4. AIR QUALITY

This chapter describes the existing air quality in the General Plan Planning Area.

4.1 REGULATORY FRAMEWORK

Air pollutant emissions generated by stationary sources in the General Plan Planning Area are subject to the rules and regulations imposed by the Monterey Bay Air Resources District (MBARD) —formerly known as the Monterey Bay Unified Air Pollution Control District (MBUAPCD), the California Air Resources Board (CARB), and the US Environmental Protection Agency (EPA). Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized below.

4.1.1 FEDERAL AND STATE REGULATIONS

4.1.1.1 Ambient Air Quality Standards

The Clean Air Act was passed in 1963 by the United States Congress and has been amended several times. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The Clean Air Act allows states to adopt more stringent standards or to include other pollutants. The California Clean Air Act, signed into law in 1988, requires all areas of the state to achieve and maintain the California ambient air quality standards (AAQS) by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS.

The National and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants, which are shown in Table 4-1. These pollutants are ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

TABLE 4-1 AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	California Standard[a]	Federal Primary Standard[b]	Major Pollutant Sources
Ozone (O_3)[c]	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	
Respirable Fine Particulate Matter ($PM_{2.5}$)[d]	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m^3	
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)[e]	24 hours	25 µg/m^3	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.

TABLE 4-1 AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	California Standard[a]	Federal Primary Standard[b]	Major Pollutant Sources
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hour	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Notes: ppm: parts per million; µg/m^3; micrograms per cubic meter; *Standard has not been established for this pollutant/duration by this entity.

a. California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b. National standards (other than O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

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

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

e. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

Source: California Air Resources Board, 2017, March, Short-Lived Climate Pollutant Reduction Strategy, https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf, accessed December 5, 2018.

California has also adopted a host of other regulations that reduce criteria pollutant emissions, including:

- Assembly Bill (AB) 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code

4.1.1.2 Criteria Air Pollutants

Pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and State law under the federal Clean Air Act ("National") and California Clean Air Act, respectively. The pollutants emitted into the ambient air by stationary and mobile sources are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxides (NO_x), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants", which means that ambient air quality standards (AAQS) have been established for them. ROG and NO_x are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants. Each of the primary and secondary criteria air pollutants and its known health effects is described here.

Carbon Monoxide (CO) Carbon monoxide is formed by the incomplete combustion of carbon-containing material. Because it is directly emitted from combustion engines, carbon monoxide can have adverse localized impacts, primarily in areas of heavy traffic congestion. Because it is emitted directly and has limited dispersion characteristics, CO is considered a localized pollutant. When carbon monoxide combines with hemoglobin in the blood, the oxygen-carrying capacity of the blood is reduced and the release of oxygen is inhibited or slowed. This condition puts the following at risk: patients with angina; persons with other cardiovascular diseases, chronic obstructive lung disease, or asthma; persons with anemia; and fetuses. At higher levels, CO also affects the central nervous system. Symptoms of exposure may include headaches, dizziness, sleepiness, nausea, vomiting, confusion, and disorientation.[1]

Reactive Organic Gases (ROGs)/ Volatile Organic Compounds (VOCs) are compounds composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of ROGs. Other sources of ROGs include evaporative emissions from paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROGs, but rather by reactions of ROGs to form secondary pollutants such as O_3. There are no AAQS established for ROGs. However, because they contribute to the formation of O_3, MBARD has established a significance threshold for this pollutant.[2]

Nitrogen Oxides (NO_x) are a by-product of fuel combustion and contribute to the formation of O_3, PM_{10}, and $PM_{2.5}$. The two major components of NO_x are nitric oxide (NO) and NO_2. The principal component of NO_x produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 acts as an acute

[1] Monterey Bay Air Resources District (MBARD). 2008, February. CEQA Air Quality Guidelines.

