Section 3.3
Air Quality and Greenhouse Gas Emissions

3.3.1 Introduction

This section describes the affected environment and regulatory setting for air quality and greenhouse gas (GHG) emissions in Santa Barbara County (County). It also describes the impacts on air quality and GHG emissions that would result from implementation of the proposed Cannabis Land Use Ordinance and Licensing Program (Project), and mitigation measures to reduce identified impacts where possible. This section is based on the results of the 2017 Non-Personal Cannabis Cultivation and Related Operations Registry Program (2017 Cannabis Registry), the County Clean Air Plan, the County Comprehensive Plan Land Use Element – Air Quality Supplement, and the County Climate Action Plan, and information from recent environmental documents prepared for the County.

3.3.2 Environmental Setting

This section discusses the existing air quality and GHG conditions related to the Project area, which consists of the entire land area of the County, including criteria pollutant levels and emissions. The California Air Resources Board (CARB) has divided California into 15 regional air basins according to topographic drainage features. Each basin is further divided into air pollution control districts (APCDs), which are responsible for managing and enforcing air quality regulations within their districts.

The proposed Project is located in the South Central Coast Air Basin (SCCAB), which is comprised of three districts: San Luis Obispo County APCD, Santa Barbara County APCD (SBCAPCD), and Ventura County APCD. The proposed Project is within the jurisdiction of SBCAPCD.

3.3.2.1 Topography and Meteorology

The County's air quality is influenced by both local topography and meteorological conditions. The proposed Project would apply to all areas of the County, with the primary exception of federal lands (Vandenberg Air Force Base [VAFB] and Los Padres National Forest [LPNF]).

Meteorological and topographical influences that may affect air quality in the Project area include the semi-permanent high pressure cell that lies off the Pacific Coast, which leads to limited rainfall (approximately 16 inches per year), warm dry summers, and relatively cold dry winters. Maximum summer temperatures average approximately 76 degrees Fahrenheit (°F). During winter, average minimum temperatures are approximately 44°F.

Temperature inversions result when cool, stable air lies below warmer air aloft. Inversions also tend to confine horizontal flow through passes and valleys that are below the inversion height. Surface temperature inversions (0 to 500 feet) are most frequent during the winter, and subsidence inversions (1,000 to 2,000 feet) are most frequent during the summer. Inversions are an increase in temperature with height and are directly related to the stability of the atmosphere. Inversions act as a cap to the pollutants that are emitted below or within them, and ozone concentrations are often

higher directly below the base of elevated inversions than they are at the earth's surface. For this reason, elevated monitoring sites will occasionally record higher ozone concentrations than sites at lower elevations. Generally, the lower the inversion base height and the greater the rate of temperature increase from the base to the top, the more pronounced effect the inversion will have on inhibiting vertical dispersion.

Santa Ana winds are northeasterly winds that occur primarily during fall and winter, but occasionally in spring. These are warm, dry winds blown from the high inland desert that descend the slopes of a mountain range. Wind speeds associated with the Santa Ana winds are generally 15 to 20 miles per hour, though wind speeds can sometimes exceed 60 miles per hour. During Santa Ana conditions, pollutants emitted in the County are moved out to sea. These pollutants can then be moved back onshore into the County in what is called a "post-Santa Ana condition."

Poor air quality is usually associated with air stagnation (high stability and restricted air movement). Therefore, it is reasonable to expect a higher frequency of pollution events in the southern portion of the County where light winds are frequently observed, as opposed to the northern part where the prevailing winds are usually strong and persistent.

Most of the total annual precipitation in the County occurs during migratory storms. Measurements of surface wind speed and direction are made at numerous airports and air quality monitoring stations throughout the County. The air quality monitoring stations that are equipped to measure wind speed and direction are discussed in Section 3.3.2.3, *Ambient Air Monitoring*. 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 the County. In January, the average minimum temperatures are near freezing in the interior valleys and plains.

Precipitation occurs primarily in the winter, with 90 percent of the annual precipitation occurring between the months of November and 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 providing occasional rainfall. Large fluctuations in annual rainfall are common, which is typical for regions which receive small amounts of precipitation. Precipitation inland varies considerably as a function of distance from the coast, elevation, and topography.

3.3.2.2 Sensitive Receptors

Individuals 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 are considered more sensitive to air pollutants than others. 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 land uses are considered sensitive to poor air quality because people in residential areas are often at home for extended periods and are therefore subject to extended exposure to the type of air quality present at the residence. Recreational land uses offer individuals a location to exercise and are therefore considered moderately sensitive to air pollution. Vigorous exercise places a high demand on the human respiratory function and poor air quality could add potentially detrimental stresses to the respiratory function.

Sensitive receptors affected by the proposed Project would be primarily residences, parks, and school land uses. Other common types of sensitive air pollutant receptors, such as hospitals and nursing homes have the potential to be affected; however, they are generally located in urban settings.

3.3.2.3 Ambient Air Monitoring

The SBCAPCD is responsible for monitoring air quality in the 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. 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 ($PM_{2.5}$), and particulate matter less than 10 microns in diameter (PM_{10}). The stations are categorized as Prevention of Significant Deterioration (PSD) stations or State and Local Air Monitoring Stations (SLAMS). PSD stations are used to determine baseline air quality and the impacts of specific operations. SLAMS measure urban and regional air quality. Table 3.3-1 identifies and describes the monitoring stations found in the County. Figure 3.3-1 shows the locations of air quality monitoring stations throughout the County (SBCAPCD 2015a).

