4.1 AIR QUALITY

Based on the analysis in the Initial Study (see Appendix A of this Draft EIR) it was determined that construction and operation of the proposed project would not result in significant environmental impacts related to odors or other emissions. Therefore, this chapter includes an evaluation of the potential environmental consequences associated with the potential obstruction of an air quality plan, cumulatively considerable net increases in criteria pollutants, and the exposure of sensitive receptors to substantial pollution concentrations. This chapter also describes the environmental setting, including the air pollutants of concern, regulatory framework and the existing air quality setting, which is the San Francisco Bay Area Air Basin, and baseline conditions, and identifies mitigation measures that would avoid or reduce significant impacts.

The analysis in this chapter is based on the methodology recommended by the Bay Area Air Quality Management District (BAAQMD) for project-level review. The analysis focuses on air pollution from regional emissions and localized pollutant concentrations from buildout of the proposed project. In this chapter, "emissions" refers to the actual quantity of pollutant material measured in pounds per day or tons per year, and "concentrations" refers to the amount of pollutant material per volumetric unit of air. Concentrations are measured in parts per million (ppm), parts per billion (ppb), or micrograms per cubic meter ($\mu g/m^3$).

The analysis in this chapter is based in part on the *Air Quality Assessment for the proposed Westport Project, in the City of Cupertino, California*, dated July 2019, prepared by Kimley-Horn and Associates. A complete copy of this report is located in Appendix C, Air Quality Assessment, of this Draft EIR. A third-party peer review of this report was completed by PlaceWorks.

4.1.1 ENVIRONMENTAL SETTING

4.1.1.1 AIR POLLUTANTS OF CONCERN

Criteria Air Pollutants

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and State laws. These regulated air pollutants are known as "criteria air pollutants" and are categorized into primary and secondary pollutants.

Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxide (NO_X), sulfur dioxide (SO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead are primary air pollutants. Of these, CO, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ are criteria pollutants. ROG and NO_X are criteria pollutant precursors and form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. For example, the criteria pollutant ozone (O_3) is formed by a chemical reaction between ROG and NOx in the presence of sunlight. O_3 and nitrogen dioxide (NO_2) are the principal secondary pollutants. Sources and health effects commonly associated with criteria pollutants are summarized in Table 4.1-1.

TABLE 4.1-1 AIR CONTAMINANTS AND ASSOCIATED PUBLIC HEALTH CONCERNS

Pollutant	Major Man-made Sources	Human Health Effects
Particulate Matter (PM_{10} and $PM_{2.5}$)	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; asthma; chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility.
Ozone (O_3)	Formed by a chemical reaction between reactive organic gases/volatile organic compounds (ROG or VOC)[a] and nitrogen oxides (NO_X) in the presence of sunlight. Motor vehicle exhaust industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
Sulfur Dioxide (SO_2)	A colorless gas formed when fuel containing sulfur is burned and when gasoline is extracted from oil. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone. Contributes to global warming and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Lead	Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Due to the phase out of leaded gasoline, metals processing is the major source of lead emissions to the air today. 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.	Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ.

Notes:
a. VOCs or ROG are hydrocarbons/organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including ROGs and VOCs. Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).
Source: California Air Pollution Control Officers Association, *Health Effects*, http://www.capcoa.org/health-effects/, Accessed April 10, 2018.

Toxic Air Contaminants

Toxic air contaminants (TACs) are airborne substances capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting

operations. The current California list of TACs includes more than 200 compounds, including particulate emissions from diesel-fueled engines.

Diesel Particulate Matter

The California Air Resources Board (CARB) has identified diesel particulate matter (DPM) as a toxic air contaminant. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (heavy- or light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine. Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their small size, these particles can be inhaled and trapped in the bronchial and alveolar regions of the lung.

4.1.1.2 REGULATORY FRAMEWORK

Land use in the city is subject to the rules and regulations to protect air quality imposed by the United States Environmental Protection Agency (USEPA), CARB, the California Environmental Protection Agency (CalEPA) and BAAQMD. The regulatory framework applicable to the proposed project is summarized below.

Federal

Ambient Air Quality Standards

Air quality is federally protected by the Clean Air Act and its amendments. Under this Act, the USEPA developed the primary and secondary National Ambient Air Quality Standards (NAAQS) for criteria air pollutants including ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead (Pb). The health-based ambient air quality standards established by the State and the federal government are shown in Table 4.1-2.

The Clean Air Act also requires each state to prepare a State Implementation Plan to demonstrate how it will attain the NAAQS within the federally imposed deadlines. The USEPA can withhold certain transportation funds from states that fail to comply with the planning requirements of the Clean Air Act. If a state fails to correct these planning deficiencies within two years of federal notification, the USEPA is required to develop a federal implementation plan for the identified nonattainment area or areas. Proposed projects in or near nonattainment areas could be subject to more stringent air-permitting requirements.

