4.2 AIR QUALITY

This chapter describes the existing air quality setting for the Environmental Assessment (EA) Study Area and evaluates the potential for land use changes within the EA Study Area associated with adoption and implementation of the proposed Housing Element Update, General Plan Consistency Update, and associated Zoning Ordinance Amendments, together referred to as the "Plan Components" to impact air quality in a local and regional context. The analysis is in this section is based on the Association of Bay Area Governments (ABAG) population and employment projections anticipated within the EA Study Area at the General Plan 2035 horizon year, which include growth accommodated by the potential development sites (see Chapter 4.11, Population and Employment). The transportation sector is based on vehicle miles traveled (VMT) provided by TJKM Transportation Consultants, as modeled using the City/County Association of Governments of San Mateo County (C/CAG) model run by the Santa Clara Valley Transportation Authority (VTA) for the City of Menlo Park.

A. Regulatory Framework

Ambient air quality standards (AAQS) have been adopted at State and federal levels for criteria air pollutants. In addition, both the State and federal government regulate the release of toxic air contaminants (TACs). The EA Study Area is in the San Francisco Bay Area Air Basin (SFBAAB) and is subject to the rules and regulations imposed by the Bay Area Air Quality Management District (BAAQMD), as well as the California AAQS adopted by the California Air Resources Board (CARB) and national AAQS adopted by the Unites States (U.S.) Environmental Protection Agency (EPA). Federal, State, regional and local laws, regulations, plans, or guidelines that are potentially applicable to the Plan Components are summarized below.

1. Federal and State Laws and Regulations

a. Ambient Air Quality Standards

The Clean Air Act (CAA) was passed in 1963 by the U.S. 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 U.S. The CAA allows states to adopt more 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, based on even greater health and welfare concerns.

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 those "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants (applicable AAQS are shown in Table 1, *Ambient Air Quality Standards for Criteria Pollutants*, in Appendix D). These pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

b. Air Pollutants of Concern

i. Criteria Air Pollutants

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

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 and motor vehicles operating at slow speeds are the primary source of CO in the SFBAAB. Emissions are highest during cold starts, hard acceleration, stop-and-go driving, and when a vehicle is moving

at 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 reduced 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 fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death.[1] The SFBAAB is designated under the California and National AAQS as being in attainment of CO criteria levels.[2]

- **Reactive Organic Gases** (ROG) are compounds composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROGs include evaporative emissions from paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROGs, but rather by reactions of ROGs to form secondary pollutants such as O_3. There are no AAQS established for ROGs. However, because they contribute to the formation of O_3, the BAAQMD has established a significance threshold for this pollutant.
- **Nitrogen Oxides** (NO_X) are a byproduct of fuel combustion and contribute to the formation of O_3, PM_{10}, and $PM_{2.5}$. The two major components of NO_X are nitric oxide (NO) and nitrogen dioxide (NO_2). The principal component of NO_x produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 acts as an acute irritant and in equal concentrations is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 ppm. NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The SFBAAB is designated an attainment area for NO_2 under the National AAQS and California AAQS.[3]

[1] Bay Area Air Quality Management District (BAAQMD), 2011. California Environmental Quality Act Air Quality Guidelines, Appendix C: Sample Air Quality Setting.

[2] California Air Resources Board (CARB), 2011. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, accessed on February 16, 2012.

[3] California Air Resources Board (CARB), 2011. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, accessed on February 16, 2012.

- **Sulfur Dioxide** (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2. When SO_2 forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_x). Thus, SO_2 is both a primary and secondary Criteria Air Pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue.[4] The SFBAAB is designated as an attainment area for SO_2 under the California and National AAQS.[5]

- **Suspended Particulate Matter** (PM_{10} 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 PM_{10}, include the 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 SFBAAB 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. PM_{10} is of concern because it bypasses the body's natural filtration system more easily than larger particles and can lodge deep in the lungs. The EPA and the state of California revised their PM standards several years ago to apply only to these fine particles. $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and contain substances that are particularly harmful to human health. 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.[6]

  Both PM_{10} 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 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

[4] Bay Area Air Quality Management District (BAAQMD), 2011. California Environmental Quality Act Air Quality Guidelines, Appendix C: Sample Air Quality Setting.

[5] California Air Resources Board (CARB), 2011. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, accessed on February 16, 2012.

[6] Bay Area Air Quality Management District (BAAQMD), 2011. California Environmental Quality Act Air Quality Guidelines, Appendix C: Sample Air Quality Setting.

asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms.[7] Diesel particulate matter (DPM) is classified by CARB as a carcinogen. The SFBAAB is designated nonattainment under the California AAQS for PM_{10} and nonattainment under both the California and National AAQS for $PM_{2.5}$.[8]

- **Ozone** (O_3) is commonly referred to as "smog" and is a gas that is formed when ROGs and NO_x, both by-products of internal combustion engine exhaust, undergo photochemical reactions in the presence of sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions to the formation of this pollutant. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. O_3 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. O_3 can also damage plants and trees and materials such as rubber and fabrics.[9] The SFBAAB is designated nonattainment of the 1-hour California AAQS and 8-hour California and National AAQS for O_3.[10]

- **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 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 EPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and

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

[8] California Air Resources Board (CARB), 2011. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, accessed on February 16, 2012.

[9] Bay Area Air Quality Management District (BAAQMD), 2011. California Environmental Quality Act Air Quality Guidelines, Appendix C: Sample Air Quality Setting.

[10] California Air Resources Board (CARB), 2011. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, accessed on February 16, 2012.

levels of lead in the air decreased dramatically.[11] The SFBAAB is designated in attainment of the California and National AAQS for lead.[12] In addition, compared to the operation of a major industrial facility, the Project would not emit significant amounts of lead, so lead is not a pollutant of major concern for the Project.

ii. 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 define 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 U.S. Code Section 7412[b]) is a toxic air contaminant. Under State law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as a TAC if it determines that the substance 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.

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 forth 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, all of which are identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. 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

[11] Bay Area Air Quality Management District (BAAQMD), 2011. California Environmental Quality Act Air Quality Guidelines, Appendix C: Sample Air Quality Setting.

[12] California Air Resources Board (CARB), 2011. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, accessed on February 16, 2012.

facilities are required to perform a health risk assessment (HRA) and, if specific thresholds are exceeded, are required to communicate the results to the public through notices and public meetings.

By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs.[13] 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.

In 1998, CARB identified DPM as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particles are ten 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.

The BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area. Based on the annual emissions inventory of TACs for the SFBAAB, DPM was found to account for approximately 80 percent of the cancer risk from airborne toxics. The highest DPM concentrations occur in the urban core areas of eastern San Francisco, western Alameda, and northwestern Santa Clara counties. BAAQMD has identified six impacted communities in the Bay Area including Concord, eastern San Francisco, western Alameda County, Redwood City/East Palo Alto, Richmond/San Pablo, and San Jose. The major contributor to acute and chronic non-cancer health effects in the SFBAAB is acrolein (C_3H_4O). Major sources of acrolein include on-road mobile sources and aircraft near freeways and commercial and military airports.[14] Currently CARB does not have certified emission factors or an analytical test method for acrolein. Therefore since the appropriate tools needed to implement and enforce acrolein emission limits are not available, the BAAQMD does not conduct health risk screening analysis for acrolein emissions.[15]

[13] California Air Resources Board (CARB), 1999. Final Staff Report: Update to the Toxic Air Contaminant List.

[14] 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.

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

2. Regulation of Air Quality at a Regional Level

a. Air Quality Management Planning

Air quality conditions in the SFBAAB have improved significantly since the BAAQMD was created in 1955.[16] The BAAQMD prepares air quality management plans (AQMPs) to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares Ozone Attainment Plans (OAPs) for the National O_3 standard and Clean Air Plans for the California O_3 standard. The BAAQMD prepares these AQMPs in coordination with ABAG and the Metropolitan Transportation Commission (MTC). The most recent adopted comprehensive plan is the 2010 Bay Area Clean Air Plan, which was adopted 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.

i. BAAQMD 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 O_3; 2) consider the impacts of O_3 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 to be adopted or implemented in the 2009 to 2012 timeframe. The 2010 Bay Area Clean Air Plan also provides the framework for SFBAAB to achieve attainment of the California AAQS. Areas that meet AAQS are classified attainment areas, while areas that do not meet these standards are classified nonattainment areas. Severity classifications for O_3 range from marginal, moderate, and serious to severe and extreme. The attainment status for the SFBAAB is shown in Table 4.2-1. The SFBAAB is currently designated a nonattainment area for California and National O_3, California and National $PM_{2.5}$, and California PM_{10} AAQS.

b. C/CAG 2011 Congestion Management Plan

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, identifies procedures to alleviate and control congestion, and promotes countywide solutions. Pursuant to the 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,

[16] Bay Area Air Quality Management District (BAAQMD), 2011. California Environmental Quality Act Air Quality Guidelines, Appendix C: Sample Air Quality Setting.

TABLE 4.2-1 *ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SAN FRANCISCO AIR BASIN*

Pollutant	State	Federal
Ozone – 1-hour	Nonattainment	Nonattainment
Ozone – 8-hour	Nonattainment (serious)	Classification revoked (2005)
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	Attainment	Unclassified
All others	Unclassified	Unclassified

Source: California Air Resources Board (CARBP), 2011. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm.

policies, and projects for the regional transportation improvement program (RTIP).[17] MTC cannot approve any transportation plan, program, or project unless these activities conform to the State Implementation Plan (SIP).

The federal CAA requires that federal transportation plans be prepared for regions in nonattainment of the federal AAQS. C/CAG provides county-level input to MTC during preparation of the regional transportation plan (RTP). The current RTP, Transportation 2035, was adopted on April 22, 2009. Transportation 2035 was prepared by MTC in partnership with ABAG, BAAQMD, and the Bay Conservation and Development Commission (BCDC). MTC updates the RTP every four years. Pursuant to Senate Bill 375 (SB 375), MTC's next RTP, Plan Bay Area, will incorporate the region's sustainable communities strategy

[17] City/County Association of Governments of San Mateo (C/CAG), 2011. Final San Mateo County Congestion Management Program (CMP). http://www.ccag.ca.gov/pdf/Studies/Final%202011%20CMP_Nov11.pdf.

(SCS). Plan Bay Area is a joint effort between MTC, BAAQMD, and ABAG. Plan Bay Area is anticipated to be adopted in June 2013.[18]

Plan Bay Area will consider focused development scenarios along major transportation corridors to achieve the per capita GHG targets of the SCS. The preferred alternative of Plan Bay Area assumes a land development pattern in which 80 percent of the Bay Area's household growth and 66 percent of its job growth are in priority development areas identified by local jurisdictions. The Plan identifies the El Camino Real Corridor and Downtown area in the City of Menlo Park as proposed priority development areas.[19,20]

3. Local Regulations and Policies

Menlo Park maintains several environmental programs under the City's Public Works Department. The City's environmental programs promote sustainable environmental practices and policies citywide and within City-owned facilities and open space areas. The City's climate action plan (CAP) was prepared to reduce municipal and community GHG emissions. The most recent CAP is the City's 2011 CAP Assessment Report, which is described in more detail in Chapter 4-6, Greenhouse Gas Emissions.

B. Existing Conditions

1. San Francisco Air Basin

The BAAQMD is the regional air quality agency for the SFBAAB, which 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.[21]

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[18] Metropolitan Transportation Commission (MTC), One Bay Area. Plan Bay Area Planning Process: Phases 3 & 4 Details for 2012-2013. http://www.onebayarea.org/pdf/SCS_plan_Process_chart-phases_3-4d.pdf revised December 2012.

[19] Metropolitan Transportation Commission (MTC), One Bay Area, Sustainable Communities Strategy. Alternative Land Use Scenarios. Revised August 2011. http://www.onebayarea.org/plan bay area/milestone 4-12.html.

[20] Metropolitan Transportation Commission (MTC), One Bay Area. http://www.onebayarea.org/news/story/Vote-on-Alternative-Strategies-for-Environmental-Impact-Report.html.

[21] Bay Area Air Quality Management District (BAAQMD), 2011. California Environmental Quality Act Air Quality Guidelines, Appendix C: Sample Air Quality Setting.

a. Meteorology

The SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits resulting in a western coast gap, Golden Gate, and an eastern coast gap, Carquinez Strait, which allow air to flow in and out of the SFBAAB 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.

i. 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, 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 seven knots at San Jose and less than 6 knots at the Farallon Islands.

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. 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 SFBAAB frequently experiences stormy conditions with moderate to strong winds, as well as periods of stagnation with very light winds. Winter stagnation episodes 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 SFBAAB.

ii. Temperature

Summertime temperatures in the SFBAAB 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 ocean bottom water 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 contrast between the coast and inland areas is small, whereas at night the variation in temperature is large.

iii. Precipitation

The SFBAAB 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 SFBAAB to another even within short distances. In general, 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 are usually high, and thus pollution levels tend to be low. However, frequent dry periods do occur during the winter where mixing and ventilation are low and pollutant levels build up.

iv. 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 (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, commute 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 unhealthful levels.

v. Inversions

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 SFBAAB. Elevation inversions are more common in the summer and fall, and radiation inversions are more common during the winter. The highest air pollutant concentrations in the SFBAAB generally occur during inversions.

b. Existing Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections in the vicinity of the Project site are best documented by measurements made by the BAAQMD. The air quality monitoring station closest to the City is the Redwood City Monitoring Station. Data from this station are summarized in Table 4.2-2. However this station does not monitor PM_{10}, so data was obtained from Cupertino Monitoring Station for 2010 and 2011 (data was unavailable for 2007 to 2009). The data show occasional violations of both the state and federal O_3 standards and federal $PM_{2.5}$ standard. The State and federal PM_{10}, CO, SO_2, and NO_2 standards have not been exceeded in the last five years in the vicinity of Menlo Park.

