

4.2 AIR QUALITY

This chapter describes the existing air quality setting and examines the air quality impacts associated with adopting and implementing the proposed project. “Emissions” refers to the actual quantity of pollutants, measured in pounds per day or tons per year. “Concentrations” refers to the amount of pollutant material per volumetric unit of air. Concentrations are measured in parts per million (ppm), parts per billion (ppb), or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

Air quality is influenced by the quantity of pollutants emitted into the air and by the concentration of pollutants in the air around us. Motor vehicles are the primary source of air pollution in Menlo Park and the Bay Area, with industrial activities such as electronics manufacturing, auto repair, dry cleaning, and other businesses that use chemicals or solvents also contributing to pollution levels. Additionally, particulate matter emitted into the air as a result of construction, grading activities, and the use of wood-burning stoves and fireplaces can compound air quality issues. The General Plan addresses air quality in the existing Open Space/Conservation, Noise and Safety Elements as well the proposed project’s Circulation and Land Use Elements. Air quality, greenhouse gas (GHG), and sustainability policies and programs in the proposed project and the previously adopted Elements are designed to minimize air quality emissions to the extent feasible. Additionally, the proposed project includes an update to the City’s Zoning Ordinance for the Bayfront Area, resulting in three new zoning districts that would promote the creation of a live/work/play environment with travel patterns that are oriented toward pedestrian, transit, and bicycle use in an effort to reduce single-occupant vehicle trips; and thereby, reduce air pollution.

This chapter is based on the methodology recommended by the Bay Area Air Quality Management District (BAAQMD) for plan-level review for projects in the San Francisco Bay Area Air Basin (SFBAAB or Air Basin). The analysis focuses on air pollution from regional emissions and localized pollutant concentrations from buildout of the proposed project. Air pollutant emissions modeling is included in Appendix E, Air Quality and Greenhouse Gas Data, of this Draft EIR.

4.2.1 ENVIRONMENTAL SETTING

4.2.1.1 AIR POLLUTANTS OF CONCERN

A substance in the air that can cause harm to humans and the environment is known as an air pollutant. Pollutants can be in the form of solid particles, liquid droplets, or gases. In addition, they may be natural or man-made. Air pollutants of concern are criteria air pollutants and toxic air contaminants (TACs). Federal, state, and local air districts have adopted laws and regulations to control and improve air quality; these are discussed below in Section 4.2.1.1, Regulatory Framework.

Criteria Air Pollutants

The pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Pollutants can be classified as primary or secondary. Usually, primary pollutants are directly emitted from a process, such as ash from a volcanic eruption, carbon monoxide from a motor vehicle exhaust, or sulfur dioxide from factories. Secondary pollutants are not emitted directly, but form in the air

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when primary pollutants react or interact. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxides (NO_x), sulfur dioxide (SO₂), coarse inhalable particulate matter (PM₁₀), fine inhalable particulate matter (PM_{2.5}), and lead (Pb) are primary air pollutants. Of these, CO, SO₂, NO₂, PM₁₀, and PM_{2.5} are “criteria air pollutants,” which means that ambient air quality standards (AAQS) have been established for them (see section 4.2.1.1, Regulatory Framework). ROG and NO_x are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O₃) and nitrogen dioxide (NO₂) are the principal secondary pollutants.

A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

- **Carbon Monoxide (CO)** is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little or no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, motor vehicles operating at slow speeds are the primary source of CO in the Air Basin. Emissions are highest during cold starts, hard acceleration, stop-and-go driving, and low speeds. New findings indicate that CO emissions per mile are lowest at about 45 miles per hour (mph) for the average light-duty motor vehicle and begin to increase again at higher speeds. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces its oxygen-carrying capacity. This results in less oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death.¹ The Air Basin is designated under the California and National AAQS as being in attainment of CO criteria levels.²
- **Reactive Organic Gases (ROGs)**, also referred to as volatile organic compounds (VOCs), are compounds composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicles 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 by reactions of ROGs to form secondary pollutants such as O₃. There are no AAQS established for ROGs. However, because they contribute to the formation of O₃, BAAQMD has established a significance threshold for this pollutant.
- **Nitrogen Oxides (NO_x)** are a by-product of fuel combustion and contribute to the formation of O₃, PM₁₀, and PM_{2.5}. The two major components of NO_x are nitric oxide (NO) and nitrogen dioxide (NO₂). The principal component of NO_x produced by combustion is NO, but NO reacts with oxygen to form NO₂, creating the mixture of NO and NO₂ commonly called NO_x. NO₂ acts as an acute irritant and in equal concentrations is more injurious than NO. At atmospheric concentrations, however, NO₂ is only potentially irritating. There is some indication of a relationship between NO₂ and chronic pulmonary

¹ Bay Area Air Quality Management District, 2010 (Revised 2011), Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

² California Air Resources Board, 2014, Area Designations: Activities and Maps, <http://www.arb.ca.gov/desig/adm/adm.htm>, accessed on November 21, 2014.

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fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 ppm. NO₂ absorbs blue light, resulting in 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.³ The Air Basin is designated an attainment area for NO₂ under the National AAQS and California AAQS.⁴

- **Sulfur Dioxide (SO₂)** 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 SO₂. When SO₂ forms sulfates (SO₄) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_x). Thus, SO₂ is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO₂ may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO₂ may do greater harm by injuring lung tissue.⁵ The Air Basin is designated an attainment area for SO₂ under the California and National AAQS.⁶
- **Suspended Particulate Matter (PM₁₀ and PM_{2.5})** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM₁₀, include particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004-inch) or less. Inhalable fine particles, or PM_{2.5}, have an aerodynamic diameter of 2.5 microns or less (i.e., 2.5 millionths of a meter or 0.0001 inch).

Some particulate matter, such as pollen, occurs naturally. In the Air Basin, most particulate matter is caused by combustion, factories, construction, grading, demolition, agricultural activities, and motor vehicles. Extended exposure to particulate matter can increase the risk of chronic respiratory disease. PM₁₀ bypasses the body's natural filtration system more easily than larger particles and can lodge deep in the lungs. The United States Environmental Protection Agency (US EPA) scientific review concluded that PM_{2.5} penetrates even more deeply into the lungs, and this is more likely to contribute to health effects—at concentrations well below current PM₁₀ standards. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing). Motor vehicles are currently responsible for about half of particulates in the SFBAAB. Wood-burning in fireplaces and stoves is another large source of fine particulates.⁷

Both PM₁₀ and PM_{2.5} may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. These health effects include premature

³ Bay Area Air Quality Management District, 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

⁴ California Air Resources Board, 2014, Area Designations: Activities and Maps, <http://www.arb.ca.gov/desig/adm/adm.htm>, accessed on November 21, 2014.

⁵ Bay Area Air Quality Management District, 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

⁶ California Air Resources Board, 2014, Area Designations: Activities and Maps, <http://www.arb.ca.gov/desig/adm/adm.htm>, accessed on November 21, 2014.

⁷ Bay Area Air Quality Management District, 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

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death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individual with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms.⁸ There is emerging evidence that even smaller particulates, with an aerodynamic diameter of <0.1 microns or less (i.e., ≤ 0.1 millionths of a meter or <0.000004 inch), known as ultrafine particulates (UFPs), have human health implications, because UFPs toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs. However, the US EPA and the California Air Resources Board (CARB) have yet to adopt AAQS to regulate these particulates. Diesel particulate matter (DPM) is also classified a carcinogen by CARB. The SFBAAB is designated nonattainment under the California AAQS for PM₁₀ and nonattainment under both the California and National AAQS for PM_{2.5}.^{9,10}

- **Ozone (O₃)** is commonly referred to as “smog” and is formed when ROG_s and NO_x, both by-products of internal combustion engine exhaust, undergo photochemical reactions in the presence of sunlight. O₃ is a secondary criteria air pollutant. O₃ concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O₃ poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. O₃ levels usually build up during the day and peak in the afternoon hours. Short-term exposure can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, it can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. O₃ can also damage plants and trees and materials such as rubber and fabrics.¹¹ The SFBAAB is designated nonattainment for the 1-hour California AAQS and 8-hour California and National AAQS for O₃.¹²
- **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 phase-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. Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the US EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The US EPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the US EPA’s regulatory efforts to

⁸ South Coast Air Quality Management District, 2005. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.

⁹ California Air Resources Board (CARB), 2014, Area Designations: Activities and Maps, <http://www.arb.ca.gov/desig/adm/adm.htm>, accessed on November 21, 2014.

¹⁰ On January 9, 2013, the US EPA issued a final rule to determine that the SFBAAB has attained the 24-hour PM_{2.5} National AAQS. This action suspends key federal State Implementation Plan planning requirements for the Bay Area as long as monitoring data continues to show that the Bay Area attains the standard. Despite this US EPA action, the SFBAAB will continue to be designated nonattainment for the National 24-hour PM_{2.5} standard until such time as BAAQMD elects to submit a redesignation request and a maintenance plan to US EPA, and US EPA approves the proposed redesignation.

¹¹ Bay Area Air Quality Management District, 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

¹² California Air Resources Board, 2014, Area Designations: Activities and Maps, <http://www.arb.ca.gov/desig/adm/adm.htm>, accessed on November 21, 2014.

remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically.¹³ The Air Basin is designated in attainment of the California and National AAQS for lead.¹⁴ Because emissions of lead are found only in projects that are permitted by BAAQMD, lead is not an air quality of concern for the proposed project.

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 § 7412[b]) is a toxic air contaminant.

Under State law, the California Environmental Protection Agency (CalEPA), 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. At the time of the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs.¹⁵ Additionally, 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 risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines. According to BAAQMD, particulate matter emitted from diesel engines contributes more than 85 percent of the cancer risk within the Air Basin and cancer risk from TAC is highest near major diesel PM sources.¹⁶ Based on this finding, the primary mobile source of TACs within Menlo Park is truck idling and use of off-road equipment at warehousing operations.

In 1998, CARB identified diesel particulate matter (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.

4.2.1.2 SAN FRANCISCO BAY AREA AIR BASIN

California is divided geographically into air basins for the purpose of managing the air resources of the state on a regional basis. An air basin generally has similar meteorological and geographic conditions throughout. The state is divided into 15 air basins. The City of Menlo Park is in the San Francisco Bay Area Air Basin (SFBAAB or Air Basin), which is managed by the Bay Area Air Quality Management District

¹³ Bay Area Air Quality Management District, 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

¹⁴ California Air Resources Board, 2014, Area Designations: Activities and Maps, <http://www.arb.ca.gov/desig/adm/adm.htm>, accessed on November 21, 2014.

¹⁵ California Air Resources Board, 1999. Final Staff Report: Update to the Toxic Air Contaminant List.

¹⁶ Bay Area Air Quality Management District, 2014, Improving Air Quality & Health in Bay Area Communities, Community Air Risk Evaluation Program Retrospective & Path Forward (2004-2013), April.

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(BAAQMD). The Air Basin comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties; the southern portion of Sonoma County; and the southwestern portion of Solano County.

Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions.¹⁷ The discussion below identifies the natural factors in the Air Basin that affect air pollution.

Meteorology

The Air Basin is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range¹⁸ splits in the Bay Area, creating a western coast gap, the Golden Gate, and an eastern coast gap, the Carquinez Strait, which allow air to flow in and out of the Bay Area and the Central Valley.

The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below the surface because of the northwesterly flow produces a band of cold water off the California coast.

The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band, resulting in condensation and the presence of fog and stratus clouds along the Northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air-pollution potential.

Wind Patterns

During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately south of Mount Tamalpais in Marin County, the northwesterly winds accelerate considerably and come more directly from the west as they stream through the Golden Gate. This channeling of wind through the Golden Gate produces a jet that sweeps eastward and splits off to the northwest toward Richmond and to the southwest toward San Jose when it meets the East Bay hills.

Wind speeds may be strong locally in areas where air is channeled through a narrow opening, such as the Carquinez Strait, the Golden Gate, or the San Bruno gap. For example, the average wind speed at San Francisco International Airport in July is about 17 knots (from 3:00 p.m. to 4:00 p.m.), compared with only 7 knots in San Jose and less than 6 knots at the Farallon Islands.

¹⁷ This section describing the air basin is from Bay Area Air Quality Management District, 2010 (Revised 2011), Appendix C: Sample Air Quality Setting, in *California Environmental Quality Act Air Quality Guidelines*.

¹⁸ The Coast Ranges traverses California's west coast from Humboldt County to Santa Barbara County.

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The air flowing in from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon. As the day progresses, the sea breeze layer deepens and increases in velocity while spreading inland. The depth of the sea breeze depends in large part upon the height and strength of the inversion. Under normal atmospheric conditions, the air in the lower atmosphere is warmer than the air above it. An inversion is a change in the normal conditions that causes the temperature gradient to be reversed, or inverted. If the inversion is low and strong, and hence stable, the flow of the sea breeze will be inhibited, and stagnant conditions are likely to result.

In the winter, the Air Basin frequently experiences stormy conditions with moderate to strong winds, as well as periods of stagnation with very light winds. Winter stagnation episodes (i.e., conditions where there is little mixing, which occur when there is a little to no wind or air circulation is blocked by bridges or tunnels) are characterized by nighttime drainage flows in coastal valleys. Drainage is a reversal of the usual daytime air-flow patterns; air moves from the Central Valley toward the coast and back down toward the Bay from the smaller valleys within the Air Basin.

Temperature

Summertime temperatures in the Air Basin are determined in large part by the effect of differential heating between land and water surfaces. Because land tends to heat up and cool off more quickly than water, a large-scale gradient (differential) in temperature is often created between the coast and the Central Valley, and small-scale local gradients are often produced along the shorelines of the ocean and bays. The temperature gradient near the ocean is also exaggerated, especially in summer, because of the upwelling of cold water from the ocean bottom along the coast. On summer afternoons, the temperatures at the coast can be 35 degrees Fahrenheit (°F) cooler than temperatures 15 to 20 miles inland. At night, this contrast usually decreases to less than 10°F. In the winter, the relationship of minimum and maximum temperatures is reversed. During the daytime the temperature difference between the coast and inland areas is small; at night it is large.

Precipitation

The Air Basin is characterized by moderately wet winters and dry summers. Winter rains (November through March) account for about 75 percent of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the Air Basin to another, even within short distances. Total annual rainfall can reach 40 inches in the mountains, but it is often less than 16 inches in sheltered valleys.

During rainy periods, ventilation (rapid horizontal movement of air and injection of cleaner air) and vertical mixing (an upward and downward movement of air) are usually high, and thus pollution levels tend to be low (i.e., air pollutants are dispersed more readily into the atmosphere rather than accumulate under stagnant conditions). However, during the winter, frequent dry periods do occur, where mixing and ventilation are low and pollutant levels build up.

Wind Circulation

Low-wind speed contributes to the buildup of air pollution because it allows more pollutants to be emitted into the air mass per unit of time. Light winds occur most frequently during periods of low sun

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(fall and winter, and early morning) and at night. These are also periods when air pollutant emissions from some sources are at their peak, namely, commuter traffic (early morning) and wood-burning appliances (nighttime). The problem can be compounded in valleys, when weak flows carry the pollutants up-valley during the day, and cold air drainage flows move the air mass down-valley at night. Such restricted movement of trapped air provides little opportunity for ventilation and leads to buildup of pollutants to potentially unhealthy levels.