TABLE 4.1-2 AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS

		State Standards [a]		Federal Standards [b]	
Pollutant	Averaging Time	Concentration	Attainment Status	Primary [c]	Attainment Status
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m³)	N[i]	N/A	N/A[e]
	8 hour	0.070 ppm (137 µg/m³)	N	0.070 ppm	N[d]
Carbon Monoxide (CO)	8 hour	9.0 ppm (10 µg/m³)	A	9 ppm (10 µg/m³)	A
	1 hour	20 ppm (23 µg/m³)	A	35 ppm (40 µg/m³)	A[f]
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm (339 µg/m3)	A	0.10 ppm[k]	U
	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	-	0.053 ppm (100 µg/m³)	A
Sulfur Dioxide (SO_2)[l]	24 hour	0.04 ppm (105 µg/m³)	A	0.14 ppm (365 µg/m³)	A
	1 hour	0.25 ppm (655 µg/m³)	A	0.075 ppm (196 µg/m³)	A
	Annual Arithmetic Mean	NA	-	0.03 ppm (80 µg/m³)	A
Particulate Matter (PM_{10})	24 hour	50 µg/m³	N	150 µg/m³	-
	Annual Arithmetic Mean	20 µg/m³	N[g]	NA	U
Fine Particulate Matter ($PM_{2.5}$) [j, o]	24 hour	NA	-	35 µg/m³	U/A
	Annual Arithmetic Mean	12 µg/m³	N[g]	12 µg/m³	N
Sulfates ($SO_{4\ 2}$)	24 hour	25 µg/m³	A	NA	-
Lead (Pb)[m, n]	30-Day Average	1.5 µg/m³	-	NA	A
	Calendar Quarter	NA	-	1.5 µg/m³	A
	Rolling 3-Month Average	NA	-	0.15 µg/m³	-
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm (0.15 µg/m³)	U	N/A	-
Vinyl Chloride (C_2H_3Cl)	24 hour	0.01 ppm (26 µg/m³)	-	N/A	-
Visibility Reducing Particles[h]	8 hour (10:00 am to 6:00 pm PST)	-	U	-	-

Notes: A = attainment; N = nonattainment; U = unclassified; ppm = parts per million; µg/m3 = micrograms per cubic meter; mg/m3 = milligrams per cubic meter; – = not applicable, not indicated, or no information available.

a. California standards for O_3, CO (except Lake Tahoe), SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe CO, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.

b. National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm (70 ppb) or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m³. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m³. Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.

c. National air quality standards are set by the EPA at levels determined to be protective of public health with an adequate margin of safety.

d. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. The USEPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.

TABLE 4.1-2 AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS

		State Standards [a]		Federal Standards [b]	
Pollutant	Averaging Time	Concentration	Attainment Status	Primary [c]	Attainment Status

e. The national 1-hour ozone standard was revoked by EPA on June 15, 2005.
f. In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.
g. In June 2002, CARB established new annual standards for $PM_{2.5}$ and PM_{10}.
h. Statewide Visibility Reducing Particles Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.
I. The 8-hour State ozone standard was approved by CARB on April 28, 2005 and became effective on May 17, 2006.
j. On January 9, 2013, the USEPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This USEPA rule suspends key State Implementation Plan requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this USEPA action, the Bay Area will continue to be designated as "non-attainment" for the national 24-hour $PM_{2.5}$ standard until such time as the Air District submits a "redesignation request" and a "maintenance plan" to USEPA, and USEPA approves the proposed redesignation.
k. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100ppm (effective January 22, 2010). The USEPA expects to make a designation for the Bay Area by the end of 2017.
L. On June 2, 2010, the USEPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO_2 NAAQS however must continue to be used until one year following USEPA initial designations of the new 1-hour SO_2 NAAQS.
m. CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure below which there are no adverse health effects determined.
n. National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.
o. In December 2012, USEPA strengthened the annual $PM_{2.5}$ NAAQS from 15.0 to 12.0 ($\mu g/m^3$). In December 2014, USEPA issued final area designations for the 2012 primary annual $PM_{2.5}$ NAAQS. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

Source: Bay Area Air Quality Management District, *Air Quality Standards and Attainment Status*, http://www.baaqmd.gov/research-anddata/air-quality-standards-and-attainment-status, accessed April 20, 2018.

State

California Air Resources Board

CARB administers the California Clean Air Act and California Ambient Air Quality Standards (CAAQS) throughout the State. The CAAQS were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in Table 4.1-2, are generally more stringent and apply to more pollutants than the NAAQS. The CAAQS also have additional standards for visibility reducing particulates, hydrogen sulfide, and sulfates.

The California Clean Air Act requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMPs also serve as the basis for the preparation of the State Implementation Plan for meeting federal clean air standards for California.

Regional

Bay Area Air Quality Management District

The BAAQMD is a regional agency with jurisdiction over the nine-county region located in the San Francisco Bay Area Air Basin (SFBAAB). BAAQMD is responsible for assuring that the National and California AAQS are attained and maintained in the SFBAAB. BAAQMD also prepares air quality management plans (AQMP) to attain ambient air quality standards in the SFBAAB. The Association of Bay Area Governments (ABAG) Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various nongovernmental organizations contribute to the efforts to

improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs.

Under CEQA, the BAAQMD is a commenting responsible agency on air quality within its jurisdiction or impacting its jurisdiction. The BAAQMD reviews projects to ensure that they would: (1) support the primary goals of the latest air quality plan; (2) include applicable control measures from the air quality plan; and (3) not disrupt or hinder implementation of any AQMP control measures.

2017 Clean Air Plan

The 2017 *Clean Air Plan: Spare the Air, Cool the Climate* (2017 Clean Air Plan) was adopted on April 19, 2019, by the BAAQMD. The 2017 Clean Air Plan provides a regional strategy to protect public health and the climate. The 2017 Clean Air Plan describes how the BAAQMD will continue progress toward attaining all State and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. The 2017 Clean Air Plan also defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious greenhouse gas (GHG) reduction targets for 2030 and 2050, and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets.

The 2017 Clean Air Plan includes a wide range of control measures designed to decrease the emission of air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of methane and other "super-GHGs" that are potent climate pollutants in the near-term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

Local

Cupertino General Plan

The Cupertino General Plan (Community Vision 2015-2040), includes policies that are relevant to air quality and applicable to the proposed project. The policies are primarily identified in General Plan Chapter 6, Environmental Resources and Sustainability, and are listed in Table 4.1-3.

TABLE 4.1-3 GENERAL PLAN POLICIES RELEVANT TO AIR QUALITY

Policy Number	Policy
Chapter 6, Environmental Resources and Sustainability (ES)	
Policy ES-3.1	**Green Building Design.** Set standards for the design and construction of energy and resource conserving/efficient building.
Policy ES-4.1	**New Development.** Minimize the air quality impacts of new development projects and air quality impacts that affect new development.
Policy ES-4.3	**Use of Open Fires and Fireplaces.** Discourage high pollution fireplace use.