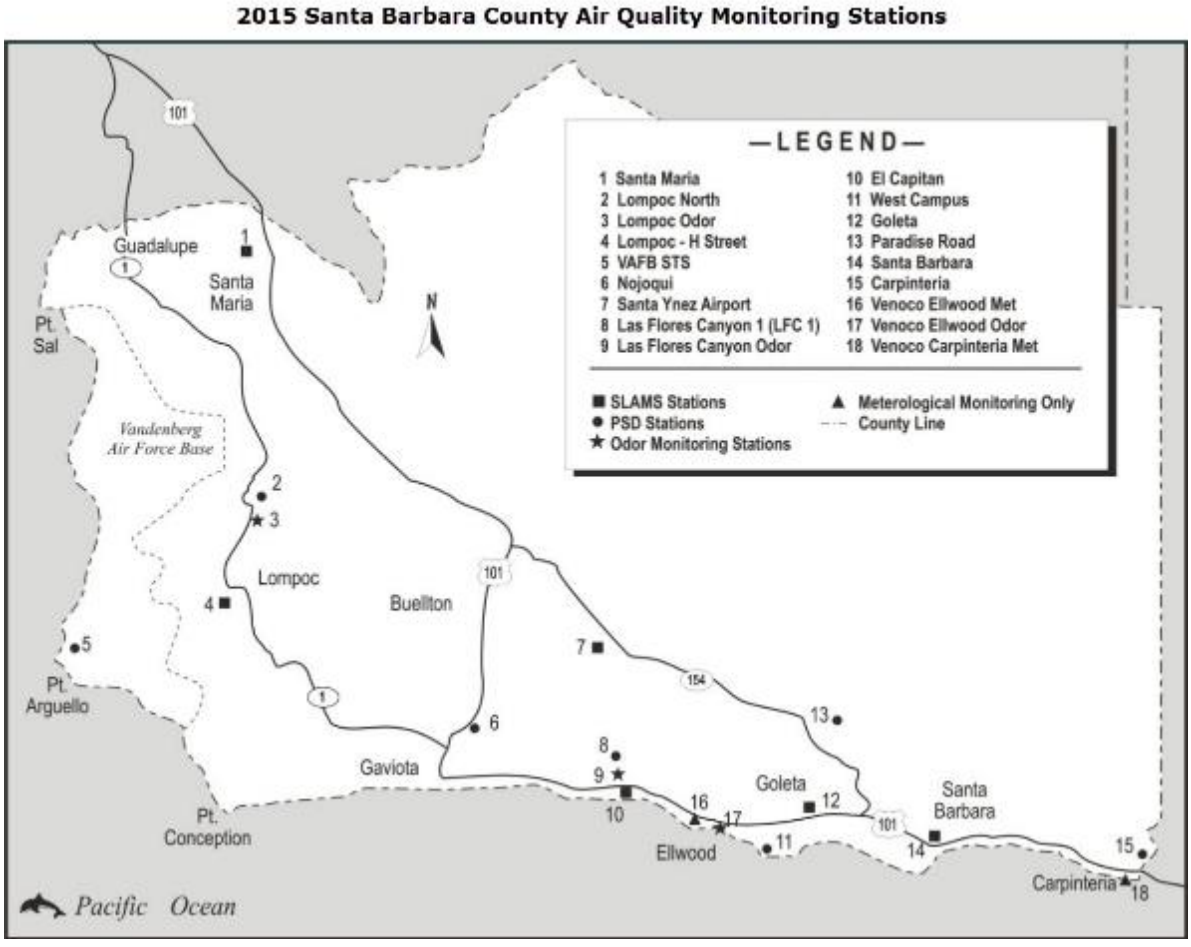

Figure 3.3-1. Air Quality Monitoring Station Locations

Table 3.3-1. Santa Barbara County Air Quality Monitoring Stations

	Station Names	Monitoring
	PSD Stations	
2	Lompoc North	O_3, NO, NO_x, NO_2, SO_2, Total Hydrocarbons, Wind Speed, Wind Direction, Ambient Temperature
5	Vandenberg Air Force Base- STS	O_3, NO, NO_x, NO_2, SO_2, CO, Total Hydrocarbons, Wind Speed, Wind Direction, Ambient Temperature, PM_{10} Beta Attenuation Monitor
6	Nojoqui	O_3, NO, NO_x, Wind Speed, Wind Direction, Ambient Temperature
8	Las Flores Canyon 1	O_3, NO, NO_x, NO_2, SO_2, CO, Total Hydrocarbons, Wind Speed, Wind Direction, Ambient Temperature, PM_{10} Beta Attenuation Monitor
11	West Campus (University of California, Santa Barbara)	SO_2, Total Hydrocarbons, H_2S, Wind Direction, Wind Speed, Total Reduced Sulfur
13	Paradise Road	O_3, NO, NO_x, NO_2, Wind Speed, Wind Direction, Ambient Temperature
15	Carpinteria	O_3, nitric oxide (NO), NO_x, NO_2, Wind Speed, Wind Direction, Ambient Temperature
	SLAMS Stations	
1	Santa Maria	O_3, NO, NO_x, NO_2, CO, Wind Speed, Wind Direction, Ambient Temperature, PM_{10} Beta Attenuation Monitor, $PM_{2.5}$ Beta Attenuation Monitor
4	Lompoc – H Street	O_3, NO, NO_x, NO_2, SO_2, CO, Wind Speed, Wind Direction, Ambient Temperature, PM_{10} Beta Attenuation Monitor, $PM_{2.5}$ Beta Attenuation Monitor
7	Santa Ynez Airport	O_3
10	El Capitan	O_3, NO, NO_x, NO_2, SO_2, Wind Speed, Wind Direction, Ambient Temperature, PM_{10} Beta Attenuation Monitor
12	Goleta	O_3, NO, NO_x, NO_2, CO, Wind Speed, Wind Direction, Ambient Temperature, PM_{10} Beta Attenuation Monitor, $PM_{2.5}$ Beta Attenuation Monitor
14	Santa Barbara	O_3, NO, NO_x, NO_2, CO, Wind Speed, Wind Direction, Ambient Temperature, PM_{10} Beta Attenuation Monitor, $PM_{2.5}$ Beta Attenuation Monitor
	Odor Monitoring Stations	
3	Lompoc Odor	H_2S, Wind Speed, Wind Direction, Ambient Temperature
9	Las Flores Canyon Odor	H_2S, Wind Speed, Wind Direction, Ambient Temperature
17	Venoco Ellwood Odor	H_2S, Wind Speed, Wind Direction, Ambient Temperature, Total Reduced Sulfur
	Meteorological	
16	Venoco Ellwood	--
18	Venoco Carpinteria	--

Source: SBCAPCD 2015a.

In April 2016, the County was designated unclassifiable/attainment for the 2008 federal 8-hour ozone standard. In 2006, the State of California implemented a statewide 8-hour ozone standard of which the County is currently in violation. The County is also in violation of the state standard for PM_{10}, and designated as unclassifiable/attainment for the federal $PM_{2.5}$ standard and unclassified for the state

$PM_{2.5}$ standard based on 2015 monitoring data (SBCAPCD 2015b). Table 3.3-2 identifies the attainment and nonattainment pollutant designations for the County.

Table 3.3-2. Santa Barbara County Attainment/Nonattainment Classification Summary 2013

Pollutant	California		Federal	
	Standard	Attainment Status	Primary Standard	Attainment Status
1-hour Ozone (O_3)	0.09 ppm	~~N~~NA-T	N/A	--
8-hour Ozone (O_3)[1]	0.07 ppm	~~N~~NA-T	0.07 ppm	U/A[1]
1-hour Carbon Monoxide (CO)	20 ppm	A	35 ppm	A
8-hour Carbon Monoxide (CO)	9.0 ppm	A	9.0 ppm	A
1-hour Nitrogen Dioxide (NO_2)[3]	0.18 ppm	A	0.10 ppm	U/A
Annual Average Nitrogen Dioxide (NO_2)[3]	0.03 ppm	A	0.053 ppm	U/A
1-hour Sulfur Dioxide (SO_2)	0.25 ppm	A	Revoked	--[4]
24-hour Sulfur Dioxide (SO_2)	0.04 ppm	A	Revoked	--
24-hour Fine Particulate Matter ($PM_{2.5}$)[2]	No Separate Standard	--	35 $\mu g/m^3$ [2]	U/A
24-hour Particulate Matter (PM_{10})[2,]	50 $\mu g/m^3$	N	150 $\mu g/m^3$	A
24-hour Sulfates	25 $\mu g/m^3$	A	--	--
Calendar Quarter Lead	--	--	1.5 $\mu g/m^3$	A
30 Day Average	1.5 $\mu g/m^3$	A	--	--
3-month Rolling Average Lead	--	--	0.15 $\mu g/m^3$	U
1-hour Hydrogen Sulfide	0.03 ppm	A	--	--
24-hour Vinyl Chloride (chloroethene)	0.01 ppm	A	--	--
8-hour Visibility Reducing Particulates	--	A	--	--

