3.2 AIR QUALITY

This section includes a discussion of existing air quality conditions, a summary of applicable regulations, and an analysis of potential construction and operational air quality impacts caused by proposed development of the Student Housing Project. Mitigation is developed as necessary to reduce significant air quality impacts to the extent feasible. Detailed calculations, modeling inputs, and results can be found in Appendix B.

Comments were received in response to the NOP related to the potential air emissions associated with new vehicle trips to and from the project site with project implementation. Comments included a request for an evaluation of potential health risks on future residents on the project site in light of the site's proximity to US 101.

3.2.1 Regulatory Setting

Air quality in the project area is regulated through the efforts of various federal, State, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality within the air basins are discussed below.

FEDERAL

U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) has been charged with implementing national air quality programs. EPA's air quality mandates draw primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress in 1990. EPA's air quality efforts address criteria air pollutants, ozone precursors, and hazardous air pollutants (HAPs). EPA regulations concerning criteria air pollutants and HAPs are presented in greater detail below.

Criteria Air Pollutants

The CAA required EPA to establish national ambient air quality standards (NAAQS) for six common air pollutants found all over the United States referred to as criteria air pollutants and precursors. EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with aerodynamic diameter of 10 micrometers or less (PM_{10}), fine particulate matter with aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. The NAAQS are shown in Table 3.2-1. The primary standards protect public health and the secondary standards protect public welfare. The CAA also required each state to prepare a state implementation plan (SIP) for attaining and maintaining the NAAQS. The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. California's SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, EPA may prepare a federal implementation plan that imposes additional control measures. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Table 3.2-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California (CAAQS)[1,2]	National (NAAQS)[3] Primary[2,4]	National (NAAQS)[3] Secondary[2,5]
Ozone	1-hour	0.09 ppm (180 μg/m^3)	–[5]	Same as primary standard
	8-hour	0.070 ppm (137 μg/m^3)	0.070 ppm (147 μg/m^3)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Same as primary standard
	8-hour	9 ppm[6] (10 mg/m^3)	9 ppm (10 mg/m^3)	
Nitrogen dioxide (NO_2)	Annual arithmetic mean	0.030 ppm (57 μg/m^3)	53 ppb (100 μg/m^3)	Same as primary standard
	1-hour	0.18 ppm (339 μg/m^3)	100 ppb (188 μg/m^3)	—
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 μg/m^3)	—	—
	3-hour	—	—	0.5 ppm (1300 μg/m^3)
	1-hour	0.25 ppm (655 μg/m^3)	75 ppb (196 μg/m^3)	—
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 μg/m^3	—	Same as primary standard
	24-hour	50 μg/m^3	150 μg/m^3	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 μg/m^3	12.0 μg/m^3	15.0 μg/m^3
	24-hour	—	35 μg/m^3	Same as primary standard
Lead [6]	Calendar quarter	—	1.5 μg/m^3	Same as primary standard
	30-Day average	1.5 μg/m^3	—	—
	Rolling 3-Month Average	–	0.15 μg/m^3	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 μg/m^3)	No national standards	
Sulfates	24-hour	25 μg/m^3		
Vinyl chloride [6]	24-hour	0.01 ppm (26 μg/m^3)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: μg/m^3 = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million.

1 California standards for ozone, carbon monoxide, SO_2 (1- and 24-hour), NO_2, particulate matter, 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 17 CCR.

2 Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

3 National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM_{10} 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. The $PM_{2.5}$ 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 U.S. Environmental Protection Agency for further clarification and current federal policies.

4 National primary standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

5 National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

6 The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold 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.

Source: CARB 2016.

Hazardous Air Pollutants and Toxic Air Contaminants

Toxic air contaminants (TACs), or in federal parlance hazardous air pollutants (HAPs), are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects, such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage, or short-term acute effects, such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and noncarcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants, for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 3.2-1). Cancer risk from TACs is expressed as excess cancer cases per 1 million exposed individuals, typically over a lifetime of exposure.

EPA regulates HAPs through its National Emission Standards for Hazardous Air Pollutants. The standards for a particular source category require the maximum degree of emission reduction that EPA determines to be achievable, which is known as the Maximum Achievable Control Technology standards. These standards are authorized by Section 112 of the 1970 CAA, and the regulations are published in 40 CFR Parts 61 and 63.

STATE

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required CARB to establish California ambient air quality standards (CAAQS) (Table 3.2-1). Relevant California regulations, by air pollutant type, are discussed in greater detail below.

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In some cases, the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to attain and maintain the CAAQS by the earliest date practical. The CCAA specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources. The CCAA also provides air districts with the authority to regulate indirect sources.

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807, which established the Air Toxics Program, sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, particulate matter (PM) exhaust from diesel engines (diesel PM) was added to CARB's list of TACs.

After a TAC is identified, CARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology (BACT) for toxics to minimize emissions.

