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3.2 Air Quality

3.2.1 Introduction

This section describes existing air quality conditions regionally and within Humboldt County as well as the relevant regulatory framework. This section also analyzes the possible impacts related to air quality (specifically with regard to emissions of criteria pollutants and toxic air contaminants) that could result from implementation of the RCAP and CEQA GHG Emissions Thresholds.

3.2.2 Environmental Setting

Humboldt is located in the North Coast Air Basin (NCAB). The NCAB includes Humboldt County, Mendocino County, and Northern Sonoma County. The North Coast Unified Air Quality Management District (NCUAQMD) regulates air pollutant point sources in the NCAB and is responsible for maintaining air quality in the NCAB. The quantity of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions affect the ambient concentrations of air pollutants in the region. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

Regional Climate and Meteorology

The climate of northern coastal California is generally characterized by cool summers and mild winters with frequent fog and significant amounts of rain. The ocean moderates temperatures year-round in the coastal areas. Further inland, the summers are hotter and drier, and the winters are 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 Hoopa or Willow Creek, range from the 90s to the 30s. On the coast, summer fog is common when inland temperatures rise.

Atmospheric conditions such as wind speed and 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 NCAB, dominant winds exhibit a seasonal pattern, especially in coastal areas. Summer months observe strong north to northwesterly winds while in 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. During the morning hours, cooler air from higher elevations flows down the valleys whereas 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 frequently very strong. Off-shore and on-shore flows are also common along the coast and are associated with pressure systems in the area. On-shore flows yields foggy cool weather to the coast, while off-shore flows often pushes fog away from the coast and produces warm, sunny days.

A primary factor in air quality is the mixing depth and extent of the air columns available for dilution of contaminant emissions. There are two types of inversions commonly experienced in Humboldt County, vertical and horizontal, that affect the vertical depth of the atmosphere through which pollutants can be mixed. Vertical air movement is important in dispersing air pollutants through a thicker layer of air; horizontal movement is important in dispersing pollutants over a wider area. Upward dispersion of pollutants is limited wherever the atmosphere is stable (i.e., where warm air lies above cooler air below).

The region's topography and coastal air movements results in common inversion conditions throughout the NCAB. These inversions occur when warm air traps cool air near the ground surface and prevents vertical air dispersion. Valleys, geographic basins, and coastal areas surrounded by higher elevations are the most common areas for inversions to occur. Inversions are less prominent during summer when 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. During these inversion events, vertical dispersion is poor, and pollution may be trapped near the ground for several consecutive days.

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

Subsidence inversion, a type of vertical inversion, occurs from downward moving air aloft, which is common in the area of high pressure along and nearby the coast. The air warms at a rate of approximately 5.5 degrees Fahrenheit (°F) per 1,000 feet as it descends. The downward moving air arrives at the lower height warmer than the air just below and limits the vertical mixing of air. Subsidence inversion often affects a large area of the County 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 from the cooling of the lower layers due to the cool ocean water.

Air quality is predominantly influenced in the NCAB by the climatic regimes of the Pacific Ocean. In summer, warm ground surfaces draw cool air in from the coast, creating frequent thick fogs near the coastline and making northwesterly winds common. In winter, precipitation is high and surface wind directions are highly variable, and weather is more affected by oceanic storm patterns.¹

Air Pollutant Types, Sources, and Effects

Criteria Air Pollutants

Concentrations of criteria air pollutants are used as indicators of air quality conditions. Air pollutants are termed criteria air pollutants if they are regulated by developing specific public health and welfare-based criteria as the basis for setting permissible levels. According to the United States Environmental Protection Agency (USEPA), criteria air pollutants are ozone, particulate matter equal to or less than 10 microns in diameter (PM₁₀), PM equal to or less than 2.5 microns in diameter (PM_{2.5}), nitrogen dioxide (NO₂), carbon monoxide (CO), lead, and sulfur dioxide (SO₂). Criteria air pollutants are defined in more detail under Section 3.2.3, Regulatory Framework. Table 3.2-1

¹ North Coast Unified Air Quality Management District (NCUAQMD). 1995. Particulate Matter (PM₁₀) Attainment Plan. Pages II-1 to II-3. <https://ncuaqmd.specialdistrict.org/files/6f1ad639b/NCUAQMD+Attainment+Plan+5-95.pdf> (accessed October 2024).

provides a summary of the types, sources, and effects of these criteria air pollutants of national and California concern.

Table 3.2-1 Description of Criteria Air Pollutants of National and California Concern

Criteria Air Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Ozone	Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), nitrous oxides (NO _x), and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.	Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NO _x) are mobile sources (on-road and off-road vehicle exhaust).	Irritate respiratory system; reduce lung function; breathing pattern changes; reduction of breathing capacity; inflame and damage cells that line the lungs; make lungs more susceptible to infection; aggravate asthma; aggravate other chronic lung diseases; cause permanent lung damage; some immunological changes; increased mortality risk; vegetation and property damage.
Particulate matter (PM ₁₀) Particulate matter (PM _{2.5})	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM ₁₀ refers to particulate matter that is between 2.5 and 10 microns in diameter, (one micron is one-millionth of a meter). PM _{2.5} refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal, and recycling. Mobile or transportation related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.	<ul style="list-style-type: none"> ▪ Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravate existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. ▪ Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.
Nitrogen dioxide (NO ₂)	During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides—NO _x (NO, NO ₂ , NO ₃ , N ₂ O, N ₂ O ₃ , N ₂ O ₄ , and N ₂ O ₅). NO _x is a precursor to ozone, PM ₁₀ , and PM _{2.5} formation. NO _x can react with compounds to form nitric acid and related small particles and result in PM related health effects.	NO _x is produced in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. Nitrogen dioxide forms quickly from NO _x emissions. NO ₂ concentrations near major roads can be 30 to 100 percent higher than those at monitoring stations.	Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; contributions to atmospheric discoloration; increased visits to hospital for respiratory illnesses.

Humboldt County
Regional Climate Action Plan and CEQA GHG Emissions Thresholds

Criteria Air Pollutant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Carbon monoxide (CO)	CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.	CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources.	Ranges depending on exposure: slight headaches; nausea; aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease; decreased exercise tolerance in persons with peripheral vascular disease and lung disease; impairment of central nervous system functions; possible increased risk to fetuses; death.
Sulfur dioxide (SO ₂)	Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SO _x) include sulfur dioxide and sulfur trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below state and federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM ₁₀ .	Human caused sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethyl sulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards.	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.
Lead	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.

Sources: California Environmental Protection Agency (Cal/EPA) 2002; California Air Resources Board (CARB); United States Environmental Protection Agency (USEPA); National Toxicology Program

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs) are also used as indicators of air quality conditions. TACs are defined as air pollutants that may cause or contribute to an increase in mortality or 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 very low concentrations. 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, runny nose, throat pain, or headaches). For those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which some adverse health impacts are not expected to occur. This contrasts with the criteria pollutants such as NO₂ and carbon dioxide (CO₂) for which acceptable levels of exposure can be determined and for which the State and federal governments have set ambient air quality standards.

TACs are separated into carcinogens and noncarcinogens based on the nature of the physiological effects associated with exposure to a particular TAC. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. Cancer risk is typically expressed as excess cancer cases per million exposed individuals, typically over a lifetime exposure or other prolonged duration. For noncarcinogenic substances, there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels may vary depending on the specific pollutant. Acute and chronic exposure to noncarcinogens is expressed as a hazard index (HI), which is the ratio of expected exposure levels to an acceptable reference exposure levels.

To date, the California Air Resources Board (CARB) has designated nearly 200 compounds as TACs. CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risk from TACs can be attributed to a relatively few compounds, the most important being diesel particulate matter (DPM) from diesel-fueled engines. Common TACs of national and California concern include: DPM, volatile organic compounds (VOCs), benzene, asbestos, hydrogen sulfide, sulfates, visibility-reducing particulates, vinyl chloride, and lead. Table 3.2-2 provides a summary of these types, sources, and effects of TACs of national and California concern.

Table 3.2-2 Description of Toxic Air Contaminants of National and California Concern

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Diesel Particulate Matter (DPM)	Diesel PM is a source of PM _{2.5} —diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment.	Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Volatile Organic Compounds (VOCs)	Reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding CO, CO ₂ , carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably.	Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM ₁₀ and lower visibility.	Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as toxic air contaminants.
Benzene	Benzene is a VOC. It is a clear or colorless light-yellow, volatile, highly flammable liquid with a gasoline-like odor. The EPA has classified benzene as a “Group A” carcinogen.	Benzene is emitted into the air from fuel evaporation, motor vehicle exhaust, tobacco smoke, and from burning oil and coal. Benzene is used as a solvent for paints, inks, oils, waxes, plastic, and rubber. Benzene occurs naturally in gasoline at one to two percent by volume. The primary route of human exposure is through inhalation.	Short-term (acute) exposure of high doses from inhalation of benzene may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation, and at higher levels, loss of consciousness can occur. Long-term (chronic) occupational exposure of high doses has caused blood disorders, leukemia, and lymphatic cancer.
Asbestos	Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are chrysotile, amosite, and crocidolite.	Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States.	Exposure to asbestos is a health threat; exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a non-cancerous lung disease that causes scarring of the lungs). Exposure to asbestos can occur during demolition or remodeling of buildings that were constructed prior to the 1977 ban on asbestos for use in buildings. Exposure to naturally occurring asbestos can occur during soil-disturbing activities in areas with deposits present.
Hydrogen Sulfide	Hydrogen sulfide is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.

Toxic Air Contaminant	Physical Description and Properties	Sources	Most Relevant Effects from Pollutant Exposure
Sulfates	The sulfate ion is a polyatomic anion with the empirical formula SO ₄ . Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.	Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardio-pulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.
Visibility-reducing Particles	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM ₁₀ refers to particulate matter that is between 2.5 and 10 microns in diameter (1 micron is one-millionth of a meter). PM _{2.5} refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal; and recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.	<ul style="list-style-type: none"> ▪ Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravates existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias. ▪ Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.
Vinyl Chloride	Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, CARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.
Lead	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.

Sources: California Environmental Protection Agency (Cal/EPA); California Air Resources Board (CARB); United States Environmental Protection Agency (USEPA); National Toxicology Program

Air Quality

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. Atmospheric conditions such as wind speed, wind direction, and air temperature inversions interact with the physical features of the landscape to determine the movement and dispersal of air pollutant emissions and, consequently, their effect on air quality.

Regional Air Quality

The NCUAQMD is the primary agency responsible for planning to meet the National and California Ambient Air Quality Standards (NAAQS and CAAQS) in the NCAB, primarily the Humboldt, Del Norte, and Trinity Counties' portions of the basin.

AIR POLLUTANT STANDARDS

Air pollutant standards have been identified by USEPA and CARB for the following six criteria air pollutants that affect ambient air quality: ozone, NO₂, CO, SO₂, lead, PM₁₀, and PM_{2.5}. These air pollutants are called "criteria air pollutants," because they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. California has also established standards for toxic air contaminants such as visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Table 3.2-3 presents the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for these aforementioned air pollutants. California air quality standards are identical to or stricter than federal standards for all criteria pollutants. It should be noted that there are no State or federal air quality standards for VOCs, benzene, or DPM.

Ambient air pollutant concentrations in the NCAB are measured at air quality monitoring stations operated by CARB and NCUAQMD. Air quality monitoring stations measure pollutant ground-level concentrations. In general, the NCAB experiences low concentrations of most pollutants compared to federal or State standards.

AIR POLLUTANT ATTAINMENT DESIGNATIONS

Both USEPA and CARB use ambient air quality monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. "Attainment" status refers to those regions that are meeting federal and/or State standards for a specified criteria pollutant. "Nonattainment" refers to regions that do not meet federal and/or State standards for a specified criteria pollutant. "Unclassified" refers to regions where there is not enough data to determine the region's attainment status for a specified criteria air pollutant. Each standard has a different definition, or "form" of what constitutes attainment, based on specific air quality statistics. For example, the federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual PM_{2.5} standard is met if the three-year average of the annual average PM_{2.5} concentration is less than or equal to the standard.

