6.0 Air Quality

6.1 Purpose

The Air Quality Chapter coordinates the planning of land use, circulation, housing, and other City policies with their potential effects on air quality. The purpose of this chapter is to guide Port Hueneme toward meeting ambient air standards set by the United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (CARB). Community air quality is one of the most essential issues associated with public health and safety. The Air Quality Chapter is directly related to the type and intensity of land uses established in the Land Use Chapter and the number, length, and timing of vehicle trips identified in the Circulation Chapter.

6.2 Climate and Meteorology

Port Hueneme is in the South Central Coast Air Basin (SCCAB), which includes all of San Luis Obispo, Santa Barbara, and Ventura counties. The climate of the SCCAB is strongly influenced by its proximity to the Pacific Ocean and the location of the semi-permanent high-pressure cell in the northeastern Pacific known as the Pacific High. The Mediterranean climate of Port Hueneme produces moderate average temperatures although extreme temperatures can be reached in the winter and summer. Rainfall is concentrated in the winter months. Local climate conditions for Port Hueneme are shown in Table 6-1. As summarized therein, the warmest month of the year is August and the coldest month of the year is January. The annual average mean temperature is 60.3 degrees Fahrenheit (°F) with annual average rainfall of 14.4 inches.

Table 6-1 Port Hueneme Climate Conditions

Temperature Condition	Amount
Average annual rainfall[1]	14.4 inches
Average annual maximum temperature[2]	70.4°F
Average annual minimum temperature[2]	50.3°F
Warmest month[2]	August
Coolest month[2]	January
Average annual mean temperature[3]	60.3°F

°F = degrees Fahrenheit

[1] Data based on the period of record from January 1926 to December 2019.

[2] Data based on the period of record from June 1923 to March 2020.

[3] Data based on the period of record from June 1923 to March 2020.

Source: National Weather Service 2020

The SCCAB is subject to seasonal Santa Ana winds. Santa Ana winds are strong north to northeasterly winds that originate from high-pressure areas centered over the desert of the Great Basin. These winds are usually warm, dry, northerly winds which blow offshore at 15 to 20 miles per hour (mph) but can reach speeds in excess of 60 mph.

Two types of temperature inversions (warmer air on top of cooler air) are created in the SCCAB: subsidence and radiational. Subsidence inversions are regional effects created by the Pacific High pressure system in which air is heated when it flows from high-pressure areas to the low-pressure areas inland and is compressed. This type of inversion generally forms at about 1,000 to 2,000 feet above mean sea level and can occur throughout the year, but is most evident during the summer months. Radiational, or surface, inversions are formed by the more rapid cooling of air near the ground at night, especially during winter. This type of inversion is typically lower in elevation and is generally accompanied by stable air. Both types of inversions limit the dispersal of air pollutants within the regional airshed because more stable air conditions (i.e., low wind speeds and uniform temperatures) result in lower rates of pollutant dispersion.

6.3 Air Pollutants of Primary Concern

Criteria Pollutants

There are six primary criteria pollutants regulated by the federal Clean Air Act and California Clean Air Act, as described below. Primary criteria pollutants are emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory, etc.) into the atmosphere. Primary criteria pollutants include: carbon monoxide (CO), nitrogen dioxide (NO_2), fine particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). Ozone (O_3) is considered a secondary criteria pollutant because it is created by atmospheric chemical and photochemical reactions between reactive organic compounds (ROC[1]) and nitrogen oxides (NO_X).

Ozone

Ozone is produced by a photochemical reaction (triggered by sunlight) between NO_X and ROC. NO_X is formed during the combustion of fuels, while ROCs are formed during combustion and evaporation of organic solvents. Because O_3 requires sunlight to form, it mostly occurs in substantial concentrations between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions (Ventura County Air Pollution Control District [VCAPCD] 2003). Groups most sensitive to O_3 include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide

CO is a local pollutant that is found in high concentrations only near its sources. The primary source of CO, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. Other sources include fuel combustion equipment. The health effects of CO are related to its affinity for hemoglobin in the blood. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulty in people with chronic diseases, nausea, reduced lung capacity, and impaired mental abilities (VCAPCD 2003).

[1]Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, two groups are important from an air quality perspective: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC). The Ventura County Air Pollution Control District uses the term ROC to denote organic precursors.

Nitrogen Dioxide

NO_2 is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. Nitrogen dioxide is an acute irritant. Elevated levels of NO_2 can cause respiratory irritation, impaired pulmonary function, and bronchitis (VCAPCD 2003). NO_2 absorbs blue light, gives a reddish-brown cast to the atmosphere, and reduces visibility. It can also contribute to the formation of ozone, smog and acid rain.