Source: Cupertino General Plan (Community Vision 2015-2040).

Cupertino Municipal Code

The Cupertino Municipal Code (CMC) includes various directives to minimize adverse impacts to air quality. The provisions related to potential impacts from the proposed project are included in Title 19, Zoning, as follows:

- Chapter 19.80, Planned Development Zones. This chapter provides regulations for guiding land development or redeveloping in the city, that is uniquely suited for planning coordination of land uses and flexibility of land use intensity and design. The planned development zoning district designates Priority Housing Development Sites as permitted uses, or conditional uses if they exceed the number of units designated for the specific Priority Development Site.

4.1.1.3 EXISTING CONDITIONS

Climate and Meteorology

CARB divides the State into 15 air basins that share similar meteorological and topographical features. The proposed project is located within the San Francisco Bay Area Air Basin also known as the SFBAAB. The SFBAAB 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. The city of Cupertino is located in the Santa Clara Valley climatological subregion of the SFBAAB, which is bounded by the San Francisco Bay to the north and by mountains to the east, south, and west. Air quality in this area is determined by natural factors, which are discussed below.

Wind Patterns

Winds in the Santa Clara Valley are influenced by the terrain, resulting in a prevailing flow that roughly parallels the Santa Clara Valley's northwest-southeast axis. A north-northwesterly sea breeze flows through the valley during the afternoon and early evening, and a light south-southeasterly drainage flow occurs during the late evening and early morning. In the summer the southern end of the valley sometimes becomes a "convergence zone," when air flowing from the Monterey Bay gets channeled northward into the southern end of the Santa Clara Valley and meets with the prevailing north-northwesterly winds. Wind speeds are greatest in the spring and summer and weakest in the fall and winter. Nighttime and early morning hours frequently have calm winds in all seasons, while summer afternoons and evenings are quite breezy. Strong winds are rare, associated mostly with the occasional winter storm.

Temperature

Temperatures are warm on summer days and cool on summer nights, and winter temperatures are fairly mild. At the northern end of the Santa Clara Valley, mean maximum temperatures are in the low 80s during the summer and the high 50s during the winter, and mean minimum temperatures range from the high 50s in the summer to the low 40s in the winter. Further inland, where the moderating effect of the San Francisco Bay is not as strong, temperature extremes are greater. For example, in San Martin, located 27 miles south of the San José Airport, temperatures can be more than 10 degrees warmer on summer afternoons and more than 10 degrees cooler on winter nights.

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

Wind Circulation and Inversions

The air pollution potential of the Santa Clara Valley is high. High summer temperatures, stable air, and mountains surrounding the valley combine to promote ozone formation. In addition to the many local sources of pollution, ozone precursors from San Francisco, San Mateo, and Alameda Counties are carried by prevailing winds to the Santa Clara Valley. Pollution sources are plentiful and complex in this subregion. The Santa Clara Valley has a high concentration of industry at the northern end, in the Silicon Valley. Some of these industries are sources of air toxics as well as criteria air pollutants. In addition, Santa Clara Valley's large population and many work-site destinations generate the highest mobile source emissions of any subregion in the SFBAAB. On summer days with low level inversions, ozone can be recirculated by southerly drainage flows in the late evening and early morning, and by the prevailing northwesterlies in the afternoon. A similar recirculation pattern occurs in the winter, affecting levels of carbon monoxide and particulate matter. The Santa Clara Valley tends to channel pollutants to the southeast. This movement of the air up and down the valley increases the impact of the pollutants significantly.

Attainment Status of the Air Basin

USEPA and CARB designate areas within the State as either attainment or nonattainment for each criteria pollutant, based on whether the AAQS have been achieved. Exceedances affected by highly irregular or infrequent events such as wildfires, volcanoes, etc. are not considered violations of a standard, and are not used as a basis for designating areas as nonattainment. The SFBAAB attainment status with respect to State standards was summarized previously in Table 4.1-2. The SFBAAB is currently designated a nonattainment area for California and federal O_3, California and federal $PM_{2.5}$, and California PM_{10} AAQS.

Ambient Air Quality

CARB monitors ambient air quality at approximately 250 air monitoring stations across the State. Air quality monitoring stations usually measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The closest air monitoring station to the project site is the Los Gatos Monitoring Station (located approximately 7.5 miles to the south). Local air quality data from 2014 to 2016 are provided in Table 4.1-4. As the Los Gatos Monitoring Station only collects data for O_3, Table 4.1-4 also includes data from the San Jose-Jackson Street Monitoring station, which is the next closest to the site (located approximately 8.5 miles to the

east). Table 4.1-4 lists the monitored maximum concentrations and number of exceedances of federal/State air quality standards for each year.