Source: CARB 2017, 2017; SBCAPCD 2015b.
Notes: A=Attainment; N=Nonattainment; NA-T=Nonattainment-Transitional; 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
[1] USEPA strengthened the 8-hour ozone standard from the 1997 level of .08 ppm to .075 ppm on May 27, 2008, but delayed implementation of the standard. Designations for the 2008 standard were finalized on April 30, 2012. Later, on October 1, 2015, the national 8-hour O_3 primarily and secondary standards were lowered from 0.075 to 0.070 ppm. Although the USEPA has not yet finalized designations, CARB has recommended that the County be designated A (Attainment) for the 2015 standard of 0.07 ppm.
[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 Nitrogen Dioxide 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 parts per billion (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.

3.3.2.4 Santa Barbara County Air Quality Attainment Plan

As previously described, the County has a history of exceeding the federal ambient air quality standard for ozone, a regional pollutant. As such, it has been subject to Air Quality Attainment

Planning since adoption of the Clean Air Act Amendments (CAAA) of 1977. To comply with these regulations, the County prepared an Air Quality Attainment Plan (AQAP) in 1979. 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 CAAA requires 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..." In order to achieve this directive, land use control measures were and have been included in the AQAP to aid in future air quality planning efforts. Subsequent AQAPs have been issued in 1989 and 1991. In 1994, the SBCAPCD began preparing Clean Air Plans (CAPs), which served as triennial updates to the AQAPs. The most recent AQAP available is the 2001 AQAP, though a 2010 final CAP and a 2013 final CAP are available (SBCAPCD 2011, 2015c). The most recent triennial update to the AQAP is the 2016 Ozone Plan (previously known as the County's CAP), which incorporates and builds upon the SBCAPCD's existing CAPs and focuses largely on reaching attainment with state ozone standards, as well as recently revised and adopted federal ozone standards (SBCAPCD 2016).

3.3.2.5 Common Air Pollutants

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

Ozone (O_3). 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 is formed from complex chemical reactions involving volatile organic compounds (VOCs), nitrogen oxides (NO_x), and sunlight; 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 (e.g., forests and foothill plant communities) and damages agricultural crops and some human-made materials (e.g., 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 (CO). 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(NO_2). 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 nitrogen oxides, 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, CARB 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 primarily affects infants, children, the elderly, and those with pre-existing cardiopulmonary disease.

On June 20, 2002, CARB adopted amendments for statewide annual ambient particulate matter air quality standards. These standards were revised/established due to CARB's increasing concerns 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 (ROGs) and Volatile Organic Compounds (VOCs). Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including 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).

3.3.2.6 Cannabis Odors

Cannabis cultivation and, to a lesser degree, manufacturing, ~~is~~ are often accompanied by strong odors. Odors can vary by variety, ranging from pepper, balsamic vinegar, pine, citrus, and skunk. Most of the pungent aromas of cannabis come from a class of chemicals called terpenes. Terpenes are among the most common compounds produced by flowering plants; they~~,~~ vary widely between plants, and are responsible for the fragrance of nearly all flowers. Cannabis produces over 140 different terpenes. These terpenes are found in varying concentrations in different cannabis varieties. Tetrahydrocannabinol (THC), the cannabinoid primarily responsible for cannabis' psychoactivity, has no odor whatsoever. Type and potency of cannabis odors range widely from variety to variety, as do receptors' opinions regarding whether the odor is pleasant or objectionable.

Cannabis odors can be controlled in indoor settings through containments, ventilation, and filters. Use of control technologies such as deodorizing systems on the exterior of the building may also help to ensure receptors do not smell the odors offsite.

Cannabis odors can spread through the air and be sensed by surrounding receptors. For example, based on scoping comments received for this Environmental Impact Report (EIR), residents of Carpinteria and Tepusquet communities can often smell cannabis odors from nearby cannabis operations, and the County has received several complaints from residents related specifically to cannabis odors. Additionally, in the Carpinteria area of the South Coast Region, cannabis odors were detected from the public right-of-way during site visits conducted in July 2017 by the EIR consulting team. Despite the presence of cannabis odors in agricultural regions throughout the County, the predictability and degree to which cannabis odors can travel ~~is~~ are highly variable depending on climatic and topographic conditions near a cannabis site. Field research by Amec Foster Wheeler has indicated that odors are typically lessened during cooler temperatures, especially during cooler overcast days. As temperatures increase, increased odors may occur throughout the Carpinteria Valley and along U.S. Highway 101. Stagnant air during nighttime hours also has the potential to intensify the concentration of cannabis odors. Wind patterns decrease the intensity of cannabis odors due to air diffusion; however, constant breezes in a certain direction may result in a somewhat constant, lower-intensity odor in the associated direction if there is no suppression.

Outdoor cultivation has the greatest potential to expose receptors to odors~~,~~; although~~,~~ greenhouse and indoor cultivation may occasionally contribute odors to surrounding areas if ventilation systems are ineffective, or if indoor spaces are periodically aired out. Cannabis odors can be successfully contained within structures or filtered to prevent diffusion into surrounding areas. Based on 2017 Cannabis Registry data, 45.4 percent of existing cultivators within the County reported the use of some type of commercial scrubbing device that prevents odors from escaping the facility. Additional discussion of odors from cannabis and available technologies for controlling such odors is provided in Appendix F.

3.3.2.7 Climate Change and GHG Emissions

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 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 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 percent. 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). *CH_4* 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 U.S. Environmental Protection Agency (USEPA) adopted 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 USEPA adopted 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 USEPA adopted Global Warming Potentials of HFCs range from 140 for HFC-152a to 11,700 for HFC-23.

Perfluorocarbons (PFCs). PFCs are compounds consisting of carbon and fluorine. They are primarily created as a byproduct 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 USEPA adopted 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] of SF_6 versus 365 ppm of CO_2).

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 percent 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 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 Global Warming Potentials ranging from 4,600 for CFC 11 to 14,000 for CFC 13.

3.3.3 Regulatory Setting

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

3.3.3.1 Federal and State: Ambient Air Quality Standards

Both the state and the federal governments have established ambient air quality standards (AAQS) for several different pollutants, a summary of which is provided in Table 3.3-3. 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 (e.g., protection of crops, protection of materials, or avoidance of nuisance[1] conditions).

3.3.3.2 Federal

Federal Clean Air Act

The federal Clean Air Act (CAA) was passed in 1963 and amended in 1990, and was the first comprehensive federal law to regulate air emissions from stationary and mobile sources. Among other things, the law authorizes the USEPA to establish National AAQS (NAAQS), which help to ensure basic health and environmental protection from air pollution. The federal CAA also gives the USEPA the authority to limit emissions of air pollutants coming from sources like chemical plants, utilities, and steel mills.