In addition, CARB has published its *Air Quality and Land Use Handbook* that provides guidance on land use compatibility with TAC sources (CARB 2005). The *Air Quality and Land Use Handbook* offers recommendations for siting sensitive receptors near TAC sources such as high-volume roadways, distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

AB 617 of 2017 aims to help protect air quality and public health in communities around industries subject to the state's cap-and-trade program for greenhouse gas emissions. AB 617 imposes a new state-mandated local program to address nonvehicular sources (e.g., refineries, manufacturing facilities) of criteria air pollutants and TACs. The bill requires CARB to identify high-pollution areas and directs air districts to focus air quality improvement efforts through adoption of community emission reduction programs within these identified areas. Currently, air districts review individual sources and impose emissions limits on emitters based on BACT, pollutant type, and proximity to nearby existing land uses. This bill addresses the cumulative and additive nature of air pollutant health effects by requiring community-wide air quality assessment and emission reduction planning.

CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of CARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be 85 percent less in 2020 in comparison to year 2000 (CARB 2000). Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

CALIFORNIA STATE UNIVERSITY

California State University Sustainability Policy

In the Spring of 2022, The California State University (CSU) Board of Trustees adopted an update to the CSU system-wide Sustainability Policy, which was first adopted in 2014 with subsequent updates in 2019 and 2020. The current update became effective March 23, 2022. The policy aims to reduce the environmental impact of construction and operation of buildings and to integrate sustainability across the curriculum. The CSU Sustainability Policy established the following goals related to air quality:

- Promote use of alternative fuels and transportation programs.
- Procure 60 percent of energy supply from renewable sources by 2030.
- Increase on-site energy generation from 32 to 80 megawatts by 2030.

Cal Poly Campus Administrative Policy

Cal Poly environmental administrative policy is outlined in the Talloires Declaration, a 10-point plan for prioritizing and incorporating sustainability and environmental literacy in all aspects of its campuses' operations. Cal Poly signed the Declaration in April 2004. The goals outlined in the document are as follows:

- Increase Awareness of Environmentally Sustainable Development
- Create an Institutional Culture of Sustainability
- Educate for Environmentally Responsible Citizenship
- Foster Environmental Literacy for All

- Practice Institutional Ecology
- Involve All Stakeholders
- Collaborate for Interdisciplinary Approaches
- Enhance Capacity of Primary and Secondary Schools
- Broaden Service and Outreach Nationally and Internationally
- Maintain the Movement

LOCAL

Cal Poly Humboldt is part of the CSU, which is a statutorily and legislatively created, constitutionally authorized State entity. As explained in the "California State University Autonomy" section of Chapter 3 of this EIR, the CSU is not subject to local government planning and land use plans, policies, or regulations. Nevertheless, in the exercise of its discretion, Cal Poly Humboldt does reference, describe, and address local plans, policies, and regulations where appropriate and for informational purposes. This evaluation is also intended to be used by local agencies for determining, as part of their permit processes, the project's consistency with local plans, policies, and regulations.

North Coast Unified Air Quality Management District

The project site is within the North Coast Air Basin (NCAB), which is managed by three different air districts: the North Coast Unified Air Quality Management District (NCUAQMD), the Mendocino County Air Quality Management District, and the Northern Sonoma County Air Quality Management District. The NCUAQMD is the primary agency responsible for planning to meet NAAQS and CAAQS for the Del Norte, Humboldt, and Trinity Counties portion of the NCAB.

The Humboldt County portion of the NCAB is designated as a nonattainment area for the state PM_{10} standard but is designated as attainment or unclassified for all other state and federal standards. In 1995, the NCUAQMD published the *PM_{10} Attainment Plan* draft report, which presents available information about the nature and causes of exceedances of the PM_{10} CAAQS standards and identifies cost effective control measures that can be implemented to reduce ambient PM_{10} levels in order to achieve CAAQS (NCUAQMD 2022).

NCUAQMD has adopted rules and regulations that address the requirements of federal and state air quality laws to achieve, maintain, and protect health-based CAAQS and NAAQS and prevent deterioration of levels of air quality which may jeopardize human health and safety (NCUAQMD 2015a). NCUAQMD staff participate in the review environmental documents to determine potential adverse air quality impacts from projects and identify measures to mitigate those impacts. When applicable, the District follows environmental review procedures and guidelines as outlined in the NCUAQMD's Procedures for Environmental Impact Review document (NCUAQMD 2022).

While NCUAQMD has not formally adopted CEQA significance criteria to determine the significance of impacts that would result from projects, NCUAQMD recommends the use of the significance Best Available Control Technology (BACT) significance thresholds for stationary sources, as defined and listed in the NCUAQMD Regulation I Rule 110 (New Source Review And Prevention of Significant Deterioration) (NCUAQMD 2022, NCUAQMD 2015b).

Toxic Air Contaminants

NCUAQMD Regulation III enforces CARB's control measures for TACs requiring all sources that possess the potential to emit TACs to obtain permits from NCUAQMD. Permits may be granted to these sources if they are constructed and operated in accordance with applicable regulations, including air toxics control measures.