TABLE 4.1-4 AMBIENT AIR QUALITY MONITORED IN THE PROJECT VICINITY

Pollutant	Los Gatos[a]			San Jose-Jackson Street[b]		
	2015	2016	2017	2015	2016	2017
Ozone (O_3)						
1-hour Maximum Concentration (ppm)	0.100	0.091	0.093	0.094	0.087	0.121
8-hour Maximum Concentration (ppm)	0.084	0.065	0.075	0.081	0.066	0.098
Number of Days Standard Exceeded						
CAAQS 1-hour (>0.09 ppm)	1	0	0	0	0	3
NAAQS 8-hour (>0.070 ppm)	4	0	3	2	0	4
Carbon Monoxide (CO)						
1-hour Maximum Concentration (ppm)	--	--	--	2.43	1.95	1.87
Number of Days Standard Exceeded						
NAAQS 1-hour (>35 ppm)	--	--	--	0	0	0
CAAQS 1-hour (>20 ppm)	--	--	--	0	0	0
Nitrogen Dioxide (NO_2)						
1-hour Maximum Concentration (ppm)	--	--	--	49.3	51.1	67.5
Number of Days Standard Exceeded						
NAAQS 1-hour (>100 ppm)	--	--	--	0	0	0
CAAQS 1-hour (>0.18 ppm)	--	--	--	0	0	0
Particulate Matter Less Than 10 Microns (PM_{10})						
National 24-hour Maximum Concentration	--	--	--	58.8	40.0	69.4
State 24-hour Maximum Concentration	--	--	--	58.0	41.0	69.8
State Annual Average Concentration (CAAQS=20 µg/m^3)	--	--	--	21.9	18.3	21.3
Number of Days Standard Exceeded						
NAAQS 24-hour (>150 µg/m^3)	--	--	--	0	0	0
CAAQS 24-hour (>50 µg/m^3)	--	--	--	1	0	6
Particulate Matter Less Than 2.5 Microns ($PM_{2.5}$)						
National 24-hour Maximum Concentration	--	--	--	49.4	22.6	49.7
State 24-hour Maximum Concentration	--	--	--	49.4	22.7	49.7
Number of Days Standard Exceeded						
NAAQS 24-hour (>35 µg/m3)	--	--	--	2	0	6

Notes:

a. Measurements taken at the Los Gatos Monitoring Station located at 306 University Avenue, Los Gatos, California 95030 (CARB# 43380).

b. Measurements taken at the San Jose-Jackson Street Monitoring Station located at 158 East Jackson Street, San Jose, California 95112 (CARB #43383). NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; µg/m^3 = micrograms per cubic meter; NM = not measured

Source: All pollutant measurements are from the California Air Resources Board Aerometric Data Analysis and Management system (iADAM) database (https://www.arb.ca.gov/adam) except for CO, which were retrieved from the California Air Resources Board Air Quality and Meteorological Information System (AQMIS) (https://www.arb.ca.gov/aqmis2/aqdselect.php).

Existing Emissions

The project site is developed with an approximately 71,250 square-foot shopping center with retail stores, offices, and restaurants that is currently about 85 occupied (or 60,563 square feet). The site currently generates criteria air pollutant emissions from natural gas use for heating and cooking, vehicle trips associated with the land uses, as well as area sources such as landscaping equipment and consumer cleaning products.

Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than is the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Table 4.1-5 lists the distances and locations of sensitive receptors within the project vicinity based on the distance from the project site to the receptors.

TABLE 4.1-5 AIR QUALITY SENSITIVE RECEPTORS

Receptor Type/Description	Distance and Direction from the Project Site [a]
Residential (Glenbrook Apartments) on Mary Avenue	90 feet north
Single-family residential neighborhood on Anton Way	630 feet northeast
Cupertino Senior Center on Mary Avenue	80 feet east
Cupertino Teen Center and Sports Center on Stevens Creek Boulevard	612 feet east
De Anza College on Stevens Creek Boulevard	140 feet south

Notes:
a Distance calculated from property line of proposed project site and property line of the sensitive receptors
Source: Kimley-Horn and Associates, PlaceWorks, 2019.

4.1.2 THRESHOLDS OF SIGNIFICANCE

4.1.2.1 CEQA GUIDELINES APPENDIX G

An Initial Study was prepared for the proposed project (see Appendix A of this Draft EIR). Based on the analysis contained in the Initial Study and comments received during the scoping process it was determined that development of the proposed project would not result in significant environmental impacts related to the following significance standard and therefore, is not discussed in this chapter.

- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Based on the Initial Study and comments received during the scoping process it was determined that the proposed project could result in a potentially significant air quality impact if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or State ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.

4.1.2.2 BAAQMD THRESHOLDS

Regional Significance Thresholds

The BAAQMD CEQA Air Quality Guidelines were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. In May 2017 the BAAQMD's Board of Directors adopted the CEQA Air Quality Guidelines, including revisions made to the thresholds of significance adopted in 2010. These thresholds are designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA.[1]

Criteria Air Pollutant Emissions and Precursors

Regional Significance Criteria

The BAAQMD's criteria for regional significance for projects that exceed the screening thresholds are shown in Table 4.1-6. Criteria for both the construction and operational phases of the proposed project are shown.

TABLE 4.1-6 BAAQMD REGIONAL (MASS EMISSIONS) CRITERIA AIR POLLUTANT SIGNIFICANCE THRESHOLDS

	Construction-Related	Operational-Related	
Criteria Air Pollutants and Precursors (Regional)	Average Daily Emissions (pounds/day)	Average Daily Emission (pounds/day)	Average Daily Emission (pounds/day)
ROG	54	54	10
NO_X	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
$PM_{10}/PM_{2.5}$ (fugitive dust)	Best Management Practices	None	
Local CO	None	9.0 ppm (8-hour average 20.0 ppm (1-hour average)	

Source: Bay Area Air Quality Management District. 2017. CEQA Guidelines May 2017.

Criteria Pollutant Health Impacts

On December 24, 2018, the California Supreme Court issued an opinion identifying the need to provide sufficient information connecting a project's air emissions to health impacts or explain why such information could not be ascertained (Sierra Club v. County of Fresno [Friant Ranch, L.P.] [2018] Cal.5th, Case No. S219783). The BAAQMD CEQA significance thresholds in Table 4.1-6 are based on the trigger

[1] Bay Area Air Quality Management District (BAAQMD), 2017, May, CEQA Air Quality Guidelines. http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

levels for the federal New Source Review (NSR) Program and BAAQMD's Regulation 2, Rule 2 for new or modified sources. The NSR Program was created to ensure projects are consistent with attainment of health-based federal ambient air quality standards. The federal ambient air quality standards establish the levels of air quality necessary, with an adequate margin of safety, to protect the public health of sensitive populations such as asthmatics, children, and the elderly. Therefore, projects that do not exceed the BAAQMD regional significance thresholds would not violate any air quality standards or contribute substantially to an existing or projected air quality violation and no criteria pollutant health impacts would occur.

