable, the odor intensity (the perceived strength of the odor sensation) is also variable among people. In addition, categorizing odors into

pleasant fragrances or unpleasant odors varies among people. There are many factors that should be considered when determining the reaction or response to an odor such as: intensity, distance from the source, duration, frequency, offensiveness, location, potential hazards, etc. "Nuisance odors" are generally those types of odors that do not pose a hazard or health risk and which may be offensive to some and innocuous to others. Odors are not regulated under the Federal or State Clean Air Acts; however, they are considered under the California Environmental Quality Act (CEQA).

The existing wastewater treatment facility currently generates some objectionable noxious odors as a result of the nature of wastewater treating and processing wastewater within a treatment facility. The wastewater treatment facility is located along the northern property line, near the athletic field and baseball fields. Typically, odors released include hydrogen sulfide (H_2S) and other sulfur based compounds along with other similar odorous compounds such as mercaptans, amines, and ammonia (Criterion Environmental Inc. 2014). Wastewater processes include influent screening, flow equalization, extended aeration, sludge holding, tertiary filtration, disinfection, and de-chlorination to meet state standards for reuse of effluent as irrigation water. The potential sources of odor are the flow equalization chamber and the sludge holding chambers.

Odors from the wastewater treatment plant were measured from samples taken over a two-week period in September 2014 in order to document existing levels of odor generated by Cate School's wastewater treatment plan (see Appendix D). The sampling results for H_2S and 20 sulfur based compounds were all below the laboratory reporting limit of 20 parts per billion (ppb). The samples did not yield detectable ammonia levels. Based on field and laboratory test results in accordance with ASTM D5504 and USEPA Method TO15, no odorous substances were found at levels in excess of applicable air quality regulations and results were well below the California Occupational Safety and Health Administration (Cal OSHA) and USEPA reporting limits for hazardous compounds (Criterion Environmental Inc. 2014; see Appendix D).

3.1.2.6 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 (GWP) 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 percent and 10 percent 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 one percent) to atmospheric concentrations of water vapor. The Intergovernmental Panel on Climate Change (IPCC) has not determined a GWP for water vapor.

- *Carbon Dioxide:* 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 annual average concentration of CO_2 in the atmosphere has increased 36 percent. CO_2 is the most widely emitted GHG and is the reference gas (GWP of 1) for determining GWPs 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[1]. Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The USEPA adopted GWP 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 (used to produce nylon) production, and nitric acid production. The USEPA adopted GWP 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 USEPA adopted GWPs 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 GWP 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 USEPA adopted GWPs 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 GWP of 23,900. However, its global warming contribution is not as high as the USEPA adopted GWP 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

[1] Fermentation that takes place in the digestive systems of animals.

to a consumption cap and gradual phase out of HCFCs. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The USEPA adopted GWPs 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 USEPA adopted GWP 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 USEPA'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 USEPA adopted GWPs ranging from 4,600 for CFC 11 to 14,000 for CFC 13.

3.1.3 Regulatory Setting

Air quality problems in the County of Santa Barbara 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.

3.1.3.1 Ambient Air Quality Standards

3.1.3.2 Federal and State Standards

Both the State of California and the Federal Government have established ambient air quality standards for several pollutants, a summary of which is provided in Table 3.1-2. 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).

3.1.3.3 State

3.1.3.4 California Clean Air Act

ARB ensures implementation of the California Clean Air Act (CAA) and responds to the Federal CAA. ARB is responsible for the control of mobile emission sources, while the local air districts are responsible for enforcing standards and regulating stationary sources.

3.1.3.5 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).

3.1.3.6 Local

3.1.3.7 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.

3.1.3.8 County of Santa Barbara Clean Air Plan

The Federal CAA Amendments of 1990 and the California CAA 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 CAP is the three year update required by the State of California 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 (SBCAPCD 2011). Recently, on March 19, 2015 the three year update of this document, the SBCAPCD 2013 CAP was adopted. This 2013 CAP satisfies both state and federal planning requirements (SBCAPCD 2015).

3.1.3.9 Energy and Climate Action Plan (ECAP)

On May 19th, 2015, the County of Santa Barbara's Board of Supervisors adopted the ECAP and certified the Final EIR for the project (State Clearing House #20144021021). The ECAP includes county and community-wide government operations measures, which recognize many of the County's existing policies and initiatives to address energy efficiency. The ECAP provides a combination of voluntary, phased, and mandatory measures to achieve the GHG reduction goal of 15 percent below baseline (2007) levels by 2020. The ECAP will achieve an overall reduction in community-wide GHG emissions (County of Santa Barbara 2015a).