[2] US Environmental Protection Agency (EPA). Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants Accessed April 26, 2019.

irritant and in equal concentrations is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating.[3]

Sulfur Dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2. When SO_2 forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_x). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue.[4]

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$) Inhalable particulates refer to particulate matter less than 10 microns in diameter (PM_{10}). Particulates are classified as primary or secondary, depending on their origin. Primary particles are unchanged after being directly emitted (e.g., road dust) and are the most commonly analyzed and modeled form of PM_{10}. Because it is emitted directly and has limited dispersion characteristics, this type of PM_{10} is considered a localized pollutant. In addition, secondary PM_{10} can be formed in the atmosphere through chemical reactions involving gases. In 1997, EPA adopted a fine particulate matter standard of 2.5 microns or less in diameter ($PM_{2.5}$). Recent studies undertaken by EPA identify key health effects categories associated with PM include: premature mortality; aggravation of respiratory and cardiovascular disease as indicated by increased hospital admissions, emergency room visits, school absences, work loss day, and restricted activity; changes in lung function and increased respiratory symptoms; changes to lung tissues and structure; and altered respiratory defense mechanisms. According to EPA, recent epidemiological information indicates that several subpopulations are apparently more sensitive to effects of air pollution containing PM. Observed effects include decreases in pulmonary function reported in children and increased mortality reported in the elderly and individuals with cardiopulmonary disease.[5]

Ozone (O_3) Ozone in the lower atmosphere is one of the main components of smog. It is not directly emitted but is formed in the atmosphere over several hours from combinations of various precursors in the presence of sunlight. NO_x and VOCs are considered to be the primary compounds, or precursors, contributing to the formation of ozone. Ozone is viewed as both a secondary pollutant and a regional pollutant. Short-term exposure to ozone results in injury and damage to the lungs, decreases in pulmonary function, and impairment of immune mechanisms. These changes have been implicated in the development of chronic lung disease as the result of long-term exposure. Symptoms of ozone irritation include shortness of breath, chest pain when inhaling deeply, wheezing, and coughing. Children and persons with pre-existing respiratory disease (e.g., asthma, chronic bronchitis, emphysema) are at greater risk. In addition, effects on vegetation have been documented at concentrations below the standards.[6]

[3] US Environmental Protection Agency (EPA). Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants Accessed April 26, 2019.

[4] US Environmental Protection Agency (EPA). Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants Accessed April 26, 2019.

[5] Monterey Bay Air Resources District (MBARD). 2008, February. CEQA Air Quality Guidelines.

[6] Monterey Bay Air Resources District (MBARD). 2008, February. CEQA Air Quality Guidelines.

Lead (Pb) is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phasing out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers. Because emissions of lead are found only in projects that are permitted by the MBARD, lead is not an air quality pollutant of concern for the proposed project.[7]

4.1.1.3 Odors

Odors represent emissions of one or more pollutants that are a nuisance to healthy persons and may trigger asthma episodes in people with sensitive airways. Pollutants associated with objectionable odors include sulfur compounds and methane. Typical sources of odors include landfills, rendering plants, chemical plants, agricultural uses, wastewater treatment plants, and refineries. Odors are a complex problem that can be caused by minute quantities of substances. Because people have mixed reactions to odors, the nuisance level of an odor varies.

4.1.1.4 Toxic Air Contaminants

Public exposure to TACs is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health". A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 US Code Section 7412[b]) is a TAC. Under State law, the California Environmental Protection Agency, acting through CARB, is authorized to identify a substance as a TAC if it is an air pollutant that may cause or contribute to an increase in mortality or serious illness, or may pose a present or potential hazard to human health.

In 1998, CARB identified DPM as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particles are 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs.

At the time of the last update to the toxic air contaminants (TAC) list in December 1999, the California Air Resources Board (CARB) had designated 244 compounds as TACs.[8] Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control measures. The majority of the estimated health risks from TACs can be attributed to relatively few compounds; the most important compounds being particulate matter from diesel-fueled engines.

[7] US Environmental Protection Agency (EPA). Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants Accessed April 26, 2019.

[8] California Air Resources Board, 1999, Final Staff Report: Update to the Toxic Air Contaminant List.

CARB has promulgated the following specific rules to limit TAC emissions:

- 13 CCR Chapter 10, Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.
- 13 CCR Chapter 10, Section 2480, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools.
- 13 CCR Section 2477 and Article 8, Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate.

AB 1807 and AB 2588

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets up a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. To date, CARB has established formal control measures for 11 TACs that are identified as having no safe threshold.

AB 2588

Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a HRA, and if specific thresholds are exceeded, are required to communicate the results to the public through notices and public meetings.

4.1.2 REGIONAL REGULATIONS

4.1.2.1 Air Quality Management Planning

For regulatory purposes, the General Plan Planning Area lies in the North Central Coast Air Basin (NCCAB) which is comprised of Monterey, Santa Cruz and San Benito counties. The basin lies along the central coast of California and covers an area of 5,159 square miles.

