3.4 Air Quality

This section describes the environmental and regulatory setting for air quality. It also describes impacts on air quality that would result from implementation of the Commonwealth Corporate Center Project (Project) and mitigation for significant impacts where feasible and appropriate. Cumulative impacts are discussed at the end of this section.

Additional information on air quality and the technical data used to prepare this section are provided in Appendix 3.4. Information on climate change is presented in Section 3.5, *Greenhouse Gas Emissions*.

There were no comments pertaining to air quality during the scoping meeting held for the Project in response to the Notice of Preparation (NOP) (Appendix 1).

Existing Conditions

Regulatory Setting

Air quality within the San Francisco Bay Area Air Basin (SFBAAB) is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policymaking, education, and a variety of programs. The agencies responsible for improving the air quality within the SFBAAB are discussed below.

Federal

United States Environmental Protection Agency. The United States Environmental Protection Agency (EPA) is responsible for setting and enforcing the national ambient air quality standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. EPA also has jurisdiction over emissions sources outside state waters (outer continental shelf) and establishes various emissions standards for vehicles sold in states other than California.

As part of its enforcement responsibilities, EPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the time frame identified in the SIP.

State

California Air Resources Board. California Air Resources Boards (ARB), a part of the California Environmental Protection Agency (Cal/EPA), is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, ARB conducts research, sets California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. ARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hair spray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

In April 2005, ARB issued a guidance document on air quality and land use, *Air Quality and Land Use Handbook: A Community Health Perspective*, which recommends that sensitive land uses not be located within 500 feet of a freeway or other high traffic roadway. It also recommends that a site-specific health risk assessment for all sensitive uses within 500 feet of a freeway or other high traffic roadway be performed as a way to more accurately evaluate the risk.

The basis for ARB's advisory recommendation of the 500 foot buffer is traffic-related studies of the additional cancer and non-cancer health risks attributable to proximity to roadways. Additional non-cancer health risks occur within 1,000 feet of freeways and high-traffic roadways. The highest concentration of emissions dissipates rapidly within the first 300 feet. According to ARB, California freeway studies also show an approximately 70 percent drop-off in particulate pollution levels at 500 feet, and lifetime cancer risk from exposure to diesel particulate matter (DPM) is expected to be lowered proportionately.[1] The guidance manual does not provide a quantitative acceptable threshold of risks from diesel exhaust from freeways in its recommendations of buffer distances between freeways and sensitive land uses. The ARB guidance acknowledges the need to balance this recommendation with other state and local policies addressing housing and transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues.

Local

Bay Area Air Quality Management District. Bay Area Air Quality Management District (BAAQMD) is the primary agency responsible for comprehensive air pollution control in the entire SFBAAB, including the County of San Mateo. To that end, BAAQMD, a regional agency, works directly with the Association of Bay Area Governments (ABAG), the Metropolitan Transportation Commission (MTC), and local governments and cooperates actively with all federal and state government agencies. BAAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emissions sources, and enforces such measures through educational programs or fines, when necessary.

BAAQMD is directly responsible for reducing emissions from stationary (area and point) sources and for assuring that state controls on mobile sources are effectively implemented. It has responded to this requirement by preparing a sequence of Ozone Attainment Plans and Clean Air Plans that comply with the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA) to accommodate growth, reduce the pollutant levels in the SFBAAB, meet the NAAQS/CAAQS, and minimize the fiscal impact that pollution control measures have on the local economy. The Ozone Attainment Plans are prepared for the federal ozone standard, and the Clean Air Plans are prepared for the state ozone standards. The most recent Ozone Attainment Plan was adopted by BAAQMD Board of Directors on October 2001 and demonstrates attainment of the federal ozone standard in the Bay Area by 2006. In January 2006, BAAQMD adopted the 2005 Ozone Strategy to identify further steps needed to continue reducing public's exposure to unhealthy levels of ozone. Most recently, the 2010 Clean Air Plan was adopted by the Board of Directors on September 15, 2010 and is intended to serve the following purposes.

- Update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the CCAA to implement "all feasible measures" to reduce ozone.
- Provide a control strategy to reduce ozone (O_3), particulate matter (PM), air toxics, and greenhouse gases (GHGs) in a single, integrated plan.
- Review progress in improving air quality in recent years.