The current attainment designations for the NCAB are also shown in Table 3.2-3. The NCAB is designated as unclassified or attainment for all pollutants, with the exception of PM₁₀, which exceeds the California standard.

Table 3.2-3 Federal and State Air Quality Standards and NCAB Attainment Status

Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	8 Hour	0.070 ppm	A	0.070 ppm	U/A
	1 Hour	0.09 ppm	A		
Carbon Monoxide	8 Hour	9.0 ppm	A	9 ppm	U/A
	1 Hour	20 ppm	A	35 ppm	U/A
Nitrogen Dioxide	1 Hour	0.18 ppm	A	0.100 ppm	U/A
	Annual Arithmetic Mean	0.030 ppm		0.053 ppm	U/A
Sulfur Dioxide	24 Hour	0.04 ppm	A	0.14 ppm	U/A
	1 Hour	0.25 ppm	A	0.075 ppm	U/A
	Annual Arithmetic Mean			0.030 ppm	U/A
Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	A	150 µg/m ³	U
	24 Hour	50 µg/m ³	N		
Particulate Matter - Fine (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	A	9 µg/m ³	U/A
	24 Hour			35 µg/m ³	U/A
Sulfates	24 Hour	25 µg/m ³	A		
Lead	Calendar Quarter			1.5 µg/m ³	U/A
	Rolling 3 Month Average			0.15 µg/m ³	U/A
	30 Day Average	1.5 µg/m ³	A		U/A
Hydrogen Sulfide	1 Hour	0.03 ppm	A		
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm	No information available		
Visibility Reducing particles	8 Hour (10:00 to 18:00 PST)		U		

A=Attainment N=Nonattainment U=Unclassified; mg/m³=milligrams per cubic meter ppm=parts per million, µg/m³=micrograms per cubic meter

Source: CARB. 2024. Maps of State and Federal Area Designations. Available at: <https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations> (accessed October 2024).

Local control in air quality management is provided by CARB through county-level or regional (multi-county) air districts. CARB establishes Statewide air quality standards and is responsible for control of mobile emission sources, while the local air districts are responsible for enforcing standards and regulating stationary sources. CARB has established 15 air basins Statewide. Humboldt is located in the NCAB and under the jurisdiction of the NCUAQMD.

Existing Humboldt Air Quality

The NCAB has been conducting air quality monitoring since 1982 when the NCUAQMD was formed. The NCUAQMD operates four air monitoring stations, two of which, the Eureka-Jacobs Station and the Eureka-Humboldt Hill Station, are in Humboldt County and represent the project. Monitoring results have shown that the principal pollutant in Humboldt is PM₁₀. As discussed above, the NCUAQMD is classified as “attainment” for the criteria pollutants of ozone and PM_{2.5}, attainment for the federal PM₁₀ standard, and in “nonattainment” for the State 24-hour particulate (PM₁₀) standard.

Table 3.2-4 summarizes the representative annual air quality data for the RCAP area over the years 2021 through 2023 from the NCAB monitoring stations as provided by CARB.² As shown in Table 3.2-4, the State PM₁₀ standards were exceeded in 2021-2023. No other air quality standards were exceeded.

Table 3.2-4 Ambient Air Quality Monitoring Data

Pollutant	2021	2022	2023
Ozone (ppm), Worst 1-Hour ¹	0.073	0.059	0.071
Number of days of State exceedances (>0.09 ppm)	0	0	0
Ozone (ppm), 8-Hour Average ¹	0.064	0.052	0.066
Number of days of State exceedances (>0.07 ppm)	0	0	0
Number of days of Federal exceedances (>0.07 ppm)	0	0	0
Nitrogen Dioxide, Worst 1-Hour	0.0202	.0273	.0181
Number of days above NAAQS (>0.100 ppm)	0	0	0
Number of days above CAAQS (>0.180 ppm)	0	0	0
Particulate Matter <10 microns, µg/m ³ , Worst 24 Hours ¹	61.5	59.4	68.4
Number of days above State standard (>50 µg/m ³)	2	2	4
Number of days above Federal standard (>150 µg/m ³)	0	0	0
Particulate Matter <2.5 microns, µg/m ³ , Worst 24 Hours ¹	16.2	21.2	24.5
Number of days above Federal standard (>35 µg/m ³)	0	0	0

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

¹ Measurements taken from the Eureka-Humboldt Hill station for ozone and nitrogen dioxide. Measurements taken from Eureka-Jacobs station for particulate matter.

Source: CARB 2024. iADAM: Air Quality Data Statistics. Summarized by Air Basin. Years 2021-2023. Available at: <https://www.arb.ca.gov/adam/topfour/topfour1.php> (accessed September 2024).

MOBILE EMISSIONS

The primary source of mobile air pollutants (both criteria air pollutant and TACs) within the RCAP area is motor-related vehicle trips associated with the local residential, commercial, institutional, and recreational uses.

STATIONARY EMISSIONS

The primary source of stationary air pollutants (both criteria air pollutant and TACs) within the RCAP area is building-related energy use associated with the local residential, commercial, office, industrial, school, and semi-public and institutional uses. Other sources of stationary emissions include landscape maintenance, and consumer products from residential, institutional, agricultural and commercial uses.

² CARB 2024. iADAM: Air Quality Data Statistics. Summarized by Air Basin. Years 2021-2023. <https://www.arb.ca.gov/adam/topfour/topfour1.php> (accessed September 2024).

Air Pollution Sensitive Receptors

Sensitive Receptor Types

Air pollution does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects related to air pollutants exposure than others. Land uses such as residences, schools, day care centers, hospitals, nursing and convalescent homes, and parks are considered to be the most sensitive to poor air quality, because the population groups associated with these uses have increased susceptibility to respiratory distress or, as in the case of residential receptors, their exposure time is greater than that for other land uses. Therefore, these groups are referred to as sensitive receptors. Exposure assessment guidance typically assumes that residences would be exposed to air pollution 24 hours per day, 350 days per year, for 30 years. California Air Pollution Control Officers Association (CAPCOA) defines sensitive receptors as children, adults, and seniors occupying or residing in residential dwellings, schools, day care centers, hospitals, and senior-care facilities.

Sensitive Receptors in RCAP Area

Air pollution sensitive receptors in the RCAP area include single- and multi-family residential land uses, schools, daycares, senior care facilities, and public parks. The commercial and office land uses throughout the RCAP area are not considered air pollution sensitive receptors.

3.2.3 Regulatory Framework

Federal Regulations

Clean Air Act and National Ambient Air Quality Standards

Congress established much of the basic structure of the Clean Air Act (CAA) in 1970 and made major revisions in 1977 and 1990. Six common air pollutants (also known as criteria pollutants) are addressed in the CAA. These are particulate matter, ground-level ozone, CO, sulfur oxides, nitrogen oxides, and lead. USEPA calls these pollutants criteria air pollutants, because it regulates them by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health are called primary standards. Another set of limits intended to prevent environmental and property damage are called secondary standards. The federal standards are called NAAQS. The air quality standards provide benchmarks for determining whether air quality is healthy at specific locations and whether development activities will cause or contribute to a violation of the standards.

The federal standards were set to protect public health, including that of sensitive individuals; thus, USEPA is tasked with updating the standards as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

The CAA also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The federal Clean Air Act Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies.

USEPA Emission Standards for New Off-road Equipment

Before 1994, there were no standards to limit the amount of emissions from off-road equipment. In 1994, USEPA established emission standards for hydrocarbons, NO_x, CO, and PM to regulate new pieces of off-road equipment. These emission standards came to be known as Tier 1. Since that time, increasingly more stringent Tier 2, Tier 3, and Tier 4 (interim and final) standards were adopted by US EPA, as well as by CARB. Each adopted emission standard was phased in over time. New engines built in and after 2015 across all horsepower sizes must meet Tier 4 final emission standards. In other words, new manufactured engines cannot exceed the emissions established for Tier 4 final emissions standards.

State Regulations

California Air Quality Control Plan (State Implementation Plan)

A State Implementation Plan (SIP) is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The SIP for California is administered by CARB, which has overall responsibility for Statewide air quality maintenance and air pollution prevention. California's SIP incorporates individual federal attainment plans for regional air districts—an air district prepares their federal attainment plan, which is sent to CARB to be approved and incorporated into the California SIP. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms.

Areas designated nonattainment must develop air quality plans and regulations to achieve standards by specified dates, depending on the severity of the exceedances. For much of the country, implementation of federal motor vehicle standards and compliance with federal permitting requirements for industrial sources are adequate to attain air quality standards on schedule. For many areas of California, however, additional State and local regulation is required to achieve the standards.

California Clean Air Act and California Ambient Air Quality Standards

The California CAA, signed into law in 1988, requires all areas of the State to make incremental progress toward the achievement of the California Ambient Air Quality Standards (CAAQS). CARB is the State air pollution control agency and is a part of CalEPA. CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California, and for implementing the requirements of the California CAA. CARB oversees local district compliance with federal and California laws, approves local air quality plans, submits the State implementation plans to the USEPA, monitors air quality, determines and updates State area designations and maps, and sets emissions standards for new mobile sources and off-road vehicles pursuant to California waiver and authorization requests, consumer products, small utility engines, and fuels.

The California CAA requires CARB to establish ambient air quality standards for California, known as CAAQS. Similar to the NAAQS, CAAQS have been established for criteria pollutants and standards are established for vinyl chloride, hydrogen sulfide, sulfates, and visibility-reducing particulates. In general, the CAAQS are more stringent than the NAAQS on criteria pollutants. The California CAA requires all local air districts to endeavor to make incremental progress toward attaining the CAAQS. The California CAA specifies that local air districts focus attention on reducing the emissions from transportation and area-wide emission sources and provides districts with the authority to regulate indirect sources as long as the regulations do not infringe on local land use authority.

In 2017, CARB released a technical advisory on reducing air pollution exposure from near high-volume roadways that is a technical supplement to CARB's air quality and Land Use Handbook: A Community Health Perspective. Since the publication of the handbook, research has demonstrated the public health, climate, financial and other benefits of compact, infill development along transportation corridors, and that exposures can be reduced with new strategies. As described in the technical advisory, California has implemented various measures to improve air quality and reduce exposure to roadway vehicle emissions. These include the Diesel Risk Reduction Plan, which aims to reduce particulate matter emissions from diesel vehicles. The continued electrification of California's vehicle fleet would also reduce PM_{2.5} levels, and ongoing efforts to reduce emissions from cars and trucks and to move vehicles towards "zero emission" alternatives will continue to drive down roadway vehicle pollution.

California Health and Safety Code Section 39655 and California Code of Regulations Title 17 Section 93000 (Substances Identified as Toxic Air Contaminants)

CARB identifies substances as TACs as defined in Health and Safety Code Section 39655 and listed in Title 17, Section 93000 of the California Code of Regulations, "Substances Identified as Toxic Air Contaminants." A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or 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. In general, for those TACs that may cause cancer, there are thresholds set by regulatory agencies below which adverse health impacts are not expected to occur. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the state and federal governments have set ambient air quality standards. According to the California Almanac of Emissions and Air Quality, the majority of the estimated health risk from TACs for the State of California can be attributed to relatively few compounds, the most important of which is DPM from diesel-fueled engines.

California Low-emission Vehicle Program

CARB first adopted Low-Emission Vehicle (LEV) program standards in 1990. These first LEV standards ran from 1994 through 2003. LEV II regulations, running from 2004 through 2010, represent continuing progress in emission reductions. As the State's passenger vehicle fleet continues to grow and more sport utility vehicles and pickup trucks are used as passenger cars rather than work vehicles, the more stringent LEV II standards were adopted to provide reductions necessary for California to meet federally mandated clean air goals outlined in the 1994 State Implementation Plan. In 2012, CARB adopted the LEV III amendments to California's LEV regulations. These amendments, also known as the Advanced Clean Car Program, include more stringent emission standards for model years 2017 through 2025 for both criteria pollutants and greenhouse gas (GHG) emissions for new passenger vehicles.