City of Arcata

The City of Arcata General Plan serves as a guide to all city development projects, both private and public. The following policies of the City of Arcata General Plan are relevant to air quality within the project site:

- **Policy AQ-1: Point and Area Sources of Air Pollutants.** Improve air quality by reducing emissions from stationary point sources of air pollution (e.g., wood burning fireplaces and gas powered lawn mowers) which cumulatively emit large quantities of emissions.
- **Policy AQ-2: Mobile Sources of Air Pollutants.** Improve air quality by reducing emissions from transportation sources, particularly motor vehicles, and other mobile sources. Reduce vehicle miles of travel and encourage shifts to alternative modes of travel.

3.2.2 Environmental Setting

CLIMATE, METEOROLOGY, AND TOPOGRAPHY

In general, the climate of northern coastal California is characterized by cool summers and mild winters with frequent fog and significant amounts of rain. In coastal areas, the ocean helps to moderate temperatures year-round. Further inland, the summers are hotter and drier and the winters colder and snowier. At higher elevations in inland areas, it is cooler in the summers and snowier in the winter. The average annual rainfall in Humboldt County ranges from 38 inches in Eureka to 141 inches in Honeydew. Approximately 90 percent of the annual precipitation falls between October and April. Higher rainfall in winter often influences high river levels. Winter snowfall is common at higher elevations. The dry season is between May and September.

Average temperatures on the coast in Eureka range from the low 60s in the summer to the low 40s during the winter. Inland average temperatures, such as in Willow Creek or Hoopa, range from the 90s to the 30s. On the coast, summer fog is common when inland temperatures rise.

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to drive the movement and dispersal of air pollutants. Winds control the rate and dispersion of local pollutant emissions. In the California North Coast Air Basin, dominant winds exhibit a seasonal pattern, especially in coastal areas. In the summer months, strong north to northwesterly winds are common and during the winter, storms from the South Pacific increase the percentage of days with winds from southerly quadrants. Wind direction often assumes a daily pattern in the river canyons that empty into the Pacific. In the morning hours, cool air from higher elevations flows down the valleys while later in the day as the lower elevation air heats up, this pattern is reversed and the airflow heads up the canyon. These airflows are often quite strong. Offshore and onshore flows are also common along the coast and are associated with pressure systems in the area. Onshore flows frequently bring foggy cool weather to the coast, while offshore flows often blow fog away from the coast and bring sunny warm days.

Humboldt County commonly experiences two types of inversions, vertical and horizontal, that affect the vertical depth of the atmosphere through which pollutants can be mixed. Vertical air movement is important in spreading pollutants through a thicker layer of air. Horizontal movement is important in spreading pollutants over a wider area. Upward dispersion of pollutants is hindered wherever the atmosphere is stable; that is, where warm air overlies cooler air below.

Because of the region's topography and coastal air movements, inversion conditions are common in the NCAB. Inversions are created when warm air traps cool air near the ground surface and prevents vertical dispersion of air. Valleys, geographic basins, and coastal areas surrounded by higher elevations are the most common locations for inversions to occur. During the summer, inversions are less prominent, and vertical dispersion of the air is good. However, during the cooler months between late fall and early spring, inversions last longer and are more geographically extensive; vertical dispersion is poor, and pollution may be trapped near the ground for several concurrent days.

Radiation inversion occurs when the air layer near the surface of the ground cools and may extend upward several hundred feet. Radiation inversion in Humboldt County is found in the night and early mornings almost daily, but is more prominent from late fall to early spring when there is less sunlight and it is cooler. Radiation inversion tends to last longer into the morning during the winter months than in the summer.

Subsidence inversion is caused by downward moving air aloft, which is common in the area of high pressure along and off the coast. The air warms at a rate of 5.5 degrees Fahrenheit (°F) per 1,000 feet as it descends. Thus, it arrives at a lower height warmer than the air just below and limits the vertical mixing of air. Subsidence inversion often affects a large area and is more common during the summer months. This inversion, which usually occurs from late spring through the early fall, can be very strong and shallow given the cooling of the lower layers from the cool ocean water.

In the NCAB, air quality is predominantly influenced by the climatic regimes of the Pacific. In summer, warm ground surfaces draw cool air in from the coast, creating frequent thick fogs along the coast and making northwesterly winds common. In winter, precipitation is high, wintertime surface wind directions are highly variable, and weather is more affected by oceanic storm patterns (NCUAQMD 1995: II-1 to II-3).

CRITERIA AIR POLLUTANTS

Criteria air pollutants are those pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive people from illness or discomfort.

A brief description of key criteria air pollutants in the NCAB and their health effects are provided below. Criteria air pollutants include ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. However, ozone and PM_{10} are the criteria air pollutants of primary concern in this analysis because of their nonattainment status with respect to the NAAQS and CAAQS. The attainment status of criteria air pollutants with respect to the NAAQS and CAAQS in Humboldt County are shown in Table 3.2-2. Monitoring data representative of ambient air concentrations in the project area are provided in Table 3.2-3.