CO Hotspots

A quantitative CO impact analysis is required by BAAQMD (comparing project emissions to the CAAQS), if none of the following are met:

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

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 proposed project would generate TACs and $PM_{2.5}$ during construction activities that could elevate concentrations of air pollutants at the nearby residential sensitive receptors. The thresholds for construction-related local community risk and hazard impacts are the same as for project operations. The BAAQMD has adopted screening tables for air toxics evaluation during construction.[2] Construction-related TAC and $PM_{2.5}$ impacts should be addressed on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and proximity to off-site receptors, as applicable.[3] The proposed project involves redevelopment of the project site with a residential mixed-use project and would not be a source of operational TACs and $PM_{2.5}$.

[2] Bay Area Air Quality Management District (BAAQMD), 2010, Screening Tables for Air Toxics Evaluations during Construction.

[3] Bay Area Air Quality Management District (BAAQMD), 2017, Revised, California Environmental Quality Act Air Quality Guidelines.

Since neither the City of Cupertino nor County of Santa Clara currently have qualified risk reduction plans, a site-specific analysis of TACs and $PM_{2.5}$ impacts on sensitive receptors was conducted. The thresholds identified below are applied to the proposed project's construction and operational phases.

Community Risk and Hazards: Project

Project-level emissions of TACs or $PM_{2.5}$ from individual sources that exceed any of the thresholds listed below are considered a potentially significant community health risk:

- An excess cancer risk level of more than 10 in one million, or a noncancer (i.e., chronic or acute) hazard index greater than 1.0 would be a significant project contribution.
- An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$ from a single source would be a significant project contribution. [4]

Community Risk and Hazards: Cumulative

Cumulative sources represent the combined total risk values of each of the individual sources within the 1,000-foot evaluation zone. A project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source or location of a receptor, plus the contribution from the proposed project, exceeds any of the following:

- An excess cancer risk level of more than 100 in one million or a chronic noncancer hazard index (from all local sources) greater than 10.0.
- 0.8 µg/m3 annual average $PM_{2.5}$.[5]

In February 2015, the Office of Environmental Health Hazard Assessment adopted new health risk assessment guidance that includes several efforts to be more protective of children's health. These updated procedures include the use of age sensitivity factors to account for the higher sensitivity of infants and young children to cancer causing chemicals, and age-specific breathing rate.[6]

Air Quality Management Plan Consistency

The BAAQMD's 2017 Clean Air Plan was prepared to accommodate growth, meet State and federal air quality standards, and minimize the fiscal impact that pollution control measures have on the local economy. According to the BAAQMD CEQA Air Quality Guidelines, project-related emissions that fall below the established construction and operational thresholds should be considered less than significant unless there is pertinent information to the contrary. If a project exceeds these emission thresholds, the BAAQMD CEQA Air Quality Guidelines states that the significance of a project's contribution to cumulative impacts should be determined based on whether the rate of growth in average daily trips exceeds the rate of growth in population.

[4] Bay Area Air Quality Management District (BAAQMD), 2017, Revised, California Environmental Quality Act Air Quality Guidelines.

[5] Bay Area Air Quality Management District (BAAQMD), 2017, Revised, California Environmental Quality Act Air Quality Guidelines.

[6] Office of Environmental Health Hazard Assessment (OEHHA), 2015, February, Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments.

4.1.3 IMPACT DISCUSSION

4.1.3.1 METHODOLOGY

This air quality impact analysis considers construction and operational impacts associated with the proposed project. Construction equipment, trucks, worker vehicles, and ground-disturbing activities associated with proposed project construction would generate emissions of criteria air pollutants and precursors and toxic air contaminants. Construction-related and operational emissions are evaluated consistent with methodologies outlined in the BAAQMD CEQA Air Quality Guidelines for assessing and mitigating air quality impacts. Emissions associated with the proposed project are estimated using the California Emissions Estimator Model (CalEEMod). The proposed traffic conditions as a result of the proposed project assume full occupancy of the project site based on the transportation analysis prepared by Kimley-Horn and Associates (see Chapter 4.8, Transportation, and Appendix H, Transportation Assessment, of this Draft EIR). The construction health risk assessment was performed using the USEPA AERSCREEN dispersion model.

4.1.3.2 IMPACT ANALYSIS

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

The primary method of determining consistency with the 2017 Clean Air Plan growth assumptions is consistency with the General Plan land use designations and zoning ordinance designations for the site. Large projects that exceed regional employment, population, and housing planning projections have the potential to be inconsistent with the regional inventory compiled as part of the 2017 Clean Air Plan. Because the General Plan was adopted prior to the adoption of the 2017 Clean Air Plan, it can be assumed that the 2017 Clean Air Plan incorporates the growth forecast in the General Plan.

As described in Chapter 3, Project Description, of this Draft EIR, the General Plan describes the vision and standards for future development on the site in the defined Heart of the City Special Area, *Heart of the City Specific Plan*, Oaks Gateway, Priority Housing Element Site A3 (The Oaks Shopping Center), and Commercial/Residential land use designation. In addition, the General Plan identifies the site as being within the regional *Plan Bay Area* Santa Clara Valley Transportation Authority City Cores, Corridors, & Station Areas priority development area (PDA). Furthermore, the site qualifies as a Transit Priority Area (TPA) because it is within one-half mile of a "major transit stop" as defined by CEQA Guidelines Section 15191[7] and the Santa Clara Valley Transportation Authority (VTA).[8]

[7] "CEQA Guidelines defines a major transit stop" means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

[8] The Santa Clara Valley Transportation Authority (VTA) defines a "major bus stop" as a stop where six or more buses per hour stop during the peak period and is also referred to as a "high-quality transit" area.