The ECAP achieves its GHG reductions through Emission Reduction Measures (ERMs). Most of the ERMs are voluntary and aim to incentivize the community to implement energy and GHG reduction measures through education and outreach. A principle strategy of the ECAP is to incorporate and maximize, to the greatest extent feasible, existing county projects, policies, and programs that will contribute to the ECAP's GHG reduction goal.

The ECAP is designed as a Qualified GHG Reduction Plan, consistent with CEQA Guidelines Section 15183.5(b). This allows for the streamlining of the analysis of GHGs on a project level by using a programmatic GHG reduction plan meeting certain criteria. As individual projects are proposed, project-specific environmental documents may tier from and/or incorporate via reference the existing programmatic review in their cumulative impacts analysis. Project-specific analysis of GHG emissions is required if GHG emissions from a project would be cumulatively considerable notwithstanding compliance with the proposed ECAP.

3.1.3.10 County of Santa Barbara Comprehensive Plan, Land Use Element, Air Quality Supplement

The County of Santa Barbara was an area which exceeded the federal ambient air quality standard for ozone, a regional pollutant. As such, 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 O_3 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 Air Quality Supplement to the Land Use Element in the Santa Barbara County Comprehensive Plan, adopted in 1981 and republished in May 2009. These land use measures aid in future air quality planning efforts and present a coordinated approach to integrating air quality planning techniques into the County's land use planning program. Such measures include the promotion of alternative transportation, directing new development within established urbanized areas, and restricting the development of auto-dependent facilities.

3.1.4 Environmental Impact Analysis

This section discusses the potential air quality and GHG emissions impacts associated with the construction and operation of the proposed Project. Air quality and GHG emissions impacts associated with the proposed Project are summarized in Table 3.1-4.

3.1.4.1 Thresholds of Significance

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 and the County of Santa Barbara Environmental Thresholds and Guidelines Manual.

3.1.4.2 CEQA Guidelines

Pursuant to Appendix G, implementation of the proposed Project would have a significant impact on air quality if the proposed Project would result in any of the following:

- Conflict with or obstruct implementation of the SBCAPCD's adopted CAP;
- 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; or
- Create objectionable odors affecting a substantial number of people.

3.1.4.3 County of Santa Barbara Environmental Thresholds and Guidelines Manual

According to the County's Environmental Thresholds and Guidance Manual, the Project would have a significant impact if it individually or cumulatively results in any of the following:

a. 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).

b. Equals or exceeds the state or federal ambient air quality standards for any criteria pollutant (as determined by modeling).

c. Produces emissions which may affect sensitive receptors (e.g. children, elderly or acutely ill).

d. Produces toxic or hazardous air pollutants in amounts which may increase cancer risk for the affected population.

e. 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 by assessing CO emissions and ozone precursors. In order to determine if a project exceeds these quantitative thresholds, the expected emissions of these pollutants from the project must be calculated. However, if a project contributes to less than 800 trips, then CO modeling is not required.

The proposed Project would not have a significant air quality effect on the environment, if operation of the project would:

- Emit (from all project sources, mobile and stationary), less than the daily trigger for offsets for any pollutant (currently 55 pounds per day for NOx and ROC, and 80 pounds per day for PM10);
- Emit less than 25 pounds per day of oxides of nitrogen (NO_x) or reactive organic compounds (ROC) from motor vehicle trips only;
- Not cause or contribute to a violation of any California or National Ambient Air Quality Standard (except ozone);
- Not exceed the APCD health risk public notification threshold adopted by the APCD Board; and
- 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 PM10; however, the effects of PM10 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 PM10; therefore dust mitigation measures are required for all discretionary construction activities.

Short-term thresholds for NOx 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.

3.1.4.4 Greenhouse Gas Emissions

State CEQA Guidelines Section 15183.5(a) states,

Lead agencies may analyze and mitigate the significant effects of greenhouse gas emissions at a programmatic level, such as in…a separate plan to reduce greenhouse gas emissions. Later project-specific environmental documents may tier from…that existing programmatic review…a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project complies with the requirements in a previously adopted plan…

As discussed above, in May 2015, the County of Santa Barbara Board of Supervisors adopted the ECAP which includes a GHG forecast for unincorporated Santa Barbara County to 2035 and otherwise meets the criteria in CEQA Guidelines Section 15183.5(b) for a "plan to reduce greenhouse gas emissions."