[1] California Air Resources Board. 2005. Air Quality and Land Use Handbook: A Community Health Perspective. April 2005. Available: http://www.arb.ca.gov/ch/handbook.pdf. Accessed: October 2013.

- Establish emission control measures to be adopted or implemented in the 2010–2012 time frame.

These planning efforts have substantially decreased the population's exposure to unhealthful levels of pollutants, even while substantial population growth has occurred within the Bay Area.

In 2003, the California Legislature enacted Senate Bill 656 (SB 656) to reduce public exposure to PM10 and PM2.5. SB 656 required ARB, in consultation with local air districts, to develop and adopt, by January 1, 2005, a list of the most readily available, feasible, and cost-effective control measures that could be used by ARB and the air districts to reduce PM10 and PM2.5. In November 2005, BAAQMD adopted a Particulate Matter Implementation Strategy (PMIS) focusing on those measures most applicable and cost effective for the Bay Area.

Although BAAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate the air quality issues associated with plans and new development projects within the Bay Area. Instead, BAAQMD has used its expertise and prepared the BAAQMD California Environmental Quality Act (CEQA) Guidelines to indirectly address these issues in accordance with the projections and programs of the Ozone Attainment Plan and Clean Air Plan. The purpose of the BAAQMD CEQA Guidelines is to assist lead agencies, as well as consultants, project proponents, and other interested parties, in evaluating potential air quality impacts of projects and plans proposed in the Bay Area. Specifically, the BAAQMD CEQA Guidelines explain the procedures that BAAQMD recommends be followed during the environmental review processes required by CEQA. The BAAQMD CEQA Guidelines provide direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts.

BAAQMD recently updated its CEQA Guidelines and adopted revised CEQA significance thresholds on June 2, 2010.[2] All of the adopted CEQA thresholds of significance, except for the risk and hazards thresholds for new receptors, were effective June 2, 2010. The thresholds related to risk and hazards when considering the siting of new sensitive receptors, such as residences or schools, became effective May 1, 2011. The BAAQMD CEQA Guidelines were the subject of legal action claiming that BAAQMD needed to comply with CEQA prior to adopting their 2010 CEQA Guidelines and significance thresholds. On appeal the appellate court ruled that adoption of guidelines and thresholds is not considered a project subject to CEQA review and adoption of the significance thresholds was not arbitrary and capricious. As of September 2013, BAAQMD has yet to formally re-recommend its CEQA Guidelines and significance thresholds for use by local agencies. However, given the appellate court ruling, BAAQMD is expected to recommend their CEQA Guidelines and thresholds at any time and, therefore, the BAAQMD CEQA Guidelines and thresholds are utilized in this Draft EIR. Nevertheless, the City has the discretion to use, and has been using, the BAAQMD CEQA Guidelines.

City of Menlo Park. Local jurisdictions, such as the City of Menlo Park (City), have the authority to address air pollution issues through their land use decision-making processes. Specifically, the City is responsible for assessing the potential for and mitigating air quality problems that result from its land use decisions. The City is also responsible for the implementation of transportation control measures, as outlined in the Clean Air Plan.

[2] Bay Area Air Quality Management District. 2010. Draft CEQA Air Quality Guidelines. May. Available: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx. Accessed: October 2013.

In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits and monitors and enforces the implementation of such mitigation measures. The City uses the BAAQMD CEQA Guidelines as its guidance document for the environmental review of plans and development proposals within its jurisdiction.

Menlo Park General Plan. The General Plan guides development and use of land within the City. Several goals and policies would be expected to contribute to improving air quality. However, the following goal and policy from the Open Space and Conservation Element is most relevant to the Project.[3]

> **Goal OSC5:** Ensure Healthy Air Quality and Water Quality. Enhance and preserve air quality in accord with State and regional standards, and encourage the coordination of total water quality management including both supply and wastewater treatment.
>
> *Policy OSC5.1*: 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.