Inversions

As described above, an inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth (i.e., the vertical depth in the atmosphere available for diluting air contaminants near the ground). There are two types of inversions that occur regularly in the Air Basin. Elevation inversions¹⁹ are more common in the summer and fall, and radiation inversions²⁰ are more common during the winter. The highest air pollutant concentrations in the Air Basin generally occur during inversions.

4.2.1.3 REGULATORY FRAMEWORK

Federal, state, and local air districts have passed laws and regulations intended to control and enhance air quality. Land use in the City is subject to the rules and regulations imposed by BAAQMD, CARB, and US EPA. The regulatory framework that is potentially applicable to the proposed project is also summarized below.

Federal and State Regulations

Ambient air quality standards have been adopted at federal and state levels for criteria air pollutants. In addition, both the federal and state governments regulate the release of toxic air contaminants (TACs). The City is in the SFBAAB and is subject to the rules and regulations imposed by the BAAQMD, the national AAQS adopted by the US EPA, and the California AAQS adopted by CARB. Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized below.

Ambient Air Quality Standards

The Clean Air Act (CAA) was passed in 1963 by the United States Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The CAA allows states to adopt more

¹⁹ When the air blows over elevated areas, it is heated as it is compressed into the side of the hill/mountain. When that warm air comes over the top, it is warmer than the cooler air of the valley.

²⁰ During the night, the ground cools off, radiating the heat to the sky.

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stringent standards or to include other pollution species. The California Clean Air Act, signed into law in 1988, requires all areas of the state to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS.

Criteria air pollutants are the air pollutants for which AAQS have been developed that are regulated under the CAA. 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—those 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.

The California and National AAQS regulate seven air pollutants, which are shown in Table 4.2-1. These pollutants include ozone (O₃), nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), coarse inhalable particulate matter (PM₁₀), 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. The California AAQS tend to be more restrictive than the National AAQS based on even greater health and welfare concerns.

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

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

Toxic Air Contaminants

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.

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 health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public through notices and public meetings.

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TABLE 4.2-1 AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Ozone (O ₃)	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20.0 ppm	35.0 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9.0 ppm	
Nitrogen Dioxide (NO ₂)	Annual Average	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	*	* ^a	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	* ^a	
Respirable Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20.0 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	50.0 µg/m ³	150.0 µg/m ³	
Respirable Particulate Matter (PM _{2.5})	Annual Arithmetic Mean	12.0 µg/m ³	12.0 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	*	35.0 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 Quarterly	*	1.5 µg/m ³	
	Rolling 3-Month Average	*	0.15 µg/m ³	
Sulfates (SO ₄)	24 hours	25 µg/m ³	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo ^f = 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.

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TABLE 4.2-1 AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H ₂ S) 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/m³: micrograms per cubic meter
 * Standard has not been established for this pollutant/duration by this entity.
 a. On June 2, 2010, a new 1-hour SO₂ standard was established, and the existing 24-hour and annual arithmetic mean standards were revoked.
 Source: California Air Resources Board (CARB), 2015, October 1. Ambient Air Quality Standards, <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>.

The major contributor to acute and chronic non-cancer health effects in the Air Basin is acrolein (C₃H₄O). Major sources of acrolein are on-road mobile sources and aircraft, and areas with high acrolein emissions are near freeways and commercial and military airports.²¹ Currently, CARB does not have certified emission factors or an analytical test method for acrolein. Since the appropriate tools needed to implement and enforce acrolein emission limits are not available, BAAQMD does not conduct health risk screening analysis for acrolein emissions.²²

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

- CARB Rule 2485 (13 CCR Chapter 10, Section 2485), Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- CARB Rule 2480 (13 CCR Chapter 10, Section 2480), Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- CARB Rule 2477 (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

²¹ Bay Area Air Quality Management District (BAAQMD), 2006. Community Air Risk Evaluation Program, Phase I Findings and Policy Recommendations Related to Toxic Air Contaminants in the San Francisco Bay Area.

²² Bay Area Air Quality Management District (BAAQMD), 2010. Air Toxics NSR Program, Health Risk Screening Analysis Guidelines.

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Regional Regulations

Bay Area Air Quality Management District

BAAQMD is the agency responsible for ensuring that the National and California AAQS are attained and maintained in the Air Basin. BAAQMD is responsible for:

- Adopting and enforcing rules and regulations concerning air pollutant sources
- Issuing permits for stationary sources of air pollutants
- Inspecting stationary sources of air pollutants
- Responding to citizen complaints
- Monitoring ambient air quality and meteorological conditions
- Awarding grants to reduce motor vehicle emissions
- Conducting public education campaigns
- Air Quality Management Planning

Air quality conditions in the Air Basin have improved significantly since BAAQMD was created in 1955.²³ BAAQMD prepares air quality management plans (AQMPs), including ozone attainment plans for the National O₃ standard and clean air plans for the California O₃ standard. BAAQMD prepares these AQMPs in coordination with the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC). The most recent comprehensive plan is the *2010 Bay Area Clean Air Plan*, which was adopted by BAAQMD on September 15, 2010, and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools.

2010 Bay Area Clean Air Plan

The purpose of the *2010 Bay Area Clean Air Plan* is to: 1) update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement all feasible measures to reduce O₃; 2) consider the impacts of O₃ control measures on PM, TAC, and greenhouse gases (GHGs) in a single, integrated plan; 3) review progress in improving air quality in recent years; and 4) establish emission control measures in the 2009 to 2012 timeframe. The *2010 Bay Area Clean Air Plan* also provides the framework for the Air Basin to achieve attainment of the California and National AAQS.

Areas that meet AAQS are classified attainment areas, and areas that do not are classified nonattainment. Severity classifications for O₃ range from marginal, moderate, and serious to severe and extreme. The attainment status for the SFBAAB is shown in Table 4.2-2. The Air Basin is currently designated a nonattainment area for California and National O₃, California and National PM_{2.5}, and California PM₁₀ AAQS.

²³ Bay Area Air Quality Management District, 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

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TABLE 4.2-2 ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SAN FRANCISCO BAY AREA AIR BASIN

Pollutant	State	Federal
Ozone – 1-hour	Nonattainment (serious)	Nonattainment
Ozone – 8-hour	Nonattainment	Classification revoked (2005)
PM ₁₀	Nonattainment	Unclassified/Attainment
PM _{2.5}	Nonattainment	Nonattainment ^a
CO	Attainment	Attainment
NO ₂	Attainment	Attainment
SO ₂	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	Attainment	Unclassified/Attainment
All others	Unclassified/Attainment	Unclassified/Attainment

a. On January 9, 2013, the US EPA issued a final rule to determine that the SFBAAB has attained the 24-hour PM_{2.5} National AAQS. This action suspends key federal State Implementation Plan planning requirements for the Bay Area as long as monitoring data continues to show that the Bay Area attains the standard. Despite this US EPA action, the SFBAAB will continue to be designated nonattainment for the National 24-hour PM_{2.5} standard until BAAQMD submits a redesignation request and a maintenance plan to US EPA, and US EPA approves the proposed redesignation. Source: California Air Resources Board, 2014, Area Designations: Activities and Maps, <http://www.arb.ca.gov/design/adm/adm.htm>, June 4.

Community Air Risk Evaluation Program

BAAQMD’s Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposure to outdoor TACs in the Bay Area.

Based on findings of the latest report, Diesel Particulate Matter (DPM) was found to account for approximately 85 percent of the cancer risk from airborne toxics. Carcinogenic compounds from gasoline-powered cars and light duty trucks were also identified as significant contributors: 1,3-butadiene contributed four percent of the cancer risk-weighted emissions, and benzene contributed three percent. Collectively, five compounds — diesel PM, 1,3-butadiene, benzene, formaldehyde, and acetaldehyde — were found to be responsible for more than 90 percent of the cancer risk attributed to emissions. All of these compounds are associated with emissions from internal combustion engines. The most important sources of cancer risk-weighted emissions were combustion-related sources of DPM, including on-road mobile sources (31 percent), construction equipment (29 percent), and ships and harbor craft (13 percent). A 75 percent reduction in DPM was predicted between 2005 and 2015 when the inventory accounted for CARB’s diesel regulations. Overall, cancer risk from TACs dropped by more than 50 percent between 2005 and 2015, when emissions inputs accounted for state diesel regulations and other reductions.²⁴ Modeled cancer risks from TACs in 2005 were highest near sources of DPM: near core urban

²⁴ Bay Area Air Quality Management District, 2014. Improving Air Quality & Health in Bay Area Communities, Community Air Risk Program (CARE) Retrospective & Path Forward (2004 – 2013). April

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areas, along major roadways and freeways, and near maritime shipping terminals. Peak modeled risks were found to be located east of San Francisco, near West Oakland, and the Maritime Port of Oakland.

BAAQMD has identified seven impacted communities in the Bay Area:

- Western Contra Costa County and the cities of Richmond and San Pablo
- Western Alameda County along the Interstate 880 (I-880) corridor and the cities of Berkeley, Alameda, Oakland, San Leandro, and Hayward
- San Jose
- Eastern side of San Francisco
- Concord
- Vallejo
- Pittsburgh and Antioch

Menlo Park is not within one of BAAQMD's impacted CARE communities.

Regulation 7, Odorous Substances

Sources of objectionable odors may occur within the City. BAAQMD's Regulation 7, Odorous Substances, places general limitations on odorous substances and specific emission limitations on certain odorous compounds. Odors are also regulated under BAAQMD Regulation 1, Rule 1-301, Public Nuisance, which states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property." Under BAAQMD's Rule 1-301, a facility that receives three or more violation notices within a 30-day period can be declared a public nuisance.

Other BAAQMD Regulations

In addition to the plans and programs described above, BAAQMD administers a number of specific regulations on various sources of pollutant emissions that would apply to individual development projects allowed under the proposed project, including:

- BAAQMD, Regulation 2, Rule 2, New Source Review
- BAAQMD, Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants
- BAAQMD Regulation 6, Rule 1, General Requirements
- BAAQMD Regulation 6, Rule 2, Commercial Cooking Equipment
- BAAQMD Regulation 8, Rule 3, Architectural Coatings
- BAAQMD Regulation 8, Rule 4, General Solvent and Surface Coatings Operations
- BAAQMD Regulation 8, Rule 7, Gasoline Dispensing Facilities
- BAAQMD Regulation 11, Rule 2, Asbestos, Demolition, Renovation and Manufacturing)

City/County Association of Governments of San Mateo

The City/County Association of Governments of San Mateo (C/CAG) is the designated congestion management agency for the county. C/CAG's Congestion Management Plan (CMP) identifies strategies to

respond to future transportation needs, develops procedures to alleviate and control congestion, and promotes countywide solutions. The most recent CMP is the 2013 CMP for San Mateo County. Pursuant to the US EPA's transportation conformity regulations and the Bay Area Conformity State Implementation Plan (also known as the Bay Area Air Quality Conformity Protocol), the CMP is required to be consistent with the MTC planning process, including regional goals, policies, and projects for the regional transportation improvement program (RTIP). MTC cannot approve any transportation plan, program, or project unless these activities conform to the State Implementation Plan (SIP).²⁵

Plan Bay Area: Strategy for a Sustainable Region

Plan Bay Area is the Bay Area's Regional Transportation Plan (RTP)/Sustainable Community Strategy (SCS). The *Plan Bay Area* was adopted jointly by the ABAG and MTC July 18, 2013. The SCS lays out a development scenario for the region, which when integrated with the transportation network and other transportation measures and policies, would reduce GHG emissions from transportation (excluding goods movement) beyond the per capita reduction targets identified by CARB. *Plan Bay Area* is discussed in greater detail in Chapter 4.6, Greenhouse Gases, of this Draft EIR.

Local Regulations

Menlo Park General Plan

The City of Menlo Park General Plan includes goals, policies, and programs relevant to the environmental factors, including air quality, potentially affected by the proposed project. Applicable goals, policies, and programs are identified and assessed for their effectiveness later in this chapter under Section 4.2.3, Impact Discussion.

4.2.1.4 EXISTING CONDITIONS

Existing Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections in the vicinity of Menlo Park are best documented by measurements made by the BAAQMD. The air quality monitoring station closest to Menlo Park is the Redwood City Monitoring Station. Data from this station are summarized in Table 4.2-3; however, this station only monitors CO, NO₂, PM_{2.5}, and O₃. Therefore, data was obtained from the San Jose Jackson Street Monitoring Station for the other criteria air pollutants. The data show that the area occasionally exceeds the state and federal O₃ standards, federal PM_{2.5} standard, and state PM₁₀ standard. The state and federal SO₂ CO and NO₂ standards have not been exceeded in the last five years in the vicinity of the City.

²⁵ City/County Association of Governments of San Mateo County (C/CAG). 2013, November. Final San Mateo County Congestion Management Program.

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Existing Emissions

Table 4.2-4 is based on existing land uses in the city. Criteria air pollutant emissions generated in the city and SOI were estimated using EMFAC2014, OFFROAD2007, and CalEEMod 2013.2.2 emission factors.

TABLE 4.2-3 AMBIENT AIR QUALITY MONITORING SUMMARY

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels During Such Violations				
	2010	2011	2012	2013	2014
Ozone (O₃)^a					
State 1-Hour ≥ 0.09 ppm	2	0	0	0	0
State 8-hour ≥ 0.07 ppm	1	0	0	1	0
Federal 8-Hour > 0.075 ppm ^c	1	0	0	0	0
Maximum 1-Hour Conc. (ppm)	0.113	0.076	0.063	0.083	0.086
Maximum 8-Hour Conc. (ppm)	0.077	0.062	0.055	0.076	0.066
Carbon Monoxide (CO)^a					
State 8-Hour > 9.0 ppm	0	0	0	0	0
Federal 8-Hour ≥ 9.0 ppm	0	0	0	0	0
Maximum 8-Hour Conc. (ppm)	1.72	1.67	1.81	*	*
Nitrogen Dioxide (NO₂)^a					
State 1-Hour ≥ 0.18 (ppm)	0	0	0	0	0
Maximum 1-Hour Conc. (ppb)	58.7	56.3	60.4	53.8	55.2
Sulfur Dioxide (SO₂)^b					
State 1-Hour ≥ 0.04 ppm	0	0	0	0	*
Max. 1-Hour Conc. (ppm)	0.002	0.003	0.003	0.001	*
Coarse Particulates (PM₁₀)^b					
State 24-Hour > 50 µg/m ³	0	0	1	5	1
Federal 24-Hour > 150 µg/m ³	0	0	0	0	0
Maximum 24-Hour Conc. (µg/m ³)	46.8	44.3	59.6	58.1	56.4
Fine Particulates (PM_{2.5})^a					
Federal 24-Hour > 35 µg/m ³	1	1	0	3	0
Maximum 24-Hour Conc. (µg/m ³)	36.5	39.7	33.3	39.0	35.0

Notes: ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; * = insufficient data; NA = Not Available

a. Data from the Redwood City Monitoring Station.

b. Data from the San Jose Jackson Street Monitoring Station.

c. On October 1, 2015 the EPA adopted a new 8-hour National AAQS for ozone of 0.070 ppm (70 ppb).