*Su*spended Particulates

Atmospheric particulate matter is comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. The particulates that are of particular concern are PM_{10} (small particulate matter that measures no more than 10 microns in diameter) and $PM_{2.5}$ (fine particulate that measures no more than 2.5 microns in diameter). The characteristics, sources, and potential health effects associated with the PM_{10} and $PM_{2.5}$ can be different. Major man-made sources of PM_{10} are agricultural operations, industrial processes, combustion of fossil fuels, construction, demolition operations, and mobilization of road dust into the atmosphere. Natural sources include windblown dust, wildfire smoke, and sea spray salt. Elevated levels of PM_{10} can cause respiratory irritation, reduced lung function, aggravation of cardiovascular disease, and cancer (VCAPCD 2003). The finer $PM_{2.5}$ particulates are generally associated with combustion processes and formation in the atmosphere as a secondary pollutant through chemical reactions. $PM_{2.5}$ is more likely to penetrate deeply into the lungs and poses a serious health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. Elevated levels of $PM_{2.5}$ can cause respiratory stress and decreased lung function and increase the risk of long-term disease (VCAPCD 2003). More than half of the small and fine particulate matter that is inhaled into the lungs remains there, which can cause permanent lung damage. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Sulfur Dioxide

SO_2 is a colorless, pungent, irritating gas formed primarily by the combustion of sulfur-containing fossil fuels. When SO_2 oxidizes in the atmosphere, it forms sulfur trioxide (SO_3). Collectively, these pollutants are referred to as sulfur oxides (SO_X). In humid atmospheres, SO_2 can also form sulfuric acid mist, which can eventually react to produce sulfate particulates that can inhibit visibility. Combustion of high sulfur-content fuels is the major source, while chemical plants, sulfur recovery plants, and metal processing are minor contributors. At sufficiently high concentrations, SO_2 irritates the upper respiratory tract. At lower concentrations, when in conjunction with particulates, SO_2 appears to do still greater harm by injuring lung tissues. This compound also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. Sulfur dioxide causes respiratory irritation, including wheezing, shortness of breath, and coughing (VCAPCD 2003). Long-term SO_2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease. Sulfur oxides, in combination with moisture and oxygen, can yellow leaves on plants, dissolve marble, and eat away iron and steel.

Lead

Lead (Pb) is a metal found naturally in the environment, as well as in manufacturing products. Lead occurs in the atmosphere as particulate matter. The major sources of Pb emissions historically have been mobile and industrial sources. As a result of the United States Environmental Protection Agency's (U.S. EPA) regulatory efforts to remove Pb from gasoline, atmospheric Pb concentrations have declined substantially over the past several decades. The most dramatic reductions in Pb emissions occurred prior to 1990 due to the removal of Pb from gasoline sold for most highway vehicles. Lead emissions were further reduced substantially between 1990 and 2008, with reductions occurring in the metals industries in part due to national emissions standards for hazardous air pollutants (U.S. EPA 2013). As a result of phasing out leaded gasoline, metal processing is currently the primary source of Pb emissions. The highest level of Pb in the air is generally found near lead smelters. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers. Lead may cause a range of health effects, including anemia, kidney disease, and neuromuscular and neurological dysfunction (in severe cases) (U.S. EPA 2019).

Toxic Air Contaminants

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or serious illness, or that may pose a present or potential hazard to human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. One of the main sources of TACs in California is diesel engines that emit exhaust containing solid material known as diesel particulate matter (DPM; CARB 2019a). TACs are different than criteria pollutants because ambient air quality standards have not been established for TACs. TACs occurring at extremely low levels may still cause health effects, and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic risk and by chronic (i.e., long duration) and acute (i.e., severe but of short duration) adverse effects on human health.

6.4 Air Quality Regulation

The federal and California Clean Air Acts regulate the emission of airborne pollutants from various mobile and stationary sources. The U.S. EPA is the federal agency designated to administer air quality regulation, while the CARB is the state equivalent within the California Environmental Protection Agency. These agencies have established ambient air quality standards for the protection of public health. Local air quality management control and planning is provided through regional air districts established by the CARB for the 15 air basins statewide. The CARB is responsible for control of mobile emission sources, while local air districts are responsible for control of stationary sources and enforcing regulations. Port Hueneme is located in the Ventura County portion of the SCCAB, which is under the jurisdiction of the VCAPCD.

The U.S. EPA and the CARB establish ambient air quality standards for major pollutants at thresholds intended to protect public health. Federal and state standards have been established for O_3, CO, NO_2, SO_2, Pb, PM_{10}, and $PM_{2.5}$. California standards are more restrictive than federal standards for each of these pollutants, except for Pb, the eight-hour average for CO, and the eight-hour average for O_3. The VCAPCD monitors criteria pollutant levels in Ventura County to ensure that air quality standards are met, and if they are not met, develops strategies to meet the standards. Depending on whether or not the standards are met or exceeded, the county is classified as being in "attainment" or "nonattainment."

Table 6-2 summarizes the California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards (NAAQS) for each of these pollutants and the attainment status for Ventura County. As shown therein, Ventura County is designated a nonattainment area for the federal and state eight-hour O_3 standards and the state one-hour O_3 and PM_{10} standards. This nonattainment status is a result of several factors, the primary ones being naturally adverse meteorological conditions that limit the dispersion and diffusion of pollutants, the limited capacity of the local airshed to eliminate air pollutants, and the number, type, and density of emission sources in the SCCAB.