Environmental Setting

Air Quality Background

The City is located within the SFBAAB, an area surrounded by mountains that confine the movement of air and the pollutants it contains. This area includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, the western half of Solano, and the southern half of Sonoma Counties. The regional climate within the SFBAAB is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime on-shore breezes, and moderate humidity. A wide range of meteorology and emissions sources—such as dense population centers, heavy vehicular traffic, and industrial activity—primarily influence the air quality within the SFBAAB.

Air pollutant emissions within the SFBAAB are generated from stationary, area-wide, mobile, and natural sources. Stationary sources can be divided into two major subcategories: point and area sources. *Point sources* occur at an identified location and are usually associated with manufacturing and industry. Examples are boilers and combustion equipment that produce electricity or generate heat. *Area sources* consist of many smaller point sources that are widely distributed. Examples of area sources include residential and commercial water heaters, painting operations, portable generators, lawn mowers, agricultural fields, landfills, and consumer products, such as barbeque lighter fluid and hair spray. Construction activities that create fugitive dust, through activities such as excavation and grading, also contribute to area source emissions. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either onroad or offroad. Onroad sources may be legally operated on roadways and highways. Offroad sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment, such as when fine dust particles are pulled off the ground surface and suspended in the air during high winds.

Both the federal and state governments have established ambient air quality standards for outdoor concentrations of various pollutants in order to protect public health. The NAAQS/CAAQS have been set

[3] City of Menlo Park. 2013. Menlo Park General Plan, Open Space/Conservation, Noise and Safety Elements. Adopted May 21.

at levels above which concentrations could be generally harmful to human health and welfare and that would protect the most sensitive persons from illness or discomfort with a margin of safety.

The air pollutants for which NAAQS/CAAQS have been promulgated and that are most relevant to air quality planning and regulation in the SFBAAB include ozone (O_3), carbon monoxide (CO), respirable particulate matter (PM10), fine particulate matter (PM2.5), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). In addition, toxic air contaminants (TACs) are of concern in the SFBAAB. Each of these is briefly described below.

- **Ozone (O_3)** is a gas that is formed when volatile organic compounds (VOCs), which can also be referred to as reactive organic gases (ROG), and nitrogen oxides (NO_X), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Meteorological conditions that are needed to produce high concentrations of ozone are direct sunshine, early morning stagnation in source areas, high ground surface temperatures, strong and low morning inversions, greatly restricted vertical mixing during the day, and daytime subsidence that strengthens the inversion layer. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable.
- **Nitrogen Dioxide (NO_2)** a reddish-brown reactive, oxidizing gas capable of damaging cells lining the respiratory tract and is an essential ingredient in the formation of ozone. Like O_3, NO_2 is not directly emitted but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM10 and is emitted as a by-product of fuel combustion.
- **Carbon Monoxide (CO)** a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest in the winter mornings when surface-based inversions trap the pollutant at ground level. Because CO is emitted directly from internal combustion engines, unlike ozone, and motor vehicles operating at slow speeds are the primary source of CO in the SFBAAB, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- **Respirable Particulate Matter (PM10) and Fine Particulate Matter (PM2.5)** consist of extremely small, suspended particles or droplets 10 microns and 2.5 microns, respectively, or smaller, in diameter. Some sources of particulate matter, like pollen and windstorms, are naturally occurring. However, in populated areas, most particulate matter is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.
- **Toxic Air Contaminants (TACs)** is a general term for a diverse group of air pollutants that can adversely affect human health, but have not had ambient air quality standards established for them. They are not fundamentally different from the pollutants discussed above, but lack ambient air quality standards for a variety of reasons (e.g., insufficient data on toxicity, association with particular workplace exposures rather than general environmental exposure, etc.). TACs effects tend to be local rather than regional. ARB has designated nearly 200 compounds as TACs. Additionally, ARB 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 a relatively few compounds, the most important being particulate matter from diesel-fueled engines (DPM). The health effects of TACs can result from either acute or chronic exposure; many types of cancer are associated with chronic TAC exposures.