The ECAP commits the County to reduce community-wide greenhouse gas emissions by 15 percent below 2007 levels by 2020 consistent with the California Global Warming Solutions Act of 2006 (AB 32) and the related *Climate Change Scoping Plan* (California Air Resources Board 2008). The ECAP concludes that the County can meet this emission reduction target by implementing 53 existing and new county projects, policies, and programs ("emission reduction measures"), such as an energy checklist for residential building permits (BE 2), energy efficiency education and outreach programs (BE 4), and additional opportunities to recycle cardboard, glass, paper, and plastic products (WR 2). As a result, specific projects included in the ECAP's emission forecast are not currently required to incorporate emission reduction measures listed in the ECAP or any other mitigation measures to reduce greenhouse gas emissions. Concurrent with the ECAP, the Board of Supervisors also adopted an amendment to the Energy Element of the Comprehensive Plan that requires the County to monitor progress meeting the emission reduction target and, as necessary, update the ECAP.

The growth estimates used in the ECAP's greenhouse gas emissions forecast were based on the *Santa Barbara County Regional Growth Forecast 2005-2040* (Santa Barbara County Association of Governments 2007) and the 2010 U.S. Census. The growth estimates were based on factors such as population projections, vehicle trends, and planned land uses. The sources of greenhouse gas emissions included various sectors, such as transportation, residential energy, commercial energy, off-road, solid waste, agriculture, water and wastewater, industrial energy, and aircraft. As a result, most residential and commercial projects that are consistent with the County's zoning (in 2007) were included in the forecast. However, certain projects were not included in the emissions forecast, such as stationary source projects (e.g., large boilers, gas stations, auto body shops, dry cleaners, oil and gas production facilities, and water treatment facilities), Comprehensive Plan amendments, and community plans that exceed the County's projected population and job growth.

A proposed project that was included in the ECAP's emissions forecast may tier from the ECAP's EIR for its CEQA analysis of greenhouse gas emissions. A project that tiers from the ECAP's EIR is considered to be in compliance with the requirements in the ECAP and, therefore, its incremental contribution to a cumulative effect is not cumulatively considerable (Class III).

3.1.4.5 Methodology

3.1.4.6 Construction Emissions

Construction emissions consist of vehicle and equipment exhaust and fugitive dust. Construction of the Project would be phased over a period of several years. The analysis is based on the following phases of construction:

Phased construction of the Project would also involve grading, the construction of new primary drainage and storm water management infrastructure, landscaping and expansion of disposal and recycling facilities (see Section 2.9, *Project Description* for further detail). Site disturbance activities would generate PM10 emissions. Emissions of ozone precursors (NO_x and ROC) during construction would result primarily from emissions from heavy earthmoving equipment used onsite and truck deliveries. The construction timeline of the proposed Project is currently unknown; the implementation and timing of each phase would be subject to available funds.

Table 3.1-3. Project Construction Phases

Construction Phase		Duration of Construction
1.	Dining Commons, Arts Expansion and West Basin/Tanks.	16 months
2.	Freshman Quad; Dorms 1 and 2 and Circular Road Turnaround.	14 months
3.	Multipurpose Building	12 months
4.	Freshman Quad; Dorms 3 and 4, '25 House Replacement, Underground Garage and new Classroom Building	21 months
5.	Replacement Dorms A and B, and Single Family Residence Number 32	8 months
6.	Faculty Housing and South Tanks	6 months
7.	Sprague Gym Addition	4 months
8.	Squash Pavilion	6 months

The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to calculate criteria pollutant and GHG emissions for the Project. The following potential sources of emission were considered in the analysis:

- Site grading, earthwork, and other construction activities during the construction phases for various Project facilities. During grading operations, standard dust control and construction best management practices would be implemented. Additional requirements would be specified in detail during the design of final engineered drawings prior to issuance of grading permits;
- Vehicles and equipment driving on paved roads (both on- and off-site) during construction and operations. It is anticipated that 500 round trip offsite truck loads would be required to support the proposed site grading; and
- Vehicles and equipment driving on the unpaved onsite roads during operations.