The West Stevens Creek Boulevard subarea of the *Heart of the City Specific Plan* identifies the primary use for this area to be quasi-public/public facilities, with supporting uses including mixed commercial/residential. The Oaks Gateway is an identified neighborhood center which allows mixed-use development. General Plan Policy LU-14.5 (Oaks Gateway Node) states that the Oaks Gateway is a retail and shopping node and that new residential uses, if allowed, should be designed on the "mixed-use village" concept.[9] The mixed-use urban village concept includes providing parcel assembly, complete site redevelopment, mixed-use village layout with streets, alley, sidewalks, and open spaces, mix of retail uses, public open spaces, and high-quality, pedestrian-oriented design.[10] The proposed project is a residential mixed-use development with internal multi-modal streets, sidewalks, and open spaces that would accommodate approximately 20,000 square feet of neighborhood serving retail.

The General Plan's Priority Housing Element sites, including the proposed project site, are located on major corridors to reduce traffic, environmental impacts, and preserve neighborhoods. The Priority Housing Element sites in the adopted Housing Element are intended to accommodate the Regional Housing Needs Allocation for the 2014-2022 planning period and meet the City's fair-share housing obligation of 1,064 units. According to the Housing Element, the site has a maximum density of 30 dwelling units per acre. While the General Plan's Housing Element assigned a realistic capacity estimate of 200 units to the project site, because the site is approximately 8.1 acres, up to 243 units could be built on the site. The proposed project includes 242 units which is just below the maximum potential based on the density designated for the site.

The Commercial/Residential land use designation allows primarily commercial uses and secondarily residential uses or a compatible combination of the two. An overarching goal of the regional *Plan Bay Area* is to concentrate development in areas where there are existing services and infrastructure rather than locating new growth in outlying areas where substantial transportation investments would be necessary to maximize energy conservation and achieve the per capita passenger vehicle, vehicle miles traveled (also referred to as "VMT"), and associated greenhouse gas (GHG) emissions reductions, thus minimizing air quality impacts.

The project site is zoned Planned Development with General Commercial and Residential (P(CG,RES)) on the City's Zoning Map. Per CMC Section 19.80.030(B), all planned development districts are identified on the zoning map with the letter coding "P" followed by a specific reference to the general type of use allowed in the particular planning development zoning district.[11] The general types of uses allowed on the project site are General Commercial and Residential. Accordingly, the proposed project is a permitted use on the site.

As described above and identified in the Initial Study (see Appendix A of this the Draft EIR), the proposed project would not have the potential to substantially affect housing, employment, or population

[9] City of Cupertino General Plan (Community Vision 2015-2040), Chapter 3, Land Use and Community Design Element, page LU-44.

[10] City of Cupertino General Plan (Community Vision 2015-2040), Chapter 3, Land Use and Community Design Element, page LU-18.

[11] CMC, Title 19, Zoning, Chapter 19.80, Planned Development, Section 19.80.030, Establishment of Districts-Permitted and Conditional Uses.

projections within the region, which are the basis of the 2017 Clean Air Plan projections. Therefore, under CEQA Guidelines Section 15206, the proposed project is not considered a regionally significant project that would affect regional vehicle miles traveled (VMT) and warrant intergovernmental review by ABAG[12] and MTC.[13] Additionally, as described below in impact discussion AQ-2, construction and operational air quality emissions generated by the proposed project would not exceed the BAAQMD's emissions thresholds. These thresholds are established to identify projects that have the potential to generate a substantial amount of criteria air pollutants. Because the proposed project would not exceed these thresholds, the proposed project would not be considered by the BAAQMD to be a substantial emitter of criteria air pollutants and would not contribute to any non-attainment areas in the SFBAAB. For these reasons described above, the proposed project would not conflict with or obstruct implementation of the 2017 Clean Air Plan, and impacts would be considered *less than significant*.

Significance Without Mitigation: Less than significant.

AQ-2 The proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

BAAQMD has identified thresholds of significance for criteria pollutant emissions and criteria air pollutant precursors, including reactive organic gases (ROG), oxides of nitrogen (NO_x), coarse inhalable particulate matter (PM_{10}), and fine inhalable particulate matter ($PM_{2.5}$). Development projects below these significant thresholds (shown above in Table 4.1-6) are not expected to generate sufficient criteria pollutant emissions to violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Construction Emissions

Construction-generated emissions are relatively short term and of temporary duration, lasting only as long as construction activities occur, but are considered a significant air quality impact if the volume of pollutants generated exceeds the BAAQMD's thresholds of significance. Temporary air emissions would result from the following activities:

- Particulate (fugitive dust) emissions from grading and building construction.
- Exhaust emissions from the construction equipment and the motor vehicles of the construction crew.
- ROG emissions from asphalt off-gassing and architectural coatings.

The duration of construction activities for the proposed project is estimated to be approximately 16 months. The proposed project would demolish the existing shopping center and surface parking. In

[12] Association of Bay Area Governments (ABAG), Regional Clearinghouse http://abag.ca.gov/planning/clearinghouse.html, accessed July 30, 2019.

[13] Metropolitan Transportation Commission (MTC), Air Quality Conformity, http://www.mtc.ca.gov/planning/air_quality/, accessed July 30, 2019.

addition, the proposed project would require 69,000 cubic yards of soil to be exported from the site during the grading and site preparation phases to accommodate a subterranean parking garage. Predicted average daily construction-generated emissions for the proposed project are identified in Table 4.1-7.

Fugitive Dust

Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill operations, demolition, and truck travel on unpaved roadways. Dust emissions also vary substantially from day to day, depending on the level of activity, the specific operations, and weather conditions. Fugitive dust emissions may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project vicinity. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. As shown in Table 4.1-7, the BAAQMD does not have numerical threshold for construction fugitive dust, but instead recommends the implementation of all Basic Construction Mitigation Measures, whether or not construction-related emissions exceed applicable significance thresholds (see Mitigation Measure AQ-2).