2. Sensitive Receptors

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

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.

TABLE 4.2-2 *AMBIENT AIR QUALITY MONITORING SUMMARY*

	Number of Days Threshold Were Exceeded and Maximum Levels During Such Violations				
Pollutant/Standard	**2007**	**2008**	**2009**	**2010**	**2011**
Ozone (O_3)					
State 1-Hour ≥ 0.09 ppm	0	0	0	2	0
State 8-hour ≥ 0.07 ppm	0	0	0	1	0
Federal 8-Hour > 0.075 ppm	0	0	0	1	0
Max. 1-Hour Conc. (ppm)	0.077	0.082	0.087	0.113	0.076
Max. 8-Hour Conc. (ppm)	0.070	0.070	0.063	0.077	0.062
Carbon Monoxide (CO)					
State 8-Hour > 9.0 ppm	0	0	0	0	0
Federal 8-Hour ≥ 9.0 ppm	0	0	0	0	0
Max. 8-Hour Conc. (ppm)	2.33	1.86	1.76	1.72	1.67
Nitrogen Dioxide (NO_2)					
State 1-Hour ≥ 0.18 (ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.057	0.069	0.056	0.059	0.056
Sulfur Dioxide (SO_2)[a]					
State 24-Hour ≥ 0.04 ppm	NA	NA	NA	0	0
Max. 24-Hour Conc. (ppm)				0.003	0.005
Coarse Particulates (PM_{10})[a]					
State 24-Hour > 50 $\mu g/m^3$				0	0
Federal 24-Hour > 150 $\mu g/m^3$	NA	NA	NA	0	0
Max. 24-Hour Conc. ($\mu g/^{m3}$)				27.9	28.9
Fine Particulates ($PM_{2.5}$)					
Federal 24-Hour > 35 $\mu g/m^3$	1	0	0	1	1
Max. 24-Hour Conc. ($\mu g/m^3$)	46.6	36.0	34.2	36.5	39.7

Notes: ppm: parts per million; $\mu g/m^3$: or micrograms per cubic meter
* = insufficient data
NA = Not Available
Data obtained from the Redwood City Monitoring Station.
[a] SO_2 and PM_{10} data from the Cupertino Monitoring Station for 2010 and 2011. Data unavailable prior to 2010.

Source: California Air Resources Board (CARB), 2013. Air Pollution Data Monitoring Cards (2007, 2008, 2009, 2010, and 2011), http://www.arb.ca.gov/adam/index.html.

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, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

C. Standards of Significance

1. CEQA Appendix G Thresholds

According to the CEQA Appendix G thresholds, the Plan Components would have a significant effect on air quality if they would:

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

2. BAAQMD Plan-Level Thresholds

The BAAQMD adopted CEQA Guidelines in June 2010, which were revised in May 2011.[22] The BAAQMD CEQA Guidelines include methodology and thresholds for criteria air pollutant impacts and community health risk for plan-level and project-level analyses. The Plan Components qualifies as a Plan-

[22] Bay Area Air Quality Management District (BAAQMD), 2011. California Environmental Quality Act Air Quality Guidelines, Appendix C: Sample Air Quality Setting.

Level project under BAAQMD's criteria. The BAAQMD's Guidelines include plan-level significance criteria that would be applicable to the Plan Components. [23]

a. Criteria Air Pollutants and Precursors

BAAQMD does not require an inventory of project-related criteria air pollutant emissions under its plan-level review. Rather, BAAQMD requires an analysis of the following for plan-level projects:

- A consistency evaluation of the project 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?
- A comparison that the project VMT or vehicle trip increase is less than or equal to the projected population increase.

In addition, under the plan-level review, BAAQMD also does not require an evaluation of CO hotspots.[24] With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technolo-

[23] A revised posting of BAAQMD CEQA Guidelines were posted without the screening and significance thresholds tables in 2012 after a Court ruling. On March 5, 2012, the Court issued a ruling in *California Building Industry Association v. Bay Area Air Quality Management District* (Superior Court Case No. RG10548693). Pursuant to the ruling, the Court found that the adoption of the BAAQMD's CEQA Guidelines, which comprise the BAAQMD's GHG significance criteria, is a "project" requiring CEQA review. Since no CEQA review was conducted for the Guidelines prior to their adoption, the Court set aside adoption of the Guidelines for determining the significance of air quality and GHG emissions, and ordered BAAQMD to take no further action to disseminate the thresholds until CEQA review is complete. While adoption of the thresholds was set aside, the thresholds are supported by appropriate studies and analysis (see http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx). Accordingly, pursuant to its discretion under State CEQA Guidelines section 15064 (b) ("lead agencies may exercise their discretion on what criteria to use"), and the recent holding in *Citizen for Responsible Equitable Environmental Development v. City of Chula Vista* (2011) 197 Cal.App.4th 327, 335-336, ("[t]he determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data."), the City has decided to apply the BAAQMD CEQA thresholds to the Plan Components.

[24] Congested intersections have the potential to create elevated concentrations of CO, referred to as CO hotspots.

gy, the SFBAAB is in attainment of the California and National AAQS, and CO concentrations in the SFBAAB have steadily declined. Because CO concentrations have improved, intersection volumes during the peak hour in the SFBAAB would not typically reach the level required to result in a CO hotspot.[25]

b. Community Risk and Hazards

The BAAQMD's significance thresholds for local community risk and hazard impacts apply to both the siting of a new source and to the siting of a new receptor. 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. The City of Menlo Park is within one of the six impacted communities identified in BAAQMD's CARE program (Redwood City/East Palo Alto). The City of Menlo Park and San Mateo County do not have a qualified risk reduction plan for this area. For assessing community risk and hazards, sources within a 1,000-foot radius are 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.[26] For a plan-level analysis, BAAQMD requires:

- Overlay zones around existing and planned sources of TACs,
- Overlay zones of at least 500 feet from all freeways and high volume roads.