3.1.4.7 Operational Emissions

Project-generated operational emissions were also calculated using CalEEMod. This includes air emissions generated from mobile sources and vehicle trips. For the purposes of this analysis, mobile emissions have been calculated based on a conservative estimate of 111 average daily trips (ADT) and an annual average of 96,741 vehicle miles traveled (VMT) (ATE 2015, see Appendix G). Emissions generated from energy, architectural coatings, and landscaping were also estimated using CalEEMod. Emissions from stationary sources include two emergency diesel generators.

3.1.4.8 Project Impacts

Table 3.1-4 below provides a summary of the impacts related to air quality from the Project. The discussion of the impact follows, and mitigation measures are presented in Section 3.1.4.4.

Table 3.1-4. Summary of Air Quality and Greenhouse Gas Emissions Impacts

Air Quality and Greenhouse Gas Emissions Impacts	Mitigation Measures	Residual Significance
Impact AQ-1. Impact AQ-1. Increased air emissions from Project construction activities.	MM AQ-1a. MM AQ-1b.	Less than significant with mitigation (Class II)
Impact AQ-2. Operational air emissions from the proposed Project.	No mitigation required	Less than significant (Class III)
Impact AQ-3. Greenhouse gas emission from the proposed Project.	No mitigation required	Less than significant (Class III)
Impact AQ-4. Increases in odor resulting from the proposed Project.	No mitigation required	Less than significant (Class III)
Impact AQ-5. Consistency with the Clean Air Plan.	No mitigation required	Less than significant (Class III)
Impact AQ-6. Consistency with the Energy and Climate Action Plan.	No mitigation required	Less than significant (Class III)

Impact AQ-1. Increased air emissions from Project construction activities.

Construction, including grading activities, would involve use of equipment and materials that would emit ozone precursor emissions (i.e., ROCs and NO_x) as well as emissions of particulate material (PM10 and PM2.5). Construction activities would also result in the emission of other criteria pollutants from equipment exhaust, construction-related vehicular activity and construction worker automobile trips. Emission levels for construction activities would vary depending on the number and type of equipment, duration of use, operation schedules, and the number of construction workers. Emissions of ROC and NO_x from these sources would incrementally add to the regional atmospheric loading of ozone precursors during Project construction.

As discussed above, the County has not established short-term construction-related thresholds for air emissions; this includes emissions of PM10, PM2.5, CO, ROCs, NO_x, and SO_2 from construction activities. However, the SBCAPCD requires disclosure of these emissions for all projects that would include ground-disturbance activities. Estimated construction emissions from the CalEEMod analysis are summarized in Table 3.1-5.

Table 3.1-5. Estimated Annual Construction Emissions

Activity (Est. Construction Year)	Criteria Pollutants (annual tons per phase)[1]					
	PM10	**PM2.5**	**CO**	**ROC**	**NO_X**	**SO_2**
Phase 1 (2016)	0.34	0.29	3.69	1.75	6.75	0.0078
Phase 2 (2017)	0.28	0.24	3.20	0.90	5.88	0.0075
Phase 3 (2018)	0.18	0.16	2.34	0.80	3.90	0.0060
Phase 4 (2018, 2019, 2020)	0.48	0.41	7.01	1.48	10.62	0.0027
Phase 5 (2020, 2021)	0.11	0.09	1.72	0.67	2.26	0.0048
Phase 6 (2021)	0.09	0.07	1.45	0.64	1.87	0.0043
Phase 7 (2021, 2022)	0.03	0.03	0.58	0.19	0.64	0.0018
Phase 8 (2022)	0.06	0.05	1.24	0.27	1.31	0.0038
Total	**1.57**	**1.34**	**21.23**	**6.70**	**33.23**	**0.0387**

[1]Refers to tons per phase on an annualized basis.
Source: Amec Foster Wheeler 2015. See Appendix C.

Particulate emissions from diesel exhaust are classified as a carcinogen by the State of California, so projects which have the potential to affect sensitive receptors or very large projects, are required to implement PM and NO_x reduction measures. Fugitive dust emissions are included in the construction emissions presented in Table 3.1-5, and assume compliance with standard County conditions for dust control. 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 six percent of the 1990 County-wide emission inventory for NO_x (County of Santa Barbara 2015b). In general, the County considers this amount to be less than significant.