Ozone

Ground-level ozone is not emitted directly into the air but is created by chemical reactions between reactive organic gas (ROG) and oxides of nitrogen (NO_X). This happens when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight. Ozone at ground level is a harmful air pollutant because of its effects on people and the environment, and it is the main ingredient in smog (EPA 2016).

Acute health effects of ozone exposure include increased respiratory and pulmonary resistance, cough, pain, shortness of breath, and lung inflammation. Chronic health effects include permeability of respiratory epithelia and possibility of permanent lung impairment (EPA 2016). Emissions of the ozone precursors ROG and NO_X have decreased over the past two decades because of more stringent motor vehicle standards and cleaner burning fuels (CARB 2013).

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions (EPA 2012).

Acute health effects of exposure to NO_X includes coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis, or pulmonary edema, breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, and death. Chronic health effects include chronic bronchitis and decreased lung function (EPA 2016).

Particulate Matter

PM_{10} is emitted directly into the air, and can include fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2013). $PM_{2.5}$ includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions in the NCAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM_{10} and $PM_{2.5}$ are projected to remain relatively constant through 2035. Emissions of $PM_{2.5}$ in the NCAB are dominated by the same sources as emissions of PM_{10} (CARB 2013).

Acute health effects of PM_{10} exposure include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, and premature death. Chronic health effects include alterations to the immune system and carcinogenesis (EPA 2016).

Table 3.2-2 Attainment Status Designations for Humboldt County

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	No Federal Standard	Attainment (1-hour) Classification
	Attainment	Attainment (8-hour)
Respirable particulate matter (PM_{10})	Unclassified/Attainment (24-hour)	Nonattainment (24-hour)
		Attainment (Annual)
Fine particulate matter ($PM_{2.5}$)	Unclassified/Attainment (24-hour)	(No state standard for 24-Hour)
	Unclassified/Attainment (Annual)	Attainment (Annual)
Carbon monoxide (CO)	Unclassified (1-hour)	Attainment (1-hour)
	Unclassified (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO_2)	Unclassified (1-hour)	Attainment (1-hour)
	Unclassified (Annual)	Attainment (Annual)
Sulfur dioxide (SO_2)	Unclassified (1-Hour)	Attainment (1-hour)
		Attainment (24-hour)
Lead (Particulate)	No Attainment Information	Attainment (30-day average)
Hydrogen Sulfide	No Federal Standard	Attainment (1-hour)
Sulfates		Attainment (24-hour)
Visibly Reducing Particles		Attainment (8-hour)
Vinyl Chloride		No Attainment Information

Source: EPA 2022, NCUAQMD 2022.

MONITORING STATION DATA AND ATTAINMENT DESIGNATIONS

Criteria pollutant concentrations in Humboldt County and the NCAB are measured by several monitoring stations in the area. The station nearest to the project site is the Eureka-Jacobs station, located approximately 7 miles southwest of the site. Pollutant concentrations monitored at this station are considered representative of ambient air quality in the project area. Table 3.2-3 below provides a summary of monitoring data from the Eureka-Jacobs station

Table 3.2-3 Summary of Annual Air Quality Data – Eureka Jacobs Station (2019-2021)1

Ozone [2]	2019	2020	2021
Maximum concentration (1-hour/8-hour, ppm)	0.051/0.049	0.046/0.048	0.050/0.044
Number of days state standard exceeded (1-hour/8-hour)	0/0	0/0	0/0
Number of days national standard exceeded (1-hour/8-hour)	0/0	0/0	0/0
Respirable Particulate Matter (PM_{10})	**2019**	**2020**	**2021**
Maximum Concentration (µg/m^3) (California)	49.3	171.5	61.9
Number of days state standard exceeded (measured [2]	*	*	*
Number of days national standard exceeded (measured [2])	0	1	0
Fine Particulate Matter ($PM_{2.5}$)	**2019**	**2020**	**2021**
Maximum Concentration (µg/m^3) (California)	18.7	38.8	16.2
Annual Average (µg/m^3) (California)	*	*	6.9
Number of days national standard exceeded (measured [2])	0	2	0

Notes: µg/m^3 = micrograms per cubic meter; NA = data not available; ppm = parts per million; * = Insufficient data to determine the value

1 The ambient air quality standards and attainment status for these pollutants are presented in Table 3.2-2.

2 Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard.

Source: CARB 2022.

TOXIC AIR CONTAMINANTS

According to the *California Almanac of Emissions and Air Quality* (CARB 2013), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Based on receptor modeling techniques, CARB estimated the average statewide cancer risk associated with diesel PM concentrations to be 360 excess cancer cases per million people in the year 2020 (CARB 2000:15). Overall, statewide emissions of diesel PM are forecasted to decline by 71 percent between 2000 and 2035 (CARB 2013:3-8).

ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one.

This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. Typical odor sources of concern include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, and food packaging plants (Sacramento Metropolitan Air Quality Management District 2016).

ASBESTOS

Naturally occurring asbestos (NOA) was identified as a TAC in 1986 by CARB. NOA is located in many parts of California, and is commonly associated with ultramafic rocks, according to a special publication by the California Geological Survey (Churchill and Hill 2000). Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong durable fibers. Ultramafic rocks form in high-temperature environments well below the surface of the earth. By the time they are exposed at the surface by geologic uplift and erosion, ultramafic rocks may be partially to completely altered into a type of metamorphic rock called serpentinite. Sometimes the metamorphic conditions are right for the formation of chrysotile asbestos or tremolite-actinolite asbestos in the bodies of these rocks, along their boundaries, or in the soil.

Asbestos could be released into the air from serpentinite or ultramafic rock if the rock is broken or crushed. At the point of release, asbestos fibers could become airborne, causing air quality and human health hazards. Natural weathering and erosion processes act on asbestos bearing rock and soil, increasing the likelihood for asbestos fibers to become airborne if disturbed (California Geological Survey 2002:22).

According to the report, A General Location Guide to Ultramafic Rocks in California—Areas More Likely to Contain Naturally Occurring Asbestos, there are areas of Humboldt County in which asbestos is likely to occur (Churchill and Hill 2000). Asbestos-containing material may be present in existing structures at the project site. The demolition or renovation of existing structures would be subject to regulatory requirements for the control of asbestos-containing material.

SENSITIVE RECEPTORS

Sensitive receptors are generally considered to include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and/or the potential for increased and prolonged exposure of individuals to pollutants.

Nearby sensitive receptors to the project site include residences as close as 25 feet from the western and southern boundaries of the project site, Cahill Park approximately 230 feet southwest of the project site, and Arcata Preschool approximately 390 feet southwest of the project site. These sensitive receptors are discussed in greater depth under Impact 3.2-3 below.

3.2.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

Regional and local criteria air pollutant emissions and associated impacts, as well as impacts from TACs, CO concentrations, and odors were assessed in accordance with NCUAQMD guidance, per its webpage, and standard practices and methodologies.

Construction and operational emissions of criteria air pollutants and precursors were calculated using the California Emissions Estimator Model (CalEEMod) version 2020.4.0 (CAPCOA 2020) computer program, as recommended by NCUAQMD. Modeling was based on project-specific information (e.g., housing units, building square footage) where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on the project’s location and land use type.

Construction

Construction activities would occur over an approximately 18- to 24-month period, starting in 2023 and finishing in 2024/2025. Construction activities would include site grading and excavation, utility trenching, building foundation pouring, and building construction. Specific phasing schedule and duration was not available. CalEEMod defaults were used to estimate equipment based on the project's acreage, square footage by land use type, and expected overall schedule. It was assumed that all diesel construction equipment would be powered by Tier 4 engines.

Detailed construction assumptions and inputs can be found in Appendix B.

Operation

Operation-related emissions of criteria air pollutants were estimated for area sources (e.g., landscaping-related fuel combustion sources, consumer products, building maintenance) and mobile sources.

As noted in Section 2, "Project Description," it was assumed that natural gas services would not be provided, and all energy-related needs would be provided by Pacific Gas and Electric Company (PG&E) electrical procurement. As such, energy-related emissions associated with on-site combustion of natural gas (which is typically associated with space and water heating) is assumed to be zero.

Operation-related mobile-source emissions were modeled based on the estimated daily vehicle trips and vehicle miles traveled (VMT) associated with new student housing uses. The number of trips and VMT used in the air quality modeling were obtained from the transportation analysis conducted for the project (see Section 3.11, "Transportation"). Mobile-source emissions were calculated using CalEEMod default emission rates along with project-specific trip and VMT.

Operational output sheets can be found in Appendix B.

THRESHOLDS OF SIGNIFICANCE

Per Appendix G of the CEQA Guidelines and standard practice, an impact on air quality would be significant if implementation of the project would:

- conflict with or obstruct implementation of an applicable air quality plan;
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
  - Construction or operational emissions that exceed either the daily or annual thresholds shown in Table 3.2-4.
- expose sensitive receptors to substantial increases in TAC emissions from the following sources:
  - construction- or operations-generated TAC emissions that exceed 10 in 1 million for carcinogenic risk (i.e., the risk of contracting cancer) at existing sensitive receptors; or
- result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

As noted above, NCUAQMD has not established CEQA significance criteria to determine the significance of impacts that would result from projects. However, NCUAQMD Rule 110 identifies thresholds for new or modified stationary sources, which represent levels above which emissions from these sources could conflict with regional attainment efforts. By permitting large stationary sources, the NSR program ensures that new emissions will not slow regional progress toward attaining or maintaining the CAAQS and NAAQS. While NCUAQMD's NSR thresholds are related to stationary source emissions, the NSR thresholds represent emissions levels required to attain the NAAQS and CAAQS. The NAAQS and CAAQS are informed by a wide range of scientific evidence demonstrating that there are known safe concentrations of criteria pollutants. While recognizing that air quality is cumulative problem, the NCUAQMD considers projects that generate criteria pollutant and ozone precursor emissions below these thresholds to be minor and to not adversely affect air quality such that the NAAQS or CAAQS would be exceeded. The NCUAQMD's significance thresholds from Rule 110 are presented in Table 3.2-4. These thresholds are the same for construction and operations.