For a plan-level analysis, a project must also identify goals, policies, and objectives to minimize potential impacts and create overlay zones for sources of TACs and receptors.[27]

i. Odors

BAAQMD's thresholds for odors are qualitative. 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]

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[25] Bay Area Air Quality Management District (BAAQMD), 2011 (Revised). California Environmental Quality Act Air Quality Guidelines.

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

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

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

For a plan-level analysis, BAAQMD requires:

- Potential existing and planned location of odors sources to be identified.
- Policies to reduce odors.

D. Impact Discussion

1. Conflict with or obstruct implementation of the applicable air quality plan. (Appendix G Threshold 1)

a. Consistency with the 2010 Bay Area Clean Air Plan

Growth within the EA Study Area, including the future development sites, would result in additional sources of criteria air pollutants.

Growth accommodated within the City, as identified in the General Plan and within Plan Components, would occur over a 20-year or longer time horizon. As a result, BAAQMD's approach to evaluating impacts from criteria air pollutants generated by long-term growth associated with a plan-level project is done in comparison to BAAQMD's AQMP rather than a comparison of emissions to Project-Level significance thresholds. This is because BAAQMD's AQMP plans for growth within the SFBAAB are based on regional population and employment projections identified by ABAG and growth in VMT identified by C/CAG.[29] Changes in regional, community-wide emissions within the EA Study Area could affect the ability of BAAQMD to achieve the air quality goals as identified in the AQMP. Consequently, while criteria air pollutants generated by growth within the EA Study Area would be substantial, air quality impacts for a plan-level analysis are based on the consistency with the AQMP. The current AQMP is the 2010 Bay Area Clean Air Plan. BAAQMD considers the Plan Components consistent with the AQMP in accordance with the following:

i. Does the project support the primary goals of the AQMP?

The primary goals of the 2010 Bay Area Clean Air Plan are to attain air quality standards, reduce population exposure and protect public health in the Bay Area, and reduce GHG emissions and protect the climate.

[29] C/CAG's CMP is required to be consistent with MTC's Regional Transportation Improvement Program (RTIP).

a) Attain Air Quality Standards

The SFBAAB is currently designated a nonattainment area for O_3, $PM_{2.5}$, and PM_{10} (state AAQS only). The growth projections for the EA Study Area are consistent with the population and employment projections identified by ABAG (see the VMT/Population consistency analysis below). Consequently, emissions within the EA Study Area are included in BAAQMD's projections and future development in the EA Study Area through the General Plan horizon year 2035 would not hinder BAAQMD's ability to attain the California or National AAQS. Accordingly, impacts would be *less than significant*.

b) Reduce Population Exposure and Protect Public Health

The EA Study Area is largely developed. Remaining growth would be accommodated in infill sites and redevelopment of existing sites. As identified in the discussion of community risk and hazards, Section D.2, Community Risk and Hazards below, new sensitive land uses could be proximate to major sources of TACs, and new industrial/commercial land uses could generate an increase in TACs. Adherence to BAAQMD regulations would ensure new sources of TACs do not expose populations to significant health risk; however, siting of land uses proximate to major sources of air pollution is outside the control of BAAQMD. These impacts are addressed separately under the discussion in Section D.2, Community Risk and Hazards, below. Implementation of the following current and amended General Plan goals, policies, and programs would ensure these impacts are *less than significant*.

b. Current General Plan Land Use and Circulation Element

- Policy I-A-4: Residential uses may be combined with commercial uses in a mixed use project, if the project is designed to avoid conflicts between the uses, such as traffic, parking, noise, dust, and odors.
- Policy I-H-2: The City shall support the use of water conserving plumbing fixtures in all new public and private development.
- Policy I-H-7: The City shall encourage the use of reclaimed water for landscaping and any other feasible uses.

c. Amended General Plan Open Space and Conservation Element

- Goal OSC-4: Promote Sustainability and Climate Action Planning: Promote a sustainable energy supply and implement 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 promotion of 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.
- 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-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-1.12: Landscaping and Plazas. Include landscaping and plazas on public and private lands, and well-designed pedestrian and bicycle facilities in areas of intensive non-vehicular activity. Require landscaping for shade, surface runoff, or to obscure parked cars in extensive parking areas.
- Policy OSC-2.6: Pedestrian and Bicycle Paths. Develop pedestrian and bicycle paths consistent with the recommendations of local and regional trail and bicycle route projects, including the Bay Trail.
- 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-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.

a) Reduce GHG Emissions and Protect the Climate

GHG emissions impacts of the Plan Components are discussed in Chapter 4.6, Greenhouse Gas Emissions. To reduce community-wide GHG emissions, the City of Menlo Park has prepared and approved a CAP.

The City's most recent CAP is the 2011 Climate Action Plan Assessment Report.[30] The City's CAP identifies GHG reduction measures for municipal and community-wide operations. The City's CAP is consistent with the goals of the 2010 Bay Area Clean Air Plan to reduce GHG emissions and protect the climate. As identified above, the Plan Components would support the goals of the AQMD. New policies would be introduced as part of the General Plan Amendment to minimize impacts. With the additional goals, policies, and programs in the General Plan identified above, impacts would be *less than significant*.

ii. Does the project include applicable control measures from the AQMP?

Table 4.2-3 identifies the control measures included in the 2010 Bay Area Clean Air Plan and as shown, the previously listed current, modified, and new General Plan goals, policies and programs would ensure the plan components would be consistent with the 2010 Bay Area Clean Air Plan and the impact due to inconsistency would be *less than significant*.

iii. Does the project disrupt or hinder implementation of any AQMP control measures?

Table 4.2-3 identifies the control measures included in the 2010 Bay Area Clean Air Plan. As identified in the table, the Plan Components would not hinder BAAQMD from implementing the control measures in the 2010 Bay Area Clean Air Plan. Impacts are *less than significant*.

d. Per Service Population Project VMT v. Regional Per Service Population Estimates

The growth projections include implementation of the General Plan goals, policies, and programs, which could generate 1,318 new units and 3,361 people in the EA Study Area. As described in Chapter 4.11, Population and Employment, development associated with the Plan Components, including the 1,318 new units, is captured within the ABAG population forecast for the EA Study Area. The growth projections for the City of Menlo Park are consistent with the ABAG 2035 forecasts.

[30] City of Menlo Park, Climate Action Plan Assessment Report, 2011. http://www.menlopark.org/departments/env/Menlo_CAP_Assessment_Report_2010_12_14_draft_final_final6.pdf, accessed on September 27, 2012.

TABLE 4.2-3 *CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN*

Type	Measure Number / Title	Consistency
Stationary and Area Sources Control Measures	• 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 – Cole 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	Stationary and area source control measures are sources 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 City would be required to comply with these control measures in the 2010 Bay Area Clean Air Plan.
Mobile Source Control Measures	• 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	Mobile Source Control Measures that 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 promoting advanced technology vehicles that reduce emissions. The implementation of these measures rely heavily upon 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 other specific equipment that is diesel powered. The Plan Components would not hinder the ability of BAAQMD to implement these regional programs.