California On-Road Heavy-duty Vehicle Program

CARB has adopted standards for emissions from various types of new on-road heavy-duty vehicles. Section 1956.8, Title 13, California Code of Regulations contains California's emission standards for on-road heavy-duty engines and vehicles, and test procedures. CARB has also adopted programs to reduce emissions from in-use heavy-duty vehicles including the Heavy-Duty Diesel Vehicle Idling Reduction Program, the Heavy-Duty Diesel In-Use Compliance Program, the Public Bus Fleet Rule and Engine Standards, and the School Bus Program and others.

California Airborne Toxics Control Measure for Asbestos

CARB has adopted Airborne Toxics Control Measures for sources that emit a particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology (BACT) to minimize emissions. In July 2001, CARB approved an Air Toxic Control Measure for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of best management practices (BMPs) to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying, or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a “Dust Mitigation Plan” and approval by the air district prior to the start of a project.

Construction sometimes requires the demolition of existing buildings where construction occurs. Asbestos is also found in a natural state, known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present. There are locations in Humboldt County with ultramafic rock and serpentine soils that may contain naturally occurring asbestos.

Verified Diesel Emission Control Strategies

USEPA and CARB tiered off-road emission standards only apply to new engines and off-road equipment can last several years. CARB has developed Verified Diesel Emission Control Strategies (VDECS), which are devices, systems, or strategies used to achieve the highest level of pollution control from existing off-road vehicles, to help reduce emissions from existing engines. VDECS are designed primarily for the reduction of diesel PM emissions and have been verified by CARB. There are three levels of VDECS, the most effective of which is the Level 3 VDECS. Tier 4 engines are not required to install VDECS because they already meet the emissions standards for lower tiered equipment with installed controls.

California Diesel Risk Reduction Plan

CARB Diesel Risk Reduction Plan led to the adoption of state regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce DPM emissions by about 90 percent overall from year 2000 levels. The projected emission benefits associated with the full implementation of this plan, including federal measures, are reductions in DPM emissions and associated cancer risks of 75 percent by 2010, and 85 percent by 2020.

Tanner Air Toxics Act and Air Toxics Hot Spots Information and Assessment Act

TACs in California are primarily regulated through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), also known as the Hot Spots

Act. To date, CARB has identified more than 21 TACs and has adopted the USEPA list of hazardous air pollutants as TACs.

Carl Moyer Memorial Air Quality Standards Attainment Program

The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program), a partnership between CARB and local air districts, issues grants to replace or retrofit older engines and equipment with engines and equipment that exceed current regulatory requirements to reduce air pollution. Money collected through the Carl Moyer Program complements California's regulatory program by providing incentives to effect early or extra emission reductions, especially from emission sources in environmental justice communities and areas disproportionately affected by air pollution. The program has established guidelines and criteria for the funding of emissions reduction projects. Within the NCAB, the NCUAQMD administers the Carl Moyer Program. The program establishes cost-effectiveness criteria for funding emission reductions projects.

Regional and Local Regulations

NCUAQMD Rule 104 (Criteria Air Pollutants)

NCUAQMD is the primary agency responsible for planning to meet the National and California Ambient Air Quality Standards (NAAQS and CAAQS) in the NCAB, primarily the Humboldt, Del Norte, and Trinity Counties' portions of the basin. NCUAQMD objectives are to maintain the NAAQS for all criteria air pollutants and attain the CAAQS for particulate matter with a diameter of 10 microns (PM₁₀). The 24-hour PM₁₀ CAAQS is only exceeded in Humboldt County. The NCAB has been designated as nonattainment with respect to the for PM₁₀ since the 1980s.³ NCUAQMD Rule 104, Prohibitions, includes requirements to help reduce particulate matter and fugitive dust emissions.⁴

NCUAQMD has developed limited guidance for use by lead agencies when preparing environmental documents. The NCUAQMD has not formally adopted significance thresholds, but instead recommends using the BACT emission rates for stationary sources as defined and listed in the NCUAQMD Rule 110, New Source Review and Prevention of Significant Deterioration, Section 5.1 - BACT.⁵ These significance thresholds are presented in Table 3.2-5, below. After the air quality impacts of a project have been assessed, the lead agency's analysis undergoes a review by NCUAQMD. NCUAQMD submits comments and suggestions to the lead agency for incorporation into the environmental document.

NCUAQMD Regulation III (Toxic Air Pollutants)

NCUAQMD recommends the use of the latest version of the CAPCOA Health Risk Assessments for Proposed Land Use Project to evaluate and reduce air pollution impacts from new development.⁶ 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

³ NCUAQMD. 1995. Particulate Matter (PM₁₀) Attainment Plan. Pages III-1.

<https://ncuaqmd.specialdistrict.org/files/6f1ad639b/NCUAQMD+Attainment+Plan+5-95.pdf> (accessed October 2024).

⁴ NCUAQMD. 2015. Regulation I Rule 104 – Prohibitions. <https://www.ncuaqmd.org/files/70b9a2edd/Rule+104.pdf> (accessed October 2024).

⁵ NCUAQMD. 2015. Regulation I Rule 110 – New Source Review (NSR) And Prevention of Significant Deterioration (PSD). <https://ncuaqmd.specialdistrict.org/files/397b4b794/Rule+110.pdf> (accessed October 2024).

⁶ California Air Pollution Control Officers Association (CAPCOA). 2009. Health Risk Assessments for Proposed Land Use Projects. https://ww2.valleyair.org/media/glsdzpx3/capcoa_hra_lu_guidelines_8-6-09.pdf (accessed October 2024).

these sources if they are constructed and operated in accordance with applicable regulations, including air toxics control measures.

Naturally Occurring Asbestos

Pursuant to NCUAQMD regulations, all construction, grading, quarrying, and surface mining operations must notify the Air District. These activities must comply with CARB's Airborne Toxic Control Measures for naturally-occurring asbestos (NOA), as well as NCUAQMD's Rule 401, "Asbestos Fee," which covers the cost of implementing NOA-control programs.⁷

Particulate Matter (PM₁₀) Attainment Plan

In an effort to achieve the state air quality standard, an understanding of the causes of high PM₁₀ levels was deemed necessary by the NCUAQMD. As a result, they adopted the PM₁₀ Attainment Plan adopted in 1995. Humboldt County's air quality has violated the CAAQS for PM₁₀ and the district has been classified as a PM₁₀ nonattainment area. PM₁₀ emissions in Humboldt County and the surrounding unincorporated areas are generated by a variety of sources but are primarily from on-road vehicles (engine exhaust and dust from paved and unpaved roads), open burning of vegetation (both residential and commercial), residential wood stoves, and stationary industrial sources (factories). The PM₁₀ Attainment Plan includes control strategies that are intended to achieve attainment of the CAAQS. These control strategies include transportation control measures, like encouraging the usage of public transit, replacing the diesel-fueled bus fleet with natural gas-fueled models, recommending car-pooling and bicycle commuting, removing or repairing vehicles with inefficient emission control systems, and improving traffic flow to reduce idling and vehicle miles traveled (VMT). Additional land use control measures encourage mixed-use or more dense development to reduce sources of PM₁₀ emissions. The PM₁₀ Attainment Plan also includes measures that limit residential burning as well as multiple measures to encourage the installation of EPA-certified woodstoves.

Variety in Rural Options of Mobility 2022-2042

The Variety in Rural Options of Mobility 2022-2042 (VROOM 2022-2042) is a regional transportation plan implemented by the Humboldt County Association of Governments (HCAOG), a Joint Powers Agency comprised of Humboldt County and the seven incorporated Cities within Humboldt. HCAOG is required to adopt and submit an updated regional transportation plan every four years. VROOM 2022-2042 sets forth long-range transportation planning goals describing how the region will meet its transportation needs for the 20-year period from 2022 to 2042. VROOM 2022-2042 incorporates existing and future land use patterns and forecasted job growth to identify and prioritize transportation projects throughout Humboldt.⁸ More information is provided in Section 3.8, *Transportation*.

Humboldt County General Plan, Air Quality Element

The 2017 Humboldt County General Plan includes policies applicable to air quality or GHG emissions. The policies identified are intended to support the goals of improving air quality,

⁷ NCUAQMD. 2024. Asbestos NESHAP & NOA Regulations. <https://www.ncuaqmd.org/asbestos-neshap-noa-regulations> (accessed October 2024)

⁸ Humboldt County Association of Governments (HCAOG). 2022. Variety in Rural Options of Mobility (VROOM) 2022. https://www.hcaog.net/sites/default/files/vroom_2022-2042_full_report_0.pdf (accessed October 2024).

reducing emissions of PM₁₀ and other criteria pollutants, and reducing greenhouse gas emissions. The policies include:⁹

- **AQ-P1 Reduce Length and Frequency of Vehicle Trips.** Reduce the length and frequency of vehicle trips through land use and transportation policies by encouraging mixed-use development, compact development patterns in areas served by public transit, and active modes of travel.
- **AQ-P2 Reduce Localized Concentrated Air Pollution.** Reduce or minimize the creation of "hot spots" or localized places of concentrated automobile emissions.
- **AQ-P3 Fireplace and Woodstove PM₁₀ Emissions.** Support incentives to minimize emissions from fireplaces and woodstoves.
- **AQ-P4 Construction and Grading Dust Control.** Dust control practices on construction and grading sites shall achieve compliance with NCAQMD fugitive dust emission standards.
- **AQ-P5 Air Quality Impacts from New Development.** During environmental review of discretionary permits, reduce emissions of air pollutants from new commercial and industrial development by requiring feasible mitigation measures to achieve the standards of the NCAQMD.
- **AQ-P6 Buffering Land Uses.** During environmental review of discretionary commercial and industrial projects, consider the use of buffers between new sources of emissions and adjacent land uses to minimize exposure to air pollution.
- **AQ-P7 Interagency Coordination.** Coordinate with the NCAQMD early in the permit review process to identify expected regulatory outcomes and minimize delays for projects involving:
 - CEQA environmental review;
 - Building demolition projects that may involve removal of asbestos-containing material subject to National Emission Standards for Hazardous Air Pollutants (NESHAP); and
 - Grading and mining operations subject to State Airborne Toxic Control Measures (ATCM) for naturally occurring asbestos.
 - Rely on the air quality standards, permitting processes, and enforcement capacity of the NCAQMD to define thresholds of significance and set adequate mitigations under CEQA to the maximum extent allowable.
- **AQ-P8 Reduce Air Quality Impacts from Wildfires.** Support and encourage fire suppression of wildfires that may have an acute air quality health impact on local population centers.
- **AQ-P9 County Climate Action Plan.** Through public input and review, develop and implement a multi-jurisdictional Climate Action Plan to achieve reductions in greenhouse gas emissions consistent with the state Global Warming Solutions Act and subsequent implementing legislation and regulations.
- **AQ-P13 Forest Sequestration and Biomass Energy.** Provide incentives for increased carbon sequestration on forest lands and encourage the reduction of smoke production through the utilization of excess forest biomass for sustainable energy generation and other uses.
- **AQ-P14 Solar Electric System Capacity.** Encourage and provide incentives to increase solar-electric capacity in residential, commercial, and industrial sectors.

⁹ Humboldt County. 2017. General Plan, Chapter 15 Air Quality Element.
<https://humboldt.gov/DocumentCenter/View/61991/Chapter-15-Air-Quality-Element-PDF> (accessed October 2024).

- **AQ-P15 Energy Efficient Building Design.** Encourage and provide incentives for construction of buildings and energy saving measures beyond Title 24 requirements for residential and commercial projects.
- **AQ-P16 Electric Vehicle Accommodations.** Encourage and provide incentives for commercial and residential design that supports the charging of electric vehicles.