Table 3.2-4 Air Quality Thresholds

Pollutant	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Daily (pounds per day)	50	50	500	80	80	50
Annual (tons per year)	40	40	100	40	15	10

Note: NCUAQMD also has BACT thresholds for fluorides, hydrogen sulfide, lead, and other sulfur-related compounds. Those pollutants are not associated with project construction or operations, so they are not analyzed further.

Source: NCUAQMD 2015b.

ISSUES NOT DISCUSSED FURTHER

Health Risks Associated with US 101

As noted above, an NOP comment was received requesting that the EIR evaluate potential health risks associated with the provision of housing at the project site, adjacent to US 101. CARB has established recommendations for when health risks associated with highway/roadway volumes should be considered. More specifically, CARB recommends avoiding siting new sensitive land uses within 500 feet of an urban roadway/freeway with 100,000 vehicles/day (CARB 2005). Based on Caltrans data, the segment of US 101 does not experience 100,000 vehicles/day (Caltrans 2017). Further, in 2015, a California Supreme Court decision resulted in changes to CEQA with regard to the effects of existing environmental conditions on a project's future users or residents. The effects of the environment on a project are generally outside the scope of CEQA unless the project would exacerbate these conditions, as concluded by the California Supreme Court (see California Building Industry Association v. Bay Area Air Quality Management District [2015] 62 Cal.4th 369, 377 ["we conclude that agencies generally subject to CEQA are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users."]). Changes to the CEQA Guidelines to reflect this decision are in process by the State, but have not been adopted. As noted in the Bay Area Air Quality Management District's revised CEQA thresholds of significance, local agencies are not precluded from considering the impact of locating new development in areas subject to existing environmental hazards; however, CEQA cannot be used by a lead agency to require a developer or other agency to obtain an EIR or implement mitigation measures solely because the occupants or users of a new project would be subjected to the level of emissions specified. This issue is not discussed further.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.2-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Plan

Implementation of the project would be consistent with Cal Poly Humboldt's Master Plan in that it would not exceed student enrollment projections for the campus and would provide additional student housing proximate to campus, and the City of Arcata General Plan, in that it would optimize an underutilized infill location. Because the Master Plan growth projections were used to inform the broader growth projections for the region, which were then used to develop regional air quality plans like the 1995 PM_{10} Attainment Plan, the project would be consistent with the applicable air quality plans and planning efforts. The project would not conflict with or obstruct air quality planning efforts, and this impact would be **less than significant**.

As noted above, the Humboldt County portion of NCAB is in nonattainment for PM_{10} with respect to the CAAQS but attainment for all other pollutants. As a result, the 1995 PM_{10} Attainment Plan is the only applicable air quality plan for the area. The PM_{10} Attainment Plan includes an emissions budget and outlines recommended control measures to reduce emissions and attain the PM_{10} standard. The governing land use document relevant to the project area is the adopted 2004 Master Plan for Cal Poly Humboldt. Additionally, while Cal Poly Humboldt is not subject to local government planning and land use plans, policies, or regulations, the City of Arcata's General Plan Land Use Element provides policies to address land use and planning within the city and to guide sustainable development that meets their land use and planning needs. Projects that propose development consistent with the growth anticipated in the Cal Poly Humboldt's Master Plan and the City's General Plan are considered consistent with regional air quality plans. A project may be inconsistent with air quality plans if it would result in population or employment growth that exceeds estimates used to develop the emissions inventories for the regional air quality plans.

The project would support Cal Poly Humboldt's mission of accommodating student enrollment growth (up to 12,000 FTE students as stated in the Master Plan), providing housing opportunities for students within Cal Poly Humboldt property to address on-campus housing needs, and optimize an underutilized infill location within the City. Additionally, as discussed in Section 3.7, "Land Use and Planning," the City promotes the use of infill on underutilized properties. The project is an infill project that would optimize an underutilized infill location. Therefore, the project would be consistent with the growth forecasts for the area and would be consistent Cal Poly Humboldt's mission of providing housing near educational facilities. As a result, the project is considered consistent with applicable air quality plans and would not conflict with or obstruct implementation of the applicable air quality plan. This impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact 3.2-2: Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is Non-Attainment under an Applicable Federal or State Ambient Air Quality Standard