TABLE 4.2-3 *CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN*

Type	Measure Number / Title	Consistency
Transportation Control Measures	• TCM A-1 – Improve Local and Regional Rail Service • TCM A-2 – Improve Local and Regional Rail Service • 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	Transportation Control Measures (TCM) are strategies to reduce vehicle trips, vehicle use, VMT, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions. While most of the TCMs are implemented at the regional level – that is, by MTC or Caltrans – there are measures that the 2010 Bay Area Clean Air Plan relies upon local communities to assist with implementation. The City of Menlo Park Existing General Plan include goals and policies related to transportation and land use that would assist BAAQMD in meeting the regional goals of the 2010 Bay Area Clean Air Plan. Including: <u>Transit (Rail & Bus Service)</u> Policy II-B-1: The City shall consider transit modes in the design of transportation improvements and the review and approval of development projects. Policy II-B-2: As many activities as possible should be located within easy walking distance of transit stops, and transit stops should be convenient and close to as many activities as possible. Policy II-B-3 states the City shall promote improved public transit service and increased transit ridership, especially to office and industrial areas and schools. Policy II-B-4: The capacity and attractiveness of the commuter railroad service should be increased and rights-of-ways for future transit service should be protected. Policy II-B-5: The City shall 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 II-B-6: The City shall support extension of CalTrain to the Market Street area in San Francisco. <u>Pedestrian & Bicycle Facilities</u> Policy I-G-11: Well-designed pedestrian facilities should be included in areas

TABLE 4.2-3 *CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN*

Type	Measure Number / Title	Consistency
		of intensive pedestrian activity. Policy II-D-2: The City shall, within available funding, work to complete a system of bikeways within Menlo Park. Policy II-D-3: The design of streets within Menlo Park shall consider the impact of street cross section, intersection geometries, and traffic control devices on bicyclists. Policy II-D-4: The City shall require new commercial and industrial development to provide secure bicycle storage facilities on-site. Policy II-D-5: The City shall encourage transit providers within San Mateo County to provide improved bicycle access to transit including secure storage at transit stations and on-board storage where feasible. Policy II-E-1: The City shall require all new development to incorporate safe and attractive pedestrian facilities on-site. Policy II-E-1: The City shall endeavor to maintain safe sidewalks and walkways where existing within the public right of way. Policy II-E-3: Apply the appropriate traffic control shall be provided for pedestrians at intersections. Policy II-E-4: The City shall incorporate appropriate pedestrian facilities, traffic control, and street lighting within street improvement projects to maintain or improve pedestrian safety. Policy II-E-5: The City shall support full pedestrian access across all legs of an intersection at all signalized intersections which are City-controlled and at the signalized intersections along El Camino Real. <u>Commute Trip Reduction Programs</u> Policy II-C-1: The City shall work with all Menlo Park employers to encourage employees to use alternatives to the single occupant automobile in their commute to work.

TABLE 4.2-3 *CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN*

Type	Measure Number / Title	Consistency
		Policy II-C-5: The City shall identify potential funding sources, including the Bay Area Air Quality Management District, to supplement City and private monies to support transportation demand management activities of the City and local employers. Policy II-C-6: The City shall, to the degree feasible, assist Menlo Park employers in meeting the Average Vehicle Ridership (AVR) targets established by the Bay Area Air Quality Management District. Policy II-C-7: The commuter shuttle service between the industrial work centers and the Downtown Transportation Center should be maintained and improved, within fiscal constraints. The City shall encourage SamTrans and other agencies to provide funding to support shuttle services. Program II-13: The City shall review the potential bicycle-related improvements identified in the General Plan. Potential improvements in the General Plan and or others identified by the City that are found to be feasible and desirable shall be incorporated into a Bicycle-Related Improvements Program. Policy OSC-2.6: Pedestrian and Bicycle Paths. Develop pedestrian and bicycle paths consistent with the recommendations of local and regional trail and bicycle route projects, including the Bay Trail. Policy OSC-1.12: Landscaping and Plazas. Include landscaping and plazas on public and private lands, and well-designed pedestrian and bicycle facilities in areas of intensive non-vehicular activity. Require landscaping for shade, surface runoff, or to obscure parked cars in extensive parking areas. <u>School Programs</u> Policy II-C-3: The City will consider working with the school districts to encourage alternatives to single-occupancy vehicle use, such as carpools and vanpools, for trips being generated by local schools.

TABLE 4.2-3 *CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN*

Type	Measure Number / Title	Consistency
		Policy II-E-6 states the City shall prepare a safe school route program to enhance the safety of school children who walk to school. Other Regional Programs Policy II-C-4: The City shall coordinate its transportation demand management efforts with other agencies providing similar services within San Mateo County.
Land Use and Local Impact Control Measures	• 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	The 2010 Bay Area Clean Air Plan also includes land use measures to reduce air quality emissions and/or air quality exposure in the SFBAAB. The following policies support these land use measures: 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. Goal OSC-4: Promote Sustainability and Climate Action Planning: Promote a sustainable energy supply and implement 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 promotion of recycling, reduction and reuse programs. 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.

TABLE 4.2-3 *CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN*

Type	Measure Number / Title	Consistency
		Policy I-I-1: The City shall cooperate with the appropriate agencies to help assure a coordinated land use pattern in Menlo Park and the surrounding area. Policy I-I-2: The regional land use planning structure should be integrated within a larger transportation network built around transit rather than freeways and the City shall influence transit development so that it coordinates with Menlo Park's land use planning structure. Policy I-A-4 Residential uses may be combined with commercial uses in a mixed use project, if the project is designed to avoid conflicts between the uses, such as traffic, parking, noise, dust, and odors. In addition, the following measure is included to ensure that the City is able to adapt to changes in sea level rise associated with global climate change: Policy S-1.28: Sea Level Rise: Consider sea level rise in siting new facilities or residences within potentially affected areas.
Energy and Climate Control Measures	• ECM 1 – Energy Efficiency • ECM 2 – Renewable Energy • ECM 3 – Urban Heat Island Mitigation • ECM 4 – Tree Planting	The 2010 Bay Area Clean Air Plan also includes measures to reduce energy use, water use, and waste generation. The following policies support these energy efficiency and other sustainability measures: Policy OSC4.2: 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 OSC2.7: 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 OSC4.3: Renewable Energy. Promote the installation of renewable energy technology, such as, on residences and businesses through education,