City of Arcata General Plan, Air Quality Element

The City of Arcata General Plan includes guiding principles and goals to promote clean air. The Air Quality Element includes policies to reduce air pollution from stationary sources, multiple objectives to reduce mobile source emissions, and the implementation measure for the adoption of a Climate Action Plan to collaborate regionally. The specific policies are as follows:¹⁰

- **AQ-1a Reduce emissions from stationary point sources: commercial and industrial.** Coordinate with energy providers to develop incentive programs encouraging the use of less polluting, energy efficient designs and equipment in commercial and manufacturing uses. Encourage commercial and industrial uses to self-enforce emissions reductions by maintaining and repairing equipment, correcting leaks, installing control devices, and minimizing accidental releases. Coordinate with the District to establish buffer zones between point sources and the public, particularly sensitive receptors such as schools, hospitals, and convalescent facilities.
- **AQ-1b Reduce emissions from stationary area sources: residential, commercial, and industrial.** Prohibit installation of wood burning appliances, including remodel, addition, or new construction. New construction retrofits must comply with energy efficient construction codes to reduce energy consumption including high-efficiency windows, water heaters, and furnaces. Encourage electric heat pump appliances.
- **AQ-1d Review of development projects for emissions reductions.** Evaluate new construction plans to reduce point and area sources of pollution. Consult with the District during the environmental review process.
- **AQ-2a Implement land use measures to reduce vehicle trips, miles traveled, and air pollutant emissions.** Implement or encourage the land use and development measures which reduce motor vehicle travel as outlined in the Transportation Element. These measures are also effective in reducing mobile sources of air pollutants.
- **AQ-2b Implement transportation measures to reduce vehicle trips, miles traveled, and air pollutant emissions.** Implement or encourage the following measures to reduce vehicle miles traveled and provide alternatives to the single occupant motor vehicle, as outlined in the Circulation & Mobility Element.
- **AQ-2c Reduce or minimize the creation of “hot spots” or localized places of concentrated automobile emissions.** Implement or encourage the following measures to reduce hot spots, which occur where groups of vehicles are required to idle (e.g., at congested intersections, driveways and drive-through facilities).
- **AQ-2d Design Arcata’s highest traveled arterials to minimize vehicle miles traveled.** Recognize that automobiles are most efficient and less polluting when driven less. Designing roads prioritized for alternative and non-motorized modes results in fewer vehicle miles traveled considering the full scope of all travel modes.

¹⁰ Arcata, City of. 2024. Arcata General Plan 2045, Air Quality Element. Adopted July 17, 2024.

https://www.cityofarcata.org/DocumentCenter/View/14362/General-Plan-204520240717_CI_WEB (accessed October 2024)

- **AQ-2e Recognize that poor air quality is caused by the combination of high pollutant emissions and meteorological conditions that do not allow for dispersal of pollutants.** The City shall coordinate a joint effort with the District to minimize the impact of high pollutant incidents and notify the public about meteorological conditions that contribute to poor air quality.
- **AQ-2f Enforce air quality control measures and monitoring at construction sites.** Construction emissions shall be controlled because, although they are temporary in nature, they can often be the greatest air quality impact of a project. Require dust and erosion control measures for construction activities.
- **AQ-3a Air quality standards and monitoring.** Identify potential emission sources of airborne toxins from mobile and stationary sources. This may be in coordination with the California Air Resource Board and the District, as appropriate. Enforce rigid high standards to restrict fumes, smoke, dust, or other environmental pollutants from stationary sources of pollution.
- **AQ-3b Develop and distribute material to educate the public on air quality issues.** Work with Cal Poly Humboldt, the California Air Resources Board, and the District to develop educational material regarding air quality, impact of air quality on people, plants and animals, and what citizens can do to improve air quality. The City will make this information available.
- **AQ-3c Cooperation in enforcement activities and programs.** Cooperate with the District in implementing and enforcing the district's rules and programs. Consider joint implementation of programs between the City and the district.
- **AQ-3d Indoor air pollution.** Factors such as sealed building interiors, inadequate ventilation, non-openable windows, and use of building materials that release toxic substances contribute to indoor air pollution. To maximize indoor air quality, the installation of openable windows and adequate ventilation systems, the use of pollution-reducing houseplants, as well as the selection of non-toxic building materials and interior finishes, is encouraged in all new buildings and in the retrofitting of existing buildings.
- **AQ-4a Odor controls.** Identify potential sources of noxious odors and regulate those sources to avoid adverse effects on adjacent sensitive receptors. Noxious odors are defined as foul smelling airborne emissions that are sufficiently concentrated to cause physical discomfort to those inhabiting adjacent areas. Regulations imposed to reduce effects of these odors shall include limiting hours for odor emissions, periodic monitoring, and filtering to reduce concentrations.

City of Blue Lake General Plan

The City of Blue Lake General Plan does not contain any policies specific to air quality.¹¹

City of Eureka General Plan

The City of Eureka 2040 General Plan was adopted in 2018 and contains the following Air Quality policies:¹²

- **AQ-1.1 Regional Coordination.** Cooperate with the North Coast Unified Air Quality Management District, Redwood Coast Energy Authority, and other agencies to develop a consistent and effective approach to air quality planning and management, as well as to reduce greenhouse gas emissions and air quality impacts in the region.

¹¹ Blue Lake, City of. 1986. General Plan. https://bluelake.ca.gov/wp-content/uploads/2022/05/General-Plan_updated_2009-_10-24-11.pdf (accessed October 2024).

¹² Eureka, City of. 2018. 2040 General Plan. <https://www.eurekaca.gov/DocumentCenter/View/3253/Final-Draft-2040-General-Plan> (accessed October 2024).

- **AQ-1.3 New Development.** Require new discretionary developments to incorporate mitigation measures that utilize Best Management Practices and reduce emissions from both construction and operational activities, consistent with the North Coast Unified Air Quality Management District requirements and State regulations.
- **AQ-1.4 Off-Street Parking.** Encourage and incentivize premium parking spaces for carpool, vanpool, and alternative energy vehicles, and encourage the development and addition of electric vehicle charging stations in parking lots.
- **AQ-1.5 NCUAQMD Consultation.** Require consultation and coordination with the North Coast Unified Air Quality Management District for any projects that may have a potential health risk or may expose the public to hazardous air pollutants, as well as determining compliance with adopted rules and regulations.
- **AQ-1.6 Buffering Land Uses.** Require buffering of uses, facilities, and operations that may produce toxic or hazardous air pollutants and/or odors (e.g., commercial and industrial uses, highways, etc.) to provide an adequate distance from sensitive receptors (e.g., housing and schools), consistent with California Air Resources Board recommendations.
- **AQ-1.7 Large Employers.** Encourage large employers to allow for flexibility in the work schedule that would reduce emissions of air pollutants, such as more alternative schedules and telecommuting, in addition to providing incentives for non-single occupancy vehicle commuting modes including public transit, electric vehicles, carpooling, and non-motorized transportation.
- **AQ-1.8 Localized Concentrated Air Pollution.** Strive to reduce the number and generation of localized points of concentrated automobile emissions, or “hot spots,” such as by synchronizing traffic signals.
- **AQ-1.9 Transit Funding.** Strive to secure adequate funding for transit, autonomous vehicle, mobility on-demand, and ridesharing services to provide viable transportation alternatives to help reduce greenhouse gas emissions. Require new development to contribute its fair share of the transit service costs to serve new projects.
- **AQ-1.10 Non-Motorized Transportation.** Continue to plan for and secure adequate funding for interjurisdictional non-motorized transportation facilities to help reduce greenhouse gas emissions.
- **AQ-1.11 City Employee Incentives.** Explore incentives for City employees to promote and utilize alternative modes of transportation, such as public transit, carpooling, walking, bicycling, and telecommuting.
- **AQ-1.12 City Vehicle Fleet.** Continue to purchase low-emission and zero-emission vehicles for the City’s non-emergency fleet and use only clean fuel sources for trucks and heavy equipment, where feasible.
- **AQ-1.13 Reducing the City’s Operation Emissions.** Continue to promote strategies aimed at lowering the City’s operation emissions, including exploring the feasibility of purchasing 100% renewable power through a Community Choice Aggregation program.
- **AQ-1.14 Education and Outreach.** Provide educational opportunities, and assist in engaging with the public regarding air quality, its health impacts, and potential actions that people can take to improve air quality and minimize greenhouse gas emissions.

City of Fortuna General Plan

The City of Fortuna General Plan was adopted in October 2010. Goal HS-3 is designed to improve air quality and minimize adverse effects. The following policies are intended to help support Goal HS-3:¹³

- **HS-3.1 Agency Cooperation.** The City shall cooperate with other agencies in developing an effective approach to regional air quality planning management.
- **HS-3.2 Particulate Matter.** The City shall strive to achieve and maintain compliance with National Ambient Air Quality Standards for (PM10) and all Federal, State, regional, and local air quality standards.
- **HS-3.3 Odors.** The City shall require all businesses, particularly fast food and manufacturing, to minimize odors generated by the business to not be detectable off site.
- **HS-3.4 Wood Burning Appliance Standards.** The City shall adopt appropriate State and/or federal standards for EPA approved wood burning appliances. The City shall also make educational materials available for residents about the NCUAQMD Woodstove change-out program.
- **HS-3.6 Greenhouse Gas Emissions Reduction from Transportation.** Increase clean-fuel use, promote transit-oriented development and alternative modes of transportation, and reduce travel demand.
- **HS-3.7 Air Pollutant Emission Reduction Construction and Operation Measures.** The City shall require that new development incorporate air pollutant emission reduction measures during construction and operation.

City of Rio Dell General Plan

The City of Rio Dell 2015 General Plan has the following air resources policies to establish emissions reductions for mobile, point, and area sources in the City:¹⁴

- **P1.2.3-1.** Establish review procedures for development proposals to ensure that mobile, point, and area sources of air emissions are reduced to the greatest extent possible.
- **P1.2.3-2.** Reduce emissions from stationary sources by limiting wood-burning fireplace installations in new construction to low emitting, State and EPA certified fireplace inserts, woodstoves, pellet stoves, or natural gas fire stoves.

City of Trinidad General Plan

The City of Trinidad General Plan does not contain any policies specific to air quality.¹⁵

¹³ Fortuna, City of. 2010. Fortuna General Plan 2030.

https://cms8.revize.com/revize/fortunaca/Document%20center/Department/Planning%20Division/General%20Plan%20and%20EIR%20documents/Fortuna%20General%20Plan%202030%20-%20Policy%20Document_web.pdf (accessed October 2024).

¹⁴ Rio Dell, City of. 2015. City of Rio Dell General Plan.

https://www.cityofriodell.ca.gov/sites/g/files/vyhlf8526/f/uploads/city_of_rio_dell_2015_general_plan_intro_and_land_use_0.pdf (accessed October 2024)

¹⁵ Trinidad, City of. 2021. General Plan. <https://www.trinidad.ca.gov/media/5491> (accessed January 2025)

3.2.4 Impacts and Mitigation Measures

Significance Criteria

Humboldt County utilizes the following 2024 CEQA Guidelines Appendix G significance criteria questions related to Air Quality.

Would the RCAP and CEQA GHG Emissions Thresholds:

- a) Conflict with or obstruct implementation of the applicable air quality plan?
- b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?
- c) Expose sensitive receptors to substantial pollutant concentrations?
- d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Approach to Analysis

The following approaches are used to evaluate potential air quality impacts.

Comparison to Air Quality Plans

The policies and objectives of the RCAP are compared to those in the most recently adopted air quality plan for Humboldt, the NCUAQMD PM₁₀ Attainment Plan. In addition, the policies and objectives of the RCAP are compared to relevant policies contained in the County and City General Plans. The analysis determines if the RCAP conflicts with or obstructs implementation of these plans.

Construction Criteria Pollutant and TAC Emissions

Construction-related emissions are limited in duration but may still cause adverse air quality impacts. Construction associated with implementation of the proposed plan would generate emissions from three primary sources: the operation of construction vehicles (e.g., scrapers, loaders, dump trucks, etc.); ground disturbance during site preparation and grading, which creates fugitive dust; and the application of asphalt, paint, or other oil-based substances.