- **Sulfur Oxides (SO_X)**, primarily SO_2, is a product of high-sulfur fuel combustion and chemical processes occurring at chemical plants and refineries. It is a colorless, extremely irritating gas or liquid. Although sulfur dioxide concentrations have been reduced to levels well below State and national standards, further reductions are desirable to attain compliance with standards for PM10, of which SO_2 is a contributor.
- **Lead (Pb)** occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead in the SFBAAB. The use of leaded gasoline is no longer permitted for onroad motor vehicles; therefore, most lead combustion emissions are associated with offroad vehicles such as racecars and some jet fuels. Other sources of lead occur in the manufacturing and recycling of batteries, paint, ink, ceramics, ammunition, and secondary lead smelters.

Existing Regional Air Quality

The air quality on the San Francisco Bay Peninsula (Peninsula), including the City, has generally improved over the past 20 years, as motor vehicles have become cleaner, agricultural and residential burning has been curtailed, and as consumer products containing ROGs have been reformulated or replaced. The emissions inventory for the entire SFBAAB and San Mateo County is summarized in Table 3.4-1. In the SFBAAB, motor vehicles generate the majority of ROG, NO_X, and CO. Stationary sources generate the most SO_X and area-wise sources generate the most airborne particulates (PM10 and PM2.5). The primary pollutants of concern in the SFBAAB are ozone (ROG and NO_X), CO, and PM.

Table 3.4-1. SFBAAB and San Mateo County 2010 and 2015 Estimated Average Daily Emissions (tons per day)

Year	Emissions Source	ROG	NO_X	CO	SO_X	PM10	PM2.5
2010	San Francisco Bay Area Air Basin	359.2	414.2	1595.7	62.2	215.7	81.6
2015	San Francisco Bay Area Air Basin	330.6	334.6	1123.4	65.8	225.2	83.1
2010	San Mateo County	33.4	56.2	158.3	8.6	20.9	7.6
2015	San Mateo County	31.2	53.6	136.1	10.3	22.2	8.0

Source: California Air Resources Board. 2013. Almanac Emission Projection Data, Available: http://www.arb.ca.gov/app/emsinv/emssumcat.php. Published in 2009. Accessed: June 11, 2013.

Existing Local Air Quality

BAAQMD monitors ambient air pollutant concentrations through a series of monitoring stations located throughout the SFBAAB. The closest monitoring station to the Project site is the Redwood City monitoring station, which is located approximately 1.68 miles to the northwest of the Project site. The Redwood City monitoring station currently measures concentrations of ozone, CO, NO_2, and PM2.5. Data from the Cupertino monitoring station was also used to report PM10 concentrations not available at the Redwood City monitoring station. The Cupertino monitoring station is located 12.5 miles south of the Project site.

Table 3.4-2 identifies the national and state ambient air quality standards for relevant air pollutants along with the ambient pollutant concentrations that have been measured at the Redwood City and Cupertino monitoring stations through the period of 2010 to 2012. Measurements from these years indicate that state standards for ozone were exceeded once in the past 3 years and have not been exceeded in the past 2 years. Particulate air quality is a moderate problem on the Peninsula. There

Table 3.4-2. Summary of Ambient Air Quality in the Project Vicinity

Pollutant Standards	2010	2011	2012
Ozone (O_3) – Redwood City			
Maximum 1-hour concentration (ppm)	0.113	0.076	0.063
Days exceeding[a] the CAAQS 1-hour standard (>0.09 ppm)	2	0	0
Maximum 8-hour concentration (ppm)	0.077	0.062	0.055
Days exceeding[a] the CAAQS 8-hour (>0.070 ppm)	1	0	0
Days exceeding[a] the NAAQS 8-hour (>0.075 ppm)	1	0	0
Carbon Monoxide (CO) **– Redwood City**			
Maximum 1-hour concentration (ppm)	3.3	3.8	4.0
Days exceeding[a] the NAAQS 1-hour (≥35 ppm)	0	0	0
Days exceeding[a] the CAAQS 1-hour (≥20 ppm)	0	0	0
Maximum 8-hour concentration (ppm)	1.72	1.67	1.81
Days exceeding[a] the NAAQS 8-hour (≥9 ppm)	0	0	0
Days exceeding[a] the CAAQS 8-hour (≥9.0 ppm)	0	0	0
Nitrogen Dioxide (NO_2) **– Redwood City**			
State maximum 1-hour concentration (ppm)	0.059	0.056	0.046
Annual average concentration (ppm)	0.012	0.012	-
Days exceeding[a] the CAAQS 1-hour (0.18 ppm)	0	0	0
Particulate Matter (PM10)[c] **– Cupertino**			
National[b] maximum 24-hour concentration (μg/m^3)	27.9	28.36	39.1
State[c] maximum 24-hour concentration (μg/m^3)	27.4	28.9	41.5
Days exceeding[a] the NAAQS 24-hour (>150 μg/m^3)[g]	0	0	0
Days exceeding[a] the CAAQS 24-hour (>50 μg/m^3)[g]	0	0	0
Particulate Matter (PM2.5) **– Redwood City**			
National[b] maximum 24-hour concentration (μg/m^3)	36.5	39.7	33.3
State[c] maximum 24-hour concentration (μg/m^3)	32.7	24.0	34.3
Days exceeding[a] the NAAQS 24-hour (>35 μg/m^3)	1	1	0