Table 6-2 Federal and State Ambient Air Quality Standards and Attainment Status

Pollutant	Federal Standard	Attainment Status	California Standard	Attainment Status
Ozone	0.070 ppm (8-hr avg)	N-S	0.09 ppm (1-hr avg) 0.070 ppm (8-hr avg)	N N-S
Carbon Monoxide	35.0 ppm (1-hr avg) 9.0 ppm (8-hr avg)	A A	20.0 ppm (1-hr avg) 9.0 ppm (8-hr avg)	A A
Nitrogen Dioxide	0.100 ppm (1-hr avg) 0.053 ppm (annual avg)	U U	0.18 ppm (1-hr avg) 0.030 ppm (annual avg)	A A
Sulfur Dioxide	0.075 ppm (1-hr avg) 0.5 ppm (3-hr avg) 0.14 ppm (24-hr avg) 0.030 ppm (annual avg)	U U U U	0.25 ppm (1-hr avg) 0.04 ppm (24-hr avg)	A A
Lead	0.15 μg/m^3 (rolling 3-month avg) 1.5 μg/m^3 (calendar quarter)	U U	1.5 μg/m^3 (30-day avg)	A
Particulate Matter (PM_{10})	150 μg/m^3 (24-hr avg)	A	50 μg/m^3 (24-hr avg) 20 μg/m^3 (annual avg)	N N
Particulate Matter ($PM_{2.5}$)	35 μg/m^3 (24-hr avg) 12 μg/m^3 (annual avg)	U A	12 μg/m^3 (annual avg)	A
Visibility-Reducing Particles	No Federal Standards	n/a	Extinction coefficient of 0.23 per kilometer – visibility of ten miles or more (0.07 - 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape. (8-hr avg)	U
Sulfates	No Federal Standards	n/a	25 μg/m^3 (24-hr avg)	A
Hydrogen Sulfide	No Federal Standards	n/a	0.03 ppm (1-hr avg)	A
Vinyl Chloride	No Federal Standards	n/a	0.01 ppm (24-hr avg)	A

ppm= parts per million; μg/m^3 = micrograms per cubic meter; hr = hour; avg = average; N-S = nonattainment-severe (a nonattainment area with a design value [a statistic that describes the air quality status relative to the level of the NAAQS] from 0.105 ppm up to but not including 0.163 ppm); N = nonattainment; A = attainment; U = unclassified (the category given to an area with insufficient data); n/a = not applicable

Sources: CARB 2018a through 2018j and U.S. EPA 2020a through 2020h

In accordance with Section 109(b) of the federal Clean Air Act, the NAAQS established at the federal level are designed to be protective of public health with an adequate margin of safety. The NAAQS were designed to include an adequate margin of safety to be protective of those segments of the public most susceptible to respiratory distress, such as children under the age of 14, the elderly (over the age of 65), persons engaged in strenuous work or exercise, and people with cardiovascular

and chronic respiratory diseases. To derive these standards, the U.S. EPA reviews data from integrated science assessments and risk/exposure assessments to determine the ambient pollutant concentrations at which human health impacts occur, then reduces these concentrations to establish a margin of safety (U.S. EPA 2018). As a result, human health impacts caused by air pollutants may affect people when ambient air pollutant concentrations are at or above the concentrations established by the NAAQS. The closer a region is to attainting a particular NAAQS, the lower the human health impact is from that pollutant (Brief for San Joaquin Valley Unified Air Pollution Control District 2018). Accordingly, ambient air pollutant concentrations below the NAAQS do not adversely affect human health (CARB 2019a and 2019b). The NAAQS and the underlying science that forms the basis of the NAAQS are reviewed every five years to determine whether updates are necessary to continue protecting public health with an adequate margin of safety (U.S. EPA 2015).

Southern California Association of Governments Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)

Senate Bill 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPOs) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet passenger vehicle greenhouse gas (GHG) emission reduction targets for inclusion in the Regional Transportation Plan (RTP). On March 22, 2018, the CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Southern California Association of Governments (SCAG) was assigned targets of an 8 percent reduction in 2005 GHG emissions levels associated with passenger vehicles by 2020 and a 19 percent reduction in 2005 GHG emissions levels associated with passenger vehicles by 2035. Although these emission reduction targets are aimed at GHGs, they have the co-benefit of also reducing air pollutant emissions from passenger vehicles. The 2020-2045 RTP/SCS includes ten goals focused on promoting economic prosperity, improving mobility, protecting the environment, and supporting healthy/complete communities. The SCS implementation strategies include focusing growth near destinations and mobility options, promoting diverse housing choices, leveraging technology innovations, and supporting implementation of sustainability policies. The SCS establishes a land use vision of center focused placemaking, concentrating growth in and near Priority Growth Areas, transferring of development rights, urban greening, creating greenbelts and community separators, and implementing regional advance mitigation (SCAG 2020).