Due to the non-attainment status of the air basin for ozone, the Project should implement measures recommended by the SBCAPCD 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. Standard dust control and diesel exhaust measures as outlined in the APCD 2015 Scope and Content document would reduce short term dust and PM10 impacts and precursor ozone emissions (SBCAPCD 2015). Mitigation Measures (MM) AQ-1a and b would ensure that short-term air quality emissions generated from construction activities would be reduced to below County of Santa Barbara significance thresholds. Consequently, air quality impacts from construction activities would be *less than significant with mitigation* (Class II).

Impact AQ-2. Increased air emissions from operation of the proposed Project.

Operational emissions for the proposed Project would be generated primarily from on-road vehicles, area sources (such as landscaping equipment), architectural coatings, and by the natural gas combustion of the additional square footage of the portables proposed, as well occasional emissions from the two diesel emergency generators.

Operational emission s for mobile sources are based on assumptions of CalEEMod and USEPA's AP-42 emission factor calculation guidance. The results of this analysis are summarized in Table 3.1-6. The proposed Project would slightly increase ADTs and VMTs with the proposed increase of student enrollment from 280 to 300, day care enrollment from 17 to 28, and staff increases including two additional maintenance staff over the course of build-out and two additional childcare employees. Additionally, the Project would allow for an additional 15-20 faculty to reside on-site. Therefore, there would be a slight increase in vehicle trips and associated air emissions compared to existing conditions (see Section 4.12, *Transportation/Circulation*).

The proposed Project would also increase the total building area of the Cate School campus with a net addition of 154,279 sf. This would result in increased emissions from architectural coatings and indirect emissions from increased energy usage. Emissions from the diesel emergency generators would not occur on a regular basis as they would only be used occasionally for testing/maintenance and in the event of an emergency. Overall, the increase in operational emissions would be incremental. As shown in Table 3.1-6, PM10, PM2.5, CO, ROC, NO_x, and SO_x emissions from the proposed Project would be below the applicable thresholds and therefore, the Project would have a *less than significant* impact as a result of operational emissions.

Table 3.1-6. Estimated Maximum Daily Mitigated Operational Emissions

Activity	Criteria Pollutants (lbs/day)					
	PM10	**PM2.5**	**CO**	**ROC**	**NOx**	**SOx**
Vehicle Emissions	0.2919	0.0811	1.8287	0.2398	0.3435	0.004
Energy	0.0183	0.0183	0.2017	0.0264	0.2402	0.00114
Architectural coatings	0.00012	0.00012	0.0335	1.577	0.00031	0.0000
Total	**0.3102**	**0.0995**	**2.064**	**1.8433**	**0.584**	**0.00544**
County Significance Thresholds	80 lbs/day	--	--	55 lbs/day	55 lbs/day	--
Exceed threshold at any site?	No	No	No	No	No	No

Source: Amec Foster Wheeler 2015, see Appendix C.

Long-term operations that would be associated with the Project would result in few toxic air contaminants. Minor emissions would be associated with the additional vehicle exhaust. As a result, the proposed Project would not result in impacts from the generation of toxic air contaminants from operational emissions.

Overall, emissions associated with operation of the proposed Project would be *less than significant* (Class III).

Impact AQ-3. Greenhouse gas emissions from the proposed Project.

The proposed Project is expected to result in direct emissions of GHGs from various sources including vehicular traffic associated with new construction and continued operation of the facility; residential energy use (electricity and natural gas for lighting, heating, and cooling); and off-road emissions from construction and lawn/garden equipment. This type of individual project's expected GHG emissions were included in the ECAP's forecasted 2020 emissions[2]. As such, the Project may tier from the ECAP's EIR for its CEQA analysis of GHG emissions; and the Project is considered to be in compliance with the requirements in the ECAP, which include specific county-wide measures to reduce GHG emissions. Therefore, this impact would be *less than significant* (Class III).

For informational purposes however, the estimated annual construction and operational GHG emissions for the Project were estimated and are presented in Appendix C.

Impact AQ-4. Increases in odor resulting from the proposed Project.

As described in Section 3.1.2.5, *Odors* above, odors from wastewater treatment facilities are typically associated with biological activity that produces gaseous inorganic compounds. Odorous compounds produced from wastewater treatment plant operations include hydrogen sulfide, organic sulfur compounds, ammonia, and other nitrogen-containing compounds. Changes in the quantity of flows and loads treated at the plant would determine future odor conditions at and around the plant.