TABLE 4.1-7 AVERAGE DAILY PROJECT CONSTRUCTION EMISSIONS

	Pollutant (average pounds per day)[a, b]					
			Exhaust		Fugitive Dust	
Emissions Source	Reactive Organic Gases (ROG)	Nitrogen Oxide (NOX)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
2019						
Unmitigated Emissions	4	50	2	2	6	2
2020						
Unmitigated Emissions	32	28	1	1	3	1
Maximum Unmitigated	32	50	2	2	6	2
BAAQMD Significance Threshold	54	54	82	54	N/A	N/A
Exceed BAAQMD Threshold after Mitigation?	No	No	No	No	N/A	N/A

Notes:
a. Emissions were calculated using CalEEMod. Average daily emissions were calculated by dividing the annual emissions by the number of working days of construction for the year (project construction is two full years and would have approximately 250 days per year).
b. Bay Area Air Quality Management District, California Environmental Quality Act Air Quality Guidelines, updated May 2017.
Source: Kimley-Horn and Associates, PlaceWorks, 2019.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on site as the equipment is used, and emissions from trucks transporting materials and workers to and from the site. As shown in Table 4.1-7, average daily project construction emissions would not exceed BAAQMD thresholds. Implementation of Mitigation Measure AQ-2 would further minimize emissions due to the idling restrictions and maintenance requirements placed on construction equipment.

Reactive Organic Gases Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. The highest concentration of ROG emissions would be generated during the application of architectural coatings beginning in 2020. As required by law, all architectural coatings for the proposed project structures would comply with BAAQMD Regulation 8, Rule 3: Architectural Coating. Regulation 8, Rule 3 provides specifications for painting practices and regulates the ROG content of paint. As shown in Table 4.1-7, average daily project construction ROG emissions would not exceed BAAQMD thresholds.

Summary

As shown in Table 4.1-7 and described above, project construction would not exceed the BAAQMD average daily thresholds of significance. Although the BAAQMD does not have numerical thresholds for fugitive PM_{10} and $PM_{2.5}$ emissions, the proposed project would be required to comply with the BAAQMD Basic Construction Measures (see Mitigation Measure AQ-2). Furthermore, the proposed project would be subject to applicable BAAQMD Regulations, such as Regulation 8, Rule 3: Architectural Coatings and Rule 15: Emulsified and Liquid Asphalts, and Regulation 9, Rule 8: Organic Compounds to further reduce specific construction-related emissions. Table 4.1-7 identifies project emissions with the implementation of the applicable reduction measures required by BAAQMD Rules. With the implementation of Mitigation Measure AQ-2, construction impacts would be less than significant.

Impact AQ-2: Uncontrolled fugitive dust (PM_{10} and $PM_{2.5}$) could expose the areas that are downwind of construction sites to air pollution from construction activities without the implementation of BAAQMD's best management practices.

Mitigation Measure AQ-2: BAAQMD Basic Construction Measures. Prior to any grading activities, the applicant shall prepare a Construction Management Plan to be reviewed and approved by the Director of Public Works/City Engineer. The Construction Management Plan shall include the Bay Area Air Quality Management District (BAAQMD) Basic Construction Mitigation Measures listed below to minimize construction-related emissions. The project applicant shall require the construction contractor to implement the approved Construction Management Plan. The BAAQMD Basic Construction Mitigation Measures are:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure

Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD phone number shall also be visible to ensure compliance with applicable regulations.

Significance With Mitigation: Less than significant.

Operational Emissions

Operational emissions for residential developments are typically generated from mobile sources (burning of fossil fuels in cars); energy sources (cooling, heating, and cooking); and area sources (landscape equipment and household products). According to Table 4.1-8 shows ROG emission thresholds exceeded for area source emissions.

TABLE 4.1-8 AVERAGE DAILY PROJECT OPERATIONAL EMISSIONS UNMITIGATED

	Pollutant (average pounds per day)[a, b]					
			Exhaust		Fugitive Dust	
Emissions Source	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_X)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Annual Emissions (maximum tons per year)						
Area Source Emissions	2	<1	<1	<1	--	--
Energy Emissions	<1	<1	<1	<1	--	--
Mobile Emissions[1]	1	2	<1	<1	2	<1
Total Project Unmitigated Emissions	3	2	<1	<1	2	<1
BAAQMD Threshold[1]	10	10	15	10	N/A	N/A
Is Threshold Exceeded?	No	No	No	No	N/A	N/A
Average Daily Emissions (pounds)						
Area Source Emissions	13	<1	<1	<1	--	--
Energy Emissions	<1	1	<1	<1	--	--
Mobile Emissions[1]	3	12	<1	<1	9	2
Total Project Unmitigated Emissions	16	13	<1	<1	9	2
BAAQMD Threshold[2]	54	54	82	54	N/A	N/A
Is Threshold Exceeded?	No	No	No	No	N/A	N/A

Notes:
a. Mobile emissions conservatively represent emissions associated with the full project (i.e., 2,174 daily vehicle trips), and do not take credit/trip reductions for the existing uses.
b. Bay Area Air Quality Management District, California Environmental Quality Act Air Quality Guidelines, 2017.
Source: Kimley-Horn and Associates, PlaceWorks. 2019.

Mobile Source

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern (NO_X and ROG react with sunlight to form O_3 [photochemical smog], and wind currents readily transport PM_{10} and $PM_{2.5}$). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Project-generated vehicle emissions were estimated using CalEEMod. Trip generation rates associated with the proposed project were based on the transportation analysis prepared by Kimley-Horn and Associates dated November 2018 (see Chapter 4.8, Transportation, and Appendix H, Transportation Assessment, of this Draft EIR). Based on the transportation analysis, the proposed project would result in an average of approximately 2,174 total daily vehicle trips (it should be noted that the air quality analysis conservatively does not take credit for existing vehicle trips generated on the project site or internal trip capture). Table 4.1-8 shows that the project emissions generated by vehicle traffic associated with the proposed project would not exceed established BAAQMD regional thresholds.