[1] "One that is annoying, unpleasant, or obnoxious" – Merriam Webster

Federal Clean Air Act Amendments

In 1990, the U.S. Congress adopted the federal CAAA, which updated the nation's air pollution control program. The CAAA established a number of requirements, including new deadlines for achieving federal clean air standards.

The USEPA is the federal agency charged with administering the CAAA and other air quality-related legislation. As a regulatory agency, USEPA's principal functions include setting NAAQS; establishing minimum national emission limits for major sources of pollution; and promulgating regulations.

The CAAA require USEPA to approve state implementation plans (SIPs) to meet and/or maintain the NAAQS. California's SIP is comprised of plans developed at the regional or local level.

3.3.3.3 State

California Clean Air Act

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

California Air Resources Board

CARB, a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, CARB conducts research, sets California ambient air quality standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. CARB 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 CARB 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 CARB 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 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 State CEQA Guidelines.
- SB 375—creates a process whereby local governments and other stakeholders work together within their region to achieve reduction of GHG emissions.
- Executive Order B-30-15—established a new interim statewide GHG emission reduction target.
- Climate Change Scoping Plan—designed to reduce overall carbon emissions in California.
- CARB GHG Emission Inventory—creates GHG emissions limits and requires an emissions inventory for the industries determined to be significant sources of GHG emissions.

Table 3.3-3. Federal and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard[1]	Federal Standards[2]
		Concentration[3]	Primary[3,4]
Ozone (O_3)[5]	1 Hour	0.09 ppm (180 µg/m^3)	N/A
	8 Hours	0.070 ppm (137 µg/m^3)	0.070 ppm (147 µg/m^3)
Particulate Matter (PM_{10})[6]	24 Hours	50 µg/m^3	150 µg/m^3
	Annual Arithmetic Mean	20 µg/m^3	N/A
Fine Particulate Matter ($PM_{2.5}$)[6]	24 Hours	No Separate State Standard	35 µg/m^3
	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
	8 Hours	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
Nitrogen Dioxide (NO_2)[7]	1 Hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)
Lead (Pb)[9,10]	30 days average	1.5 µg/m^3	N/A
	Calendar Quarter	N/A	1.5 µg/m^3
	Rolling 3-Month Average	N/A	0.15 µg/m^3
Sulfur Dioxide (SO_2)[8]	1 Hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)
	3 Hours	N/A	N/A
	24 Hours	0.04 ppm (105 µg/m^3)	N/A
Visibility-Reducing Particles[11]	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[9]	24 Hour	0.01 ppm (26 µg/m^3)	

Source: CARB 2017.

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, 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 ozone, 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 one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the USEPA 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°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 public health.

[5] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

Table 3.3-3. Federal and California Ambient Air Quality Standards (Continued)

[6] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24- hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

projects[7] 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 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[8] On June 2, 2010, a new 1-hour SO2 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 SO2 national standards (24-hour and annual) remain in effect until one 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.

[9] The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[10] The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one 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.

[11] In 1989, the 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:

µg/m^3 = micrograms per cubic meter; mg/m3 = milligram 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

3.3.3.4 Local

Santa Barbara County Air Pollution Control District

SBCAPCD monitors air quality and regulates stationary emission sources in the 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 CAAA of 1990 and the CCAA of 1988 mandate the preparation of 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 the 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 2016 Ozone Plan is the 3-year update to the County AQAP required by the state to show how SBCAPCD plans to meet the state 8-hour O_3 standard. The 2016 Ozone Plan builds upon and updates the 2013 CAP and includes an inventory of O_3 precursory emissions in the County, the most prevalent of which in the County are reactive organic compounds (ROCs) and NO_x. The 2016 Ozone Plan focuses on reducing ozone precursor emissions through predicting vehicle activity trends and implementation transportation control measures which would serve to reduce mobile-source emissions, the primary source of ROC and NO_x emissions in the County. The 2016 Ozone Plan satisfies both state and federal planning requirements and was adopted by the SBCAPCD Board in October 2016 (SBCAPCD 2016).

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

Due to the County's exceedance of the federal ambient air quality standard for ozone, the 1977 CAAA requires 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. 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.

Energy and Climate Action Plan

On May 19th, 2015, the County Board of Supervisors adopted the Energy and Climate Action Plan (ECAP) and certified the Final EIR for the project (SCH #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 2015).

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 State 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.

3.3.4 Environmental Impact Analysis

This section discusses the potential air quality and GHG emissions impacts associated with the proposed Project. Where there are potentially significant or significant and unavoidable impacts, mitigation measures are proposed and the residual impact after mitigation is determined.

3.3.4.1 Thresholds of Significance

CEQA Guidelines

The following thresholds of significance are based on Appendix G of the 2017 State CEQA Guidelines. For purposes of this EIR, implementation of the Project may have a significant adverse impact on air quality or GHGs if it would:

- Conflict with or obstruct implementation of the applicable air quality 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.
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Santa Barbara County Thresholds

According to the County's *Environmental Thresholds and Guidance Manual* (County of Santa Barbara 2008, revised July 2015) 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 ROCs (otherwise referred to as VOCs).

- 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.

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 Countywide emission inventory for NO_x, and the emissions are temporary and short-term in nature (County of Santa Barbara 2008).

In addition to the County's thresholds described above in this section, the SBCAPCD has prepared the *Environmental Review Guidelines for the Santa Barbara County Air Pollution Control District* (SBCAPCD 2015d), which also lists screening criteria for determining the significance of operational (long-term) emissions by assessing CO emissions and ozone precursors. 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. A proposed project will not have a significant air quality effect on the environment, if operation of the project will:

- Emit (from all project sources, mobile and stationary), less than the daily trigger for offsets set in the APCD New Source Review Rule, for any pollutant; and
- Emit less than 25 pounds per day of oxides of nitrogen (NO_x) or ROCs from motor vehicle trips only; and
- Not cause or contribute to a violation of any California or National Ambient Air Quality Standard (except ozone); and
- 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.

Further, the SBCAPCD provides that a proposed stationary project will not have a significant GHG impact, if operation of the project will:

- Emit less than the screening significance level of 10,000 metric tons of CO_2 equivalent per year (MT CO_2e /yr); or
- Show compliance with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions (sources subject to the AB 32 Cap-and-Trade requirements pursuant to Title 17, Article 5 [California Cap on Greenhouse Gas Emissions and Market-based Compliance Mechanisms] would meet the criteria); or
- Show consistency with the AB 32 Scoping Plan GHG emission reduction goals by reducing project emissions 15.3 percent below Business As Usual.

Local governments may generally use adopted plans consistent with State CEQA Guidelines to assess the cumulative impacts of projects on climate change, when the adopted plan includes a certified EIR. The ECAP meets the minimum criteria for a Qualified GHG Reduction Plan and would allow the County

to use the ECAP for a programmatic CEQA tiering of future development, pursuant to State CEQA Guidelines Section 15183.5(b).