[2] Examples of the types of projects excluded from the ECAP's forecasted emissions include General Plan amendments and community plans or specific plans that exceed the County's proposed population and job growth forecast; landfill gas output; rail, and marine and shipping operations; transportation on incorporated local roads and on County-maintained roads not originating or terminating in the County; aircraft operations at non-County owned facilities; and some stationary sources.

The closest residences to the wastewater treatment plant are located 500 feet north of Cate School, near the northern boundary of the Project site. Residences to the north of the wastewater treatment facility are located upgradient at an elevation of approximately 80 feet above the wastewater treatment facility. While there is a potential for some odor impacts to occur as a result of increasing throughput at the wastewater treatment facility, the existing topography and vegetation reduces the diffusion of these odors. Baseline odors from the wastewater treatment plant were measured from samples taken over a two-week period in September 2014 and samples were all below the laboratory reporting limit of 20 parts per billion (ppb). The samples did not yield detectable ammonia levels. Based on field and laboratory test results in accordance with ASTM D5504 and USEPA Method TO15, the Air Quality Assessment Report found that no odorous substances were found at levels in excess of applicable air quality regulations and results were well below the Cal OSHA and USEPA reporting limits for hazardous compounds (Criterion Environmental Inc. 2014; see Appendix D).

As a result of the Project, the wastewater treatment plant would experience roughly a 30 percent increase in throughput. In order to determine potential impacts of the Project related to odors, an assessment of odor generation was conducted. The Project does not propose to increase the surface areas of storage tanks within the wastewater treatment system, which are the largest source of odors. The Project would only increase throughput, and increases in odor concentrations are conservatively estimated on a linear scale in proportion to the 30 percent increase in wastewater treatment under the proposed Project. Table 3.1-7 below summarizes the odor analysis.

Table 3.1-7. Estimated Odor Levels Resulting from the Project

	Odorous Compounds				
	Carbon Disulphide	**Chloromethane**	**Methanol**	**Acetone**	**Ethanol**
Maximum ppb[1]	3.31	0.70	12.00	5.83	6.86
Density (kg/m^3)	1.2600	1.0030	1.4157	2.5508	0.0850
Concentration (mg/m^3)	0.0042	0.0007	0.0170	0.0149	0.0006
Odor Threshold[7]	0.05 (mg/m^3)[2]	10,000 ppb[3]	8,900 ppb[4]	2,000 ppb[5]	84,000 ppb[6]
Exceed threshold?	No	No	No	No	No

Note: Odor levels shown are based on a 30 percent increase from those stated in the Air Quality Assessment Report in Appendix D. This linear increase in odors is a conservative estimate resulting from a 30 percent increase in wastewater treatment under the proposed Project.

[1]Source: Criterion Environmental Inc. 2014.

[2]Source: Agency for Toxic Substances and Disease Registry (ATSDR) 1996.

[3]Source: ATSDR 1998.

[4]Source: National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances (NAC/AEGL) 2005.

[5]Source: New Hampshire Department of Environmental Services 2013.

[6]Source: New Jersey Department of Health 2011.

[7]While CEQA and the County of Santa Barbara do not contain specific quantitative thresholds for odors, other known quantitative thresholds have been applied for this analysis.

Abbreviations: ppb = parts per billion; kg/m3 = kilogram per cubic meter; milligram per cubic meter.

See Appendix D.

All odor impacts are expected to be below common odor thresholds; however, there remains the potential for odors to present a nuisance to neighbors.

In addition, odors may be generated from the new dining facility. Odors would be similar to other dining establishments and would not be hazardous to public health. Given the location of the proposed dining facility within the campus, odors are not anticipated to be noticeable to offsite sensitive receptors or nearby residences north of the Cate School campus. Therefore, impacts related to odors would be *less than significant* (Class III).

Impact AQ-5. Consistency with the Clean Air Plan.

Consistency with local and regional plans, such as the CAP, is required under CEQA. Consistency with the CAP means that stationary and vehicle emissions associated with the proposed Project are accounted for in the CAP's emissions growth assumptions. The CAP generally relies on the land use and population projections provided in the SBCAG Regional Growth Forecast (SBCAG 2012).

The increase in operational emissions associated with the Project is based on ADT increases and energy usage increases resulting from an incremental population growth on campus and additional facilities. The level of growth on campus is consistent with projections in the CAP. As indicated in the above analysis of air quality Impacts AQ-1 through AQ-4, the proposed Project would not result in significant and unavoidable air quality impacts. Therefore, the Project is consistent with the 2013 CAP and would not conflict with or obstruct implementation of the applicable air quality plan. As a result, impacts related to consistency with the CAP would be *less than significant* (Class III).