Source: California Air Resources Board, 2015, Air Pollution Data Monitoring Cards (2010, 2011, 2012, 2013, and 2014), Accessed on November 19, 2015, <http://www.arb.ca.gov/adam/index.html>.

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TABLE 4.2-4 EXISTING MENLO PARK CRITERIA AIR POLLUTANT EMISSIONS INVENTORY

Sector	Criteria Air Pollutant Emissions (pounds per day)			
	ROG	NO _x	PM ₁₀	PM _{2.5}
On-Road Transportation ^a	87	302	99	42
Energy (Natural Gas) ^b	57	509	40	40
Area Sources ^c	675	573	42	42
Total	819	1,383	180	123

Notes: Values may not add up to 100 percent due to rounding.

a. EMFAC2014; TJKM 2015.

b. CalEEMod, Version 2013.2.2 emission rates; PG&E 2014.

c. OFFROAD2007 and CalEEMod, Version 2013.2.2 emission rates. Includes consumer products, landscaping equipment, commercial equipment, and construction equipment.

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 cardiorespiratory diseases. Residential areas are also considered 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. Other sensitive receptors include retirement facilities, hospitals, and schools. 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, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, since 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.

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* (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 are based on recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity to air pollution sources substantially increases exposure and the potential for adverse health effects. Three carcinogenic TACs constitute the majority of the known health risks from motor vehicle traffic: DPM from trucks, benzene, and 1,3 butadiene from passenger vehicles. Table 4.2-5 shows a summary of CARB recommendations for siting new sensitive land uses within the vicinity of air pollutant sources. Recommendations in Table 4.2-5 are based on data showing that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

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TABLE 4.2-5 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 1 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 (CARB), May 2005, *Air Quality and Land Use Handbook: A Community Health Perspective*.

4.2.2 STANDARDS OF SIGNIFICANCE

Implementation of the proposed project would result in a significant air quality impact if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Violate an air quality standard, contribute substantially to an existing or projected air quality violation, and would result in a cumulatively considerable net increase of criteria pollutants for which the project region is in nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Create objectionable odors affecting a substantial number of people.

4.2.2.1 BAAQMD THRESHOLDS

The BAAQMD CEQA Air Quality Guidelines were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. They also include recommended assessment methodologies for air

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toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of the CEQA Guidelines. In May 2011, the updated BAAQMD CEQA Air Quality Guidelines were amended to include a risk and hazards threshold for new receptors and modified procedures for assessing impacts related to risk and hazard impacts.

On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the BAAQMD CEQA Air Quality Guidelines. The court did not rule on whether the thresholds of significance were valid on their merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease their dissemination until the BAAQMD complied with CEQA. Following the court's order, the BAAQMD released revised CEQA Air Quality Guidelines in May 2012 that included guidance on calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, and that set aside the significance thresholds. The BAAQMD recognizes that lead agencies may rely on the previously recommended Thresholds of Significance in its CEQA Guidelines adopted in 1999. The Alameda County Superior Court, in ordering BAAQMD to set aside the thresholds, did not address the merits of the science or evidence supporting the thresholds. The City finds, therefore, that despite the Superior Court ruling, and in light of the subsequent case history, discussed below, the science and reasoning in the BAAQMD 2011 CEQA Air Quality Guidelines provide the latest, state-of-the-art guidance available. For that reason, substantial evidence supports continued use of the BAAQMD 2011 CEQA Air Quality Guidelines.

Air Quality Plan Implementation

Under its plan-level review criteria, BAAQMD requires a consistency evaluation of a plan with its current air quality plan control measures. The current AQMP is the 2010 Bay Area Clean Air Plan. BAAQMD considers the project consistent with the AQMP in accordance with the following:

- Does the project support the primary goals of the AQMP?
- Does the project include applicable control measures from the AQMP?
- Does the project disrupt or hinder implementation of any AQMP control measures?
- Is the project VMT or vehicle trip increase less than or equal to the projected population increase?

Exposure of Sensitive Receptors to Air Pollution

This criteria addresses two types of localized air pollution impacts:

- CO hotspots
- TACs, and PM_{2.5}

CO Hotspots

Congested intersections have the potential to create elevated concentrations of CO, referred to as CO hotspots. The significance criteria for CO hotspots are based on the California AAQS for CO, which are 9.0 ppm (8-hour average) and 20.0 ppm (1-hour average). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology, the Air Basin is in attainment of the California and National AAQS, and CO concentrations in the Air Basin have steadily declined.

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Because CO concentrations have improved, the BAAQMD does not require a CO hotspot analysis if the following criteria are met:

- The project is consistent with an applicable congestion management program established by the County Congestion Management Agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans.
- The project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project traffic would not increase traffic volumes at affected intersection to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

Air Toxics and PM_{2.5}

The BAAQMD's significance thresholds for local community risk and hazard impacts apply to projects that involve new sources air pollutants. Local community risk and hazard impacts are associated with TACs and PM_{2.5} because emissions of these pollutants can have significant health impacts at the local level. Significant health impacts may occur when a project generates:

- An excess cancer risk level of more than 10 in one million, or a non-cancer (i.e., chronic or acute) hazard index greater than 1.0; or
- An incremental increase of greater than 0.3 µg/m³ annual average PM_{2.5}.²⁶

Planning Considerations for Siting a New Receptor

BAAQMD's CEQA Guidelines include methodology for jurisdictions wanting to evaluate the potential impacts from placing sensitive receptors proximate to major air pollutant sources. For assessing community risk and hazards for siting a new receptor, sources within a 1,000-foot radius of a project site are typically considered. Sources are defined as freeways, high volume roadways (with volume of 10,000 vehicles or more per day or 1,000 trucks per day), and permitted sources.²⁷

Odors

BAAQMD's thresholds for odors are qualitative based on BAAQMD's Regulation 7, Odorous Substances. This rule places general limitations on odorous substances and specific emission limitations on certain odorous compounds. Odors are also regulated under BAAQMD Regulation 1, Rule 1-301, Public Nuisance, which states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which cause, or has a natural tendency to cause, injury or damage to business or

²⁶ Bay Area Air Quality Management District, 2010 (Revised 2011), California Environmental Quality Act Air Quality Guidelines.

²⁷ Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines.

property. Under BAAQMD's Rule 1-301, a facility that receives three or more violation notices within a 30-day period can be declared a public nuisance. BAAQMD has established odor screening thresholds for land uses that have the potential to generate substantial odor complaints, including wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants.²⁸ For a plan-level analysis, BAAQMD requires:

- Identification of potential existing and planned location of odors sources.
- Policies to reduce odors.

4.2.3 IMPACT DISCUSSION

AQ-1 Implementation of the proposed project would not conflict with or obstruct implementation of the applicable air quality plan.

BAAQMD requires a consistency evaluation of a plan with the current AQMP measures as well as an evaluation on how the project would affect VMT per capita. The current AQMP is the *2010 Bay Area Clean Air Plan*. BAAQMD considers project consistency with the AQMP in accordance with the following:

- Does the project support the primary goals of the AQMP?
- Does the project include applicable control measures from the AQMP?
- Does the project disrupt or hinder implementation of any AQMP control measures?
- Is the project VMT or vehicle trip increase less than or equal to the projected population increase?

As described below, the General Plan would reduce VMT per service population (SP, defined as residents and employees) citywide. Therefore, the policies identified in the proposed project would not hinder BAAQMD's implementation of the Clean Air Plan.

2010 Bay Area Clean Air Plan Goals

The primary goals of the *2010 Bay Area Clean Air Plan* are to attain the state and federal AAQS, reduce population exposure and protect public health in the Bay Area, and reduce GHG emissions and protect the climate.

Attain Air Quality Standards

BAAQMD's *2010 Bay Area Clean Air Plan* strategy is based on regional population and employment projections in the Bay Area compiled by ABAG. Demographic trends incorporated into the *Plan Bay Area* determine VMT in the Bay Area, which BAAQMD uses to forecast future air quality trends. The SFBAAB is currently designated a nonattainment area for O₃, PM_{2.5}, and PM₁₀ (state AAQS only).

²⁸ Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines.

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Growth under the proposed project would occur incrementally over approximately 24 years. ABAG's latest growth projections estimate 43,200 people and 36,150 employees in the City and SOI by 2040.²⁹ Chapter 4.11, Population and Housing, of this Draft EIR evaluates consistency of the proposed project with regional growth projections. This EIR estimates that the 2040 horizon development allowed under the proposed project together with the cumulative projects would exceed ABAG's projections for the City in 2040 by 14,150 people and 9,900 employees. As detailed in the analysis below, despite the additional growth, VMT per service population would decrease citywide under the proposed project. Furthermore, the General Plan contains goals, policies, and programs that are intended to guide development in Menlo Park through the 2040 horizon year in a manner which reduced/minimizes VMT. Likewise, the Zoning Ordinance update also requires new construction and building additions of 10,000 square feet or more to develop a Transportation Demand Management (TDM) Plan to reduce trip generation by 20 percent below standard use rates. Therefore, emissions resulting from future development allowed by the proposed project would not hinder BAAQMD's ability to attain the California or National AAQS, despite the additional population and employers potentially allowed. The impact would be *less than significant*.

Reduce Population Exposure and Protect Public Health

The proposed Land Use (LU) Element, which would be adopted as part of the proposed project, and the existing Section II, Open Space/Conservation (OSC) of the Open Space/Conservation, Noise and Safety Elements, contain general policies that would require local planning and development decisions to consider impacts to air quality, including air pollutant emissions. The following General Plan policies would serve to minimize potential adverse impacts on air pollutant emissions:

- **Goal OSC-5: Ensure Healthy Air Quality And Water Quality.** Enhance and preserve air quality in accord with State and regional standards, and encourage the coordination of total water quality management including both supply and wastewater treatment.
 - **Policy OSC-5.2 Development in Industrial Areas.** Evaluate development projects in industrial areas for impacts to air and water resources in relation to truck traffic, hazardous materials use and production-level manufacturing per the California Environmental Quality Act (CEQA) and require measures to mitigate potential impacts to less than significant levels.
- **Goal LU-2:** Maintain and enhance the character, variety and stability of Menlo Park's residential neighborhoods.
 - **Policy LU-2.3: Mixed Use Design.** Allow mixed-use projects with residential units if project design addresses potential compatibility issues such as traffic, parking, light spillover, dust, odors, and transport and use of potentially hazardous materials.
- **Goal LU-4:** Promote the development and retention of business uses that provide goods or services needed by the community that generate benefits to the City, and avoid or minimize potential environmental and traffic impacts.

²⁹ Association of Bay Area Governments (ABAG). 2013, December. *Projections 2013*, P2013 SSA.

- **Policy LU-4.5: Business Uses and Environmental Impacts.** Allow modifications to business operations and structures that promote revenue generating uses for which potential environmental impacts can be mitigated.

Because the proposed project is consistent with strategies in the 2010 Bay Area Clean Air Plan that reduce population exposure and protect public health, impacts are *less than significant*.

Reduce GHG Emissions and Protect the Climate

The GHG emissions impacts of the proposed project are discussed in Chapter 4.6, Greenhouse Gas Emissions, of this Draft EIR. As described in Chapter 4.6, future development allowed by the proposed project would be required to adhere to statewide measures that have been adopted to achieve the GHG reduction targets of Assembly Bill 32. In addition, the proposed project is consistent with regional strategies for infill development identified by the MTC/ABAG in the *Plan Bay Area*. The proposed project would achieve the plan-level BAAQMD efficiency target of 6.6 metric tons of GHG emissions per service population (residents plus employees) for 2020 and would also make substantial progress toward the 2030 target recently identified in Executive Order B-30-15.

The proposed Land Use (LU) and Circulation (CIRC) Elements, which would be adopted as part of the proposed project, and the existing Section II, Open Space/Conservation (OSC) of the Open Space/Conservation, Noise and Safety Elements contain general goals and policies that would require local planning and development decisions to consider impacts to air quality, including GHG emissions. The following General Plan policies and proposed Zoning Ordinance update requirements would serve to minimize potential adverse impacts on air quality:

- **Goal LU-7:** Promote the implementation and maintenance of sustainable development, facilities and services to meet the needs of Menlo Park's residents, businesses, workers, and visitors.
 - **Policy LU-7.1: Sustainability.** Promote sustainable site planning, development, landscaping, and operational practices that conserve resources and minimize waste.
 - **Policy LU-7.5: Reclaimed Water Use.** Implement use of adequately treated "reclaimed" ("recycled/nonpotable water sources such as, graywater, blackwater, rainwater, stormwater, foundation drainage, etc.) water for outdoor and indoor uses, as feasible.
 - **Policy LU-7.9: Green Building.** Support sustainability and green building best practices through the orientation, design, and placement of buildings and facilities to optimize their energy efficiency.
- **Goal CIRC-2:** Increase accessibility for and use of streets by pedestrians, bicyclists, and transit riders.
 - **Policy CIRC-2.14: Impacts of New Development.** Require new development to mitigate its impacts on the safety (e.g., collision rates) and efficiency (e.g., vehicle miles traveled (VMT) per capita) of the circulation system, by minimizing cut-through vehicle traffic on residential streets and speeding traffic; reducing the number of vehicle trips, providing bicycle, pedestrian, and transit connections, amenities and improvements in proportion with the scale of proposed projects; and facilitating appropriate or adequate response times and access for emergency vehicles.
- **Goal OSC-2:** Provide Parks And Recreation Facilities. Develop and maintain a parks and recreation system to provide areas and facilities conveniently located, sustainable, properly designed and well-

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maintained to serve the recreation needs and promote healthy living of residents, workers and visitors to Menlo Park.