2016 Ventura County Air Quality Management Plan

Because Ventura County is currently designated nonattainment for the federal and state eight-hour O_3 standards and the state one-hour O_3 and PM_{10} standards, the VCAPCD is required to implement strategies reducing pollutant levels to recognized acceptable standards. These strategies are contained in the 2016 Air Quality Management Plan (AQMP), which builds upon the 2007 AQMP and includes further demonstrations of reasonable progress toward the new federal eight-hour O_3 standard. The 2016 AQMP includes federal, state, and regional actions, local stationary source control measures, and transportation control measures (e.g., vehicle miles travelled reductions, increased vehicle occupancy, vehicle substitution, trip elimination, and technological improvements). The statutory deadline for Ventura County to attain the federal eight-hour O_3 standard is July 20, 2021. The 2016 AQMP determines that, with implementation of the proposed control strategies, Ventura County can expect to reach attainment of the federal and state eight-hour O_3 standard by July 20, 2020; however, the determination of whether attainment has been achieved will not be made until collection and evaluation of monitoring data from the 2020 ozone

season has been completed (VCAPCD 2017). Nevertheless, ozone concentrations in Ventura County exceeded the eight-hour O_3 standard on only seven days in 2019, which is the lowest recorded number of exceedances since the federal eight-hour O_3 standard was lowered to 0.070 parts per million in 2015 (VCAPCD 2020).

VCAPCD Rules and Regulations

The primary method by which the VCAPCD implements the AQMP is through adoption and enforcement of rules and regulations for emissions generated by various uses and activities. These rules and regulations include requirements for permits to construct and operate new stationary sources; standards for emissions of specific pollutants such as particulate matter, sulfur compounds, fugitive dust, hazardous materials and airborne toxics, and asbestos; restrictions on certain emissions sources such as incinerators, fuel combustion, crude oil production, abrasive blasting, architectural coatings, dry cleaning, and orchard heaters; protocols for source testing and stack monitoring; and requirements for the VCAPCD transportation outreach program.[2]

Port Hueneme General Plan Air Quality Sub-element

The City's current General Plan Conservation/Open Space/Environmental Resources Element includes an Air Quality Sub-element that provides guidelines and objectives for the City to help improve local air quality conditions. Policies include cooperation with the VCAPCD; reduction of commute trips; facilitation of active transportation; integration of land use, transportation, and air quality planning; and expansion of alternative fuel infrastructure (City of Port Hueneme 1997).

Port of Hueneme Environmental Management Framework

The Port of Hueneme (Port) set forth its Environmental Management Framework (EMF) in 2012. The EMF includes a strategic action plan for air quality management, which has aided the Port in reducing air emissions by approximately 85 percent since 2008 (Port of Hueneme 2019). Emissions reduction strategies have included maintaining drayage truck compliance, maintaining shore-side power project compliance and reporting, developing a terminal equipment upgrade program, designing and implementing an environmental management information system, pursuing a green lease program, and funding technology advancement incentive programs (Port of Hueneme 2013).

Naval Base Ventura County Joint Land Use Study

The Naval Base Ventura County Joint Land Use Study presents strategies to reduce air pollutant emissions associated with base operations, including preparing a feasibility study to determine shipping solutions for government vessels and supporting the VCAPCD in updating its AQMP to incorporate new regulations and their impacts for commercial and military shipping and military compatibility; amending Rule 55 for military compatibility policies; requesting notification of requests or plans to perform prescribed, controlled, or agricultural waste burns; and updating its smoke management plan (VCTC 2015).

California Environmental Quality Act

The City is responsible for administering the requirements of the California Environmental Quality Act for projects over which the City has discretionary authority. As part of this process, the air quality impacts of projects are evaluated and compared to the thresholds of significance adopted by VCAPCD (2003) to determine whether a project would result in a significant air quality impact. If the

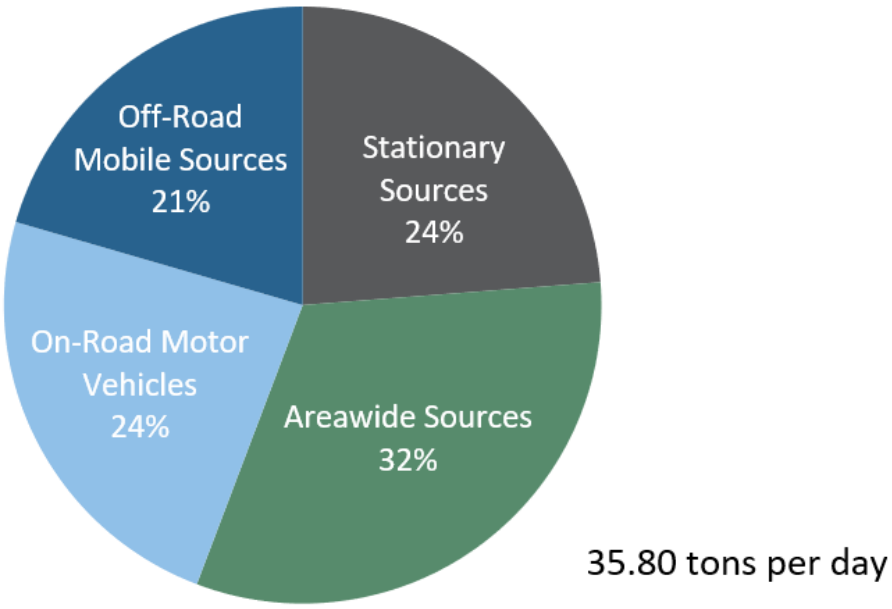
[2] VCAPCD Rules available online at: http://www.vcapcd.org/Rulebook/RuleIndex.htm