At this time, the pace, location and duration associated with construction of projects under the proposed plan are not sufficiently detailed to quantify a specific emissions impact, and, thus, it would be speculative to do so. Rather, construction criteria pollutant and TAC emissions impacts for development under the RCAP are discussed qualitatively. The OEHHA recommends evaluating risk exposure from short-term projects (e.g., construction projects) lasting more than two months.

Operation Criteria Pollutant and TAC Emissions

The long-term operational criteria pollutant and TAC emissions associated with implementation of the proposed plan are discussed qualitatively by evaluating the consistency of the proposed plan with the NCUAQMD PM₁₀ Attainment Plan and the County and City General Plan goals, policies, and control measures related to air quality. If the proposed plan is not consistent, then impacts would be potentially significant.

Odors

The impact analysis qualitatively evaluates the types of land uses facilitated by the proposed plan to evaluate whether major sources of anticipated odors would be present and, if so, whether those sources would likely generate objectionable odors.

EIR Scoping Comments Consideration

A commenter expressed concerns that the RCAP could result in increased criteria air pollutant and TAC emissions due to increased energy demand. The potential for the RCAP to result in increased criteria air pollutant emissions and TAC emissions are addressed under Impacts AQ-2 and AQ-3, respectively.

CEQA GHG Thresholds Analysis and RCAP EIR Focus Approach

The CEQA GHG Emissions Thresholds is a guidance document and does not propose development or changes to land use designations and zoning. Thus, implementation of the CEQA GHG Emissions Thresholds would not result in direct construction or operational impacts related to air quality. Therefore, the analysis in this section focuses on the potential for the RCAP to result in impacts related to air quality in Humboldt County.

Specific Thresholds of Significance

Consistency with Air Quality Plan

The applicable air quality plans include the NCUAQMD PM₁₀ Attainment Plan, which identifies measures to improve air quality and bring the region into attainment for PM₁₀. In addition, the Humboldt County General Plan Air Quality Element and Cities of Arcata, Eureka, Fortuna, and Rio Dell General Plans establish local goals and policies related to air quality. The RCAP would be consistent with these plans if it would support the goals and policies, include applicable control measures, and not disrupt or hinder implementation of the plans. Consistency with the County and individual city General Plans, as well as the PM₁₀ Attainment Plan, is the basis for determining whether the RCAP would conflict with or obstruct implementation of an applicable air quality plan.

Construction and Operational Criteria Pollutant and TAC Emissions Thresholds

The NCUAQMD does not have plan-level significance thresholds for construction air pollutants emissions. Similarly, the NCUAQMD has not formally adopted significance thresholds to guide CEQA significance determinations for land development projects. Instead, the NCUAQMD recommends use of the Best Available Control Technology (BACT) emission rates for stationary sources as defined in NCUAQMD Rule 110, which are listed in Table 3.2-5, as significance thresholds.¹⁶ Therefore, air pollution emissions from an individual project facilitated by the RCAP would have a significant individual and cumulative impact if they would exceed the NCUAQMD's significance thresholds for BACT adoption.

¹⁶ NCUAQMD. 2024. Planning & CEQA. <https://www.ncuaqmd.org/planning-ceqa> (accessed October 2024).

Table 3.2-5 NCUAQMD Significance Thresholds for BACT Adoption

Pollutant	Mass Daily Thresholds	
	Daily (pounds/day)	Annual (tons/year)
CO	500	100
Nitrogen Oxides (NO _x)	50	40
PM ₁₀	80	15
PM _{2.5}	50	10
Reactive Organic Compounds (ROC) ¹	50	40
Sulfur Oxides	80	40

¹ Reactive organic compounds (ROC) are formed during combustion and evaporation of organic solvents. ROCs are also referred to as reactive organic gases (ROG) and volatile organic compounds (VOC).

Notes: tpy = tons per year; lbs/day = pounds per day; NO_x = oxides of nitrogen; PM_{2.5} = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM₁₀ = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less. The proposed project would not result in emissions of fluorides, hydrogen sulfide, lead, reduced sulfur compounds, sulfuric acid or total reduced sulfur compounds; therefore, they are not considered in the following analysis.

Source: Table 1.0 Significance Thresholds in NCUAQMD Rule 110 – New Source Review (NSR) and Prevention of Significant Deterioration (PSD), Section E.1 – BACT, July 9, 2015.

Because the NCUAQMD does not have plan-level significance thresholds, construction and operational emissions associated with RCAP implementation are discussed qualitatively to evaluate potential air quality impacts, because individual project-level information is not known at this time to reasonably estimate emissions associated with the RCAP.

Odors

The significance thresholds for odor impacts are qualitative in nature. The occurrence and severity of odor impacts from construction and operations of the RCAP would depend on numerous factors, including the nature, frequency, and intensity of the odor sources; wind speed and direction; the proximity to off-site receptors; and the sensitivity of exposed receptors. Although exposure to offensive odors generally does not result in physical harm, they can be perceived as objectionable leading to considerable distress among the public and can result in citizen complaints to local governments and regulatory agencies. The potential for odor impacts associated with the RCAP is addressed qualitatively.

Impact Evaluation

Air Quality Management Plans Consistency

Significance Criterion a: Would the proposed plan conflict with or obstruct implementation of the applicable air quality plan?

Impact AQ-1 THE RCAP INCLUDES MEASURES THAT WOULD REDUCE AIR POLLUTANT EMISSIONS FROM THE ENERGY AND TRANSPORTATION SECTORS AND WOULD BE CONSISTENT WITH THE APPLICABLE AIR QUALITY PLANS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction and Operation

The Humboldt County General Plan Air Quality Element was updated and adopted in 2017.¹⁷ The purpose of this Air Quality Element is to describe relevant strategies for improving air quality. Policies to reduce greenhouse gas (GHG) emissions and mitigate climate change are also included in the Air Quality Element, but consistency with such GHG and climate measures are discussed in Section 3.5, *Greenhouse Gas Emissions and Energy*. The following includes a discussion of consistency with relevant air quality measures of the applicable regional air quality plans. Table 3.2-6 identifies applicable air quality plan measures and discusses RCAP consistency, including corresponding policies from the RCAP that address the measures.

Table 3.2-6 Air Quality Consistency Analysis

Measures	Consistency
Humboldt County General Plan Air Quality Element	
AQ-P1 Reduce Length and Frequency of Vehicle Trips. Reduce the length and frequency of vehicle trips through land use and transportation policies by encouraging mixed-use development, compact development patterns in areas served by public transit, and active modes of travel.	Consistent: Projects and infrastructure under the RCAP would be consistent with the policy related to reducing length and frequency of vehicle trips. RCAP Measures T-1 and T-2 would target means to reduce vehicle trips and utilize more public transportation. RCAP Measure T-3 would increase mixed-used developments in infill priority areas to reduce regional VMT. RCAP Measure T-5 would help reduce commercial and industrial employee trips.
AQ-P2. Reduce Localized Concentrated Air Pollution. Reduce or minimize the creation of "hot spots" or localized places of concentrated automobile emissions.	Consistent. Projects and infrastructure under the RCAP, especially those under RCAP Measure T-3 would help reduce localized concentrations of air pollution. Prioritizing mixed-use development in infill priority areas would help reduce trips and VMT to reduce the localized air pollution from automobile combustion and fugitive emissions, including PM ₁₀ . In addition, RCAP Measures T-1 Urban and Rural, T-2 Urban and Rural, T-4, and T-5 would support reduced VMT and associated air pollutant emissions by encouraging more active transportation, public transit, and car sharing use. Likewise, RCAP Measures T-6 through T-8 and T-11 would increase the adoption of zero emission vehicles (ZEVs) in Humboldt, thereby reducing automobile emissions.

¹⁷ Humboldt County. 2017. General Plan, Chapter 15 Air Quality Element. <https://humboldt.gov.org/DocumentCenter/View/61991/Chapter-15-Air-Quality-Element-PDF> (accessed October 2024).

Humboldt County
Regional Climate Action Plan and CEQA GHG Emissions Thresholds

Measures	Consistency
<p>AQ-P8 Reduce Air Quality Impacts from Wildfires. Support and encourage fire suppression of wildfires that may have an acute air quality health impact on local population centers.</p>	<p>Consistent. RCAP Measures CS-3 and T-10 include actions for active forest management to reduce wildfire risks and utilize excess forest biomass for sustainable energy generation.</p>
<p>AQ-P13 Forest Sequestration and Biomass Energy. Provide incentives for increased carbon sequestration on forest lands and encourage the reduction of smoke production through the utilization of excess forest biomass for sustainable energy generation and other uses.</p>	<p>Consistent. The RCAP will conduct a feasibility study of carbon sequestration to identify technologies and potential viability of implementation under Measure CS-1a. Measure T-10 includes plans to manage biomass and organic waste through the development of biofuel infrastructure, thereby reducing smoke production.</p>
<p>AQ-P16 Electric Vehicle Accommodations. Encourage and provide incentives for commercial and residential design that supports the charging of electric vehicles.</p>	<p>Consistent: The RCAP incorporates numerous measures to support electrical vehicle accommodations. RCAP Measure T-7, for example, aims to increase commercial ZEV use and adoption through a regional charging network and development of hydrogen hubs. Increased ZEV adoption would result in reduced air pollutant emissions from the transportation sector in Humboldt.</p>
<p>City of Arcata General Plan Air Quality Element</p>	
<p>AQ-1a Reduce emissions from stationary point sources: commercial and industrial. Coordinate with energy providers to develop incentive programs encouraging the use of less polluting, energy efficient designs and equipment in commercial and manufacturing uses. Encourage commercial and industrial uses to self-enforce emissions reductions by maintaining and repairing equipment, correcting leaks, installing control devices, and minimizing accidental releases. Coordinate with the District to establish buffer zones between point sources and the public, particularly sensitive receptors such as schools, hospitals, and convalescent facilities.</p>	<p>Consistent: RCAP Strategies 3 and 4 would increase decarbonization of existing buildings and require new development to be decarbonized, which would improve energy efficient design and require that any end-use deemed infeasible for electrification exceed existing Title 24 energy efficiency standards as well as be prepared for future electrification. This strategy will assist with emissions reductions from commercial and industrial sources.</p>
<p>AQ-1b Reduce emissions from stationary area sources: residential, commercial, and industrial. Prohibit installation of wood burning appliances, including remodel, addition, or new construction. New construction retrofits must comply with energy efficient construction codes to reduce energy consumption including high-efficiency windows, water heaters, and furnaces. Encourage electric heat pump appliances.</p>	<p>Consistent: RCAP Strategies 3 and 4 would increase decarbonization of existing buildings and require new development to be decarbonized. These strategies would help reduce emissions from residential, commercial, and industrial area sources.</p>
<p>AQ-2a Implement land use measures to reduce vehicle trips, miles traveled, and air pollutant emissions. Implement or encourage the land use and development measures which reduce motor vehicle travel as outlined in the Transportation Element. These measures are also effective in reducing mobile sources of air pollutants.</p>	<p>Consistent: Measure T-3 will reduce regional VMT by increasing mixed-use development in infill priority areas.</p>