Energy Source Emissions

Energy source emissions would be generated as a result of electricity and natural gas (non-hearth) usage associated with the proposed project. The primary use of electricity and natural gas by the proposed project would be for space heating and cooling, water heating, ventilation, lighting, appliances, and electronics. As shown in Table 4.1-8, unmitigated energy source emissions from the proposed project would not exceed BAAQMD thresholds for ROG, NO_X, PM_{10}, or $PM_{2.5}$. As indicated in Table 4.1-8, operational emissions from the proposed project would not exceed BAAQMD thresholds. Therefore, the proposed project would not violate any air quality standards or contribute substantially to an existing or projected air quality violation. As a result, impacts associated with operational air quality would be *less than significant*.

Area Source Emissions

Area source emissions would be generated due to an increased demand for consumer products, architectural coating, hearths, and landscaping. As shown in Table 4.1-8, unmitigated area source emissions from the proposed project would not exceed BAAQMD thresholds. Therefore, impacts would be *less than significant*.

Significance Without Mitigation: Less than significant.

AQ-3 The proposed project would not expose sensitive receptors to substantial pollutant concentrations.

The proposed project could expose sensitive receptors to elevated pollutant concentrations if it would cause or contribute significantly to elevated pollutant concentration levels. Unlike regional emissions, localized emissions are typically evaluated in terms of air concentration rather than mass so they can be more readily correlated to potential health effects.

Toxic Air Contaminants

Construction

Construction-related activities would result in emissions of DPM from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., demolition, clearing, grading); paving; application of architectural coatings; on-road truck travel; and other miscellaneous activities. For construction activity, DPM is the primary toxic air contaminant of concern. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they would not stay on the site for long durations. Diesel exhaust from construction equipment operating at the site poses a health risk to nearby sensitive receptors. The closest sensitive receptors to the project site are listed in Table 4.1-5 previously shown. These include the residences to the north on Mary Avenue, the senior center to the east on Mary Avenue, and De Anza College south of Stevens Creek Boulevard.

Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The use of diesel-powered construction equipment would be episodic and would occur throughout the site. Construction activities would be subject to and would comply with State regulations limiting idling to no more than 5 minutes, which would further reduce nearby sensitive receptors' exposure to temporary and variable DPM emissions. Furthermore, even during the most intense year of construction, emissions of diesel PM would be generated from different locations on the project site rather than in a single location because different types of construction activities (e.g., site preparation and building construction) would not occur at the same place at the same time.

Maximum (worst case) $PM_{2.5}$ exhaust construction emissions over the entire construction period were used in AERSCREEN to approximate construction DPM emissions. Risk levels were calculated according to the California Office of Environmental Health Hazard Assessment (OEHHA) guidance document.

The results of this assessment indicate that the maximum concentration of $PM_{2.5}$ during construction would be 0.011 µg/m^3, which is below the BAAQMD significance threshold of 0.3 µg/m^3. The highest calculated carcinogenic risk from project construction is 2.23 per million based on an annual PM_{10} concentration of 0.012 µg/m^3. Non-cancer hazards for DPM would be below the BAAQMD threshold of 1.0, with a chronic hazard index computed at 0.001 and an acute hazard index of 0.01. As described above, worst-case construction risk levels based on screening-level modeling (AERSCREEN) and conservative assumptions would be below the BAAQMD's thresholds. Therefore, construction risk levels would be less than significant.

Operation

The proposed project would not be considered a source of TACs that would pose a possible risk to off-site uses. The proposed project involves the future development of mixed-use project that would include commercial and residential uses. The proposed project would not include stationary sources that emit TACs and would not generate a significant amount of heavy-duty truck trips (a source of DPM). Therefore, no impacts to surrounding receptors associated with TACs would occur.

Significance Without Mitigation: Less than significant.

Carbon Monoxide Hotspots

Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours.

The SFBAAB is designated as attainment for CO. Emissions and ambient concentrations of CO have decreased dramatically in the SFBAAB with the introduction of the catalytic converter in 1975. No exceedances of the CAAQS or NAAQS for CO have been recorded at nearby monitoring stations since 1991. As a result, the BAAQMD screening criteria notes that CO impacts may be determined to be less than significant if a project is consistent with the applicable congestion management plan (CMP) and would not increase traffic volumes at local intersections to more than 44,000 vehicles per hour, or 24,000 vehicles per hour for locations in heavily urban areas, where "urban canyons" formed by buildings tend to reduce air circulation. According to the transportation analysis prepared for the proposed project, the entire project would generate 108 total morning (AM) peak hour trips and 186 total evening (PM) peak hour trips. The project study intersection with the highest traffic volumes (Stevens Creek Boulevard/ Mary Avenue) would have 3,055 vehicles during the morning peak hour and 3,752 vehicles during the evening peak hour. Therefore, the proposed project would not involve intersections with more than 24,000 or 44,000 vehicles per hour. As a result, the proposed project would not generate a significant number of vehicle trips and impacts associated with CO concentrations would be less than significant.

Significance Without Mitigation: Less than significant.

4.1.4 CUMULATIVE IMPACTS

AQ-4 The proposed project, in combination with past, present, and reasonably foreseeable projects, would not cumulatively contribute to air quality impacts in the San Francisco Bay Area Air Basin.

The impact discussion above is based on the cumulative setting because all development within the SFBAAB contributes to regional emissions of criteria pollutants, and basin-wide projections of emissions is the best tool for determining the cumulative effect. As discussed above, Mitigation Measure AQ-2 is required to reduce the proposed project's contribution to regional air quality impacts. Therefore, the cumulative impact would be less than significant with implementation of Mitigation Measure AQ-2, and, no further discussion of cumulative impacts is necessary.

Significance With Mitigation: Less than significant.