thresholds are exceeded, mitigation measures are identified to reduce air pollutant emissions to below the thresholds of significance, as feasible.

6.5 Air Pollution Sources

The primary sources of air pollution in Ventura County are on-road and off-road mobile sources, which generate approximately 45 percent of daily ROG emissions and approximately 90 percent of daily NO_X emissions (CARB 2016). On-road mobile sources include passenger cars, medium- and heavy-duty trucks, buses, motorcycles, and other vehicles operating on highways, freeways, and local roads. Off-road mobile sources include aircraft; locomotives; commercial and recreational marine vessels operating within three miles of shore; agricultural, construction, and lawn and garden equipment; off-road recreation vehicles; and a wide variety of other equipment. Other air pollution sources in Ventura County include stationary sources (e.g., fuel combustion, waste disposal, cleaning and surface coatings, petroleum production and marketing, and industrial processes) and areawide sources (e.g., solvent evaporation and miscellaneous processes). Figure 6-1 through Figure 6-6 show the annual average daily emissions inventories for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ for Ventura County (CARB 2016).[3]In Port Hueneme, the major local air pollution sources are on-road vehicles, off-road mobile sources associated with freight and goods movement at the Port of Hueneme and military operations at Naval Base Ventura County - Port Hueneme and Naval Base Ventura County – Point Mugu, and industrial land uses located in the southern portion of the City.

Figure 6-1 Ventura County 2012 Estimated Annual Average Daily Emissions - ROC



[3] The year 2012 is the most recent year for which baseline air emissions data is available. Emissions inventories do not include marine emissions (those emissions within three miles of the shoreline generated by sources such as ocean-going vessels, commercial harborcraft, recreational boats, aircraft, and cargo handling equipment) or outer continental shelf air basin marine emissions (those emissions beyond three miles of the shoreline generated by sources such as oil and gas production, aircraft, ships and commercial boats, ocean-going vessels, and commercial harborcraft) because these emissions occur in the State Tidelines region and the Outer Continental Shelf Air Basin, which are evaluated separated by VCAPCD.