3.3.4.2 Project Impacts

This section discusses potential impacts to air quality and GHG emissions from the proposed Project. Table 3.3-4 provides a summary of the air quality and GHG impacts resulting from the proposed Project. Existing development standards and standard permit processes and conditions, as well as planning standards and requirements proposed as part of the Project which would serve to mitigate environmental impacts are referenced in the analysis below. Where impacts are potentially significant, mitigation measures are proposed and residual impacts are determined.

Table 3.3-4. Summary of Air Quality and GHG Emission Impacts

Air Quality and Greenhouse Gas Emissions Impacts	Mitigation Measure	Residual Significance
Impact AQ-1. Cannabis activities under the Project could be potentially inconsistent with the Clean Air Plan and County Land Use Element Air Quality Supplement.	No mitigation feasible	Significant and unavoidable (Class I)
Impact AQ-2. Construction-generated emissions from cannabis activities under the Project could potentially violate an air quality standard or substantially contribute to an air quality violation, and result in a cumulatively considerable net increase of a criteria pollutant for which the County is in nonattainment.	No mitigation required	Less than significant (Class III)
Impact AQ-3. Emissions from operations of cannabis activities could potentially violate an air quality standard or substantially contribute to an air quality violation, and result in a cumulatively considerable net increase of a criteria pollutant for which the County is in nonattainment.	MM AQ-3: Cannabis Site Transportation Demand Management	Significant and unavoidable (Class I)
Impact AQ-4. Cannabis activities under the Project could be potentially inconsistent with the Energy and Climate Action Plan.	~~No mitigation feasible~~ MM UE-2a. Energy Conservation Best Management Practices MM UE-2b. Participation in a Renewable Energy Choice Program MM UE-2c. Plan Review by the County Green Building Committee	Significant and unavoidable (Class I)
Impact AQ-5. Cannabis activities under the Project could potentially expose sensitive receptors to ~~substantial pollutant concentrations and create~~ objectionable odors affecting a substantial number of people.	MM AQ-5. Odor Abatement Plan.	Significant and unavoidable (Class I)
Cumulative Impacts	No mitigation required	Significant and unavoidable (Class I)

Impact AQ-1. Cannabis activities could be potentially inconsistent with the Clean Air Plan and County Land Use Element Air Quality Supplement.

Consistency with the applicable air quality plan, such as the CAP or other regional air quality planning documents, is required under CEQA. In the County, 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).

Cannabis activities may result in the generation of air pollutants through the use of heavy equipment, tilling operations, waste burning, operation of gasoline- or diesel-fuel equipment such as generators and well pumps, vehicle trips to and from a licensed cannabis site by employees and customers, and truck trips to and from a site by vendors and transporters. While it is impossible to precisely predict the amount of growth or development that could result from the Project, data from the 2017 Cannabis Registry indicate a large amount of growth within the existing cannabis industry in the County under the Project (see Chapter 3, *Environmental Impact Analysis*, for more detail). Much of the activity proposed by the 2017 Cannabis Registry respondents relates to cannabis cultivation, which is similar to other agricultural practices. Under the SBCAG Regional Growth Forecast and CAP, employment and emissions from both the agricultural and manufacturing economic sectors are expected to decrease due to a below-average rate of growth in these industries over the next few decades, resulting in the loss of an estimated 2,100 local agricultural jobs and an estimated 400 local manufacturing jobs by 2040. Given that the 2017 Cannabis Registry identifies a large amount of growth related to cannabis activities in both of these economic sectors, the Project has a reasonable potential to result in exceedance of growth projections for the agricultural and manufacturing industries within the County. As such, emissions from cannabis activities resulting from implementation of the Project may exceed forecasted 2040 emissions rates, and would therefore be inconsistent with the CAP.

In addition to review of a project for consistency with the CAP, the Santa Barbara County Environmental Thresholds and Guidelines Manual requires that a project be analyzed for consistency with the Air Quality Supplement of the County Comprehensive Plan Land Use Element. The Air Quality Supplement identifies and provides land use planning measures that serve to reduce emissions generated from sprawling land use development and increases in the reliance of the automobile. A determination of inconsistency with this plan may result from the identification of project features that could result in an increase in the reliance on automobiles and a shift away from alternative modes of transportation, or result in the development of employment opportunities or residential areas outside of the urban/rural boundary.

The Project does not directly propose any new development and would not change land use designations within the County; however, the Project would result in the development of employment opportunities outside of the urban/rural boundary. Many areas eligible for cannabis licensing are generally rural and agricultural and do not currently provide substantial employment opportunities or support workforce populations. Further, as discussed above, this growth may exceed current regional growth projections in the agricultural and manufacturing sector. While some existing agricultural operations would likely transition from other commercial crops to cannabis with a net zero increase in employment, there is a potential for expansion in employment opportunities in rural areas, as further described in Section 3.14, *Population, Employment, and Housing*. This rural employment increase would have a commensurate increase in vehicle trips and emissions from both new employee trips as well as trips from existing employees in the County that would need to commute further to the rural areas.

Given the Project would involve amendments to the Land Use and Development Code (LUDC), Montecito Land Use and Development Code (MLUDC), and the Coastal Zoning Ordinance (CZO) to allow for cannabis activities in compatible zone districts and would not directly alter existing zoning or General Plan designations, the Project is not anticipated to directly conflict with current land use patterns of the General Plan. However, the Project may conflict with the policies and objectives of the County Land Use Element Air Quality Supplement based on the Santa Barbara County Environmental Thresholds and Guidelines Manual.

Overall, the Project would create employment growth in the agricultural and manufacturing sectors that would conflict with growth projections in in the County's CAP and would increase employment opportunities outside the urban/rural boundary that would conflict with the Land Use Element Air Quality Supplement. Therefore, the Project would result in *potentially significant* impacts.

Impact AQ-2. Construction-generated emissions from cannabis activities could potentially violate an air quality standard or substantially contribute to an air quality violation, and result in a cumulatively considerable net increase of a criteria pollutant for which the County is in nonattainment.

The Project consists of LUDC, MLUDC, and the CZO amendments and does not directly involve new or expanded development of any areas of the County. Depending on the timing of entitlements and permit processing, construction activities for individual projects supporting licensing and operation of cannabis activities throughout the County could begin shortly after adoption of the proposed Project. Construction emissions would occur during each phase of cannabis activities site construction, including demolition, grading/excavation, building construction, and building renovation. However, the specific construction details (e.g., scheduling/phasing, equipment, building construction, size, grading) for future cannabis activities sites are~~is~~ unknown at this time, and would vary annually. Therefore, it is difficult to quantify the construction-related emissions that may potentially occur. For example, construction activities for some sites may involve excavation of soil that would generate emissions, while others may not. Additionally, larger sites, such as sites located on parcels zoned Agricultural I (AG-I) or Agricultural II (AG-II) that are proposing large-scale cannabis activities, would likely generate greater construction emissions than sites located on smaller commercial- or industrial-zoned parcels where new development would likely be limited to minor building alterations or expansions. Construction timing for such cannabis activities sites is also unknown and the potential exists for multiple construction periods to overlap or occur concurrently, increasing construction-related emissions during such episodes. As such, the analysis of construction-related air quality impacts is qualitative in nature, discussing the potential range of construction-related impacts that could potentially occur from the development of individual cannabis activities sites under the Project.