- **Policy OSC-2.7: Conservation of Resources at City Facilities.** Reduce consumption of water, energy, landfilled waste, and fossil fuels in the construction, operations and maintenance of City owned and/or operated facilities.
- **Goal OSC-4: Promote Sustainability And Climate Action Planning.** Promote a sustainable energy supply and implement the City's Climate Action Plan to reduce greenhouse gas emissions and improve the sustainability of actions by City government, residents, and businesses in Menlo Park. This includes promoting land use patterns that reduce the number and length of motor vehicle trips, and encouraging recycling, reduction and reuse programs.
 - **Policy OSC-4.1: Sustainable Approach to Land Use Planning to Reduce Resource Consumption.** Encourage, to the extent feasible, (1) a balance and match between jobs and housing, (2) higher density residential and mixed-use development to be located adjacent to commercial centers and transit corridors, and (3) retail and office areas to be located within walking and biking distance of transit or existing and proposed residential developments.
 - **Policy OSC-4.2: Sustainable Building.** Promote and/or establish environmentally sustainable building practices or standards in new development that would conserve water and energy, prevent stormwater pollution, reduce landfilled waste, and reduce fossil fuel consumption from transportation and energy activities.
 - **Policy OSC-4.3: Renewable Energy.** Promote the installation of renewable energy technology, such as, on residences and businesses through education, social marketing methods, establishing standards and/or providing incentives.
 - **Policy OSC-4.4: Vehicles Using Alternative Fuel.** Explore the potential for installing infrastructure for vehicles that use alternative fuel, such as electric plug in recharging stations.
 - **Policy OSC-4.5: Energy Standards in Residential and Commercial Construction.** Encourage projects to achieve a high level of energy conservation exceeding standards set forth in the California Energy Code for Residential and Commercial development.
 - **Policy OSC-4.6: Waste Reduction Target.** Strive to meet the California State Integrated Waste Management Board per person target of waste generation per person per day through their source reduction, reuse, and recycling programs.
 - **Policy OSC-4.7: Waste Management Collaboration.** Continue to support and participate in efforts such as the South Bayside Waste Management Authority, which provides waste reduction, recycling, and solid waste programs and solutions.
 - **Policy OSC-4.8: Waste Diversion.** Develop and implement a zero waste policy, or implement standards, incentives, or other programs that would lead the community towards a zero waste goal.
 - **Policy OSC-4.9: Climate Action Planning.** Undertake annual review and updates, as needed, to the City's Climate Action Plan (CAP).

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- **Policy OSC-4.10: Energy Upgrade California.** Consider actively marketing and providing additional incentives for residents and businesses to participate in local, State, and/or Federal renewable or energy conservation programs.
- **Goal OSC-5: Ensure Healthy Air Quality And Water Quality.** Enhance and preserve air quality in accord with State and regional standards, and encourage the coordination of total water quality management including both supply and wastewater treatment.
 - **Policy OSC-5.1: Air and Water Quality Standards.** Continue to apply standards and policies established by the Bay Area Air Quality Management District (BAAQMD), San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), and City of Menlo Park Climate Action Plan through the California Environmental Quality Act (CEQA) process and other means as applicable.
 - **Policy OSC-5.3: Water Conservation.** Encourage water-conserving practices in businesses, homes and institutions.

Additionally, the proposed project includes an update to the City's Zoning Ordinance for the Bayfront Area, resulting in three new zoning districts that would promote the creation of a live/work/play environment with travel patterns that are oriented toward pedestrian, transit, and bicycle use. As part of the Zoning Ordinance update, the project includes minimum short-term and long-term bicycle parking standards for Office and Life Sciences and other Research and Development land uses. The Zoning Ordinance update also allows project applicants to meet minimum parking requirements through use of nearby, off-site facilities with the approval of the City's Transportation Manager. Furthermore, new construction and building additions of 10,000 square feet or more are required to develop a Transportation Demand Management (TDM) Plan to reduce trip generation by 20 percent below standard use rates. The TDM Plan may include participation in a Transportation Management Association, preferred parking for carpools/vanpools, public and/or private bike-share programs, subsidy for alternative transportation (e.g., carpool/vanpool, shuttles, and bus service including transit passes), alternative work schedules, car-share membership, emergency ride home, and other measures to reduce trip generation.

The proposed Zoning Ordinance update also includes Residential and Non-Residential Green Building Requirements. These green building requirements identify standards based on the size of new construction. New large projects are required to be built to achieve Leadership in Energy and Environmental Design (LEED) silver (10,000 to 100,000 square feet) and gold (over 100,000 square feet). The Zoning Ordinance update also requires installation of electric vehicle (EV) chargers. New construction is also required to meet 100 percent of electricity and natural gas demand through either onsite generation and/or purchase of renewable electricity or electricity credits (or combination) to offset energy use. The Zoning Ordinance update also requires that applicants submit a zero-waste management plan to the City, which will cover how the applicant plans to minimize waste to landfill and incineration. These measures also help to reduce operational air quality impacts.

Consequently, the proposed project is consistent with the goal of the *2010 Bay Area Clean Air Plan* to reduce GHG emissions and protect the climate, and the impact would be *less than significant*.

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2010 Bay Area Clean Air Plan Control Measures

Table 4.2-6 identifies the control measures included in the *2010 Bay Area Clean Air Plan*.

Include Applicable Control Measures from the AQMP

The existing Section II, Open Space/Conservation (OSC) of the Open Space/Conservation, Noise and Safety Element, and the proposed Circulation (CIRC) element, which would be adopted as part of the proposed project, contain general goals, policies and programs that would require local planning and development decisions to consider impacts to air quality, including regional and local air quality. The following General Plan goals, policies and programs would serve to minimize potential adverse impacts on air quality:

- **Goal OSC-4:** Promote Sustainability And Climate Action Planning. Promote a sustainable energy supply and implement the City's Climate Action Plan to reduce greenhouse gas emissions and improve the sustainability of actions by City government, residents, and businesses in Menlo Park. This includes promoting land use patterns that reduce the number and length of motor vehicle trips, and encouraging recycling, reduction and reuse programs.
 - **Policy OSC-4.1: Sustainable Approach to Land Use Planning to Reduce Resource Consumption.** Encourage, to the extent feasible, (1) a balance and match between jobs and housing, (2) higher density residential and mixed-use development to be located adjacent to commercial centers and transit corridors, and (3) retail and office areas to be located within walking and biking distance of transit or existing and proposed residential developments.
 - **Policy CIRC-2.15: Regional Transportation Improvements.** Work with neighboring jurisdictions and appropriate agencies to identify and secure adequate funding for regional transportation improvements to improve transportation options and reduce congestion in Menlo Park and adjacent communities.
 - **Policy CIRC-5.4: Caltrain Enhancements.** Support Caltrain safety and efficiency improvements, such as positive train control, grade separation (with priority at Ravenswood Avenue), and electrification, provided that Caltrain service to Menlo Park increases and use of the rail right-of-way is consistent with the City's Rail Policy.
 - **Program CIRC-2.5a: Long-Term Transit Planning.** Work with appropriate agencies to agree on long-term peninsula transit service that reflects Menlo Park's desires and is not disruptive to the city.

As shown in Table 4.2-6, implementation of the proposed project would be consistent with the *2010 Bay Area Clean Air Plan*, and the impacts would be *less than significant*.

Disrupt or Hinder Implementation of Any AQMP Control Measures

As identified in Table 4.2-6, the proposed project would not hinder BAAQMD from implementing the control measures in the *2010 Bay Area Clean Air Plan*. Impacts are *less than significant* and no mitigation measures are required.

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TABLE 4.2-6 CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN

Type	Measure Number / Title	Consistency
Stationary and Area Sources Control Measures	<ul style="list-style-type: none"> ▪ SSM 1 – Metal Melting Facilities ▪ SSM 2 – Digital Printing ▪ SSM 3 – Livestock Waste ▪ SSM 4 – Natural Gas Processing and Distribution ▪ SSM 5 – Vacuum Trucks ▪ SSM 6 – General Particulate Matter Weight Rate Limitations ▪ SSM 7 – Open Burning ▪ SSM 8 – Coke Calcining ▪ SSM 9 – Cement Kilns ▪ SSM 10 – Refinery Boilers and Heaters ▪ SSM 11 – Residential Fan Type Furnaces ▪ SSM 12 – Space Heating ▪ SSM 13 – Dryers, Ovens, Kilns ▪ SSM 14 – Glass Furnaces ▪ SSM 15 – Greenhouse Gases in Permitting Energy Efficiency ▪ SSM 16 – Revise Regulation 2, Rule 2: New Source Review ▪ SSM 17 – Revise Regulation 2, Rule 5 New Source Review for Air Toxics ▪ SSM 18 – Revise Air Toxics “Hot Spot” Program 	<p>Stationary and area sources are regulated directly by BAAQMD. To implement the stationary and area source control measures, BAAQMD adopts/revises rules or regulations to implement the control measures and reduce emissions from stationary and area sources. Because BAAQMD is the implementing agency, new and existing sources of stationary and area sources within the Plan Area would be required to comply with these control measures in the <i>2010 Bay Area Clean Air Plan</i>.</p>
Mobile Source Control Measures	<ul style="list-style-type: none"> ▪ MSM A-1 – Promote Clean, Fuel Efficient Light & Medium-Duty Vehicles ▪ MSM A-2 – Zero Emission Vehicle and Plug-in Hybrids ▪ MSM A-3 – Green Fleets (Light Medium & Heavy-Duty Vehicles) ▪ MSM A-4 – Replacement or Repair of High Emitting Vehicles ▪ MSM B-1 – HDV Fleet Modernization ▪ MSM B-2 – Low NOx Retrofits for In-Use Engines ▪ MSM B-3 – Efficient Drive Trains ▪ MSM C-1 – Construction and Farming Equipment ▪ MSM C-2 – Lawn & Garden Equipment ▪ MSM C-3 – Recreational Vessels 	<p>Mobile source control measures would reduce emissions by accelerating the replacement of older, dirtier vehicles and equipment through programs such as the BAAQMD’s Vehicle Buy-Back and Smoking Vehicle programs, and by promoting advanced technology vehicles that reduce emissions. The implementation of these measures relies heavily on incentive programs, such as the Carl Moyer Program and the Transportation Fund for Clean Air, to achieve voluntary emission reductions in advance of or in addition to CARB requirements. CARB has new regulations that require the replacement or retrofit of on-road trucks, construction equipment, and certain other diesel-powered equipment. The proposed project would not hinder the ability of BAAQMD to implement these regional programs.</p>
Transportation Control Measures	<ul style="list-style-type: none"> ▪ TCM A-1 – Improve Local and Area-wide Bus Service ▪ TCM A-2 – Improve Local and Regional Rail Service 	<p>Transportation control measures (TCM) are strategies to reduce vehicle trips, vehicle use, VMT, vehicle idling, and traffic congestion for the purpose of reducing</p>

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TABLE 4.2-6 CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN

Type	Measure Number / Title	Consistency
<ul style="list-style-type: none"> ▪ TCM B-1 – Implement Freeway Performance Initiative ▪ TCM B-2 – Improve Transit Efficiency and Use ▪ TCM B-3 – Bay Area Express Land Network ▪ TCM B-4 – Goods Movement Improvements and Emission Reduction Strategies ▪ TCM C-1 – Support Voluntary Employer-Based Trip Reduction Program ▪ TCM C-2 – Implement Safe Routes to Schools and Safe Routes to Transit ▪ TCM C-3 – Promote Rideshare Service and Incentives ▪ TCM C-4 – Conduct Public Outreach and Education ▪ TCM C-5 – Promote Smart Driving/Speed Moderation ▪ TCM D-1 – Improve Bicycle Access and Facilities ▪ TCM D-2 – Improve Pedestrian Access and Facilities ▪ TCM D-3 – Support Local Land Use Strategies ▪ TCM E-1 – Value Pricing Strategies ▪ TCM E-2 – Parking Pricing and Management ▪ TCM E-3 – Implement Transportation Pricing Reform 	<p>motor vehicle emissions. Although most of the TCMs are implemented at the regional level—that is, by MTC or Caltrans—the <i>2010 Bay Area Clean Air Plan</i> relies on local communities to assist with implementation of some measures.</p> <p>The proposed project includes policies related to reduce vehicle trips and VMT that would assist BAAQMD in meeting the regional goals of the <i>2010 Bay Area Clean Air Plan</i>:</p> <ul style="list-style-type: none"> ▪ Policy CIRC-2.15: Regional Transportation Improvements. Work with neighboring jurisdictions and appropriate agencies to identify and secure adequate funding for regional transportation improvements to improve transportation options and reduce congestion in Menlo Park and adjacent communities. ▪ Policy CIRC-5.4: Caltrain Enhancements. Support Caltrain safety and efficiency improvements, such as positive train control, grade separation (with priority at Ravenswood Avenue), and electrification, provided that Caltrain service to Menlo Park increases and use of the rail right-of-way is consistent with the City’s Rail Policy. ▪ Policy CIRC-5.1: Transit Service and Ridership. Promote improved public transit service and increased transit ridership, especially to employment centers, commercial destinations, schools, and public facilities. ▪ Policy CIRC-5.3: Rail Service. Promote increasing the capacity and frequency of commuter rail service, including Caltrain; protect rail rights-of-way for future transit service; and support efforts to reactivate the Dumbarton Corridor for transit, pedestrian, bicycle, and emergency vehicle use. ▪ Program CIRC-5-A: Long-Term Transit Planning. Work with appropriate agencies to agree on long-term peninsula transit service that reflects Menlo Park’s desires and is not disruptive to the city. ▪ Policy CIRC-6.4: Employers and Schools. Encourage employers and schools to promote walking, bicycling, carpooling, shuttles, and transit use. ▪ Policy CIRC-6-1: Transportation Demand Management. Coordinate Menlo Park’s transportation demand management efforts with other agencies providing similar services within San Mateo and Santa Clara Counties. ▪ Policy CIRC-6.3: Shuttle Service. Encourage increased shuttle service between employment centers and the Downtown Menlo Park Caltrain station. ▪ Policy CIRC-2.9: Bikeway System Expansion. Expand the citywide bikeway system through appropriate roadway design, maintenance, effective traffic law 	

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TABLE 4.2-6 CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN

Type	Measure Number / Title	Consistency
Land Use and Local Impact Control Measures	<ul style="list-style-type: none"> ▪ LUM 1 – Goods Movement ▪ LUM 2 – Indirect Source Review ▪ LUM 3 – Enhanced CEQA Program ▪ LUM 4 – Land Use Guidelines ▪ LUM 5 – Reduce Risk in Impacted Communities ▪ LUM 6 – Enhanced Air Quality Monitoring 	<p>enforcement, and implementation of the City’s Comprehensive Bicycle Development Plan, and the El Camino Real/Downtown Specific Plan.</p> <ul style="list-style-type: none"> ▪ Policy CIRC-5.6: Bicycle Amenities and Transit. Encourage transit providers within San Mateo County to provide improved bicycle amenities to enhance convenience, including access to transit including bike share programs, secure storage at transit stations and on-board storage where feasible. ▪ Policy CIRC-5.2: Pedestrian Safety. Maintain and create a connection of safe sidewalks and walkways within the public right of way. ▪ Policy CIRC-1.9: Safe Routes to Schools. Support Safe Routes to School programs to enhance the safety of school children who walk and bike to school. <p>The proposed project includes policies related to transportation and land use that would assist BAAQMD in meeting the regional goals of the <i>2010 Bay Area Clean Air Plan</i>:</p> <ul style="list-style-type: none"> ▪ Policy LU-2.3: Mixed Use Design. Allow mixed-use projects with residential units if project design addresses potential compatibility issues such as traffic, parking, light spillover, dust, odors, and transport and use of potentially hazardous materials. ▪ Policy LU-2.10: Compatible Uses. Promote residential uses in mixed-use arrangements and the clustering of compatible uses such as employment center, shopping areas, open space and parks, within easy walking and bicycling distance of each other and transit stops.
Energy and Climate Control Measures	<ul style="list-style-type: none"> ▪ ECM 1 – Energy Efficiency ▪ ECM 2 – Renewable Energy ▪ ECM 3 – Urban Heat Island Mitigation ▪ ECM 4 – Tree Planting 	<p>The <i>2010 Bay Area Clean Air Plan</i> also includes measures to reduce energy use, water use, and waste generation. Projects would also be required to comply with the California Green Building Standards Code and the current Building and Energy Efficiency Standards of Title 24 for energy efficiency. The proposed Zoning Ordinance update includes Residential and Non-Residential Green Building Requirements. These green building requirements identify standards based on the size of new construction and additions and/or alterations. New large projects are required to be built to achieve Leadership in Energy and Environmental Design (LEED) silver (over 10,000 square feet but less than 100,000 square feet) and gold (over 101,000 square feet). The Zoning Ordinance update also requires installation of electric vehicle (EV) chargers and onsite energy generation (or purchase of renewable energy or credits) to offset energy use for new projects. The Zoning Ordinance update also requires that applicants submit a zero-waste management plan to the City, which will cover how the applicant plans to minimize waste to</p>