Figure 6-2 Ventura County 2012 Estimated Annual Average Daily Emissions - NO_x

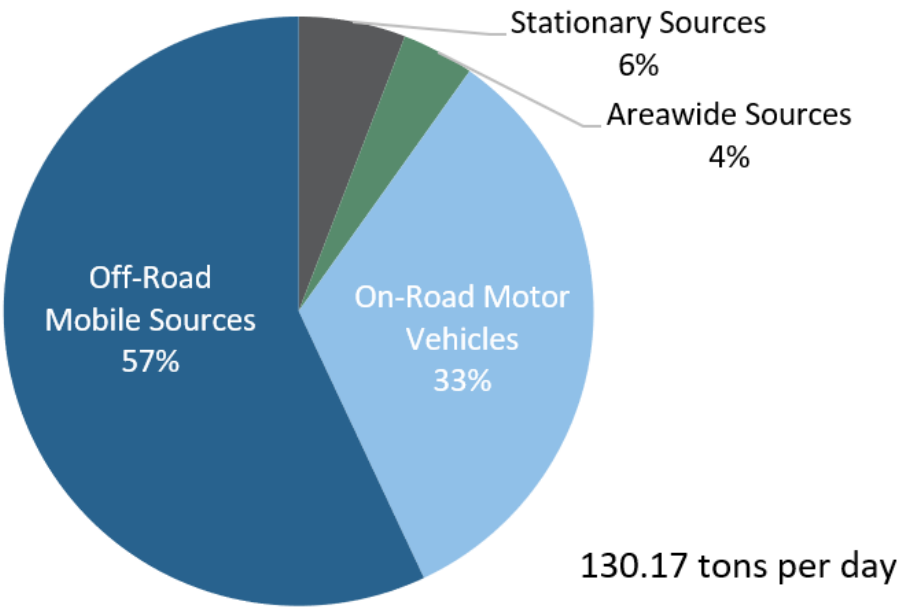


Figure 6-3 Ventura County 2012 Estimated Annual Average Daily Emissions - CO

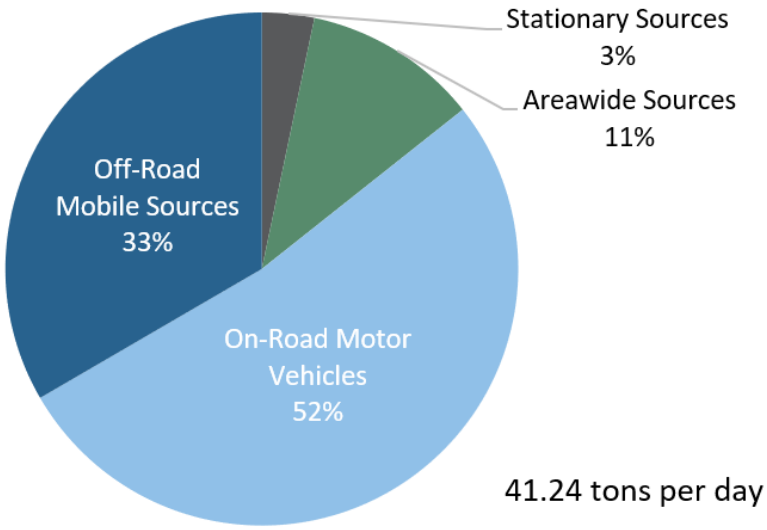


Figure 6-4 Ventura County 2012 Estimated Annual Average Daily Emissions – SOx

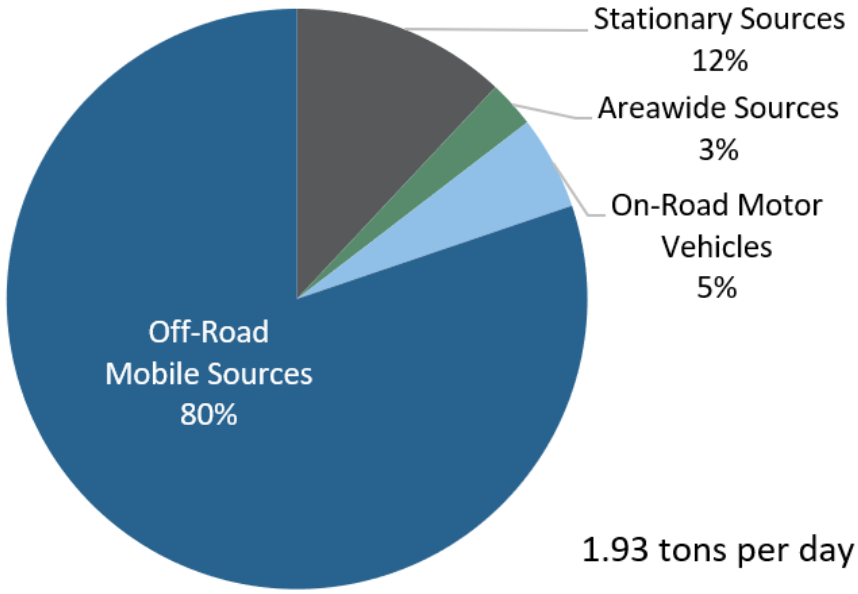


Figure 6-5 Ventura County 2012 Estimated Annual Average Daily Emissions – PM_{10}