The County currently has no quantitative thresholds in place for short-term construction emissions, which includes construction emissions related to PM_{10} and NO_x. Particulate emissions for diesel exhaust are classified as a carcinogen by the state, so projects that have the potential to affect sensitive receptors or very large projects, are required to implement particulate matter and NO_x reduction measures. Emissions of NO_x from construction equipment in the County are estimated at 1,000 tons per year, and when compared to the total emission inventory of NO_x, this accounts for approximately 6 percent; therefore, construction generated NO_x emissions are considered insignificant (County of

Santa Barbara 2008).[2] For any development that would occur to support licensed cannabis activities, required implementation of dust control measures from the County's Grading Ordinance, and SBCAPCD standard dust control and particulate from diesel exhaust measures as outlined in the SBCAPCD 2015 Scope and Content document, would minimize short-term dust and PM_{10} impacts as part of the development review and permitting process for cannabis activities sites. In addition, future development activities occurring under the Project would be subject to SBCAPCD Rule 202 D.16, which requires developers to provide offsets under the provisions of Rule 804 and demonstrate that no ambient air quality standard ~~will~~ would be violated when the combined emissions from all construction equipment used to construct a stationary source have the potential to exceed 25 tons of any air pollutant – except CO – in a 12-month period (SBCAPCD 2017). Together, these requirements would reduce construction-related air quality impacts to a *less than significant* level (Class III).

Impact AQ-3. Emissions from operations of cannabis activities could potentially violate an air quality standard or substantially contribute to an air quality violation, and result in a cumulatively considerable net increase of a criteria pollutant for which the County is in nonattainment.

Operational emissions would occur due to the increased mobile emissions generated by vehicle trips from employees and customers of new or expanded cannabis activities sites, as well as from the transportation of cannabis products to and from these sites. Operational emissions would also be produced from electrical equipment used in cannabis activities. However, since many cannabis activities currently operate and contribute to air emissions within the County, implementation of the Project is expected to increase air emissions only from the operation of new cannabis activities or expansion of existing cannabis activities. Given the programmatic nature of the Project and the inability to effectively predict or anticipate the location and extent to which cannabis activities would operate, it is difficult to assess the impacts that the Project would result with regard to operational long-term emissions. Therefore, the analysis of operational air pollutant emissions from implementation of the Project is programmatic; the degree to which potential impacts may occur can be approximated based on the data provided in the 2017 Cannabis Registry.

Based on Project eligibility and existing agricultural zoning, most new or expanded cannabis activities would occur within the existing agricultural areas of the County, where it is foreseeable that licensees may transition existing agricultural land uses that cultivate commercial agricultural products to cannabis activities. For instance, respondents indicated their desire to acquire licenses for cannabis activities (primarily large-scale cultivation and nursery operations) within the existing commercial agricultural regions of the County. Given that many eligible lands are currently developed or support agricultural uses, it is not anticipated that the transition to cannabis activities under the Project on these lands would result in substantial new air pollutant emissions, and may even result in reduced emissions in the event existing commercial agricultural operations transition to the cultivation, production, manufacturing, or sale of cannabis. Anecdotal information, including interviews with current cannabis cultivators who have historically and/or are currently cultivating other agricultural products in a large commercial setting, indicate that cannabis cultivation may produce reduced air pollutant emissions when compared to a commercial nursery or flower greenhouse of the same scale. However, increased traffic generation may ~~have commensurate increases in~~increase emissions, as further discussed below.

[2] Six percent is based on the 1990 Countywide emission inventory of NO_x.

Traffic Generated Emissions

Under the proposed Project, cannabis activities would induce vehicle trips generated by employees, shipments and deliveries, and customers from each type of operation associated with an eligible cannabis license. Employee trips would vary seasonally; for instance, on a typical licensed cannabis cultivation site there would be more employees driving to and from the site during the harvest season. For all other cannabis license types, vehicle trips from employees would be more consistent and fall within a typical daytime work schedule. Truck trips would also vary between cannabis products trucked in from offsite, or exported. Implementation of the proposed Project would also result in vehicle emissions during the retail sale of cannabis products for cannabis activities. Such activities would result in vehicle trips from both the travel to a retail site by customers, as well as delivery trips from retail storefronts to customers.

While the Project has the potential to affect the existing traffic environment and emissions from vehicle trips generated during operation of licensed cannabis activities sites, the associated traffic generated emissions cannot be quantified by this analysis, as the number, type, extent, and location of future licensed cannabis operations cannot be feasibly predicted or modeled for emissions. Each cannabis operation would be subject to applicable permit review by the Planning and Development Department, which would allow for the review of proposed cannabis site operations. However, given that many operators may choose to transport cannabis products in large vehicles that may generate greater levels of air pollutant emissions and that employee trips may contribute significant emissions (see also, Impact AQ-1), there is the potential that the Project could result in adverse impacts to air quality from traffic generated emissions, including NO_x and ROC emissions, beyond what is experienced under current land use patterns that may exceed County thresholds of significance.

Stationary Source Emissions

The proposed Project would generate ROCs from operation of equipment used in licensed cannabis activities. This contribution is expected to be nominal, as cannabis site operations do not rely on equipment with high emissions rates. Based on data from the 2017 Cannabis Registry, cannabis activities under the Project could increase by 730 acres. However, the exact amount by which such operations may expand or be located, as well as the types of activities and processes specific to a given site, would vary widely and is currently unpredictable. Regardless, future cannabis activities would be subject to applicable permitting requirements on a site-by-site basis, which would allow for the review of proposed cannabis activities by the Planning and Development Department, including application of standard conditions of approval required by the Planning and Development Department.

While permit review of each cannabis operation would help to ensure proposed sites are designed, constructed, and operated to minimize air pollution consistent with the County General Plan and County Code, cannabis activities may occur throughout eligible areas of the County and involve generation of emissions from increased vehicle trips that may exceed thresholds and degrade regional air quality, with nominal additional emissions from ongoing stationary operations. To help reduce this impact, cannabis-specific transportation demand management measures would ensure carpooling and reduced reliance on vehicles would be required on a site-by-site basis. Therefore, impacts of the Project are considered *potentially significant* and would require implementation of **MM AQ-3**, *Cannabis Transportation Demand Management,* to reduce impacts.

Impact AQ-4. Cannabis activities could be potentially inconsistent with the Energy and Climate Action Plan.

The 2015 ECAP is designed as a Qualified GHG Reduction Plan, consistent with State 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 that is consistent with it would simultaneously be consistent with AB 32 and Executive Order S-3-05. To determine the impact significance of the Project related to GHG emissions, the Project was evaluated for its consistency with the ECAP.