Measures	Consistency
<p>AQ-2b Implement transportation measures to reduce vehicle trips, miles traveled, and air pollutant emissions. Implement or encourage the following measures to reduce vehicle miles traveled and provide alternatives to the single occupant motor vehicle, as outlined in the Circulation & Mobility Element.</p>	<p>Consistent: RCAP Measures T-1 Urban and Rural, T-2 Urban and Rural, T-4, and T-5 would support reduced VMT and associated air pollutant emissions by encouraging more active transportation, public transit, and car sharing use. In addition, RCAP Measure T-3 would reduce regional VMT by increasing mixed-use development in infill priority areas.</p>
<p>AQ-2c Reduce or minimize the creation of “hot spots” or localized places of concentrated automobile emissions. Implement or encourage the following measures to reduce hot spots, which occur where groups of vehicles are required to idle (e.g., at congested intersections, driveways and drive-through facilities).</p>	<p>Consistent. Projects and infrastructure under the RCAP, especially those under RCAP Measure T-3 would help reduce localized concentrations of air pollution. Prioritizing mixed-use development in infill priority areas would help reduce trips and VMT to reduce the localized air pollution from automobile combustion and fugitive emissions, including PM₁₀. In addition, RCAP Measures T-1 Urban and Rural, T-2 Urban and Rural, T-4, and T-5 would support reduced VMT and associated air pollutant emissions by encouraging more active transportation, public transit, and car sharing use. Likewise, RCAP Measures T-6 through T-8 and T-11 would increase the adoption of ZEVs in Humboldt, thereby reducing automobile emissions.</p>
<p>AQ-2d Design Arcata’s highest traveled arterials to minimize vehicle miles traveled. Recognize that automobiles are most efficient and less polluting when driven less. Designing roads prioritized for alternative and non-motorized modes results in fewer vehicle miles traveled considering the full scope of all travel modes.</p>	<p>Consistent. RCAP Measures T-1 Urban and Rural, T-2 Urban and Rural, T-4, and T-5 5 would support reduced VMT and associated air pollutant emissions by encouraging more active transportation, public transit, and car sharing use. These measures would support pedestrian, bicycle, and public transit infrastructure improvements to confirm the circulation system offers alternative travel modes.</p>
<p>AQ-2f Enforce air quality control measures and monitoring at construction sites. Construction emissions shall be controlled because, although they are temporary in nature, they can often be the greatest air quality impact of a project. Require dust and erosion control measures for construction activities.</p>	<p>Consistent. Individual projects facilitated by the RCAP would be subject to measures to reduce construction air pollutant emissions, as discussed in more detail under Impact AQ-2, below.</p>
<p>AQ-3c Cooperation in enforcement activities and programs. Cooperate with the District in implementing and enforcing the district’s rules and programs. Consider joint implementation of programs between the City and the district.</p>	<p>Consistent. The RCAP will not conflict with this policy. For example, RCAP Action T-8e involves direct partnership with the NCUAQMD.</p>
<p>AQ-3d Indoor air pollution. Factors such as sealed building interiors, inadequate ventilation, non-openable windows, and use of building materials that release toxic substances contribute to indoor air pollution. To maximize indoor air quality, the installation of openable windows and adequate ventilation systems, the use of pollution-reducing houseplants, as well as the selection of non-toxic building materials and interior finishes, is encouraged in all new buildings and in the retrofitting of existing buildings.</p>	<p>Consistent. RCAP Strategies 3 and 4 would increase decarbonization of existing buildings and require new development to be decarbonized. These strategies would help reduce indoor air pollution from natural gas and woodburning fuel use.</p>

Measures	Consistency
City of Eureka General Plan	
<p>AQ-1.1 Regional Coordination. Cooperate with the North Coast Unified Air Quality Management District, Redwood Coast Energy Authority, and other agencies to develop a consistent and effective approach to air quality planning and management, as well as to reduce greenhouse gas emissions and air quality impacts in the region.</p>	<p>Consistent. The RCAP includes Strategy 1, which would develop a regional coalition to effectively reduce air pollutant and GHG emissions in the region. In addition, RCAP Action T-8e includes partnership with NCUAQMD to promote adoption of zero emission offroad equipment.</p>
<p>AQ-1.3 New Development. Require new discretionary developments to incorporate mitigation measures that utilize Best Management Practices and reduce emissions from both construction and operational activities, consistent with the North Coast Unified Air Quality Management District requirements and State regulations.</p>	<p>Consistent. Individual projects facilitated by the RCAP would be subject to measures to reduce air pollutant emissions, as discussed in more detail under Impact AQ-2, below.</p>
<p>AQ-1.4 Off-Street Parking. Encourage and incentivize premium parking spaces for carpool, vanpool, and alternative energy vehicles, and encourage the development and addition of electric vehicle charging stations in parking lots.</p>	<p>Consistent. RCAP Measure T-5 includes a ride-sharing program that would consist of designated parking spaces for ridesharing vehicles, passenger loading, unloading, and waiting zones; and a website, message board, or app for coordinating ridesharing. RCAP Measures T-6 through T-8 and T-11 promote the addition of electric vehicle charging and ZEV fueling stations throughout Humboldt to increase ZEV adoption.</p>
<p>AQ-1.5 NCUAQMD Consultation. Require consultation and coordination with the North Coast Unified Air Quality Management District for any projects that may have a potential health risk or may expose the public to hazardous air pollutants, as well as determining compliance with adopted rules and regulations.</p>	<p>Consistent. Individual projects facilitated by the RCAP would be subject to measures to reduce air pollutant emissions, as discussed in more detail under Impact AQ-2, below.</p>
<p>AQ-1.7 Large Employers. Encourage large employers to allow for flexibility in the work schedule that would reduce emissions of air pollutants, such as more alternative schedules and telecommuting, in addition to providing incentives for non-single occupancy vehicle commuting modes including public transit, electric vehicles, carpooling, and non-motorized transportation.</p>	<p>Consistent. RCAP Measure T-5 would require commercial and industrial employers with 25 employees or more to develop a Transportation Management Plan.</p>
<p>AQ-1.8 Localized Concentrated Air Pollution. Strive to reduce the number and generation of localized points of concentrated automobile emissions, or “hot spots,” such as by synchronizing traffic signals.</p>	<p>Consistent. Projects and infrastructure under the RCAP, especially those under RCAP Measure T-3 would help reduce localized concentrations of air pollution. Prioritizing mixed-use development in infill priority areas would help reduce trips and VMT to reduce the localized air pollution from automobile combustion and fugitive emissions, including PM₁₀. In addition, RCAP Measures T-1 Urban and Rural, T-2 Urban and Rural, T-4, and T-5 would support reduced VMT and associated air pollutant emissions by encouraging more active transportation, public transit, and car sharing use. Likewise, RCAP Measures T-6 through T-8 and T-11 would increase the adoption of ZEVs in Humboldt, thereby reducing automobile emissions.</p>

Measures	Consistency
<p>AQ-1.9 Transit Funding. Strive to secure adequate funding for transit, autonomous vehicle, mobility on-demand, and ridesharing services to provide viable transportation alternatives to help reduce greenhouse gas emissions. Require new development to contribute its fair share of the transit service costs to serve new projects.</p>	<p>Consistent. The RCAP includes actions under Measures T-1 Urban and Rural, T-2 Urban and Rural, T-4, and T-5 to secure funding for pedestrian, bicycle, public transit, and car share infrastructure improvements. In addition, RCAP Strategy 8 includes measures and actions to seek funding opportunities for ZEV and alternative fueling options.</p>
<p>AQ-1.10 Non-Motorized Transportation. Continue to plan for and secure adequate funding for interjurisdictional non-motorized transportation facilities to help reduce greenhouse gas emissions.</p>	<p>Consistent. The RCAP includes actions under Measures T-1 Urban and Rural, T-2 Urban and Rural, T-4, and T-5 to secure funding for pedestrian, bicycle, public transit, and car share infrastructure improvements on a regional scale.</p>
<p>AQ-1.11 City Employee Incentives. Explore incentives for City employees to promote and utilize alternative modes of transportation, such as public transit, carpooling, walking, bicycling, and telecommuting.</p>	<p>Consistent. RCAP Measure T-5 would require employers with 25 employees or more to develop a Transportation Management Plan.</p>
<p>AQ-1.12 City Vehicle Fleet. Continue to purchase low-emission and zero-emission vehicles for the City’s non-emergency fleet and use only clean fuel sources for trucks and heavy equipment, where feasible.</p>	<p>Consistent. RCAP Measure T-11 is designed to “lead by example” and electrify or otherwise decarbonize 50 percent of municipal fleets by 2030 in alignment with the State’s Advanced Clean Fleet Rule.</p>
<p>AQ-1.13 Reducing the City’s Operation Emissions. Continue to promote strategies aimed at lowering the City’s operation emissions, including exploring the feasibility of purchasing 100% renewable power through a Community Choice Aggregation program.</p>	<p>Consistent. RCAP Measure BE-1 seeks to increase grid-supplied renewable energy to 90 percent by 2030, which would reduce operational emissions related to electricity use in municipal buildings. Additionally, RCAP Measure BE-7 targets to decarbonize 30 percent of municipal buildings and facilities by 2030 and Measure T-11 directs Humboldt to decarbonize 50 percent of municipal fleets by 2030.</p>
<p>City of Fortuna General Plan</p>	
<p>HS-3.1 Agency Cooperation. The City shall cooperate with other agencies in developing an effective approach to regional air quality planning management.</p>	<p>Consistent. The RCAP includes Strategy 1, which would develop a regional coalition to effectively reduce air pollutant and GHG emissions in the region.</p>
<p>HS-3.2 Particulate Matter. The City shall strive to achieve and maintain compliance with National Ambient Air Quality Standards for (PM₁₀) and all Federal, State, regional, and local air quality standards.</p>	<p>Consistent. The RCAP is intended to reduce GHG emissions; however, co-benefits of the RCAP policies to decarbonize energy sources and buildings and to reduce VMT are that these policies will also reduce PM₁₀ and other air pollutant emissions.</p>
<p>HS-3.6 Greenhouse Gas Emissions Reduction from Transportation. Increase clean-fuel use, promote transit-oriented development and alternative modes of transportation, and reduce travel demand.</p>	<p>Consistent. The RCAP contains a variety of measures and actions supporting GHG emissions reductions from the transportation sector. For example, RCAP Measure T-6 would decarbonize 15 percent of passenger vehicle miles traveled by 2030 and 100 percent by 2045 through increased adoption of low and zero-emission vehicles and development of a regional electric vehicle charging and hydrogen fueling network. RCAP Measure T-3 would promote mixed-use, infill, and transit-oriented development. RCAP Measures T-1 Urban and Rural, T-2 Urban and Rural, T-4, and T-5 would support increased active transportation, public transit, and carsharing use.</p>

Regional Climate Action Plan and CEQA GHG Emissions Thresholds

Measures	Consistency
<p>HS-3.7 Air Pollutant Emission Reduction Construction and Operation Measures. The City shall require that new development incorporate air pollutant emission reduction measures during construction and operation.</p>	<p>Consistent. Individual projects facilitated by the RCAP would be subject to measures to reduce air pollutant emissions, as discussed in more detail under Impact AQ-2, below.</p>
<p>City of Rio Dell General Plan</p>	
<p>P1.2.3-1 Establish review procedures for development proposals to ensure that mobile, point, and area sources of air emissions are reduced to the greatest extent possible.</p>	<p>Consistent. The RCAP contains measures that would reduce air pollutant emissions from development proposals,</p>
<p>P1.2.3-2 Reduce emissions from stationary sources by limiting wood-burning fireplace installations in new construction to low emitting, State and EPA certified fireplace inserts, woodstoves, pellet stoves, or natural gas fire stoves.</p>	<p>Consistent. RCAP Strategies 3 and 4 would increase decarbonization of existing buildings and require new development to be decarbonized. These strategies would help reduce air pollution from woodburning fuel use.</p>
<p>NCUAQMD PM₁₀ Attainment Plan</p>	
<p>Transportation control measures include encouraging the usage of public transit, replacing the diesel-fueled bus fleet with natural gas-fueled models, recommending car-pooling and bicycle commuting, removing or repairing vehicles with inefficient emission control systems, and improving traffic flow to reduce idling and VMT.</p>	<p>Consistent. The RCAP contains a variety of measures and actions supporting GHG emissions reductions from the transportation sector. For example, RCAP Measure T-6 would decarbonize 15 percent of passenger vehicle miles traveled by 2030 and 100 percent by 2045 through increased adoption of low and zero-emission vehicles and development of a regional electric vehicle charging and hydrogen fueling network.</p>
<p>Land use control measures encourage mixed-use or more dense development to reduce sources of PM₁₀ emissions.</p>	<p>Consistent. RCAP Measure T-3 would encourage mixed-use development in infill priority areas.</p>
<p>Limit residential wood burning and encourage the installation of EPA-certified woodstoves.</p>	<p>Consistent. RCAP Strategies 3 and 4 would increase decarbonization of existing buildings and require new development to be decarbonized. These strategies would help reduce air pollution from woodburning fuel use.</p>
<p>Note: only policies and control measures from the listed plans that are applicable to air quality specifically and the RCAP are identified in this table.</p>	

As indicated in Table 3.2-6, the RCAP would be consistent with policies and control measures outlined in the NCUAQMD PM10 Attainment Plan, Humboldt County General Plan, City of Rio Dell General Plan, City of Eureka General Plan, City of Arcata General Plan, and City of Fortuna General Plan. As such, the RCAP would not conflict with or obstruct implementation of the applicable air quality plan. Therefore, the impact related to air quality management plan consistency would be less than significant.