TABLE 4.2-3 *CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN*

Type	Measure Number / Title	Consistency
		social marketing methods, establishing standards and/or providing incentives. OSC4.7: 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 I-A-3 states quality design and usable open space shall be encouraged in the design of all new residential developments. Policy I-H-1 states the community design should help conserve resources and minimize waste. Policy I-H-2 states that the use of water-conserving plumbing fixtures in all new public and private development shall be required. Policy I-H-3 states plant material selection and landscape and irrigation design for City parks and other public facilities and in private developments shall adhere to the City's Water Efficient Landscaping Ordinance. Policy I-H-4 states the efforts of the Bay Area Water Users Association to secure adequate water supplies for the Peninsula shall be supported to the extent that these efforts are in conformance with other City policies. Policy I-H-7 states that the City shall encourage the use of reclaimed water for landscaping and any other feasible uses.
Further Study Control Measures	• 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 – SO_2 from Refinery Processes • FSM 8 – Reduce Emission from LPG, Propane, Butane, and other Pressurized Gases	The majority of the Further Study control measures are also sources regulated directly by BAAQMD. Because BAAQMD is the implementing agency, new and existing sources of stationary and area sources within the City would be required to comply with these additional further study control measures in the 2010 Bay Area Clean Air Plan.

TABLE 4.2-3 *CONTROL MEASURES FROM THE 2010 BAY AREA CLEAN AIR PLAN*

Type	Measure Number / Title	Consistency
	• 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 • 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 (BAAQMD), September 2010, 2010 Bay Area Clean Air Plan.

VMT estimates for the City are provided by TJKM and adjusted for baseline (2012) population and employment in the EA Study Area. Land uses within the City generate 2,351,748 VMT per day (33.3 miles per service population per day in 2010). Based on the future estimates of VMT per person for the City of Menlo Park as projected by C/CAG and VTA for year 2035, buildout of the EA Study Area would generate 2,627,448 VMT per day (31.7 miles per service population per day in 2035). Table 4.2-4 compares the projected increase in service population with the projected increase in VMT within the EA Study Area. As shown in this table the projected change in population and employment from 2012 to 2035 would increase at a faster rate than the projected increase in daily VMT. BAAQMD requires that the VMT increase is less than or equal to the projected population increase. Consequently, impacts for the EA Study Area would be *less than significant.*

TABLE 4.2-4 *COMPARISON OF THE CHANGE IN SERVICE POPULATION AND VMT IN THE EA STUDY AREA*

Category	2012	2035	Change	Percent Change
Population	36,740	43,400	6,660	18%
Employment	33,960	39,570	5,610	17%
Total Service Population	70,700	82,970	12,270	17%
VMT/Day	2,351,748	2,627,448	275,700	12%

Notes: VMT is based on data provided by TJKM using the C/CAG model run by VTA. [31] The VMT provided by VTA is adjusted based on the Population and Employment used in the C/CAG model compared to the population and employment estimated identified within the EA Study Area for 2035, assuming the same VMT per capita. Population and Employment is based on the ABAG's Subregional Study Area Population, Housing, Employment Forecasts.[32]

[31] TJKM Transportation Consultants, 2013. Traffic Study of updated Housing Element in the City of Menlo Park.

[32] Association of Bay Area Governments (ABAG), 2009. Subregional Study Area Population, Housing, Employment Forecasts.

2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation. (Appendix G Threshold 2)

a. Operational Emissions

BAAQMD's CEQA Air Quality Guidelines only require an emissions inventory of criteria air pollutants for Project-Level analyses. As identified in Section D.1, operational emissions associated with the Plan Components would generate an increase in criteria air pollutants. Although BAAQMD's Plan-Level guidelines do not require an evaluation of emissions for program-level projects, for the purpose of this environmental assessment the Plan Components are evaluated for their potential to result in a significant increase in criteria air pollutants. Because of the programmatic nature of the Plan Components, operational information regarding the Plan Components, including buildout year for each Plan Component is unknown. Furthermore, subsequent environmental review of Plan Components would be required to assess potential impacts under BAAQMD's Project Level thresholds. However, Plan Components have the potential to result in criteria air pollutant emissions that exceed BAAQMD's Project-Level significance thresholds. This is considered a *significant* impact.

b. Construction Emissions

Construction emissions associated with the Plan Components would also generate an increase in criteria air pollutants. Although BAAQMD's Plan-Level guidelines do not require an evaluation of construction emissions for program-level projects, for the purpose of this environmental assessment, construction-related impacts of the Plan Components are evaluated for their potential to result in a significant increase in criteria air pollutants. BAAQMD has developed Project-Level thresholds for construction activities. Subsequent environmental review of Plan Components would be required to assess potential impacts under BAAQMD's Project Level thresholds. Construction emissions from Plan Components 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 ROGs from application of asphalt, paints, and coatings. Because of the programmatic nature of the Plan Components, construction information regarding the Plan Components, including overlap of construction phases, demolition volumes, and construction equipment mix is unknown; and therefore an estimation of construction emissions associated with the Plan Components would be speculative. However, construction emissions associated with the Plan Components has the potential to result in exhaust emissions that exceed BAAQMD's Project-Level significance thresholds. In addition, construction of the Plan Components would also be required to include BAAQMD's "Basic Control Measures" for fugitive dust control. This is considered a *significant impact*.

3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). (Appendix G Threshold 3)

Potential changes to cumulative emissions of criteria air pollutants are evaluated based on BAAQMD's Plan Level Thresholds. BAAQMD's CEQA Air Quality Guidelines only require emissions computations for Project-Level analysis. 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 included in Chapter 4.2, *Air Quality*, is the project's contribution to cumulative impacts. Air quality impacts of the Plan Components are evaluated based on the consistency analysis with BAAQMD's 2010 Bay Area Clean Air Plan and the rate of vehicle travel (trips or vehicle miles traveled) compared to population growth (see discussion D.1). Therefore, impacts are *less than significant*.

4. Expose sensitive receptors to substantial pollutant concentrations. (Appendix G Threshold 4)

a. Siting of New Receptors Near Major Sources of Toxic Air Contaminants

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* 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.[33] This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources.

CARB's recommendations on the siting of new sensitive land uses were based on a compilation of recent studies that evaluated data on the adverse health effects ensuing from proximity to air pollution sources. The key observation in these studies is that close proximity to air pollution sources substantially increases both exposure and the potential for adverse health effects. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic: diesel particulate matter (DPM) from trucks and 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-generating sources. Recommendations in Table 4.2-5 are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations. TAC sources within the EA Study Area include: stationary sources permitted by BAAQMD; roadways with more than 10,000 annual average daily traffic (AADT); and highways or freeways.

[33] California Air Resources Board (CARB), 2005. Air Quality and Land Use Handbook: A Community Health Perspective.

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.