The same criteria established under the CAP are also used for the formation of the ECAP's GHG emission projections. Therefore, the consistency of the anticipated growth under a project with that assessed under the CAP confirms compliance. While the proposed Project would promote an orderly, efficient, and defined licensing and permit process for cannabis activities (refer to Section 2.3.2, *Project Objectives*), as analyzed in Impact AQ-1, it would nevertheless result in growth in the agricultural and manufacturing industry beyond what is forecasted in the CAP, including up to 730 acres of cannabis canopy Countywide. This growth would increase jobs in the agricultural and manufacturing sectors, which would have a commensurate increase in employee trips and GHG emissions. Additionally, energy demands from indoor cultivation and manufacturing, as discussed in Section 3.13, *Utilities and Energy Conservation*, would increase GHG emissions. Therefore, implementation of the Project would be inconsistent with the CAP. Thus, the proposed Project is also inconsistent with the ECAP and would result in *potentially significant* impacts to GHG emissions and climate change. Implementation of **MM UE-2a**, *Energy Conservation Best Management Practices,* **MM UE-2b**, *Participation in a Renewable Energy Choice Program,* and **MM UE-2c**, *Plan Review by the County Green Building Committee,* would further reduce impacts. ~~As~~However, as it is not possible to quantify the amount of GHG emissions the Project would contribute, the review of proposed cannabis activities on a site-by-site basis during the permitting process would identify potential review requirements for activities that may foreseeably result in potentially significant GHG impacts that interfere with the ECAP's GHG reduction target for 2020.

Impact AQ-5. Cannabis activities could potentially expose sensitive receptors to ~~substantial pollutant concentrations and create~~ objectionable odors affecting a substantial number of people.

Implementation of the Project would result in the handling, cultivation, manufacturing, processing, distribution, and sale of cannabis across the County. Individuals perceive cannabis odor differently. Cannabis users and some other members of the public perceive cannabis odor as pleasant; however, others perceive it as unpleasant, and some residents proximate to cannabis cultivation have stated that they have adverse physical reactions to the odor. Although the scent of cannabis plants is not ~~necessarily~~ widely considered to be harmful to ~~people~~human health, in some instances, exposure to cannabis odors has been reported to result in headaches, eye and throat irritation, nausea, discomfort, and mental stress (Denver Environmental Health 2016). Similar symptoms are also experienced by individuals with specific allergies such as pollen. Primarily, the plants can produce a variety of odors, especially during the flowering phase, which ~~is~~ are often considered and perceived by some individuals as objectionable or offensive. For others, the smell of cannabis may often be described as fragrant, aromatic, or pleasant. As such, odors from cannabis are considered to be highly subjective.

The Project requires cannabis cultivation sites to be setback by 600 feet from sensitive receptors such as schools, daycare centers, and youth centers. However, the Project does not currently require setbacks for cannabis activities from other known sensitive receptors or land uses, including

hospitals, nursing homes, residential land uses, and recreational land uses. Of course, the detectability and concentration of odors generated from cannabis activities would vary drastically based on the type of license and activities proposed/occurring at each site. For instance, greenhouses typically contain agricultural or cannabis odors, but can have an adverse effect when the greenhouse is opened up, allowing trapped odors to emanate all at once. On the other hand, a cannabis cultivation operation occurring within open-ended agricultural hoop structures may continually generate odors which may not feasibly be contained, given the nature of hoop structures. Additionally, a greenhouse operation located adjacent to residential neighborhoods may require more odor control measures than a mixed-light hoop-house cultivation operation located on an agricultural parcel in the rural areas of the County, where sensitive receptors may be located hundreds of miles away. Therefore, odor impacts are considered *potentially significant*, and would require implementation of **MM AQ-5**, *Odor Abatement Plan (OAP)*, to reduce impacts.

3.3.4.1 Cumulative Impacts

The impacts of the Project would be combined with cumulative impacts resulting from development under plans and projects identified in Section 3.0.4, *Cumulative Project Scenario*. Specifically, cannabis activities may increase or decrease in different locations in the County depending on the County's proposed amendment to Article X of the County Code, which would require acknowledgement, relocation, or closure of existing legal nonconforming cannabis operations in the County. However, it is expected that overall increases in emissions would occur given the potential for growth in the agricultural and manufacturing industries under the Project. Combined with pending and further projects in the County, operation of such development would increase operation generated emissions and would expose new residents and property to ROC and NO_x emissions. Future housing and structural development projects would incrementally contribute to these cumulative impacts. Air quality would be addressed on a case-by-case basis to mitigate impacts resulting from individual projects. Development projects would be subject to air quality standards contained in the SBCAPCD and mitigating policies within applicable General Plans, Santa Barbara County Building Codes and Ordinances, and the additional mitigation measures provided.

However, inconsistency with the CAP is considered a significant cumulative adverse air quality impact. Projects that are not consistent with the CAP have not been accommodated in the CAP's projections and ~~will~~ would have a significant cumulative impact on regional air quality unless emissions are totally offset. Since the Project is inconsistent with the CAP and ECAP, and the County is anticipated to remain in non-attainment, the Project's contribution to cumulative air quality would be *significant and unavoidable* (Class I).

3.3.4.2 Proposed Mitigation

MM AQ-3. Cannabis Site Transportation Demand Management. The County shall amend the proposed Cannabis Ordinance Amendments (LUDC, MLUDC, and CZO) prior to adoption to include the provision that all permitted cannabis sites must implement feasible transportation demand management (TDM) measures that reduce vehicle travel to and from their proposed site. Each site must consider location, total employees, hours of operation, site access and transportation routes, and trip origins and destinations, then identify a range of TDM measures as feasible for County review and approval, including but not limited to:

- Provide for carpool/shuttle/mini bus service for employees, especially during harvesting periods, on cultivation sites.
- Provide shared parking areas for ridesharing on large and/or rural sites.
- Provide bicycle storage/parking facilities.
- Provide incentives to employees to rideshare or take public transportation.
- Implement compressed or flexible work schedules to reduce the number of days per week that employees are needed onsite.

Requirements and Timing. The Planning and Development Department shall revise the Cannabis Ordinance Amendments prior to final adoption by the Board of Supervisors. TDM measures shall be identified and approved by the Planning and Development Department prior to permit approval.

Monitoring. The Planning and Development shall determine that a site adheres to **MM AQ-3** before issuance of a permit and conduct ongoing monitoring to ensure compliance with permit conditions.

MM AQ-5. Odor Abatement Plan (OAP). To reduce potential effects of nuisance odors to the extent feasible, all permits issued pursuant to the Project shall have an OAP, which demonstrates that odors from the cannabis activity site are not persistent, intrusive, or pervasive within proximate residentially-zoned neighborhoods, ensuring that odors are abated for nearby residential areas and generally confined within the cannabis activity site property, consistent with SBCAPCD requirements and approved by the Planning and Development Department. The requirements of this mitigation are designed to be flexible, to balance the protection of residential neighborhoods with protection of the cannabis industry, including variations on technologies, siting, and similar decisions. Due to the innate need for the protection of agricultural land, cannabis activity sites within the AG-II zone districts would be exempt from this OAP requirement. The approved OAP shall include, but not be limited to, the following elements to address issues from nuisance odors:

- Odor abatement strategies within the cannabis activity site that would be implemented to prevent persistent, intrusive, or pervasive odors outside the property boundary, particularly within any nearby residential neighborhoods, including, but not limited to, the following:
    - Activated carbon filtration systems, such as:
        - Ventilation systems, in which odor-causing agents are adsorbed and filtered through activated carbon
        - Canisters, in which activated carbon ventilation systems are supported by activated carbon gas canisters
    - Vapor-phase systems, in which deodorizing liquids are vaporized and dispersed where necessary within the cannabis site, altering the chemical composition of cannabis terpenes into a neutralized chemical odor.