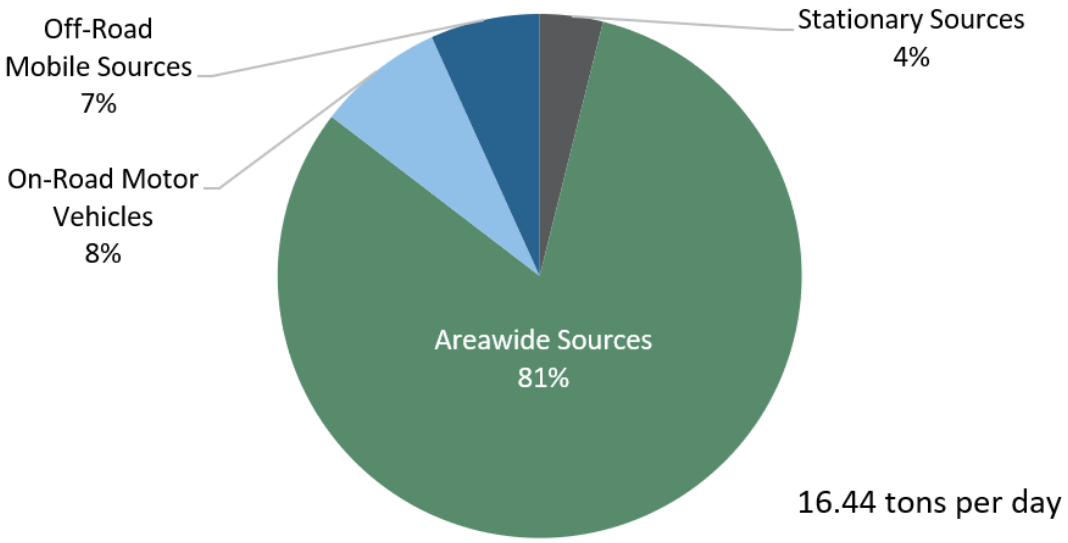
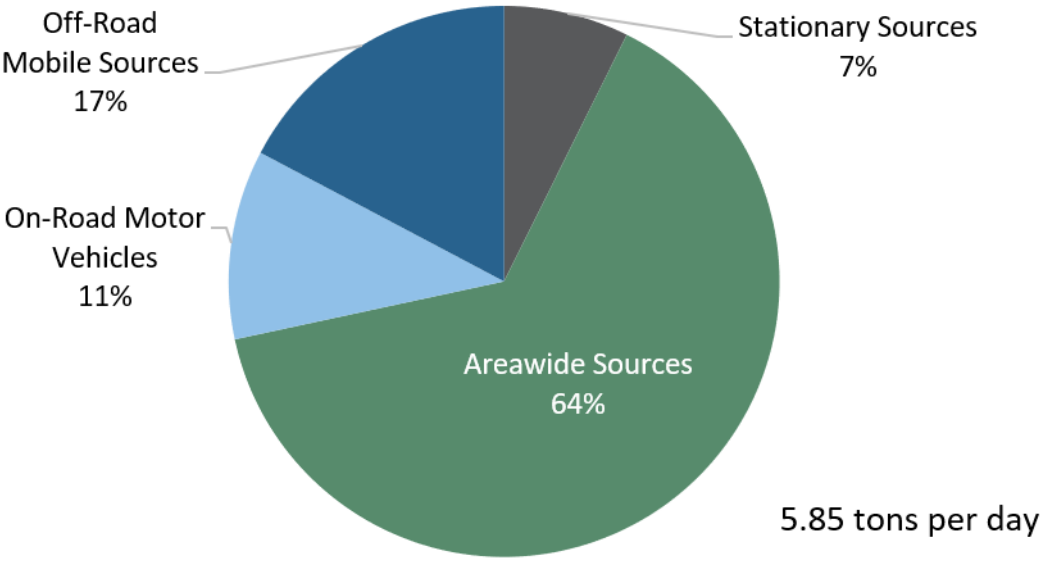


Figure 6-6 Ventura County 2012 Estimated Annual Average Daily Emissions – $PM_{2.5}$



6.6 Ambient Air Quality

The air quality monitoring stations nearest to Port Hueneme are the Ventura-Emma Wood State Beach and the El Rio-Rio Mesa School #2 monitoring stations located at Emma Wood State Beach and Rio Mesa High School, respectively. The data collected at these stations is generally representative of the baseline air quality experienced in Port Hueneme. Due to its similar coastal location, the Ventura-Emma Wood State Beach monitoring station provides the most representative ambient air quality data. However, data from this station is only available from 1996 to 2011 for O_3

and from 1996 to 2004 for NO_2. Therefore, ambient air quality data for the remaining years and pollutants is sourced from the El Rio-Rio Mesa School #2 station. Table 6-3 summarizes the annual air quality data from 1996 to 2019. As shown therein, the number of days of exceedances has generally remained the same or decreased over the last 23 years for all pollutants with the exception of PM_{10}, which was exceeded the State standard more frequently from 2016 to 2018 than from 1996 to 2015. The increased number of exceedances in 2017 and 2018 were likely due to particulate matter mobilized by recent wildfires, including the Thomas Fire, which burned approximately 280,000 acres north of Port Hueneme in Ventura and Santa Barbara counties in 2017, and the Woolsey Fire, which burned approximately 97,000 acres south of Port Hueneme in Ventura and Los Angeles counties in 2018.

Table 6-3 Ambient Air Quality Data in Vicinity of Port Hueneme

Year	Number of Days of Exceedances[1, 2]										
	Federal/State 8-Hour O_3 Standard	Federal Worst-Hour O_3 Standard	State Worst-Hour O_3 Standard	Federal NO_2 Standard	State NO_2 Standard	Federal SO_2 Standard[3]	State SO_2 Standard[3]	Federal/State CO Standard[3]	Federal PM_{10} Standard	State PM_{10} Standard	Federal $PM_{2.5}$ Standard[4]
1996	26	1	10	0	0	0	0	0	0	1	n/a
1997	7	0	2	0	0	0	0	0	1	3	n/a
1998	4	0	0	0	0	0	0	0	0	2	n/a
1999	1	0	0	0	0	0	0	0	0	0	1
2000	1	0	0	0	0	0	0	0	0	1	2
2001	6	0	0	0	0	0	0	0	0	3	2
2002	0	0	0	0	0	0	0	0	0	2	0
2003	10	0	0	0	0	0	0	0	0	5	2
2004	3	0	0	0	0	0	0	0	0	1	0
2005	2	0	0	0	0	n/a	n/a	n/a	0	2	0
2006	0	0	0	0	0	n/a	n/a	n/a	0	4	0
2007	1	0	0	0	0	n/a	n/a	n/a	1	2	1
2008	1	0	0	0	0	n/a	n/a	n/a	0	3	0
2009	0	0	0	0	0	n/a	n/a	n/a	0	2	0
2010	0	0	0	0	0	n/a	n/a	n/a	0	1	0
2011	0	0	0	0	0	n/a	n/a	n/a	0	1	0
2012	0	0	0	0	0	n/a	n/a	n/a	0	1	0
2013	0	0	0	0	0	n/a	n/a	n/a	0	4	0
2014	2	0	1	0	0	n/a	n/a	n/a	0	7	0
2015	0	0	0	0	0	n/a	n/a	n/a	0	6	0
2016	1	0	0	0	0	n/a	n/a	n/a	0	14	0
2017	1	0	0	0	0	n/a	n/a	n/a	1	29	4
2018[5]	0	0	0	0	0	n/a	n/a	n/a	2	21	1