Impact AQ-6. Consistency with the Energy and Climate Action Plan.

The recently approved ECAP by the County is designed as a Qualified GHG Reduction Plan, consistent with CEQA Guidelines Section 15183.5(b), which provides a programmatic GHG reduction plan to streamline project level analysis. Based on this structure of the ECAP, a project which is consistent with it would simultaneously be consistent with AB 32 and Executive Order S-3-05. The proposed Project was evaluated for consistency with the ECAP.

The proposed Project does not conflict with any of the GHG reduction measures included in the ECAP, and GHG increases associated with the increase in enrollment and faculty and expansion of facilities are in line with forecasts contained in the ECAP. As a result, the proposed Project is consistent with the ECAP and impacts related to consistency with the ECAP would be *less than significant* (Class III).

3.1.4.9 Proposed Mitigation Measures

MM AQ-1a. ***Dust Control.*** *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 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 two days or treat with soil binders to prevent dust generation. Reapply as needed.

h. If the site is graded and left undeveloped for over four 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 APCD.

Plan Requirements and Timing. These dust control requirements shall be noted on all grading and building plans. The contractor or builder shall provide Planning and Development monitoring staff and SBCAPCD 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. The dust monitor shall be designated prior to Zoning Clearance issuance. The dust control components apply from the beginning of any grading or construction throughout all development activities until Final Building Inspection Clearance is issued and landscaping is successfully installed.

Monitoring. Planning and Development processing planner shall ensure measures are on plans. Planning and Development grading and building inspectors shall spot check; Grading and Building shall ensure compliance onsite. SBCAPCD inspectors shall respond to nuisance complaints.

MM AQ-1b. ***Equipment Exhaust Measures.*** *The following is a list of regulatory requirements and control strategies that should be implemented to the maximum extent feasible. Measures shall be shown on grading and building plans, and shall be adhered to throughout grading, hauling and construction activities.*

a. All portable diesel-powered construction equipment shall be registered with the state's portable equipment registration program or shall obtain a SBCAPCD permit.

b. Fleet owners of mobile construction equipment are subject to the California ARB Regulation for In-use Off-road Diesel Vehicles (Title 13 California Code of Regulations, Chapter 9, § 2449), the purpose of which is to reduce diesel particulate matter (PM) and criteria pollutant emissions from in-use (existing) off-road diesel-fueled vehicles.

c. All commercial diesel vehicles are subject to Title 13, § 2485 of the California Code of Regulations, limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to five minutes; electric auxiliary power units should be used whenever possible.

d. Diesel construction equipment meeting the California ARB Tier 1 emission standards for off-road heavy-duty diesel engines shall be used. Equipment meeting California ARB Tier 2 or higher emission standards should be used to the maximum extent feasible.

e. Diesel powered equipment should be replaced by electric equipment whenever feasible.

f. If feasible, diesel construction equipment shall be equipped with selective catalytic reduction systems, diesel oxidation catalysts and diesel particulate filters as certified and/or verified by USEPA or the California ARB.

g. Catalytic converters shall be installed on gasoline-powered equipment, if feasible.

h. All construction equipment shall be maintained in tune per the manufacturer's specifications.

i. The engine size of construction equipment shall be the minimum practical size.

j. The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.

k. Construction worker trips should be minimized by requiring carpooling and by providing for lunch onsite.

Plan Requirements and Timing. The applicant would be required to show measures on grading and building plans and adhere to measures throughout all grading, hauling, and construction activities.

Monitoring. Lead agency would perform periodic site inspections to ensure compliance with approved plans. SBCAPCD inspectors would respond to nuisance complaints.

3.1.4.10 Residual Impacts

Construction and operations associated with the proposed Project would generate emissions as discussed in Impacts AQ-1 through AQ-3 above. Residual impacts to Impact AQ-1 would be less than significant after mitigation (Class II). Residual impacts from Impacts AQ-2 and AQ-3 would be less than significant (Class III). The proposed Project would also incrementally increase odors resulting from the wastewater treatment plant as discussed in Impact AQ-4; however, residual impacts would be *less than significant* (Class III). Residual impacts related to consistency with the CAP and ECAP would be less than significant (Class III).

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