MBARD shares responsibility with CARB for ensuring that State and national AAQS are achieved and maintained within the NCCAB. MBARD is the agency responsible for preparing the air quality management plans (AQMP) for the NCCAB in coordination with the Association of Monterey Bay Area Governments (AMBAG). The air district was created by the Monterey County Board of Supervisors in 1965. In 1968 Santa Cruz County joined Monterey County to form a unified district. In 1969 the State designated the counties of Monterey, San Benito, and Santa Cruz as the NCCAB. On July 1, 1974, the Monterey and Santa

Cruz County Unified Air Pollution Control District merged with the San Benito County Air Pollution Control District to form the Monterey Bay Unified Air Pollution Control District, now known as MBARD.[9]

2012-2015 Air Quality Management Plan (State and Federal Ozone)

Ozone, the primary constituent of smog and the main pollutant of concern for the NCCAB, is formed in the atmosphere through complex chemical interactions involving reactive organic gases ROG and NOx in the presence of sunlight. As found in historical ozone transport studies, ozone concentrations at the Pinnacles National Park monitor are significantly impacted by Bay Area NOx emissions. In addition, the region is "NOx sensitive" or NOx limited, meaning that ozone formation due to local emissions is more limited by the availability of NOx as opposed to the availability of ROGs.

The CCAA (Health & Safety Code §40910 et seq.) requires preparation of an Air Quality Management Plan (AQMP), with subsequent updates every three years. There have been many changes both in terms of air quality and the regulatory setting since the initial AQMP in 1991. The 2012-2015 AQMP s is the seventh update to the AQMP. The 2012-2015 AQMP shows that the NCCAB continues to make progress toward meeting the State ozone standard.

MBARD has jurisdiction over stationary emission sources in the NCCAB which continue to be the smallest portion of both the ROG and NOx emissions in the Air Basin. Area-wide sources are the main contributor to ROG emissions in the region. Mobile sources emissions are the primary source of NOx emissions in the Air Basin. The recent changes that contributed to reducing estimated NOx and ROG emissions compared to the 2012 AQMP include lower vehicle miles traveled and cleaner exhaust standards for mobile sources.[10]

2005 Particulate Matter Plan (State)

Senate Bill 656 (2003) required that the CARB adopt a list of the most readily available, feasible, and cost-effective control measures that could be implemented by the air pollution control districts to reduce ambient levels of particulate matter in the air basin. The 2005 Particulate Matter Plan is the MBARD's implementation plan for reducing particulate matter in Monterey, Santa Cruz, and San Benito Counties. Measures in the plan include:

- Agricultural Best Management Practices (BMPs) to reduce fugitive dust from agricultural tilling and unpaved roads.
- Incentive programs and demonstration projects to control fugitive dust for various conditions of the NCCAB.
- Mineral processing BMPs and contingency measures for cement manufacturing if mineral processing BMPs do not achieve desired results.

[9] Monterey Bay Air Resources District (MBARD). What is the Monterey Bay Area Resources District? http://mbard.org/district/ Accessed April 25, 2019

[10] Monterey Bay Air Resources District (MBARD). 2017. March 15. 2012-2015 Air Quality Management Plan.

- Air Toxics Control Measures (ATCM) for naturally occurring asbestos
- ATCMs for agricultural pumps as a control measure. [11]

4.1.2.2 MBARD Rules

The following MBARD rules limit emissions of air pollutants from construction and operation from development projects:

- Rule 400 – Visible Emissions. Discharge of visible air pollutant emissions into the atmosphere from any emission source for a period or periods aggregating more than three minutes in any one hour, as observed using an appropriate test method, is prohibited.
- Rule 402 – Nuisances. No person shall discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or which endanger the comfort, repose, health, or safety of any such persons or the public; or which cause, or have a natural tendency to cause, injury or damage to business or property.
- Rule 426 – Architectural Coatings. This rule limits the emissions of ROGs from the use of architectural coatings

4.1.3 LOCAL REGULATIONS

The City of Hollister 2005 General Plan, adopted in 2005, includes goals, policies, and implementation measures related to air quality in the Community Services and Facilities (CSF) and Natural Resources and Conservation (NRC) Elements. Applicable goals, policies, and implementation measures reinforce the use of air quality performance standards for new development and overall reduction of air pollution. As part of the proposed project, some existing General Plan goals, policies, and implementation measures would be amended, substantially changed, or new policies would be added. A list of policies applicable to air quality is provided in Table 4-1.