[1] O_3 data from 1996-2011 and NO_2 data from 1996-2004 were sourced from the Ventura-Emma Wood State Beach monitoring station. O_3 data from 2011-2018, NO_2 data from 2004-2019, PM_{10} data from 1996-2018, and $PM_{2.5}$ data from 1999-2018 were sourced from the El Rio-Rio Mesa School #2 monitoring station.

[2] The number of days of exceedances are based on current federal and state air quality standards, some of which have evolved and become more stringent between 1996 and 2018. For example, in 1997, the U.S. EPA replaced the former federal 1-hour O_3 standard with an 8-hour O_3 standard of 0.08 ppm. The U.S. EPA reduced the federal 8-hour O_3 standard to 0.075 ppm in 2008 and again to 0.070 ppm in 2015 (U.S. EPA 2019).

[3] SO_2 and CO data are not available at any monitoring station in Ventura County from 2005 to 2018.

[4] $PM_{2.5}$ data is not available at any monitoring station in Ventura County from 1996 to 1998. [5] At the time of publication, air quality data was not available for 2019.

Source: CARB 2020

6.7 Sensitive Receptors

Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare. Standards are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases. Therefore, the majority of sensitive receptor locations are residences, schools, hospitals, and parks.

Sensitive receptors in Port Hueneme consist primarily of residential neighborhoods. Other sensitive receptors include Hueneme Elementary School, Hueneme Christian School, Richard Bard Elementary School, Parkview Elementary School, Sunkist Elementary School, Our Saviour's Preschool, Bolker Park, Bubbling Springs Park/Recreational Corridor, Dewar Park, Hueneme Beach Park, Moranda Park, and Wene'Mu Park.

6.8 Issues and Opportunities

The following list identifies issues and opportunities related to air quality that can be addressed in the General Plan update:

- The City is located adjacent to the Port of Hueneme, which is a significant source of local air pollution, including diesel particulate matter, which is a toxic air contaminant. The OPR *General Plan Guidelines* (2017) recommend that port of entry communities should have a comprehensive set of goals, policies, and objectives related to air pollution from the port because of the potential for heightened air pollution exposure. However, the current General Plan Air Quality Sub-element does not include policies that address integrated cross-jurisdictional air quality and land use planning with the Oxnard Harbor District, who controls the port. The updated General Plan should establish policies and processes to address land use compatibility as use of the Port changes, intensifies and/or expands.
- The Naval Base Ventura County - Port Hueneme is located within the City's corporate limits. The City is also located approximately four miles west of Naval Base Ventura County – Point Mugu. These are major employers and generate local air pollution via on-road mobile sources (e.g., personnel home-work trips and heavy truck trips) and off-road mobile sources (e.g., marine vessels in port, railroad operations, and aircraft operations). However, the current General Plan Air Quality Sub-element does not include policies that address integrated cross-jurisdictional air quality and land use planning with Naval Base Ventura County. The updated General Plan should establish policies and processes to address land use compatibility with the bases and their uses.
- Several areas of the City have residential land uses adjacent to industrial land uses. Industrial land uses can generate substantial quantities of air pollution, including toxic air contaminants. These areas include the residential neighborhoods south of Port Hueneme Road and east of South Surfside Drive, the residential neighborhood east of Market Street between Seaview Street and Shoreview Drive, the residential neighborhood along Pomona Street between East Scott Street and East Santa Clara Street, and the residential neighborhood along San Pedro Street between West Santa Clara Street and West Pleasant Valley Road. The current General Plan Air Quality Sub-element does not include policies that address how to minimize the air pollution-related health risk of siting sensitive receptors near industrial land uses. The updated General Plan should establish policies and processes to address land use compatibility as uses change, intensify and/or expand. These policies could include establishing any residential

intensification away from industrial areas and establishing standards for the use and implementation of further mixed-use compatibility zoning.

- The VCAPCD recommends that all construction projects with dust-generating activities (e.g., demolition, grading, trenching, excavation) implement fugitive dust control best management practices, which are outlined in Section 7.4.1 of the *Ventura County Air Quality Assessment Guidelines* (2003). The current General Plan Air Quality Sub-element does not include a policy that requires implementation of these best management practices for construction projects with dust-generating activities. The updated General Plan should establish policies and processes to address land use development activities and permitting processes to implement such requirements.

6.9 References

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