Construction and operation of the project would result in emissions of VOC, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$. Construction activities would result in maximum daily emissions of VOC that would exceed NCUAQMD's thresholds of significance prior to mitigation. Operational activities would result in maximum daily emissions well below NCUAQMD's thresholds of significance. This impact would be **significant.**

The proposed project would contribute to regional air pollutant emissions during short-term construction and long-term operations. An analysis of the construction- and operations-related effects of the proposed project is presented below. Refer to Appendix B for detailed modeling input parameters and results

Construction

Construction of the proposed project has the potential to create air quality impacts through the use of vehicles and equipment such as heavy-duty construction equipment, construction workers' vehicle trips, material deliveries, and trips by heavy-duty haul trucks. In addition, earthwork activities would result in fugitive dust emissions, and paving operations would release VOCs from off-gassing. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources

The analysis herein assumes construction would occur between March 2023 and September 2024. It was assumed that the various phases of construction (e.g., site grading, building construction, asphalt paving, architectural coatings) would stagger and occur sequentially and would thus not occur concurrently on a given day.

As shown in Table 3.2-5, maximum daily project-related criteria pollutant emissions would exceed thresholds for VOC. This VOC exceedance is driven primarily by the application of architectural coatings. NCUAQMD has not adopted a rule to limit VOC content in residential and non-residential architectural coatings. Thus, modeling in CalEEMod is based on the default VOC content of 250 grams per liter (g/L). As shown, daily VOC emissions exceed the threshold and mitigation is required.

Table 3.2-5 Estimated Construction Emissions – Unmitigated Pounds Per Day

Construction Phase	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2023	3	35	29	<1	21	11
2024	462	18	26	<1	3	1
Maximum Day	**462**	**35**	**29**	**<1**	**21**	**11**
Threshold	*50*	*50*	*500*	*80*	*80*	*50*
Exceed Threshold?	**Yes**	No	No	No	No	No

Source: Modeled by Ascent Environmental in 2022.

<u>Operations</u>

Once operational, the proposed project would result in air pollutant emission sources associated with new vehicle trips and area-wide activities. As noted in Section 3.2-3, the project would not include any sources that would consume natural gas. Therefore, there would be no on-site combustion of natural gas for space and water heating and energy-related criteria pollutant emissions are assumed to be zero.

Emissions resulting from proposed project buildout are summarized in Table 3.2-6. As shown, the increase in project-related criteria pollutant emissions would not exceed daily operations-period thresholds for any pollutant.

Table 3.2-6 Estimated Operational Emissions – Unmitigated Pounds Per Day

Operational Source	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Area Sources	10	<1	20	<1	<1	<1
Mobile Sources	13	20	109	<1	16	5
Maximum Day	**23**	**21**	**129**	**<1**	**16**	**5**
Threshold	*50*	*50*	*500*	*80*	*80*	*50*
Exceed Threshold?	No	No	No	No	No	No

Source: Modeled by Ascent Environmental in 2022.

Therefore, operational activities resulting from the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment, and the impact during operations would be **less than significant**.

Mitigation Measures

Mitigation Measure 3.2-2: Use Low VOC Coatings During Construction

To reduce VOC emissions during construction activities involving application of coatings, Cal Poly Humboldt shall require that construction contractor to use low-VOC coatings that have a VOC content of 10 g/L or less during all phases of construction.

<u>Significance after Mitigation</u>

Implementation of Mitigation Measure 3.2-1, which would require low-VOC coatings, would reduce VOC emissions. The reduction in VOC emissions from coatings is proportional to the change in VOC content. For instance, requiring coatings with a VOC content of 10 g/L instead of the default 250 g/L would result in an approximately 96 percent reduction in VOC emissions from the application of coatings. As shown in Table 3.2-7, implementation of Mitigation Measure AQ -1 would reduce construction-period VOC emissions to a level below the threshold. Therefore, the impact during construction would be **less than significant**. Under the option, impacts would be similar to but incrementally less than those under the project. The aforementioned mitigation measure would still be required.

Table 3.2-7 Estimated Construction Emissions – Mitigated Pounds Per Day

Construction Phase	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
2023	3	35	29	<1	21	11
2024	19	18	26	<1	3	1
Maximum Day	**19**	**35**	**29**	**<1**	**21**	**11**
Threshold	*50*	*50*	*500*	*80*	*80*	*50*
Exceed Threshold?	No	No	No	No	No	No

Source: Modeled by Ascent Environmental in 2022.

Impact 3.2-3: Expose Sensitive Receptors to Substantial Pollutant Concentrations

Construction-related emissions of TACs associated with proposed project would be spread over the project area, not affecting any one receptor for extended periods of time, and therefore, would not result in exposure of existing receptors to substantial TAC concentrations. The project would not result in exposure of sensitive receptors to excessive TAC emissions from operational emissions. This impact would be **less than significant**.