Stationary sources in Menlo Park were identified using BAAQMD's *Stationary Source Screening Analysis Tool*.[34] Figure 4.2-1 identifies approximately 70 potential stationary sources in or near the City of Menlo Park. Of these sources, approximately 30 are industrial uses or medical facilities, 21 are emergency diesel

[34] BAAQMD Stationary Source Screening Analysis Tool, 2012, can be accessed from BAAQMD's website at http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

generators, nine are gas stations, six are dry cleaning facilities, two are furniture refinishing facilities, one is an offset printing facility, and one is a golf course.

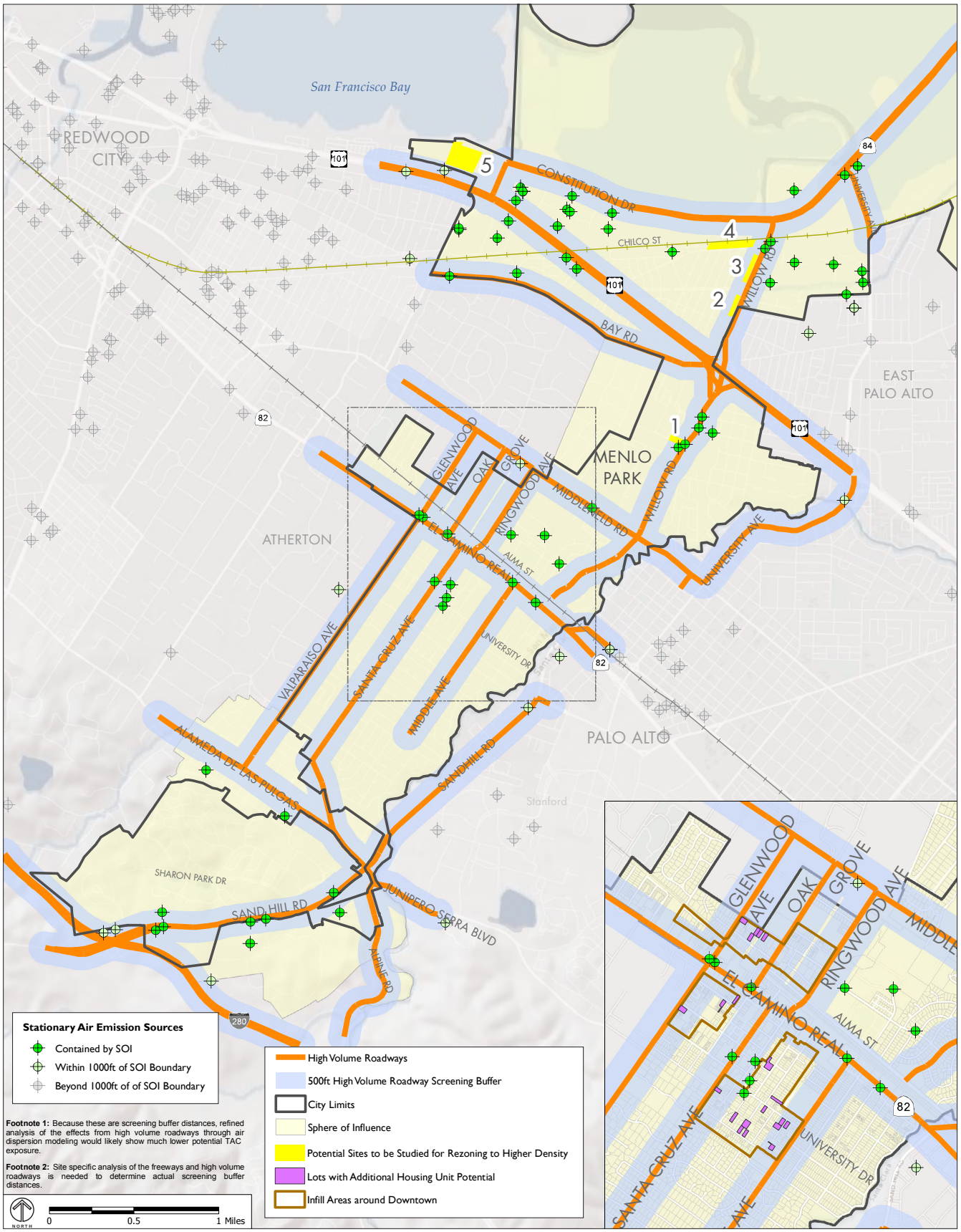
High-volume roadways with over 10,000 vehicles per day were also mapped.[35] A total of 18 high volume roadways were identified within 1,000 feet of the EA Study Area, including Highways 101 and 280, and State Routes 84 and 82. Figure 4.2-1 also identifies a 500-foot buffer around high-volume roadways. Because these are screening distances, refined analysis of the effects from many of the high volume roadways 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 to determine the actual health impact.

As identified previously, Menlo Park is within one of the six impacted communities identified in BAAQMD's CARE program (Redwood City/East Palo Alto). 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. Future residential development permitted under the Plan Components is proximate to these areas and would require subsequent analysis in this regard; thus impacts would be *significant*.

b. Siting of New Sources of TACs

Various industrial and commercial processes (e.g. manufacturing, dry cleaning) allowed under the existing General Plan would be expected to release TACs. Existing land uses that have the potential to generate substantial stationary sources of emissions that would require a permit from BAAQMD for emissions of TACs include industrial land uses, such as chemical processing facilities, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. Emissions of 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 permits under BAAQMD Regulation 2, Rule 2, *New Source Review,* and Rule 5, *New Source Review of Toxic Air Contaminants*. The exact nature of these emissions would be subject to further regulation and permitting and are not further addressed in this analysis. While the potential future residential development would not in result in these types of emission, land uses permitted under the current General Plan could.

[35] TJKM Transportation Consultants, 2013. Traffic Study of updated Housing Element in the City of Menlo Park.



Source: City of Menlo Park;The Planning Center | DC&E, 2012; ESRI 2010; Bay Area Air Quality Management District, 2012.

FIGURE 4.2-1

SOURCES OF TOXIC AIR CONTAMINANTS IN THE EA STUDY AREA

Area sources of TACs are not regulated by BAAQMD. The primary area source of TACs within the EA Study Area is truck idling, transport refrigeration units for cold storage, and use of off-road equipment at warehousing operations. Warehousing operations could generate a substantial amount of diesel particulate matter (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 the EA Study Area that are permitted under the current General Plan 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 SFBAAB. These new land uses could be near existing sensitive receptors within and outside the EA Study Area. In addition, trucks would travel on regional transportation routes through the SFBAAB contributing to near-roadway DPM concentrations. As stated above, while the potential future residential development would not contribute to the release of TAC, land uses permitted under the existing General Plan could; thus impacts would be *significant*.