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TABLE 4.2-6 CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN

Type	Measure Number / Title	Consistency
		<p>landfill and incineration.</p> <p>In addition, the proposed project, which includes the Land Use and Circulation Element Updates, in addition to the existing City of Menlo Park General Plan Open Space, Conservation, Noise and Safety Element (adopted 2013) includes the following policies related to energy use and water efficiency:</p> <ul style="list-style-type: none"> ▪ Policy LU-7.5: Reclaimed Water Use. Implement use of adequately treated “reclaimed” (“recycled/nonpotable water sources such as, graywater, blackwater, rainwater, stormwater, foundation drainage, etc.) water for outdoor and indoor uses, as feasible. ▪ Policy LU-7.9: Green Building. Support sustainability and green building best practices through the orientation, design, and placement of buildings and facilities to optimize their energy efficiency. ▪ Policy OSC-2.7: Conservation of Resources at City Facilities. Reduce consumption of water, energy, landfilled waste, and fossil fuels in the construction, operations and maintenance of City owned and/or operated facilities. ▪ Policy OSC-4.1: Sustainable Approach to Land Use Planning to Reduce Resource Consumption. Encourage, to the extent feasible, (1) a balance and match between jobs and housing, (2) higher density residential and mixed-use development to be located adjacent to commercial centers and transit corridors, and (3) retail and office areas to be located within walking and biking distance of transit or existing and proposed residential developments. ▪ Policy OSC-4.2: Sustainable Building. Promote and/or establish environmentally sustainable building practices or standards in new development that would conserve water and energy, prevent stormwater pollution, reduce landfilled waste, and reduce fossil fuel consumption from transportation and energy activities. ▪ Policy OSC-4.3: Renewable Energy. Promote the installation of renewable energy technology, such as, on residences and businesses through education, social marketing methods, establishing standards and/or providing incentives. ▪ Policy OSC-4.4: Vehicles Using Alternative Fuel. Explore the potential for installing infrastructure for vehicles that use alternative fuel, such as electric plug in recharging stations. ▪ Policy OSC-4.5: Energy Standards in Residential and Commercial Construction. Encourage projects to achieve a high level of energy conservation exceeding standards set forth in the California Energy Code for Residential and Commercial

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TABLE 4.2-6 CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN

Type	Measure Number / Title	Consistency
		<p>development.</p> <ul style="list-style-type: none"> ▪ Policy OSC-4.6: Waste Reduction Target. Strive to meet the California State Integrated Waste Management Board per person target of waste generation per person per day through their source reduction, reuse, and recycling programs. ▪ Policy OSC-4.7: Waste Management Collaboration. Continue to support and participate in efforts such as the South Bayside Waste Management Authority, which provides waste reduction, recycling, and solid waste programs and solutions. ▪ Policy OSC-4.8: Waste Diversion. Develop and implement a zero waste policy, or implement standards, incentives, or other programs that would lead the community towards a zero waste goal. ▪ Policy OSC-4.9: Climate Action Planning. Undertake annual review and updates, as needed, to the City’s Climate Action Plan (CAP). ▪ Policy OSC-4.10: Energy Upgrade California. Consider actively marketing and providing additional incentives for residents and businesses to participate in local, State, and/or Federal renewable or energy conservation programs. ▪ Policy OSC-5.3: Water Conservation. Encourage water-conserving practices in businesses, homes and institutions.
Further Study Control Measures	<ul style="list-style-type: none"> ▪ FSM 1 – Adhesives and Sealants ▪ FSM 2 – Reactivity in Coating and Solvents ▪ FSM 3 – Solvent Cleaning and Degreasing Operations ▪ FSM 4 – Emissions from Cooling Towers ▪ FSM 5 – Equipment Leaks ▪ FSM 6 – Wastewater from Coke Cutting ▪ FSM 7 – SO₂ from Refinery Processes ▪ FSM 8 – Reduce Emission from LPG, Propane, Butane, and other Pressurized Gases ▪ FSM 9 – Greenhouse Gas Mitigation in BACT and TBACT Determinations ▪ FSM 10 Further Reductions from Commercial Cooking Equipment ▪ FSM 11 – Magnet Source Rule ▪ FSM 12 – Wood Smoke ▪ FSM 13 – Energy Efficiency and Renewable Energy 	<p>The majority of the further study control measures apply to sources regulated directly by BAAQMD. Because BAAQMD is the implementing agency, new and existing sources of stationary and area sources in the Plan Area would be required to comply with these additional further study control measures in the <i>2010 Bay Area Clean Air Plan</i>.</p>

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TABLE 4.2-6 CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN

Type	Measure Number / Title	Consistency
	<ul style="list-style-type: none">▪ FSM 14 – Winery Fermentation▪ FSM 15 – Composting Operations▪ FSM 16 – Vanishing Oils and Rust Inhibitors▪ FSM 17 – Ferry System Expansion▪ FSM 18 – Greenhouse Gas Fee	

Source: Bay Area Air Quality Management District, 2011 Revised, *California Environmental Quality Act Air Quality Guidelines*.

Regional Growth Projections for VMT and Population and Employment

Future development accommodated by the proposed project would result in additional sources of criteria air pollutants. Growth accommodated within the study area would occur over 24 years or longer. As a result, BAAQMD’s approach to evaluating impacts from criteria air pollutants generated by a plan’s long-term growth is done by comparing population and employment estimates to the VMT estimates. This is because BAAQMD’s AQMP plans for growth in the Air Basin are based on regional population and employment projections identified by ABAG and growth in VMT identified by C/CAG. Changes in regional, community-wide emissions in the Plan Area (City + SOI) could affect the ability of BAAQMD to achieve the air quality goals in the AQMP. Consequently, air quality impacts for a plan-level analysis are based on consistency with the regional growth projections.

VMT estimates are sensitive to changes in land use. Generally, land uses that reflect a more balanced job-housing ratio result in lower per capita VMT. Additionally, the traffic modeling reflects an increased density and other factors that promote use of alternative modes of transportation and reduce VMT (e.g., an increase in mode shift to transit, bicycling). VMT estimates based on data provided by TJKM were calculated for the proposed project. Table 4.2-7 compares the projected increase in population and service population with the projected increases in total VMT and per capita VMT. As shown in Table 4.2-7, the proposed project would result in an increase in VMT per population (1.3 percent higher) but would result in a decrease in VMT per service population (SP) (4.5 percent lower). The Table also shows that the proposed project would result in a beneficial impact compared to the Existing General Plan.

TABLE 4.2-7 COMPARISON OF THE CHANGE IN POPULATION, SERVICE POPULATION, AND VMT IN THE PLAN AREA

Category	Existing	Existing General Plan 2040	Proposed Project 2040
Population	32,900	38,780	50,350
Percent Change in Population	NA	17.9%	53.0%
Employment	30,900	41,200	53,250
Total Service Population (SP)	63,800	79,980	103,600
Percent Change in SP	NA	25.4%	62.4%
VMT/Day	934,722	1,359,431	1,449,338
Percent Change in VMT/Day	NA	45.4%	55.1%
VMT/Person/Day	28.41	35.05	28.79
Percent Change in VMT/Person/Day	NA	23.4%	1.3%
VMT/SP/Day	14.65	17.00	13.99
Percent Change in VMT/SP/Day	NA	16.0%	-4.5%

Notes: VMT provided by TJKM.

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The Association of Bay Area Government's (ABAG)/Metropolitan Transportation Commissions' (MTC) *Plan Bay Area* considers both where people live and where people work to improve the overall mobility of the Bay Area to reduce trips and vehicle miles traveled. Trips in the regional model are based on an origin-destination approach and consider trip by trip purpose. For employment-generating land uses, the regional model disaggregates trips into specific industry-sectors (i.e., type of commercial, office, warehouse, retail) in order to determine trip lengths by trip purpose and the origin and end of a trip. The regional emissions forecasts conducted by BAAQMD as part of the *2010 Clean Air Plan* and BAAQMD's *Climate Protection Program* consider on-road mobile source emissions based on data provided by these regional agencies. Consequently, both the population and employment generating land uses are critical to determining the transportation efficiency of the Bay Area in BAAQMD's regional plans.

Furthermore, the consistency analysis for criteria air pollutants should be internally consistent with the approach taken for the proposed project's GHG emissions analysis. BAAQMD's CEQA Guidelines efficiency metric is based on service population, rather than just per capita emissions, for similar reasons as identified above—VMT is not just based on where someone lives but also where they work or where services are provided (e.g., retail stores, schools, day care, etc.).

Lastly, the Governor's Office of Planning and Research (OPR) has identified an alternative metric to the transportation level of service (LOS) under Senate Bill 743, that is based on VMT efficiency. OPR current recommendation includes evaluating both population and employment when considering transportation efficiency, which is consistent with the City's approach.

There is clear justification for use of a VMT efficiency metric that considers both population and employees. Land use agencies should consider both ends of the trip (i.e., where people live in relation to where they work). Because the City's General Plan accommodates both residential and non-residential growth, a better indicator of how efficiently the city is growing can be made by comparing the increase in VMT to the increase in service population (e.g., generate the same or less VMT per service population). As shown in Table 4.2-7, implementation of the proposed project would result in lower VMT per service population than under existing conditions (4.5 percent less). Additionally, future projects allowed under the proposed project would be required to comply with General Plan policies and programs and the Zoning Ordinance update requires new construction and building additions of 10,000 square feet or more to prepare a TDM Plan, which would further reduce VMT from future projects in the city. Pursuant to the Zoning Ordinance update, projects that require preparation of a TDM Plan are required to reduce trip generation by 20 percent below standard use rates. The TDM Plan may include participation in a Transportation Management Association, preferred parking for carpools/vanpools, public and/or private bike-share programs, subsidy for alternative transportation (e.g., carpool/vanpool, shuttles, and bus service including transit passes), alternative work schedules, car-share membership, emergency ride home, and other measures to reduce trip generation. Accordingly, impacts would be *less than significant*.

Applicable Regulations:

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building and Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code
- CARB Rule 2485 (13 CCR Chapter 10, Section 2485), Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

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- CARB Rule 2480 (13 CCR Chapter 10, Section 2480), Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- CARB Rule 2477 (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
- BAAQMD, Regulation 2, Rule 2, New Source Review
- BAAQMD, Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants
- BAAQMD Regulation 6, Rule 1, General Requirements
- BAAQMD Regulation 6, Rule 2, Commercial Cooking Equipment
- BAAQMD Regulation 7, Odorous Substances
- BAAQMD Regulation 8, Rule 3, Architectural Coatings
- BAAQMD Regulation 8, Rule 4, General Solvent and Surface Coatings Operations
- BAAQMD Regulation 8, Rule 7, Gasoline Dispensing Facilities
- BAAQMD Regulation 11, Rule 2, Asbestos, Demolition, Renovation and Manufacturing)

Significance Without Mitigation: Less than significant.

AQ-2 **Implementation of the proposed project could violate an air quality standard, contribute substantially to an existing or projected air quality violation, and would result in a cumulatively considerable net increase of criteria pollutants for which the project region is in nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).**

Projects that exceed BAAQMD’s regional significance thresholds contribute to the nonattainment designation of the Air Basin, which constitutes an air quality violation. The Air Basin is currently designated a nonattainment area for California and National O₃, California and National PM_{2.5}, and California PM₁₀ AAQS. The attainment designation is based on the AAQS, which are set at levels of exposure that are determined to not result in adverse health. Any project that produces a significant regional air quality impact in an area that is in nonattainment adds to the cumulative impact. Pursuant to the CEQA Guidelines Section 15130(b)(1), cumulative impacts can be based on the growth projections in a local General Plan. Consequently, the analysis in this chapter is the proposed project’s contribution to cumulative impacts. Projects that exceed BAAQMD’s significance thresholds cumulatively contribute to health impacts within the SFBAAB. Regional emissions contribute to these known health effects, but it is speculative for this broad-based program EIR to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment—since mass emissions are not correlated with concentrations of emissions—or how many additional individuals in the Air Basin would be affected by the health effects cited above.

Operational Emissions

Although BAAQMD’s CEQA Air Quality Guidelines only require an emissions inventory of criteria air pollutants for project-level analyses, an inventory of criteria air pollutants was generated for the proposed project, since enough information regarding the buildout of the General Plan is available to identify the

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magnitude of emissions from buildout of the proposed project and whether development allowed under the proposed project would contribute to an air quality violation. Table 4.2-8 identifies the emissions associated with buildout of the proposed project. Subsequent environmental review of development projects would be required to assess potential impacts under BAAQMD’s project-level thresholds.

TABLE 4.2-8 CONNECTMENLO COMMUNITY-WIDE CRITERIA AIR POLLUTANT EMISSIONS

Category	Criteria Air Pollutants (Average lbs./day)			
	ROG	NO _x	Exhaust PM ₁₀	Exhaust PM _{2.5}
Existing Land Uses 2040				
Transportation ^a	39	62	95	38
Energy ^b	57	509	40	40
Area Sources ^c	675	573	42	42
<i>Total</i>	<i>771</i>	<i>1,143</i>	<i>177</i>	<i>120</i>
<i>Total Tons per Year (tpy)</i>	<i>140</i>	<i>204</i>	<i>31</i>	<i>21</i>
Maximum Citywide 2040 Buildout				
Transportation ^a	61	97	148	60
Energy ^b	94	838	65	65
Area Sources ^c	1,118	663	52	52
<i>Total</i>	<i>1,273</i>	<i>1,597</i>	<i>265</i>	<i>176</i>
Change from Existing Land Uses	501	454	88	57
BAAQMD Average Daily Project-Level Threshold	54	54	82	54
Exceeds Average Daily Threshold	Yes	Yes	Yes	No
<i>Total Tons per Year (tpy)</i>	<i>231</i>	<i>287</i>	<i>47</i>	<i>31</i>
Change from Existing Land Uses (tpy)	91	83	16	10
BAAQMD Annual Project-Level Threshold	10 tpy	10 tpy	15 tpy	10 tpy
Exceeds Annual Threshold	Yes	Yes	Yes	Yes

Note: Emissions may not total to 100 percent due to rounding.

a. Transportation. VMT is based on data provided by TJKM and modeled with EMFAC2014 Version 1.07 for running exhaust emissions using 2040 emission rates. VMT is multiplied by 347 days/year to account for reduced traffic on weekends and holidays.

b. Energy. Based on three-year average (2013–2011) of energy use provided byPG&E. The forecast is based on the proposed project housing units (residential), employment (non-residential), and service population (city) projections.

c. Area Sources – Off-Road Emissions. Generated using OFFROAD2007. Estimated based on population (Landscaping), employment (Light Commercial Equipment), and construction building permits (Construction) for Menlo Park as a percentage of San Mateo County. Annual construction emissions forecasts are assumed to be similar to historic levels. Forecasts for landscaping equipment use are based on the proposed project population projections, and for light commercial equipment use are based on the proposed project employment projections. Excludes BAAQMD-permitted sources. ROG emissions from consumer product use based on the emissions rates in CalEEMod 2013.2.2. Daily construction emissions multiplied by 347 days/year to account for reduced/limited construction activity on weekends and holidays. Excludes fugitive emissions from construction sites.