The focus of this TAC analysis is diesel PM. Although other TACs exist (e.g., benzene, 1,3-butadiene, hexavalent chromium, formaldehyde, methylene chloride), they are primarily associated with industrial operations and the project would not include any industrial sources. TACs from diesel PM are of particular importance because the potential cancer risk from inhalation of diesel PM outweighs the risk for all other health impacts (i.e., noncancer chronic risk, short-term acute risk) and health impacts from other TACs (OEHHA 2003).

Construction

Construction-related activities would result in temporary, intermittent emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment used for site preparation (e.g., demolition, clearing, grading); paving; on-road truck travel; and other miscellaneous activities. On-road diesel-powered haul trucks traveling to and from the construction areas to deliver materials and equipment are less of a concern because they would not stay on the site for long periods of time.

With regards to exposure of diesel PM, the dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher level of health risk for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period.

Based on the emissions modeling conducted and presented in Table 3.2-5 above, maximum daily emissions of PM_{10} would be 21 pounds per day, of which approximately 1.4 pounds per day would be in the form of diesel PM (the remainder is primarily fugitive dust). This maximum daily emission level represents multiple, simultaneous construction projects. It is more likely, however, that construction activities would be located at various locations throughout the project area during the 18- to 24-month construction duration, and due to the dispersive properties of diesel PM, concentrations from individual construction sites would be lower (e.g., decrease of 70 percent at 500 feet from the source). In addition, the use of off-road heavy-duty diesel equipment would be limited to the construction phase of five years and split between two phases. Construction activity intensity and duration would vary throughout the project area. As such, no single existing or future receptor would be exposed to substantial construction-related emissions of diesel PM for extended periods of time.

Residential receptors are generally of primary concern when discussing TAC exposure, as they would generally be exposed to project generated TACs for extended periods of time. The nearest residences are located as close as 25 feet from the western and southern boundaries of the project site. Given the low level of a diesel PM on-site and the short duration of activities, TAC exposure from construction activities would not be considered substantial at these receptors. Thus, given the temporary (18-24 months) and intermittent nature of construction activities within the project area (i.e., construction does not occur in any one part of the project site), the dose of diesel PM of any one receptor would be limited. This impact would be less than significant.

Operations

The project's new facilities would not result in any new stationary sources of TACs. The project would involve student housing along with several on-site amenities, including an exercise gym, common lounge spaces, study spaces, computer rooms, television rooms, a café/market, conference rooms, and bicycle parking. None of these uses would result in new TAC sources. The project would result in the operation of additional land uses within the project area, which would have a corresponding increase in vehicle trips and associated TAC emissions, but these trips would be dispersed throughout parking areas and public roadways. Emissions would be generated by new vehicle trips within the region with only a small portion of these trips occurring within the project area near sensitive receptors. As a result, the actual concentration near sensitive land uses associated with implementation of the project would be minimal, and implementation of the project would not result in exposure of new or existing sensitive receptors to TACs from regular and frequent vehicle trips

Considering the highly dispersive properties of diesel PM, the relatively low mass of diesel PM emissions that would be generated at any single place during the operation of new land uses, operations-related TACs are not anticipated to result in the exposure of sensitive receptors to substantial pollutant concentrations. As a result, this impact would be less than significant.

Summary

Considering the relatively low levels of diesel PM emissions that would be generated by construction, the relatively short duration of diesel PM-emitting construction activity at any one location of the project area, the distance to the nearest off-site sensitive receptors, and the highly dispersive properties of diesel PM, construction-related TAC emissions would not expose sensitive receptors to substantial pollutant concentrations or an incremental increase in cancer risk. Project operations would result in increased vehicle activity; however, the emissions would be distributed throughout the region and would not result in substantial concentrations for nearby sensitive receptors. Thus, construction and operation-related TAC emissions would not result in substantial pollutant concentrations or an incremental increase in cancer risk at nearby sensitive receptors. This impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact 3.2-4: Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People

The project would introduce construction-related odor sources into the area (e.g., temporary diesel exhaust emissions during construction). However, these odor sources would be temporary, intermittent, and dissipate rapidly from the source. Once construction is complete, the project would not introduce land uses that would emit odors long term. As a result, potential exposure of sensitive receptors to objectionable odors would be **less than significant**.

The occurrence and severity of odor impacts depends on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the affected receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generate citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose a substantial number of people to objectionable odors would be deemed to have a significant impact.

Typical odor sources of concern include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, and food packaging plants (Sacramento Metropolitan Air Quality Management District 2016). None of these odorous land uses are proximate to the project site.

Odors emitted in the exhaust of on-site engines during construction and operation, particularly diesel-fueled engines, may be considered offensive to some individuals. The generation of these odorous emissions would vary on a day-to-day basis depending on the type of on-site activities taking place. However, the types of diesel emitting equipment would not be unlike other diesel-powered equipment used in other development projects in the area.

Such emissions would be intermittent in nature and would dissipate rapidly with increasing distance from the source. For these reasons, the use of exhaust-emitting equipment for the construction and operation of cultivation operations would not result in the exposure of a substantial number of people to objectionable odors. This impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

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