In addition to the policies listed in Table 4-1, the 2005 General Plan includes several implementing measures which promote air quality. These include implementing measure CSF.D which encourages the adoption of a performance standards ordinance which includes ensuring development will not contribute significant air pollutant to the air, along with NRC.H which requires the air quality standards are applied during development review. Implementing measure NRC.I further ensures that the development review process ensures that sensitive receptors near proposed development are protected from air pollutants. NRC.M encourages the City to maintain buffers around land uses which toxic air contaminants can be, or may be, released. NRC.A encourages the City to conduct air quality education programs while NRC.L promotes the coordination with the Monterey Bay Unified Air Pollution Control District and other agencies to ensure air quality regulations are adhered to. NRC.R requires appropriate landscaping to mitigate air quality impacts.

[11] Monterey Bay Air Resources District (MBARD). 2005, December. 2005 Report on Attainment of the California Particulate Matter Standards in the Monterey Bay Region, State Bill 656 Implementation Plan.

TABLE 4-1 2005 HOLLISTER GENERAL PLAN RELEVANT AIR QUALITY POLICIES

Policy No.	Policy
NRC2.1	State and Federal Standards for Air Quality. Continue to comply and strive to exceed state and federal standards for air quality. Review all development proposals for consistency with the current Air Quality Management Plan of the Monterey Bay Unified Air Pollution Control District.
NRC2.2	Air Quality Considerations in Land Use Planning. To ensure excellent air quality, promote land use compatibility for new development by using buffering techniques such as landscaping, setbacks, and screening in areas where different land uses abut one another.
NRC2.3	Air Quality Planning and Coordination. Integrate air quality considerations with the land use and transportation processes by mitigating air quality impacts through land use design measures, such as encouraging project design that will foster walking and biking.
NRC2.4	Particulate Matter Pollution Reduction. Promote the reduction of particulate matter pollution from roads, parking lots, construction sites, agricultural lands and other activities. This would include: (1) requiring the watering of exposed earth surfaces during excavation, grading and construction activities; (2) requiring the daily (or as needed based upon actual circumstances) cleanup of mud and dust carried onto street surfaces by construction vehicles; and (3) requiring that appropriate measures to be taken to reduce wind erosion during construction, such as watering of soil, replanting and repaving.
NRC2.5	Circulation Alternatives to Reduce Impacts on Air Quality. Promote circulation alternatives that reduce air pollution.

Source: City of Hollister, *2005 General Plan*.

4.2 EXISTING CONDITIONS

4.2.1 NORTH CENTRAL COAST AIR BASIN

The northwest sector of the NCCAB, where Hollister is located, is dominated by the Santa Cruz Mountains. The Diablo Range marks the northeastern boundary of the basin, and together with the southern extent of the Santa Cruz Mountains forms the Santa Clara Valley which extends into the northeastern tip of the Basin. Farther south, the Santa Clara Valley evolves into the San Benito Valley which runs northwest-southeast and has the Gabilan Range as its western boundary. To the west of the Gabilan Range is the Salinas Valley, which extends from Salinas at its northwestern end to King City at its southeastern end. The western side of the Salinas Valley is formed by the Sierra de Salinas, which also forms the eastern side of the smaller Carmel Valley. The coastal Santa Lucia Range defines the western side of the Carmel Valley.

The semi-permanent high pressure cell in the eastern Pacific is the basic controlling factor in the climate of the air basin. In the summer, the high pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Air descends in the Pacific High forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air aloft acts as a lid to inhibit vertical air movement.

The generally northwest-southeast orientation of mountainous ridges tends to restrict and channel the summer onshore air currents. Surface heating in the interior portion of the Salinas and San Benito Valleys creates a weak low pressure which intensifies the onshore air flow during the afternoon and evening.

In the fall, the surface winds become weak, and the marine layer grows shallow, dissipating altogether on some days. The air flow is occasionally reversed in a weak offshore movement, and the relatively

stationary air mass is held in place by the Pacific High pressure cell, which allows pollutants to build up over a period of a few days. It is most often during this season that the north or east winds develop to transport pollutants from either the San Francisco Bay area or the Central Valley into the NCCAB.

During the winter, the Pacific High migrates southward and has less influence on the air basin. Air frequently flows in a southeasterly direction out of the Salinas and San Benito Valleys, especially during night and morning hours. Northwest winds are nevertheless still dominant in winter, but easterly flow is more frequent. The general absence of deep, persistent inversions and the occasional storm systems usually result in good air quality for the basin as a whole in winter and early spring.