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The proposed Land Use (LU) Element and Circulation (CIRC), which would be adopted as part of the proposed project, and the existing Section II, Open Space/Conservation (OSC) of the Open Space/Conservation, Noise and Safety Elements, contain general goals and policies that would require local planning and development decisions to consider impacts to air quality, including criteria air pollutants. The following General Plan policies would serve to minimize potential adverse impacts on air quality:

- **Goal LU-4:** Promote the development and retention of business uses that provide goods or services needed by the community that generate benefits to the City, and avoid or minimize potential environmental and traffic impacts.
 - **Policy LU-4.5: Business Uses and Environmental Impacts.** Allow modifications to business operations and structures that promote revenue generating uses for which potential environmental impacts can be mitigated.
- **Goal LU-6:** Preserve open-space lands for recreation; protect natural resources and air and water quality; and protect and enhance scenic qualities.
 - **Policy LU-6.9: Pedestrian and Bicycle Facilities.** Provide well-designed pedestrian and bicycle facilities for safe and convenient multi-modal activity through the use of access easements along linear parks or paseos.
- **Goal LU-7:** Promote the implementation and maintenance of sustainable development, facilities and services to meet the needs of Menlo Park's residents, businesses, workers, and visitors.
 - **Policy LU-7.1: Sustainability.** Promote sustainable site planning, development, landscaping, and operational practices that conserve resources and minimize waste.
 - **Policy LU-7.9: Green Building.** Support sustainability and green building best practices through the orientation, design, and placement of buildings and facilities to optimize their energy efficiency.
- **Goal OSC-2: Provide Parks And Recreation Facilities.** Develop and maintain a parks and recreation system to provide areas and facilities conveniently located, sustainable, properly designed and well-maintained to serve the recreation needs and promote healthy living of residents, workers and visitors to Menlo Park.
 - **Policy OSC-2.7: Conservation of Resources at City Facilities.** Reduce consumption of water, energy, landfilled waste, and fossil fuels in the construction, operations and maintenance of City owned and/or operated facilities.
- **Goal OSC-4:** Promote Sustainability And Climate Action Planning. Promote a sustainable energy supply and implement the City's Climate Action Plan to reduce greenhouse gas emissions and improve the sustainability of actions by City government, residents, and businesses in Menlo Park. This includes promoting land use patterns that reduce the number and length of motor vehicle trips, and encouraging recycling, reduction and reuse programs.
 - **Policy OSC-4.1: Sustainable Approach to Land Use Planning to Reduce Resource Consumption.** Encourage, to the extent feasible, (1) a balance and match between jobs and housing, (2) higher density residential and mixed-use development to be located adjacent to commercial centers and transit corridors, and (3) retail and office areas to be located within walking and biking distance of transit or existing and proposed residential developments.

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- **Policy OSC-4.2: Sustainable Building.** Promote and/or establish environmentally sustainable building practices or standards in new development that would conserve water and energy, prevent stormwater pollution, reduce landfilled waste, and reduce fossil fuel consumption from transportation and energy activities.
- **Policy OSC-4.3: Renewable Energy.** Promote the installation of renewable energy technology, such as, on residences and businesses through education, social marketing methods, establishing standards and/or providing incentives.
- **Policy OSC-4.4: Vehicles Using Alternative Fuel.** Explore the potential for installing infrastructure for vehicles that use alternative fuel, such as electric plug in recharging stations.
- **Policy OSC-4.5: Energy Standards in Residential and Commercial Construction.** Encourage projects to achieve a high level of energy conservation exceeding standards set forth in the California Energy Code for Residential and Commercial development.
- **Goal OSC-5: Ensure Healthy Air Quality And Water Quality.** Enhance and preserve air quality in accord with State and regional standards, and encourage the coordination of total water quality management including both supply and wastewater treatment.
 - **Policy OSC-5.2: Development in Industrial Areas.** Evaluate development projects in industrial areas for impacts to air and water resources in relation to truck traffic, hazardous materials use and production-level manufacturing per the California Environmental Quality Act (CEQA) and require measures to mitigate potential impacts to less than significant levels.
 - **Policy OSC-5.3: Water Conservation.** Encourage water-conserving practices in businesses, homes and institutions.
- **Goal CIRC-2: Increase accessibility for and use of streets by pedestrians, bicyclists, and transit riders.**
 - **Policy CIRC-2.14: Impacts of New Development.** Require new development to mitigate its impacts on the safety (e.g., collision rates) and efficiency (e.g., vehicle miles traveled (VMT) per capita) of the circulation system, by minimizing cut-through vehicle traffic on residential streets and speeding traffic; reducing the number of vehicle trips, providing bicycle, pedestrian, and transit connections, amenities and improvements in proportion with the scale of proposed projects; and facilitating appropriate or adequate response times and access for emergency vehicles.
- **Goal CIRC-5: Support local and regional transit that is efficient, frequent, convenient, and safe.**
 - **Policy CIRC-5-7: New Development.** Ensure that new nonresidential, mixed use, and multiple-dwelling residential development provides associated needed transit service, improvements and amenities in proportion with demand attributable to the type and scale of the proposed development.
- **Goal CIRC-6: Provide a range of transportation choices for the Menlo Park community.**
 - **Policy CIRC-6.1: Transportation Demand Management.** Coordinate Menlo Park's transportation demand management efforts with other agencies providing similar services within San Mateo and Santa Clara Counties.
 - **Policy CIRC-6-4: Employers and Schools.** Encourage employers and schools to promote walking, bicycling, carpooling, shuttles, and transit use.

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Additionally, the proposed project includes an update to the City's Zoning Ordinance for the Bayfront Area, resulting in three new zoning districts that would promote the creation of a live/work/play environment with travel patterns that are oriented toward pedestrian, transit, and bicycle use. As part of the Zoning Ordinance update, the project includes minimum short-term and long-term bicycle parking standards for Office and Research Development land uses. The Zoning Ordinance update also allows project applicants to meet minimum parking requirements through use of nearby, off-site facilities with the approval of the City's Transportation Manager. Furthermore, new construction and building additions of 10,000 square feet or more are required to develop a TDM Plan to reduce trip generation by 20 percent below standard use rates. The TDM Plan may include participation in a Transportation Management Association, preferred parking for carpools/vanpools, public and/or private bike-share programs, subsidy for alternative transportation (e.g., carpool/vanpool, shuttles, and bus service including transit passes), alternative work schedules, car-share membership, emergency ride home, and other measures to reduce trip generation.

The proposed Zoning Ordinance update also includes Residential and Non-Residential Green Building Requirements. These green building requirements identify standards based on the size of new construction and additions and/or alterations to an existing building. New large projects are required to be built to achieve Leadership in Energy and Environmental Design (LEED) silver (over 10,000 square feet but less than 100,000 square feet) and gold (over 101,000 square feet). The Zoning Ordinance update also requires installation of electric vehicle (EV) chargers. New construction is also required to meeting 100 percent of electricity and natural gas demand through either onsite generation and/or purchase of renewable electricity or electricity credits (or combination) to offset energy use. The Zoning Ordinance update also requires that applicants submit a zero-waste management plan to the City, which will cover how the applicant plans to minimize waste to landfill and incineration.

Despite implementation of the policies listed above and new requirements in the Zoning Ordinance update, as identified in Table 4.2-8, criteria air pollutant emissions associated with development allowed the proposed project would generate a substantial net increase in emissions that exceeds the BAAQMD regional significance thresholds. Because cumulative development within the City of Menlo Park could exceed the regional significance thresholds, the project could contribute to an increase in adverse health effects in the Air Basin until the attainment standards are met. Criteria air pollutant emissions would be generated from on-site area sources (e.g., landscaping fuel, consumer products), vehicle trips generated by the proposed project, and energy use (e.g., natural gas used for cooking and heating).

The BAAQMD is the primary agency responsible for ensuring the health and welfare of individuals sensitive to elevated concentrations of air pollutants in the Air Basin. To achieve the health-based standards established by the US EPA and CARB, BAAQMD prepares an air quality management plan that details regional programs to attain the AAQS.

However, as stated above, because cumulative development within Menlo Park could exceed the regional significance thresholds, the project could contribute to an increase in adverse health effects in the SFBAAB until the attainment standards are met. Consequently, impacts are *significant*.

Applicable Regulations:

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 CCR: Appliance Energy Efficiency Standards

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- Title 24, Part 6, CCR: Building and Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code
- BAAQMD Regulation 8, Rule 7, Gasoline Dispensing Facilities

Impact AQ-2a: Despite implementation of the proposed project policies listed in Table 4.2-8, criteria air pollutant emissions associated with the proposed project would cause a substantial net increase in emissions that exceeds the BAAQMD regional significance thresholds.

Mitigation Measure AQ-2a: Prior to issuance of building permits, development project applicants that are subject to CEQA and exceed the screening sizes in the Bay Area Air Quality Management District's (BAAQMD) CEQA Guidelines shall prepare and submit to the City of Menlo Park a technical assessment evaluating potential project operation-phase-related air quality impacts. The evaluation shall be prepared in conformance with the BAAQMD methodology in assessing air quality impacts. If operational-related criteria air pollutants are determined to have the potential to exceed the BAAQMD thresholds of significance, as identified in BAAQMD's CEQA Guidelines, the City of Menlo Park Community Development Department shall require that applicants for new development projects incorporate mitigation measures to reduce air pollutant emissions during operational activities.

Significance With Mitigation: Significant and unavoidable. The General Plan includes goals, policies, and programs, listed above and under AQ-1, that would minimize emissions to the extent feasible. Mitigation Measure AQ-2a would require implementation of BAAQMD-approved mitigation measures if subsequent environmental review determines that applicants for future development in Menlo Park could generate operational emissions in excess of the BAAQMD significance thresholds. An analysis of emissions generated from the operation of specific future projects allowed under the General Plan would be compared to BAAQMD's project-level significance thresholds during individual environmental review. The total criteria air pollutant emissions from operation of future development projects under the proposed project would be substantial and would contribute to increases in concentrations of air pollutants, which could contribute to ongoing violations of air quality standards. It should be noted that the identification of this program-level impact does not preclude the finding of less-than-significant impacts for subsequent projects that comply with BAAQMD screening criteria or meet applicable thresholds of significance. The policies proposed in this General Plan as part of the proposed project and measures included the Zoning update that promote active transportation (pedestrian, transit, and bicycle use) improvements would reduce criteria air pollutants, to the extent feasible, as part of this programmatic review of air quality impacts. Additional measures to reduce criteria air pollutant emissions would be considered during individual project-level review based on site-specific and project-specific characteristics to reduce significant impacts as applicable. Because those projects and measures cannot be known at this time, the impact is considered significant and unavoidable.

Construction Emissions

BAAQMD's plan-level guidelines do not require an evaluation of construction emissions for plan-level projects. There is no specific development under the proposed project at this time. Future development proposals would be subject to separate environmental review pursuant to CEQA in order to identify and mitigate potential air quality impacts. Because the details regarding future construction activities are not

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known at this time, including their phasing, duration, and equipment, construction emissions are evaluated qualitatively in accordance with BAAQMD's plan-level guidance.

Construction emissions associated with individual development projects would generate an increase in criteria air pollutants and TACs. BAAQMD has developed project-level thresholds for construction activities. Subsequent environmental review of future development projects would be required to assess potential impacts under BAAQMD's project-level thresholds. Construction emissions from buildout of future projects within Menlo Park would primarily be 1) exhaust emissions from off-road diesel-powered construction equipment; 2) dust generated by demolition, grading, earthmoving, and other construction activities; 3) exhaust emissions from on-road vehicles; and 4) off-gas emissions of ROG from application of asphalt, paints, and coatings.

The existing Section II, Open Space/Conservation (OSC) of the Open Space/Conservation, Noise and Safety Elements contains a general goal and policy that would require local planning and development decisions to consider impacts to air quality, including impacts during construction. The following General Plan policy would serve to minimize potential adverse impacts from fossil fuels during construction:

- **Policy OSC-2.7: Conservation of Resources at City Facilities.** Reduce consumption of water, energy, landfilled waste, and fossil fuels in the construction, operations and maintenance of City owned and/or operated facilities.

Continued compliance with local and regional air quality regulations that protect air quality that are described throughout this chapter and implementation of General Plan policies and programs would reduce construction-related impacts to the extent feasible. However, if uncontrolled, fugitive dust (PM₁₀ and PM_{2.5}) levels downwind of actively disturbed areas during construction or overlapping construction activities could violate air quality standards or contribute substantially to an existing or projected air quality violation and expose sensitive receptors to elevated concentrations of pollutants during construction activities.

The BAAQMD is the primary agency responsible for ensuring the health and welfare of individuals sensitive to elevated concentrations of air pollutants in the Air Basin. To achieve the health-based standards established by the US EPA and CARB, BAAQMD prepares an air quality management plan that details regional programs to attain the AAQS. However, because cumulative development within Menlo Park could exceed the regional significance thresholds, the project could contribute to an increase in adverse health effects in the SFBAAB until attainment standards are met. Consequently, impacts are *significant*.

Applicable Regulations

- Title 24, Part 11, CCR: Green Building Standards Code
- BAAQMD Regulation 8, Rule 3, Architectural Coatings
- BAAQMD Regulation 8, Rule 4, General Solvent and Surface Coatings Operations
- BAAQMD Regulation 11, Rule 2, Asbestos, Demolition, Renovation and Manufacturing

Impact AQ-2b: Despite implementation of the proposed project policies, criteria air pollutant emissions associated with the proposed project construction activities would generate a substantial net increase in emissions that exceeds the BAAQMD regional significance thresholds.

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Mitigation Measure AQ-2b1: As part of the City's development approval process, the City shall require applicants for future development projects to comply with the current Bay Area Air Quality Management District's basic control measures for reducing construction emissions of PM₁₀ (Table 8-1, Basic Construction Mitigation Measures Recommended for All Proposed Projects, of the BAAQMD CEQA Guidelines).