5. Create objectionable odors affecting a substantial number of people. (Appendix G Threshold 6)
Growth within the EA Study Area would generate new sources of odors and place sensitive receptors near existing sources of odors. Table 4.2-6 identifies screening distances from potential sources of objectionable odors within the SFBAAB. Odors from these types of land uses are regulated under BAAQMD Regulation 7, *Odorous Substances*. 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 people. Larger restaurants that employ five or more people, are subject to BAAQMD Regulation 7, *Odorous Substances*.

Major sources of nuisance odors may occur within the EA Study Area. There are two types of odor impacts: 1) siting sensitive receptors near nuisance odors, and 2) siting new sources of nuisance odors near sensitive receptors. While not all sources in Table 4.2-6 are likely in the City (e.g. rendering plants, confined animal facilities), commercial and industrial areas in the EA Study Area have the potential to include land uses that generate nuisance odors (see Figure 4.2-1, which identifies an overlay over commercial and industrial areas in the EA Study Area that has the potential to generate TAC and can also be used to identify land uses that have the potential to generate nuisance odors). Sensitive receptors, such as the residential uses associated with the potential future development planned for under the Plan Components, may be placed proximate to these sources within the distances specified in Table 4.2-6. Buildout permitted under the General Plan could include new sources of odors, such as composting, greenwaste, and recycling operations, food processing, chemical manufacturing, and painting/coating operations, since these are permitted uses in the commercial and/or industrial areas in the City.

TABLE 4.2-6 *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 Plans	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 Appendix D.

In general, the City's land use plan designates residential areas and commercial/industrial areas of the City to prevent potential mixing of incompatible land use types, with the exception of mixed-use areas that combine commercial with residential. Implementation of General Plan Policy I-A-4, which states that residential uses may be combined with commercial uses in a mixed use project, if the project is designed to avoid

conflicts between the uses, such as traffic, parking, noise, dust, and odors would minimize compatibility impacts for residential mixed-use projects.

Future environmental review could be required for new development projects and industrial projects to ensure that sensitive land uses are not exposed to nuisance odors. Furthermore, BAAQMD Regulation 7, *Odorous Substances*, requires abatement of any nuisance generated by an odor complaint. Typical abatement includes passing air through a drying agent followed by two successive beds of activated carbon to generate odor free air. For new industrial types of development listed in Table 4.2-6, facilities would need to consider these measures as part of their CEQA review. Consequently, review of projects with BAAQMD's odor screening distances, adherence to the General Plan Policy I-A-4, and adherence of odor-generating sources with BAAQMD Regulation 7, *Odorous substances*, would ensure that odor impacts are minimized to *less-than-significant* levels.

6. Cumulative Impacts

This section analyzes potential impacts related to air quality that could occur from a combination of the Plan Components with regional growth within the SFBAAB. Any project that produces a significant project-level regional air quality impact in an area that is in nonattainment adds to the cumulative impact. Because the Plan Components evaluate growth in the EA Study Area under BAAQMD's Plan-level threshold, the impact analysis is an assessment of the cumulative impacts of growth of the Plan Components in the SFBAAB. 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 included in Chapter 4.2, *Air Quality*, is the Plan Component's contribution to cumulative impacts.

E. Impacts and Mitigation Measures

Impact AQ-1: Subsequent environmental review of the Plan Components may identify that construction and operational phase emissions would exceed BAAQMD's Project-Level significance thresholds. As discussed under Section D.2, Violate any air quality standard or contribute substantially to an existing or projected air quality violation (Appendix G Threshold 2), this is considered a significant impact.

> Mitigation Measure AQ-1: Applicants for future development projects shall comply with the following Bay Area Air Quality Management District Basic Control Measures for reducing construction emissions of PM_{10}:

- Water all active construction areas at least twice daily, or as often as needed to control dust emissions. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 mph. Reclaimed water should be used whenever possible.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e. the minimum required space between the top of the load and the top of the trailer).
- Pave, apply water twice daily or as often as necessary, to control dust, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep daily (with water sweepers using reclaimed water if possible), or as often as needed, with water sweepers all paved access roads, parking areas and staging areas at the construction site to control dust.
- Sweep public streets daily (with water sweepers using reclaimed water if possible) in the vicinity of the project site, or as often as needed, to keep streets free of visible soil material.
- Hydroseed or apply non-toxic soil stabilizers to inactive construction areas.
- Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.).
- Limit vehicle traffic speeds on unpaved roads to 15 mph.
- Replant vegetation in disturbed areas as quickly as possible.
- Install sandbags or other erosion control measures to prevent silt runoff from public roadways

Significance after Mitigation: Mitigation Measure AQ-1 would require adherence to Bay Area Air Quality Management District's (BAAQMD) Basic Control Measures for fugitive dust control. An analysis of emissions generated operation and construction of subsequent Plan Components 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 future less-than-significant impact for subsequent projects that comply with BAAQMD screening criteria or meet applicable thresholds of significance. However, due to the programmatic nature of the Plan Components, no additional mitigating policies are available and the impact is considered *significant and unavoidable*.

Impact AQ-2: Under the Plan Components, future residential development is proximate to substantial pollutant concentrations and as discussed under Section D.4, Expose sensitive receptors to substantial pollutant concentrations (Appendix G Threshold 4), this is considered a significant impact.

Mitigation Measure AQ-2: Prior to issuing building permits, the City shall evaluate all new residential development pursuant to current guidelines (e.g. Bay Area Air Quality Management District CEQA Guidelines), including a risk assessment of all stationary and mobile emission sources within a 1,000-foot radius of the proposed project that emit sources of toxic air contaminants.

Significance After Mitigation: Implementation of Mitigation Measure AQ-2 would ensure that siting of receptors near major sources would be below BAAQMD's significance thresholds and impacts related to community risk and hazards from placement of sensitive receptors proximate to major sources of air pollution would be *less than significant*.

Impact AQ-3: While the potential future residential development would not release TACs, various industrial and commercial processes (e.g. manufacturing, dry cleaning) allowed under the existing General Plan would be expected to release TACs resulting in community risk and hazards from placement of new sources of air toxics near sensitive receptors.

Mitigation Measure AQ-3: Prior to issuing building permits, the City shall evaluate all new industrial development pursuant to current guidelines (e.g. Bay Area Air Quality Management District CEQA Guidelines) to determine its potential to emit toxic air contaminants and impact sensitive receptors (e.g. residences, day care centers, schools, or hospitals) within a 1,000-foot radius of the project site.

Significance After Mitigation: Implementation of Mitigation Measure AQ-2 would ensure the Plan Components would be below the BAAQMD's significance thresholds and community risk and hazards impacts would be *less than significant*.