Mitigation Measures

None required.

Level of Significance

Less Than Significant without Mitigation

Criteria Air Pollutants Emissions Compared to Air Quality Standards

Significance Criterion b: Would the proposed 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?

Impact AQ-2 IMPLEMENTATION OF THE RCAP WOULD RESULT IN THE GENERATION OF AIR POLLUTANTS DURING CONSTRUCTION OF INDIVIDUAL PROJECTS, WHICH COULD AFFECT LOCAL AIR QUALITY EVEN WITH MITIGATION. IMPLEMENTATION OF THE PROPOSED PLAN WOULD NOT RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF OPERATIONAL CRITERIA POLLUTANTS. IMPACTS WOULD BE SIGNIFICANT AND UNAVOIDABLE.

Construction

The RCAP promotes sustainable infrastructure development which may result in future construction activities throughout Humboldt. Construction activities such as demolition, grading, construction worker travel, delivery and hauling of construction supplies and debris, and fuel combustion by construction equipment would generate pollutant emissions. These construction activities would create emissions of dust, fumes, equipment exhaust, and other air contaminants, particularly during site preparation and grading. The extent of daily emissions, particularly ROG_s and NO_x emissions, generated by construction equipment would depend on the quantity of equipment used and the hours of operation for each future project. The extent of PM_{2.5} and PM₁₀ emissions would depend upon the following factors: 1) the extent of disturbed soils; 2) the length of disturbance time; 3) whether existing structures are demolished; 4) whether excavation is involved; and 5) whether transporting excavated materials offsite is necessary. Dust emissions can lead to both nuisance and health impacts. The region is in nonattainment for PM₁₀, and construction dust emissions can contribute to existing exceedances of the ambient air quality standards.

If an individual project's construction emissions fall below the emission rates as established in NCUAQMD Rule 110, the project's impact on regional air quality would be individually and cumulatively less than significant. Many projects facilitated by the RCAP would not require the use of heavy equipment, such as minor energy and water efficiency retrofits or policy-focused measures to encourage adoption and use of ZEVs and decarbonized off-road equipment and, thus, would not be anticipated to result in significant air quality emissions. However, some projects may involve substantial construction such as renewable energy infrastructure installation promoted by RCAP Measures BE-1 and BE-2, transportation-related infrastructure development promoted by RCAP Measures T-1 Urban and Rural, T-2 Urban and Rural, and T-4, a new organic waste processing facility facilitated by RCAP Measure SW-1, and new or expanded recycled water facilities facilitated by Measure WW-2. Future projects occurring under these measures would require the use of heavy equipment and have the potential to produce construction emissions that could exceed NCUAQMD significance thresholds. In addition, such construction activities could result in quantities of fugitive PM₁₀ dust emitted that could cause and contribute to an exceedance of the State PM₁₀ standard, for which the region is in nonattainment.

The NCUAQMD has established rules to control fugitive dust emissions for construction activities under Rule 104.¹⁸ Control measures established by Rule 104 include BMPs such as covering open

¹⁸ NCUAQMD. 2015b. Regulation I Rule 104 – Prohibitions. <https://www.ncuaqmd.org/files/70b9a2edd/Rule+104.pdf> (accessed October 2024).

bodied trucks when transporting soil, the application of water to dirt roads and material stockpiles, and removal of track out material from paved streets. These fugitive dust emissions control measures would be implemented for each future project occurring under the RCAP.¹⁹ However, the RCAP does not include project-specific proposals or details, so it is not feasible to quantify emissions and make a conclusive determination that potential emissions would be below the NCUAQMD significance thresholds. Therefore, construction criteria air pollutant emissions and fugitive dust emissions impacts are considered potentially significant.

Implementation of Mitigation Measures AQ-1 and AQ-2 would reduce impacts associated with construction criteria pollutants to the extent feasible. However, since project-level details and locations are unknown at this stage of planning, these mitigation measures may not be feasible or effective for all future RCAP projects. Therefore, even with implementation of Mitigation Measures AQ-1 and AQ-2, overall cumulative construction criteria pollutant emission and fugitive dust emissions impacts would remain significant and unavoidable.

Operation

Future projects that may be facilitated by the RCAP, such as new renewable energy facilities (Measures BE-1 and BE-2), new or expanded recycled water facilities (Measure WW-2), and new or expanded organic waste processing facilities (Measure SW-1), could result in operation air pollutant emissions. Operation of these future facilities could result in criteria air pollutants and fugitive dust emissions from maintenance activities occurring on unpaved surfaces, maintenance or employee vehicle trips, windblown dust settled on solar panels, or other similar types of operational activities. Although future projects under the RCAP would have the potential to result in operational sources of criteria pollutant and fugitive dust emissions, these emissions would be minor.

Compliance with State regulations requiring vehicles sold in the State after 2035 to be zero-emission vehicles would further reduce the minor operational emissions associated with regular maintenance and operational activities. Additionally, the RCAP includes strategies, measures, and actions that would reduce long-term emissions of air pollutants via reduction of GHG emissions from the transportation, energy, wastewater, and solid waste sectors. Upon implementation, many of the proposed RCAP measures would have the co-benefit of reducing air pollutant emissions by reducing natural gas and petroleum fuel consumption, as well as regional VMT reductions. RCAP strategies that would have co-benefits related to air quality include increasing carbon-free electricity (Strategy 2), decarbonization of existing and new construction (Strategies 3 and 4), shifting driving to walking and biking (Strategy 5), shifting driving to public transit or car-share (Strategy 6), reducing vehicle miles traveled (Strategy 7), increasing zero-emission vehicle adoption (Strategy 8), and conserving water and reducing wastewater emissions (Strategy 9). As such, projects and infrastructure facilitated by the RCAP are expected to result in overall improvements to regional air quality during operation, and generation of net negative emissions of operational criteria air pollutants when considered with the overall RCAP operational criteria air pollutant emission reductions. Therefore, operational impacts related to criteria air pollutant emissions and fugitive dust emissions would be less than significant.

¹⁹ Individual projects may also be subject to individual City ordinance or General Plan requirements in addition to the NCUAQMD rules and regulations. Compliance with these ordinances and requirements is assumed.

Mitigation Measures

MITIGATION MEASURE AQ-1: IMPLEMENT CONSTRUCTION FUGITIVE DUST MEASURES

For all project construction activities requiring daily usage of heavy duty offroad equipment, the reviewing agency (County or relevant city) shall incorporate the following construction measures that are consistent with NCUAQMD Rule 104 for fugitive dust:

- No person shall allow handling, transporting, or open storage of materials in such a manner that allows or may allow unnecessary amounts of particulate matter to become airborne.
- Reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including, but not limited to, the following provisions:
 - Reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including, but not limited to, the following provisions:
 - Covering open bodied trucks when used for transporting materials likely to give rise to airborne dust.
 - Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Containment methods can be employed during sandblasting and other similar operations.
 - The use of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land.
 - The application of asphalt, oil, water or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts.
 - The paving of roadways and their maintenance in a clean condition.
 - The prompt removal of earth or other track out material from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water, or other means.

MITIGATION MEASURE AQ-2: IMPLEMENT CONSTRUCTION DIESEL EQUIPMENT EMISSIONS STANDARDS

The reviewing agency (County or relevant City) shall ensure that, to the extent feasible, project diesel construction equipment rated 50 horsepower and above meet CARB Tier 4 emission standards for off-road heavy-duty diesel engines. If use of Tier 4 equipment is not feasible, diesel construction equipment meeting Tier 3 (or if infeasible, Tier 2) emission standards shall be used, and engines shall be retrofitted with CARB Level 3 Verified Diesel Emissions Control Strategy (VDECS), if available for the equipment. These measures shall be noted on construction plans and contracts, and the reviewing agency shall perform periodic site inspections during construction phases.

Level of Significance

Significant and Unavoidable

Toxic Air Contaminants Emissions Exposure

Significance Criterion c: Would the proposed plan expose sensitive receptors to substantial pollutant concentrations?

Impact AQ-3 OPERATION OF PROJECTS FACILITATED BY THE RCAP IS NOT EXPECTED TO EXPOSE SENSITIVE RECEPTORS TO SIGNIFICANT OPERATIONAL SOURCES OF TACs. DURING CONSTRUCTION OF FUTURE RCAP PROJECTS, EMISSIONS OF TACs WOULD BE REDUCED THROUGH MITIGATION MEASURE AQ-3, AND IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

Construction

Many projects facilitated by the RCAP would not require the use of heavy equipment, such as minor energy and water efficiency retrofits or policy-focused measures to encourage adoption and use of ZEVs and decarbonized off-road equipment, and, thus, would not result in significant emissions of TACs. However, some projects may involve substantial construction such as renewable energy infrastructure installation promoted by RCAP Measures BE-1 and BE-2, transportation-related infrastructure development promoted by RCAP Measures T-1 Urban and Rural, T-2 Urban and Rural, and T-4, a new organic waste processing facility facilitated by RCAP Measure SW-1, and new or expanded recycled water facilities (Measure WW-2). Future projects occurring under these measures would require the use of heavy equipment, some for extensive periods of time, and may result in DPM exhaust emissions from off-road, heavy-duty diesel equipment associated with site preparation (e.g., excavation, grading, clearing), building construction, and other miscellaneous construction activities. DPM was identified as a TAC by CARB in 1998. The potential cancer risk from the inhalation of DPM, as discussed below, outweighs the potential non-cancer²⁰ health impacts; as such, this analysis focuses on exposure of sensitive receptors to cancer risk.²¹

The dose to which the 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 extent of exposure that person has to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period. According to the California Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with future projects.²² According to the OEHHA, construction of individual projects lasting longer than two months and placed within 1,000 feet of sensitive receptors could potentially expose nearby sensitive receptors to substantial pollutant concentrations.

Construction of larger-scale projects facilitated by the RCAP, such as utility-scale renewable energy facilities, may occur over long periods (e.g., greater than two months), though the use of diesel-powered construction equipment in any one area would likely occur for no more than a few years for an individual project and would cease when construction is completed in that area. The

²⁰ Non-cancer risks include premature death, hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma, increased respiratory symptoms, and decreased lung function.

²¹ CARB. 2024. Overview: Diesel Exhaust & Health. <https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health> (accessed October 2024).

²² OEHHA. 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. <https://oehha.ca.gov/air/cnrn/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0> (accessed October 2024).

maximum DPM emissions would typically occur during demolition, site preparation and grading activities, which comprise only a portion of overall future projects' construction durations. DPM emissions would decrease for the remaining construction activities, such as building construction and architectural coating, because such activities require less-intensive construction equipment. It is not possible to quantify health risk without specific project details and locations, as impacts would vary based on location, intensity, construction methods, surrounding land uses, and other project-specific factors. For example, a project proposing construction of a new bicycle lane over a six-month construction period would generally have less impact than a large-scale solar energy project with a multi-year construction period.

Future projects facilitated by the RCAP would be required to comply with the applicable County or city General Plan Air Quality Elements (refer to Table 3.2-6), NCUAQMD regulatory requirements and control strategies, and the CARB In-Use Off-Road Diesel Vehicle Regulation. These policies and regulations are intended to reduce TAC emissions from construction activities. However, since location and project-specific details for future RCAP projects are unknown, it is possible that future projects could occur within 1,000 feet of sensitive receptors and exceed two-months of construction activities, and, therefore, could result in TAC emissions that cause an exceedance of the CAPCOA health risk thresholds.²³

Implementation of Mitigation Measures AQ-1 and AQ-2, provided under Impact AQ-2, would minimize construction-related TAC emissions. In addition, Mitigation Measure AQ-3 would require a construction health risk assessment (HRA) to be performed for future projects with construction timelines greater than two months and with construction activities located within 1,000 feet of sensitive receptors. A construction HRA would be completed in such instance to identify potential TAC emissions exposure to nearby sensitive receptors and provide recommended BMPs to reduce TAC emissions impacts to below the applicable health risk thresholds. With implementation of Mitigation Measures AQ-1, AQ-2, and AQ-3, construction impacts to sensitive receptors would be less than significant.