In Santa Cruz County, coastal mountains exert a strong influence on atmospheric circulation, which results in generally good air quality. Small inland valleys such as Scotts Valley, with low mountains on two sides, have poorer circulation than at Santa Cruz on the coastal plain. In addition, Scotts Valley is downwind of major pollutant generating centers, and these pollutants have time to form oxidants during transit to Scotts Valley. Consequently, air pollutants tend to build up more at Scotts Valley than at Santa Cruz.

Monterey Bay is a 25-mile wide inlet, which allows marine air at low levels to penetrate the interior. The Salinas Valley is a steep-sloped coastal valley that opens out on Monterey Bay and extends southeastward with mountain ranges of two to three thousand feet elevation on either side. The broad area of the valley floor near the mouth is 25 miles wide, narrowing to about six miles at Soledad, which is forty miles inland, and to three miles wide at King City, which is about sixty miles from the coast. At Salinas, near the northern end of the Valley, west and northwest winds occur about one-half of the time during the entire year. Although the summer coastal stratus rarely extends beyond Soledad, the extended sea breeze, which consists of warmer and drier air currents, frequently reaches far down the Salinas Valley. In the southern end of the Valley, which extends into the South Central Coast Air Basin to Paso Robles, winds are generally weaker most of the year except during storm periods.

Hollister, at the northern end of the San Benito Valley, experiences west winds nearly one-third of the time. The prevailing air flow during the summer months probably originates in the Monterey Bay area and enters the northern end of the San Benito Valley through the air gap through the Gabilan Range occupied by the Pajaro River. In addition, a northwesterly air flow frequently transports pollutants into the San Benito Valley from the Santa Clara Valley.[12]

4.2.2 AREA DESIGNATIONS

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards through the State Implementation Plan (SIP). Areas are classified as attainment or nonattainment areas for particular pollutants, depending on whether they meet ambient air quality standards. Severity classifications for ozone nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

- Unclassified: a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

[12] Monterey Bay Air Resources District (MBARD). 2008, February. CEQA Air Quality Guidelines.

- **Attainment:** a pollutant is in attainment if the CAAQS for that pollutant was not violated at any site in the area during a three-year period.
- **Nonattainment:** a pollutant is in nonattainment if there was at least one violation of a state AAQS for that pollutant in the area.
- **Nonattainment/Transitional:** a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

The attainment status for the NCCAB is shown in Table 4-2, Attainment Status of Criteria Pollutants in the North Central Coast Air Basin.

TABLE 4-2 ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE NORTH CENTRAL COAST AIR BASIN

Pollutant	State	Federal
Ozone	Nonattainment[a]	Attainment/Unclassified[b]
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Attainment	Attainment/Unclassified
CO	Attainment/Unclassified	Attainment/Unclassified
NO_2	Attainment	Attainment/Unclassified[c]
SO_2	Attainment	Attainment[d]
Lead	Attainment	Attainment/Unclassified[e]

Notes.
a Effective July 26, 2007, CARB designated the NCCAB a nonattainment area for the State ozone standard, which was revised in 2006 to include an 8-hour standard of 0.070 ppm.
b On March 12, 2008, EPA adopted a new 8-hour ozone standard of 0.075 ppm. In April 2012, EPA designated the NCCAB attainment/unclassified based on 2009-2011 data
c In 2012, EPA designated the entire state as attainment/unclassified for the 2010 NO2 standard.
d In June 2011, the ARB recommended to EPA that the entire state be designated as attainment for the 2010 primary SO2 standard. Final designations to be addressed in future EPA actions.
e On October 15, 2008 EPA substantially strengthened the national ambient air quality standard for lead by lowering the level of the primary standard from 1.5 µg/m3 to 0.15 µg/m3. Final designations were made by EPA in November 2011

Source: California Air Resources Board (CARB), 2018, December 28. Area Designations Maps/State and National. https://www.arb.ca.gov/desig/adm/adm.htm and Monterey Bay Air Resources District (MBARD). NCCAB Area Designations and Attainment Status. http://mbard.org/wp-content/uploads/2015/01/attainment-status-january-2015.pdf

4.2.3 EXISTING AMBIENT AIR QUALITY

Existing levels of ambient air quality and historical trends and projections in the vicinity of the General Plan Planning Area are best documented by measurements taken by the MBARD. The air quality monitoring station closest to the City is the Hollister-Fairview Road Monitoring Station. This station monitors O_3, PM_{10}, and $PM_{2.5}$. The most current five years of data monitored at this monitoring station is included in Table 4-3, *Ambient Air Quality Monitoring Summary*. The data show recurring violations of both the state and federal O_3 standards.