Mitigation Measure AQ-2b2: Prior to issuance of building permits, development project applicants that are subject to CEQA and exceed the screening sizes in the BAAQMD's CEQA Guidelines shall prepare and submit to the City of Menlo Park a technical assessment evaluating potential project construction-related air quality impacts. The evaluation shall be prepared in conformance with the BAAQMD methodology in assessing air quality impacts. If construction-related criteria air pollutants are determined to have the potential to exceed the BAAQMD thresholds of significance, as identified in the BAAQMD CEQA Guidelines, the City of Menlo Park shall require that applicants for new development projects incorporate mitigation measures to reduce air pollutant emissions during construction activities to below these thresholds (e.g., Table 8-2, Additional Construction Mitigation Measures Recommended for Projects with Construction Emissions Above the Threshold of the BAAQMD CEQA Guidelines, or applicable construction mitigation measures subsequently approved by BAAQMD). These identified measures shall be incorporated into all appropriate construction documents (e.g., construction management plans) submitted to the City and shall be verified by the City's Building Division and/or Planning Division.

Significance With Mitigation: Significant and unavoidable. Mitigation Measure AQ-2a would require adherence to the current Bay Area Air Quality Management District's basic control measures for reducing construction emissions of PM₁₀ and would ensure impacts from fugitive dust generated during construction activities are less than significant. Mitigation Measure AQ-2b would require implementation of BAAQMD-approved mitigation measures if determined during subsequent environmental review that applicants for future development in Menlo Park could generate construction exhaust emissions in excess of the BAAQMD significance thresholds. An analysis of emissions generated from the construction of specific future projects under the General Plan would be required to evaluate emissions compared to BAAQMD's project-level significance thresholds during individual environmental review. It should be noted that the identification of this program-level impact does not preclude the finding of less-than-significant impacts for subsequent projects that comply with BAAQMD screening criteria or meet applicable thresholds of significance. Over the 24 year horizon of the proposed project, many individual projects would be constructed in the city. It is not possible to predict the specific characteristics of the construction and operation of those projects and accurately model their individual emissions, nor is that appropriate within the scope of this programmatic EIR. Therefore, due to the programmatic nature of the proposed project, no additional mitigation measures are available that could be certain to reduce the emissions of each individual project to a less-than-significant level, and the impact is considered significant and unavoidable.

AQ-3 Implementation of the proposed project would expose sensitive receptors to substantial concentrations of air pollution.

This threshold addresses two types of pollutant concentrations: CO hotspots and TACs.

CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9.0 ppm. Because CO is produced in the greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds.

Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited by bridges or tunnels—in order to generate a significant CO impact.³⁰ Buildout of the proposed project would not increase traffic at affected intersections to these volumes.³¹ Trips associated with the proposed project would not exceed the screening criteria of the BAAQMD. In addition, the SFBAAB has been designated attainment under both the national and California AAQS for CO. Therefore, the proposed project would not have the potential to substantially increase CO hotspots at intersections in Menlo Park.

In order to determine the potential for CO hotspots, BAAQMD considers consistency with the relevant Congestion Management Plan, because congested intersections generate unhealthy concentrations of CO. The proposed project would be consistent with C/CAG's 2013 Congestion Management Program (CMP), which is the applicable CMP.³²

The proposed Land Use (LU) and Circulation (CIRC) Elements, which would be adopted as part of the proposed project, contain general goals, policies, and programs that would require local planning and development decisions to consider impacts to air quality, including the potential for CO hotspots. The following goals, policies, and programs would encourage bicycle, pedestrian, and transit use to tie land use and transportation, which in turn ensures consistency with C/CAG's 2013 Congestion Management Program and thus, serve to minimize potential adverse impacts on air quality:

- **Goal LU-4:** Promote the development and retention of business uses that provide goods or services needed by the community that generate benefits to the City, and avoid or minimize potential environmental and traffic impacts.

³⁰ Bay Area Air Quality Management District (BAAQMD), 2011 (Revised), *CEQA Air Quality Guidelines*.

³¹ TJKM, Inc., 2015, *Administrative Draft Transportation Impact Study Report, Connect Menlo General Plan Update & Facebook Campus Expansion Traffic Impact Analysis*. November 15.

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- **Policy LU-4.5: Business Uses and Environmental Impacts.** Allow modifications to business operations and structures that promote revenue generating uses for which potential environmental impacts can be mitigated.
- **Goal CIRC-1:** Provide and maintain a safe, efficient, attractive, user-friendly circulation system that promotes a healthy, safe, and active community and quality of life throughout Menlo Park.
 - **Policy CIRC-1: Safe Routes to Schools.** Support Safe Routes to School programs to enhance the safety of school children who walk and bike to school.
- **Goal CIRC-2:** Increase accessibility for and use of streets by pedestrians, bicyclists, and transit riders.
 - **Policy CIRC-2.7: Walking and Biking.** Provide for the safe, efficient, and equitable use of streets by pedestrians and bicyclists through appropriate roadway design and maintenance, effective traffic law enforcement, and implementation of the City's Comprehensive Bicycle Development Plan and the El Camino Real/Downtown Specific Plan.
 - **Policy CIRC-2.8: Pedestrian Access at Intersections.** Support full pedestrian access across all legs of signalized intersections.
 - **Policy CIRC-2.9: Bikeway System Expansion.** Expand the citywide bikeway system through appropriate roadway design, maintenance, effective traffic law enforcement, and implementation of the City's Comprehensive Bicycle Development Plan, and the El Camino Real/Downtown Specific Plan.
 - **Policy CIRC-2.13: County Congestion Management.** Work with the County Congestion Management Agency to implement the Countywide Congestion Management Program and Deficiency Plans for City and State facilities, and avoid adding any Menlo Park streets or intersections to the Countywide Congestion Management Program.
 - **Policy CIRC-2.15: Regional Transportation Improvements.** Work with neighboring jurisdictions and appropriate agencies to identify and secure adequate funding for regional transportation improvements to improve transportation options and reduce congestion in Menlo Park and adjacent communities.
- **Goal CIRC-5:** Support local and regional transit that is efficient, frequent, convenient, and safe.
 - **Policy CIRC-5.1: Transit Service and Ridership.** Promote improved public transit service and increased transit ridership, especially to employment centers, commercial destinations, schools, and public facilities.
 - **Policy CIRC-5.2: Transit Proximity to Activity Centers.** Promote the clustering of as many activities as possible within easy walking distance of transit stops, and locate any new transit stops as close as possible to housing, jobs, shopping areas, open space, and parks.
 - **Policy CIRC-5.3: Rail Service.** Promote increasing the capacity and frequency of commuter rail service, including Caltrain; protect rail rights-of-way for future transit service; and support efforts to reactivate the Dumbarton Corridor for transit, pedestrian, bicycle, and emergency vehicle use.
 - **Policy CIRC-5.4: Caltrain Enhancements.** Support Caltrain safety and efficiency improvements, such as positive train control, grade separation (with priority at Ravenswood Avenue), and

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electrification, provided that Caltrain service to Menlo Park increases and use of the rail right-of-way is consistent with the City's Rail Policy.

- **Policy CIRC-5.6: Bicycle Amenities and Transit.** Encourage transit providers within San Mateo County to provide improved bicycle amenities to enhance convenience, including access to transit including bike share programs, secure storage at transit stations and on-board storage where feasible.
- **Program CIRC-5-A: Long-Term Transit Planning.** Work with appropriate agencies to agree on long-term peninsula transit service that reflects Menlo Park's desires and is not disruptive to the city.
- **Goal CIRC-6:** Provide a range of transportation choices for the Menlo Park community.
 - **Policy CIRC-6.1: Transportation Demand Management.** Coordinate Menlo Park's transportation demand management efforts with other agencies providing similar services within San Mateo and Santa Clara Counties.
 - **Policy CIRC-6.3: Shuttle Service.** Encourage increased shuttle service between employment centers and the Downtown Menlo Park Caltrain station.

Localized air quality impacts related to pollutant concentrations from mobile-source emissions would therefore be *less than significant*.

Applicable Regulations

- AB 1493: Pavley Fuel Efficiency Standards
- CARB Rule 2485 (13 CCR Chapter 10, Section 2485), Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- CARB Rule 2480 (13 CCR Chapter 10, Section 2480), Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- CARB Rule 2477 (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

Significance Without Mitigation: Less than significant.

Toxic Air Contaminants: New Sources

Various industrial and commercial processes (e.g., manufacturing, dry cleaning) allowed under the proposed project would be expected to release TACs. TAC emissions generated by stationary and point sources of emissions within the Air Basin are regulated and controlled by BAAQMD. Emissions of TAC from mobile sources are regulated by statewide rules and regulations, not by BAAQMD, and have the potential to generate substantial concentrations of air pollutants.

New development allowed under the proposed project, such as industrial land uses and research and development land uses, as well as dry cleaners and gas stations, would have the potential to generate substantial stationary sources of emissions and would require a permit from BAAQMD for emissions of TACs. Emissions of stationary source TACs would be controlled by BAAQMD through permitting and would be subject to further study and health risk assessment prior to the issuance of any necessary air quality

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permits under BAAQMD Regulation 2, Rule 2, New Source Review, and Rule 5, New Source Review of Toxic Air Contaminants.

Mobile sources of TACs are not regulated by BAAQMD. The primary mobile sources of TACs within Menlo Park are truck idling and use of off-road equipment at warehousing operations. Warehousing operations could generate a substantial amount of DPM emissions from off-road equipment use and truck idling. In addition, some warehousing and industrial facilities may include use of transport refrigeration units (TRUs) for cold storage. New land uses in Menlo Park that are permitted under the proposed project that use trucks, including trucks with TRUs, could generate an increase in DPM that would contribute to cancer and non-cancer health risk in the Air Basin. Impacts could occur at facilities that permit 100 or more truck trips per day or 40 or more trucks with TRUs within 1,000 feet of a sensitive land use. These new land uses could be near existing sensitive receptors within and outside the Study Area. In addition, trucks would travel on regional transportation routes through the Air Basin, contributing to near-roadway DPM concentrations.

The existing Section II, Open Space/Conservation (OSC) of the Open Space/Conservation, Noise and Safety Element contain a general goal and policy that would require local planning and development decisions to consider impacts to air quality, including impacts from community risk and hazards. The following General Plan goal and policy would serve to minimize potential conflicts between land uses:

- **Goal OSC-5: Ensure Healthy Air Quality And Water Quality.** Enhance and preserve air quality in accord with State and regional standards, and encourage the coordination of total water quality management including both supply and wastewater treatment.
 - **Policy OSC-5.2: Development in Industrial Areas.** Evaluate development projects in industrial areas for impacts to air and water resources in relation to truck traffic, hazardous materials use and production-level manufacturing per the California Environmental Quality Act (CEQA) and require measures to mitigate potential impacts to less than significant levels.

However, these policies do not identify BAAQMD's performance standards (ten in one million [10E-06], PM_{2.5} concentrations exceed 0.3 µg/m³, or the appropriate noncancer hazard index exceeds 1.0). Consequently, mitigation is needed to ensure that new projects are evaluated in accordance with BAAQMD's CEQA Guidelines. Community risk, and hazard impacts are potentially *significant*.

Applicable Regulations

- CARB Rule 2485 (13 CCR Chapter 10, Section 2485), Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- CARB Rule 2480 (13 CCR Chapter 10, Section 2480), Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- CARB Rule 2477 (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
- BAAQMD, Regulation 2, Rule 2, New Source Review
- BAAQMD, Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants
- BAAQMD Regulation 6, Rule 1, General Requirements

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Impact AQ-3a: Warehousing operations could generate a substantial amount of DPM emissions from off-road equipment use and truck idling. In addition, some warehousing, research and development, and industrial facilities may include use of transport refrigeration units (TRUs) for cold storage that could expose sensitive receptors to substantial pollutant concentrations.

Mitigation Measure AQ-3a: Applicants for future non-residential land uses within the city that: 1) have the potential to generate 100 or more diesel truck trips per day or have 40 or more trucks with operating diesel-powered TRUs, and 2) are within 1,000 feet of a sensitive land use (e.g., residential, schools, hospitals, nursing homes), as measured from the property line of a proposed project to the property line of the nearest sensitive use, shall submit a health risk assessment (HRA) to the City of Menlo Park prior to future discretionary project approval. The HRA shall be prepared in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment and the Bay Area Air Quality Management District. If the HRA shows that the incremental cancer risk exceeds 10 in one million (10E-06), PM_{2.5} concentrations exceed 0.3 µg/m³, or the appropriate noncancer hazard index exceeds 1.0, the applicant will be required to identify and demonstrate that mitigation measures are capable of reducing potential cancer and noncancer risks to an acceptable level, including appropriate enforcement mechanisms. Mitigation measures may include but are not limited to:

- Restricting idling on-site beyond Air Toxic Control Measures idling restrictions, as feasible.
- Electrifying warehousing docks.
- Requiring use of newer equipment and/or vehicles.
- Restricting off-site truck travel through the creation of truck routes.

Mitigation measures identified in the project-specific HRA shall be identified as mitigation measures in the environmental document and/or incorporated into the site development plan as a component of a proposed project.

Significance With Mitigation: Less than significant. Buildout of the proposed project could result in new sources of criteria air pollutant emissions and/or toxic air contaminants near existing or planned sensitive receptors. Existing and proposed project policies would reduce concentrations of TACs and PM_{2.5} generated by new development. Review of projects by BAAQMD for permitted sources of air toxics (e.g., industrial facilities, dry cleaners, and gasoline dispensing facilities) would ensure health risks are minimized. Mitigation Measure AQ-3a would ensure that mobile sources of TACs not covered under BAAQMD permits are considered during subsequent project-level environmental review. Development of individual projects would be required to achieve the incremental risk thresholds established by BAAQMD.

Toxic Air Contaminants: Siting of Sensitive Receptors

Evaluation of impacts of the environment on the proposed project is not a CEQA issue unless it would exacerbate an environmental hazard or such analysis is identified in the Public Resources Code (i.e., exception) (*California Building Industry Association v BAAQMD* [2015]). Siting sensitive receptors proximate to existing sources of TACs and PM_{2.5} would not exacerbate the environmental hazard (i.e., concentration of TACs or PM_{2.5}). However, community risk and hazards from placement of sensitive receptors proximate to major sources of TACs and PM_{2.5} has been incorporated into the environmental assessment in order for the City to consider potential health and welfare implications from siting new

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sensitive receptors. Existing TAC sources within Menlo Park include stationary sources permitted by BAAQMD, roadways with more than 10,000 annual average daily traffic, and highways or freeways.

Stationary sources in Menlo Park were identified using BAAQMD's Stationary Source Screening Analysis Tool. Figure 4.2-1 identifies several major areas of the city that have the potential to expose sensitive receptors to substantial pollutant concentrations within 1,000 feet of the sources identified. Potential stationary sources in or near Menlo Park include industrial uses, emergency diesel generators, auto body repair and refinishing facilities, gas stations, dry cleaners, and other miscellaneous sources.³³

High-volume roadways with over 10,000 vehicles per day were also mapped. In the maximum 2040 citywide buildout, a total of 15 high volume local roadways were identified within 1,000 feet of the City, including Alameda De Las Pulgas, Alpine Road, Bay Road, Haven Avenue, Juniper Serra Boulevard, Marsh Road, Middlefield Road, Oak Grove Avenue, O'Brien Avenue, Ravenswood Avenue, Sand Hill Road, Santa Cruz Avenue, Sharon Park Drive, Valparaiso Avenue, and Will Road.³⁴ Additionally, State Route 82 (El Camino Real), State Route 84 (Bayfront Expressway), Highway 101, and Interstate 280 transect the City and have over 100,000 average annual daily vehicle trips.