Operation

Future projects that may be facilitated by the RCAP, such as new renewable energy facilities (Measures BE-1 and BE-2), new or expanded recycled water facilities (Measure WW-2), and new or expanded organic waste processing facilities (Measure SW-1), could result in minor TAC emissions during operation. Operation of these future facilities could result in TAC emissions from employee vehicle trips, organic waste hauling trips, and maintenance activities involving off-road equipment. Although future projects under the RCAP would have the potential to result in operational sources of TACs, these emissions would be minor and would not represent significant operational sources of TACs. Furthermore, projects and infrastructure facilitated by the RCAP in accordance with County and relevant city land use and zoning regulations would not site land uses that typically generate TACs, such as industrial land uses, in close proximity to residential land uses. Additionally, if future RCAP projects include a new stationary TAC source, like an emergency generator, then the stationary source would be required to receive an air quality permit from NCUAQMD. The air quality permitting process, including resulting BMPs required by NCUAQMD, would ensure that the stationary source does not present a health risk to sensitive receptors.

As described under Impact AQ-2, implementation of the RCAP would substantially reduce fossil fuel use, nonrenewable energy consumption, and VMT. A co-benefit of GHG reductions from the RCAP

²³ The NCUAQMD does not currently have any thresholds for toxics but recommends the use of the latest version of the CAPCOA's.

includes reduced TAC emissions as a result of increased renewable energy use (Measures BE-1, BE-2, and BE-8), building electrification (Measures BE-3 through BE-7), VMT reductions (Measures T-1 through T-5), and decarbonization of vehicles and off-road equipment (Measures T-6 through T-11). This would be reduced further as County-wide vehicles observe increased electrification pursuant to the CARB Advanced Clean Cars II rule, which states that by 2035, 100 percent of new passenger vehicles, light-duty trucks, and SUVs sold in California must be ZEVs. Therefore, operational RCAP impacts related to TAC emissions would be less than significant.

Mitigation Measures

MITIGATION MEASURE AQ-3: CONDUCT CONSTRUCTION HEALTH RISK ASSESSMENT AND IMPLEMENT DPM EMISSIONS REDUCTIONS

To identify and reduce potential risk exposure to nearby sensitive receivers during the construction of individual projects facilitated by the RCAP, the reviewing agency (County or relevant city) shall require that:

- For individual projects where construction activities would occur within 1,000 feet of sensitive receptors, would last longer than two months, and would not utilize equipment rated USEPA Tier 4 for equipment of 50 horsepower or more or construction equipment fitted with Level 3 Diesel Particulate Filters for all equipment of 50 horsepower or more, and/or alternative fuel construction equipment, the project applicant shall conduct a construction health risk assessment (HRA) and implement relevant recommendations. If an HRA is to be performed, the HRA shall determine potential risk and compare the risk to the following CAPCOA thresholds:
 - Increased cancer risk of > 10.0 in a million; and
 - Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute)

Even with the application of emissions controls, the reviewing agency may recommend an individual project conduct a quantitative construction health risk assessment. If risk exceeds the thresholds, measures such as requiring the use of Tier 4 engines, Level 3 Diesel Particulate Filters, and/or alternative fuel construction equipment shall be incorporated to reduce the risk to below the thresholds of significance.

Level of Significance

Less Than Significant with Mitigation

Objectionable Odors

Significance Criterion d: Would the proposed plan result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Impact AQ-4 PROJECTS UNDER THE RCAP WOULD NOT CREATE OBJECTIONABLE ODORS THAT COULD ADVERSELY AFFECT A SUBSTANTIAL NUMBER OF PEOPLE. IMPACTS RELATED TO ODORS WOULD BE LESS THAN SIGNIFICANT.

Construction

The occurrence and severity of objectionable odors depend on a number of factors, including the nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of

the receiving location. Although objectionable odors seldom cause physical harm, they can be perceived as a nuisance, cause distress among the public, and result in citizen complaints.

Implementation of the RCAP would cause odors during construction from equipment use as well as odors related to asphalt paving and architectural coating for renewable energy, transit and active transportation, organic waste facility, and recycled water infrastructure projects. The odors would be limited to the construction period, dissipate quickly with distance, and occur at magnitudes that would not affect substantial numbers of people. Furthermore, construction activities for projects facilitated by the RCAP would be required to comply with NCUAQMD Rule 104 (Prohibitions), which regulates nuisance odors.²⁴ Therefore, odors emitted from the construction of individual future projects under the RCAP would be less than significant.

Operation

As stated in the CARB Air Quality and Land Use Handbook, land uses typically producing objectionable odors include sewage treatment plants, waste transfer facilities, landfills, biomass operations, rendering plants, and autobody shops.²⁵ Projects facilitated by the RCAP would primarily be related to renewable energy (e.g., RCAP Measures BE-1, BE-2, and BE-8) and transportation infrastructure (e.g., RCAP Measures T-1, T-2, T-4, T-6, T-7), which are not land uses that typically produce objectionable odors. However, the RCAP may result in some infrastructure and projects that could produce odors during operation, such as wastewater treatment facilities, biofuels facilities, and compost application projects for carbon sequestration (e.g., RCAP Measures WW-1, T-10, CS-1, and CS-2). NCUAQMD Rule 104 (Prohibitions) and California Health and Safety Code, Division 26, Part 4, Chapter 3, Section 41700 prohibit the emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of the public. Projects required to obtain permits from NCUAQMD, typically industrial and some commercial projects, are evaluated by NCUAQMD staff for potential odor nuisance. In addition, conditions may be applied (e.g., control equipment requirement), where necessary, to prevent the occurrence of public nuisance. Therefore, through compliance with NCUAPCD rules and approvals, RCAP impacts related to operational odors would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Less Than Significant without Mitigation

3.2.5 Cumulative Impacts

“Cumulative impacts” refers to two or more individual impacts that, when considered together, are considerable, or that compound or increase other environmental impacts (CEQA Guidelines Section 15355). Cumulative impacts can result from individually minor but collectively significant impacts taking place over time. If the analysis determines that the potential exists for the RCAP, taken together with other past, present, and reasonably foreseeable future growth, to result in a significant or adverse cumulative impact, the analysis then determines whether the RCAP’s

²⁴ NCUAQMD. 2015. Regulation I Rule 104- Prohibitions. <https://www.ncuaqmd.org/files/70b9a2edd/Rule+104.pdf> (accessed November 2024).

²⁵ CARB. 2005. Air Quality and Land Use Handbook: A Community Health Perspective. https://ww2.arb.ca.gov/sites/default/files/2023-05/Land%20Use%20Handbook_0.pdf (accessed October 2024)

incremental contribution to any significant cumulative impact is itself significant (i.e., “cumulatively considerable”).

The geographic scope of the cumulative air quality analysis is the NCAB, which includes the unincorporated and incorporated areas of Humboldt County, Del Norte County and Trinity County. The goal of this analysis is to determine whether the overall long-term impacts of cumulative growth in the NCAB would be cumulatively significant, and to determine whether the RCAP on its own would cause a “cumulatively considerable” incremental contribution to any such cumulatively significant impacts. To determine whether the overall long-term impacts of such cumulative growth would be cumulatively significant, the analysis generally considers the following:

- The area in which impacts of the RCAP would be experienced;
- The impacts of the RCAP that are expected in the area;
- Other past, proposed, and reasonably foreseeable growth that has had or are expected to have impacts in the same area;
- The impacts or expected impacts of the cumulative growth; and
- The overall impact that can be expected if the individual impacts related to the cumulative growth are allowed to accumulate.

Criteria Air Pollutants

The NCAB is listed as "attainment" or "unclassified" for all the federal and State ambient air quality standards except for the state 24-hour particulate (PM₁₀) standard in Humboldt County only. The NCAB has not exceeded the federal annual standard for particulate matter during the last five-year period. Development under the cumulative scenario would generate particulate matter and other criteria air pollutants in NCAB during construction. However, as described under Impact AQ-1, the RCAP would be consistent with the goals of air quality plans, as it would support clean energy infrastructure, decarbonization of the transportation sector, and reduction of statewide VMT. Projects and infrastructure facilitated by the RCAP do not contain elements that would disrupt or hinder implementation of any air quality plan control measures. Discussion of these impacts considers the cumulative nature of criteria pollutants in the region. Therefore, the RCAP would not result in a cumulatively considerable contribution to a conflict with or obstruction of implementation of the applicable air quality plan.

As described under Impact AQ-2, RCAP construction would temporarily increase criteria air pollutant emissions, including particulate matter and fugitive dust. These temporary impacts would be minimized through Mitigation Measures AQ-1 and AQ-2. Discussion of these impacts considers the cumulative nature of criteria pollutants in NCAB; however, even with mitigation, it is not guaranteed that cumulative development, including projects facilitated by the RCAP, would reduce emissions to levels less than significant. Therefore, the RCAP would result in a cumulatively considerable net increase of a criteria pollutant from construction emissions. As described under Impact AQ-2, the measures, strategies and actions of the RCAP are anticipated to result in a net reduction in operational criteria pollutant emissions in Humboldt. Therefore, operation of projects facilitated by the RCAP would not result in cumulatively considerable criteria pollutant emissions.

Because construction emissions could result in a cumulatively considerable net increase in criteria pollutant emissions in NCAB, the overall cumulative impact related to criteria air pollutants would be significant and unavoidable.

Toxic Air Contaminants

Cumulative development in the NCAB would generate TAC emissions during construction that could contribute to elevated risk levels for sensitive receptors. Potential health risk impacts on maximally exposed individuals are dependent on the magnitude of emissions, proximity to emissions source, and duration of exposure. Although project-level information is unknown at this time, it is not expected that multiple individual projects facilitated by the RCAP and other cumulative development would be constructed simultaneously in the proximity of the same sensitive receptors. The NCUAQMD does not have adopted thresholds for TACs, including those for potential cumulative impacts. The CAPCOA guidance, referenced by the NCUAQMD, also does not identify cumulative thresholds for TACs. Nevertheless, as identified under Impact AQ-3, RCAP projects would not result in a significant impact related to TAC emissions with implementation of Mitigation Measures AQ-1, AQ-2, and AQ-3. Individual projects facilitated by the RCAP would remain below the project-level risk threshold of 10 per million with mitigation. Therefore, as individual projects would be less than significant with mitigation, potential cumulative contributions to health risk impacts from the RCAP would also be less than significant with mitigation.

Odors

Construction activities occurring due to cumulative development in the NCAB would produce temporary odors from construction equipment, paving, and architectural coating. As identified under Impact AQ-4, construction odor emissions are generally minor and disperse rapidly with distance. Construction activities for cumulative development and future RCAP projects would also be required to comply with NCUAQMD Rule 104 (Prohibitions) to limit potential nuisance odors. Therefore, cumulative construction projects along with future RCAP projects occurring in close proximity to one another would not result in cumulative odor impacts.

Cumulative development and future RCAP projects involving land uses known to produce odors, such as wastewater treatment plants, organic waste facilities, and composting operations, would be required to comply with County and relevant city land use and zoning regulations that limit the development of odor-producing land uses to appropriate areas. Additionally, cumulative development and future RCAP projects would also be required to comply with NCUAQMD Rule 104 (Prohibitions) to limit potential nuisance odors during operation. Therefore, cumulative odor impacts from multiple individual projects facilitated by the RCAP and other cumulative scenario development would not result in a cumulatively considerable increase in odors. Therefore, the cumulative impact related to odors would be less than significant.

Overall Level of Cumulative Significance

Significant and Unavoidable

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