Exceptional events, like wildfires, can affect air quality in the NCCAB. Wildfires can temporarily elevate concentrations of particulate matter. When wildfires affect air quality, MBARD will monitor and provide information to the public about air quality levels.

TABLE 4-3 AMBIENT AIR QUALITY MONITORING SUMMARY

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2014	2015	2016	2017	2018
Ozone (O_3)					
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	0	0	0	0	0
Federal 8-hour ≥ 0.070 ppm (days exceed threshold)	1	0	0	1	0
Federal 8-Hour > 0.075 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.083	0.079	0.073	0.078	0.077
Max. 8-Hour Conc. (ppm)	0.071	0.065	0.060	0.072	0.063
Coarse Particulates (PM_{10})					
State 24-Hour > 50 µg/m^3 (days exceed threshold)	0	0	0	0	0
Federal 24-Hour > 150 µg/m^3 (days exceed threshold)	0	0	0	0	0
Max. 24-Hour Conc. (µg/m^3)	48.4	65.8	44.3	80.9	95.9
Fine Particulates ($PM_{2.5}$)					
Federal 24-Hour > 35 µg/m^3 (days exceed threshold)	0	0	0	1	10
Max. 24-Hour Conc. (µg/m^3)	24.2	18.6	24.4	42.0	52.7

Notes: Exceptional events, like wildfires, can affect the county's air quality.
ppm: parts per million; parts per billion, µg/m^3: micrograms per cubic meter
* Data not available.
Source: California Air Resources Board (CARB). iADAM: Air Quality Statistics. Top 4 Summary. https://_www.arb.ca.gov/adam/topfour/topfour1.php Accessed April 10, 2020. Data obtained from the Hollister Fairview Road Monitoring Station.

4.2.4 SENSITIVE RECEPTORS

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases.

For CEQA purposes, a sensitive receptor is generically defined as any residence including private homes, condominiums, apartments, and living quarters; education resources such as preschools and kindergarten through grade twelve (k-12) schools; daycare centers; and health care facilities such as hospitals or retirement and nursing homes. A sensitive receptor includes long term care hospitals, hospices, prisons, and dormitories or similar live-in housing.[13] Residential areas are considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Schools are also considered sensitive receptors, as children are present for extended durations and engage in regular outdoor activities. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

[13] Monterey Bay Air Resources District (MBARD). 2008, February. CEQA Air Quality Guidelines.

4.2.5 CARB SITING RECOMMENDATIONS

Because placement of sensitive land uses falls outside CARB jurisdiction, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* in May 2005 to address the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB's recommendations on the siting of new sensitive land uses were developed from a compilation of recent studies that evaluated data on the adverse health effects ensuing from proximity to air pollution sources. The key observation in these studies is that close proximity to air pollution sources substantially increases both exposure and the potential for adverse health effects. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic: diesel PM from trucks, and benzene and 1,3 butadiene from passenger vehicles. On a typical urban freeway (truck traffic of 10,000 to 20,000/day), diesel PM makes up approximately 84 percent of the potential cancer risk from the vehicle traffic.[14] Table 4-4 shows a summary of CARB recommendations for siting new sensitive land uses within the vicinity of air-pollutant-generating sources. Recommendations in this Table are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

TABLE 4-4 CARB RECOMMENDATIONS FOR SITING NEW SENSITIVE LAND USES

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units [TRUs] per day, or where TRU unit operations exceed 300 hours per week). Take into account the configuration of existing distribution centers and avoid locating residences and other sensitive land uses near entry and exit points.
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or CARB on the status of pending analyses of health risks.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with three or more machines, consult with the local air district. Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

Source: California Air Resources Board, 2005, April. *Air Quality and Land Use Handbook: A Community Health Perspective*.

[14] California Air Resources Board, 2005, April. Air Quality and Land Use Handbook: A Community Health Perspective.

4.3 IMPLICATIONS FOR THE GENERAL PLAN UPDATE

Based on information contained in this chapter, the General Plan Update process should address the following issues:

- Understand how sensitive receptors could be affected by substantial air pollutant generators (e.g., freeways, stationary sources, and warehouses) when considering potential land use changes.
- Consider policies to help reduce indoor air pollutant concentrations when new sensitive receptors are within the setback/buffer zone.

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