The Caltrain rail line is included in Figure 4.2-1 because Caltrain uses diesel-fueled locomotives, which emit TACs. Figure 4.2-1 also identifies high-volume roadways that may warrant a 500-foot screening analysis to determine potential impacts and a 200-foot screening buffer for rail lines. Because these are screening distances, refined analysis of the effects from many of the high volume roadways and rail lines would likely show much lower potential TAC exposure and smaller buffer zones.

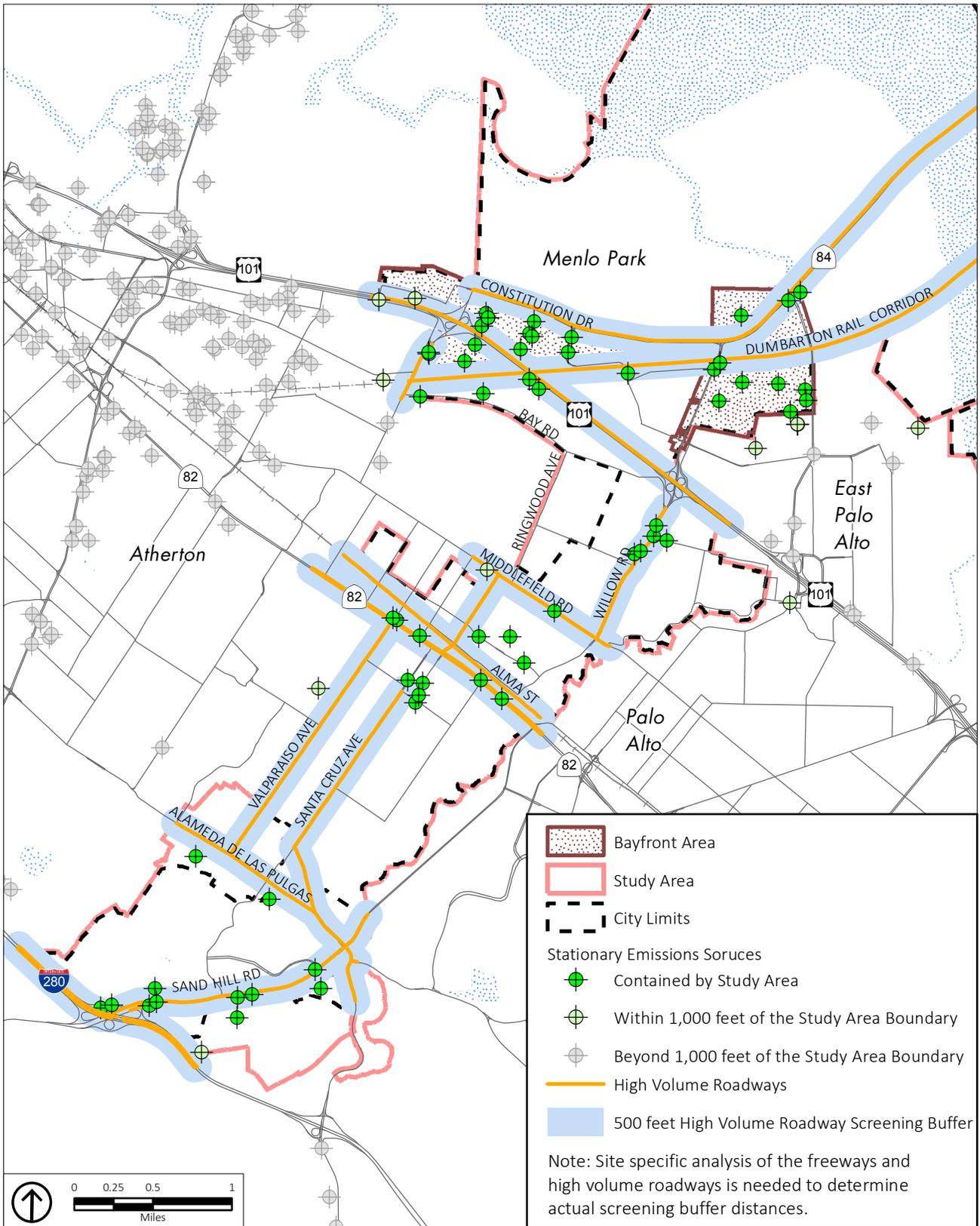
A refined analysis or site-specific health risk assessment should be conducted for all new sensitive sources that are sited within the buffer zone (see Figure 4.2-1), which includes high-volume roadways within 500-feet, rail lines within 200 feet, and major stationary sources within 1,000 feet of a new sensitive land use to determine the actual health impact.

The proposed Land Use (LU) Element, which would be adopted as part of the proposed project, contains a general goal and policy that would require local planning and development decisions to consider impacts from community risk and hazards. The following General Plan policy would serve to continue to minimize potential adverse impacts on sensitive receptors from substantial concentrations pollutants:

- **Goal LU-2:** Maintain and enhance the character, variety and stability of Menlo Park's residential neighborhoods.
 - **Policy LU-2.3: Mixed Use Design.** Allow mixed-use projects with residential units if project design addresses potential compatibility issues such as traffic, parking, light spillover, dust, odors, and transport and use of potentially hazardous materials.

³³ Bay Area Air Quality Management District, 2012, Tools and Methodology, Stationary Source Screening Analysis Tool, <http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools>, May 30. Accessed on September 14, 2015.

³⁴ TJKM, Inc., 2015, *Administrative Draft Transportation Impact Study Report, Connect Menlo General Plan Update & Facebook Campus Expansion Traffic Impact Analysis*. November 15.



Source: City of Menlo Park; PlaceWorks, 2015; Bay Area Quality Management District, 2012.

Figure 4.2-1
Sources of Toxic Air Contaminants in the City of Menlo Park

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Implementation of the General Plan policies and programs would minimize impacts from community risk and hazards. However, future projects proximate to major sources air pollution (e.g., within 1,000 feet of an industrial area) would need to ensure that they could achieve BAAQMD's performance standards (ten in one million [10E-06], PM_{2.5} concentrations exceed 0.3 µg/m³, or the appropriate noncancer hazard index exceeds 1.0). The following mitigation measure is recommended to ensure that new sensitive land uses are protected from elevated concentrations of air pollutants. However, since environmental impacts on new sensitive receptors are not subject to CEQA, no impact determination has been made.

Applicable Regulations

- AB 1493: Pavley Fuel Efficiency Standards

Impact AQ-3b: Placement of new sensitive land uses near major sources of air pollution could be exposed to elevated concentrations of air pollutants.

Mitigation Measure AQ-3b: Applicants for residential and other sensitive land use projects (e.g., hospitals, nursing homes, day care centers) in Menlo Park within 1,000 feet of a major sources of toxic air contaminants (TACs) (e.g., warehouses, industrial areas, freeways, and roadways with traffic volumes over 10,000 vehicle per day), as measured from the property line of the project to the property line of the source/edge of the nearest travel lane, shall submit a health risk assessment (HRA) to the City of Menlo Park prior to future discretionary Project approval. The HRA shall be prepared in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment (OEHHA) and the Bay Area Air Quality Management District. The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children ages 0 to 16 years. If the HRA shows that the incremental cancer risk exceeds ten in one million (10E-06), PM_{2.5} concentrations exceed 0.3 µg/m³, or the appropriate noncancer hazard index exceeds 1.0, the applicant will be required to identify and demonstrate that mitigation measures are capable of reducing potential cancer and non-cancer risks to an acceptable level (i.e., below ten in one million or a hazard index of 1.0), including appropriate enforcement mechanisms. Measures to reduce risk may include but are not limited to:

- Air intakes located away from high volume roadways and/or truck loading zones.
- Heating, ventilation, and air conditioning systems of the buildings provided with appropriately sized maximum efficiency rating value (MERV) filters.

Measures identified in the HRA shall be included in the environmental document and/or incorporated into the site development plan as a component of the proposed project. The air intake design and MERV filter requirements shall be noted and/or reflected on all building plans submitted to the City and shall be verified by the City's Building Division and/or Planning Division.

Significance With Mitigation: Less than significant. Placement of new sensitive receptors near major sources of TACs and PM_{2.5} could expose people to substantial pollutant concentrations. General Plan policies would reduce concentrations of criteria air pollutant emissions and air toxics generated by new development. Mitigation Measure AQ-3b would ensure that placement of sensitive receptors near major sources of air pollution would achieve the incremental risk thresholds established by BAAQMD.

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AQ-4 Implementation of the proposed project would not create or expose a substantial number of people to objectionable odors.

Potential impacts could occur if new sources of nuisance odors are placed near sensitive receptors. Table 4.2-9 identifies screening distances from potential sources of objectionable odors within the Air Basin. Odors from these types of land uses are regulated under BAAQMD Regulation 7, Odorous Substances.³⁵

TABLE 4.2-9 BAAQMD ODOR SCREENING DISTANCES

Land Use/Type of Operation	Screening Distance
Wastewater Treatment Plan	2 miles
Wastewater Pumping Facilities	1 mile
Sanitary Landfill	2 miles
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plan	2 miles
Chemical Manufacturing	2 miles
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Rendering Plant	2 miles
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Confined Animal Facility/Feed Lot/ Dairy	1 mile
Green Waste and Recycling Operations	1 mile
Metal Smelting Plants	2 miles

Source: Bay Area Air Quality Management District (BAAQMD), 2011, California Environmental Quality Act Air Quality Guidelines, Table 3-3, Odor Screening Distances, and associated Appendix D of these Guidelines.

While not all sources in Table 4.2-9 are found in Menlo Park (e.g., rendering plants, confined animal facilities), commercial and industrial areas in Menlo Park have the potential to include land uses that generate nuisance odors.

³⁵ It should be noted that while restaurants can generate odors, these sources are not identified by BAAQMD as nuisance odors since they typically do not generate significant odors that affect a substantial number of people. Larger restaurants that employ five or more people are subject to BAAQMD Regulation 7, Odorous Substances.

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Buildout permitted under the proposed project could include new sources of odors, such as composting, greenwaste, and recycling operations; food processing; and painting/coating operations, because these are types of uses in the commercial and/or industrial areas in the city. Future environmental review could be required for industrial projects listed in Table 4.2-9, above, to ensure that sensitive land uses are not exposed to objectionable odors. BAAQMD Regulation 7, Odorous Substances, requires abatement of any nuisance generating an odor complaint. Typical abatement includes passing air through a drying agent followed by two successive beds of activated carbon to render air odor free. Facilities listed in Table 4.2-9 would need to consider measures to reduce odors as part of their CEQA review.

The proposed Land Use (LU) Element, which would be adopted as part of the proposed project, contains general goals and policies that would require local planning and development decisions to consider impacts to air quality, including objectionable odors. The following General Plan goals and policies would serve to minimize potential conflicts between land uses:

- **Goal LU-2:** Maintain and enhance the character, variety and stability of Menlo Park’s residential neighborhoods.
 - **Policy LU-2.3: Mixed Use Design.** Allow mixed-use projects with residential units if project design addresses potential compatibility issues such as traffic, parking, light spillover, dust, odors, and transport and use of potentially hazardous materials.
- **Goal LU-4:** Promote the development and retention of business uses that provide goods or services needed by the community that generate benefits to the City, and avoid or minimize potential environmental and traffic impacts.
 - **Policy LU-4.5: Business Uses and Environmental Impacts.** Allow modifications to business operations and structures that promote revenue generating uses for which potential environmental impacts can be mitigated.

Review of projects using BAAQMD’s odor screening distances during future CEQA review, implementation of Policy above, and compliance with BAAQMD Regulation 7 would ensure that odor impacts are minimized and are *less than significant*.

Applicable Regulations

- California Health & Safety Code, Section 114149
- BAAQMD Regulation 7, Odorous Substances.

4.2.4 CUMULATIVE IMPACTS

AQ-5 Implementation of the proposed project would cumulatively contribute to air quality impacts in the San Francisco Bay Area Air Basin.

The cumulative area of analysis is the Air Basin. As identified in Section 4.2.1, Environmental Setting, California is divided into air basins for the purpose of managing the air resources of the state on a regional basis based on meteorological and geographic conditions. Similar to GHG emissions impacts, air quality impacts are regional in nature as no single project generates enough emissions that would cause an air basin to be designated as nonattainment area. Criteria air pollutant emissions generated by cumulative

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development associated with buildout of the General Plan (ROG, NO_x, PM₁₀, and PM_{2.5}, as identified in Table 4.2-8) would exceed BAAQMD's project-level significance thresholds and would contribute to the nonattainment designations of the Air Basin. The Air Basin is currently designated a nonattainment area for California and National O₃, California and National PM_{2.5}, and California PM₁₀ AAQS. Therefore, in combination with past, present, and reasonably foreseeable projects elsewhere within the Air Basin, the proposed project, even with implementation of applicable regulations, would result in a *significant* cumulative impact with respect to air quality.

Applicable Regulations and Conditions of Approval:

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 CCR: Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building and Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code
- CARB Rule 2485 (13 CCR Chapter 10, Section 2485), Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- CARB Rule 2480 (13 CCR Chapter 10, Section 2480), Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- CARB Rule 2477 (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
- BAAQMD, Regulation 2, Rule 2, New Source Review
- BAAQMD, Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants
- BAAQMD Regulation 6, Rule 1, General Requirements
- BAAQMD Regulation 6, Rule 2, Commercial Cooking Equipment
- BAAQMD Regulation 7, Odorous Substances
- BAAQMD Regulation 8, Rule 3, Architectural Coatings
- BAAQMD Regulation 8, Rule 4, General Solvent and Surface Coatings Operations
- BAAQMD Regulation 8, Rule 7, Gasoline Dispensing Facilities
- BAAQMD Regulation 11, Rule 2, Asbestos, Demolition, Renovation and Manufacturing

Impact AQ-5: Despite implementation of the General Plan policies, criteria air pollutant emissions associated with the General Plan would generate a substantial net increase in emissions that exceeds the BAAQMD regional significance thresholds, and impacts would be *significant*.

Mitigation Measure AQ-5: Implement Mitigation Measures AQ-2a through AQ-3b.

Significance With Mitigation: Significant and unavoidable. Criteria air pollutant emissions generated by land uses within the proposed project could exceed the BAAQMD thresholds (see Impact AQ-2). Air quality impacts identified in the discussion under Impact AQ-2 constitute the proposed project's contribution to cumulative air quality impacts in the SFBAAB. Mitigation measures AQ-2a through AQ-3b, identified previously to reduce project-related emissions, would reduce impacts to the extent feasible. Due to the programmatic nature of the proposed project, no additional mitigation measures are available. Air pollutant emissions associated with the proposed project would result in a cumulatively considerable contribution to air quality impacts.

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