- The resulting odors must be odor-neutralizing[3], not odor-masking
- The technology must not be utilized in excessive amounts to produce a differing scent (such as pine or citrus)
- Use of these systems must have supporting documentation which meet USEPA's Acute Exposure Guideline Levels or similar public health threshold

- Other odor controls systems or agricultural practices that can be shown to be effective in controlling odors.
- Adequate distance from residentially-zoned neighborhoods, and the permitting official shall have the discretion to determine necessity of the system.

- The name and telephone number of a designated individual who is responsible for logging in and responding to odor complaints, 24 hours a day, 7 days a week;
- Providing property owners and residents of property within a 1,000-foot radius of the cannabis facility with the contact information of the individual responsible for responding to odor complaints;
- Policies and procedures describing the actions to be taken when an odor complaint is received, including the training provided to the staff on how to respond;
- Description of potential methods for reducing odors, including feasible add-on air pollution control equipment;
- Contingency measures to curtail odor emissions in the event of a continuous public nuisance;
- Require the designated individual to report all odor complaints to the appropriate County department within a reasonable time frame and to record and report the steps they took to resolve the issue, including a record-keeping system to track these actions; and
- For sites that generate recurring odor emissions that have been documented to be persistent, intrusive, or pervasive in nearby residential neighborhoods, include an enforceable process to require additional control equipment or operational changes to mitigate odors.

Requirements and Timing. Each applicant for a cannabis permit and license shall prepare and submit an OAP to the Planning and Development Department. The Planning and Development Department shall review and approve the OAP prior to permit issuance.

Monitoring. The Planning and Development shall determine that a site adheres to **MM AQ-5** before issuance of a permit.

Implement MM UE-2a. Energy Conservation Best Management Practices. To reduce potential impacts to air quality from the generation of GHG emissions resulting from the use of electricity and

[3] Odor neutralizers are frequently used in landfill odor control, and trigger a chemical reaction with malodors to remove the scent. The associated vapor is usually implemented along a site's perimeter to interact with and change the chemistry of malodors. Because of the chemistry change, the olfactory receptors in the human nose no longer interpret the smell as a malodor. Odor neutralizers do not overpower a malodor with a more pleasant scent (i.e. not an odor-masking measure, such as with fragranced sprays).

operation of equipment, MM UE-2a, addressing requirements for energy efficient measures shall apply to Impact AQ-4.

Implement MM UE-2b. Participation in a Renewable Energy Choice Program. To reduce potential impacts to air quality from the generation of GHG emissions resulting from the use of electricity and operation of equipment, MM UE-2b, addressing requirements for cannabis licensee participation in a renewable energy program shall apply to Impact AQ-4.

Implement MM UE-2c. Plan Review by the County Green Building Committee. To reduce potential impacts to air quality from the generation of GHG emissions resulting from the use of electricity and operation of equipment, MM UE-2c, allowing for the participation in the Smart Build Santa Barbara (SB^2) Program shall apply to Impact AQ-4.

3.3.4.3 Residual Impacts

Impact AQ-1. Because the Project is anticipated to generate growth in the agricultural and manufacturing industries beyond what is forecasted under the CAP, implementation of the Project is considered inconsistent with the CAP. In order to reduce Project impacts to a less than significant level, the County would need to limit the number of licenses or amount of cannabis activity that is allowed. However, such actions would conflict with or affect the ability of the County to meet several of the basic objectives of the Project. Since no feasible mitigation exists which could ensure consistency with anticipated growth projections or consistency with adopted air quality plans and policies, impacts cannot be avoided and would be *significant and unavoidable* (Class I).

Impact AQ-2. Requirements for individual review of proposed cannabis activities sites as part of the existing County permitting process, would ensure impacts associated with temporary construction emissions would be *less than significant* (Class III).

Impact AQ-3. With implementation of **MM AQ-3**, *Cannabis Site Transportation Demand Management,* potential impacts resulting from air pollutant emissions generated by mobile sources would be reduced; however, as emissions may exceed thresholds, impacts would be *significant and unavoidable* (Class I).

Impact AQ-4. Given that anticipated growth in the agricultural and manufacturing economic sectors under the Project would conflict with SBCAG's negative growth projections forecasted for the same sectors, impacts associated with the Project's consistency with policies and programs developed to reduce ozone and GHG emissions are considered significant. While implementation of **MM UE-2a**, *Energy Conservation Best Management Practices,* **MM UE-2b**, *Participation in a Renewable Energy Choice Program,* and **MM UE-2c**, *Plan Review by the County Green Building Committee,* would be required to reduce impacts to energy demands and have the secondary effect of reducing operational GHG emissions, implementation of these measures cannot quantifiably assure impacts would be reduced. Instead, ~~T~~to fully mitigate such impacts to a level below significance, potential mitigation measures would require County limitations on cannabis activities, which would conflict with the proposed Project objectives. As no feasible mitigation measures exist which could ensure consistency with the ECAP, residual impacts of the proposed Project would be *significant and unavoidable* (Class I).

Impact AQ-5. Given the extent of public nuisance currently generated by existing cannabis operations and the likelihood for the generation and detection of potentially objectionable odors under the Project, impacts related to odors are considered potentially significant. The implementation of

MM AQ-5, *Odor Abatement Plan (OAP)*, would require all cannabis licensees – whether cultivating in an outdoor environment or processing entirely within the interior of a structure – to prepare an OAP consistent with SBCAPCD's requirements for an OAP. This mitigation measure would serve to receive and address odor complaints, and may include the use of odor abatement technologies such as commercial air scrubbing or filtration systems sufficient to prevent the odors associated with cannabis activities from generating a continuous public nuisance. This requirement would serve to address many adverse odor nuisances to receptors Countywide, including where cannabis operations may be located adjacent to sensitive receptors and populations which may be more susceptible to odors. However, implementation of the Project would reasonably foreseeably expand cannabis operations and there remains the potential for odors to present a nuisance to neighboring receptors. Given the difficulty in being able to effectively contain or eliminate cannabis odors, and the residual potential for odors to be perceived as a nuisance despite implementation of odor control measures, additional potential mitigation is considered infeasible. Therefore, as no additional feasible mitigation beyond the requirement for an OAP has been identified which could ensure the containment, elimination of generation, or detectability of cannabis odors, residual impacts of the proposed Project would be *significant and unavoidable* (Class I).

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