Source: California Air Resources Board. 2013. Top 4 Summary Pollutant/Year Range Selection. Available: http://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed: June 6, 2013; U.S. Environmental Protection Agency 2013. Monitor Values Report| Air Data| US EPA. Available: http://www.epa.gov/airdata/ad_rep_mon.html. Last Updated: September 9, 2013. Accessed: October 2013.

Notes:

ppm = parts per million
NAAQS = National Ambient Air Quality Standards
CAAQS = California Ambient Air Quality Standards
μg/m3 = micrograms per cubic meter
mg/m3 = milligrams per cubic meter
- = data not available

a. An exceedance is not necessarily a violation. This is a mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been rounded.

b. Measurements usually are collected every 6 days.

c. State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

were two exceedances of the national 24-hour standard in 2010 at the Redwood City monitoring station. Carbon monoxide, a product of incomplete combustion, was formerly a problem for the Peninsula, but with improved motor vehicles and fuels, air quality at Redwood City meets state and federal standards. Due to the City's close proximity to the monitoring stations in Redwood City and Cupertino, it can be assumed that pollutant concentrations are similar in the City.

Attainment Status

Measurements of local ambient concentrations of the criteria pollutants (CP) are used by EPA and ARB to assess and classify the air quality of each regional air basin, county, or, in some cases, a specific urbanized area. The classification is determined by comparing actual monitoring data with national and state standards. If a pollutant concentration in an area is lower than the standard, the area is classified as being in *attainment* for that pollutant. If the pollutant exceeds the standard, the area is in marginal, moderate, serious, severe, or extreme *nonattainment*, depending on the magnitude of the air quality standard exceedance. *Attainment* is assigned to areas where pollutant concentrations, used to exceed the standards, meet the standard over a designated period of time. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated *unclassified*.

EPA and ARB use different standards for determining whether the SFBAAB is an attainment area. Under national standards (NAAQS), the SFBAAB is currently classified as a nonattainment area for O_3 and PM2.5. The SFBAAB is in attainment or designated as unclassified for all other pollutants under national standards. Under state standards (CAAQS), the SFBAAB is designated as a nonattainment area for O_3, PM10, and PM2.5, and an attainment area for all other pollutants. Table 3.4-3 summarizes the attainment status of San Mateo County with regard to the NAAQS and CAAQS.

Project Site Inventory

Existing development at the Project site consists of an unused 217,396 square-foot (sf) warehouse and distillery industrial complex that has been vacant since July 2011 (Commonwealth Site), and an in-use 20,462-sf light industrial building (Jefferson Site). Due to the vacancy of the former distillery on the Commonwealth Site, no existing emissions are assumed from this site. Only the existing emissions associated with the Jefferson Site are considered in the discussion below.

Table 3.4-3. Federal and State Attainment Status for San Mateo County

Criteria Pollutant	Federal Designation	State Designation
O_3 (1-hour)	--[a]	Serious Nonattainment
O_3 (8-hour)	Nonattainment	Nonattainment
CO	Maintenance	Attainment
PM10	Attainment	Nonattainment
PM2.5	Nonattainment	Nonattainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(No Federal Standard)	Attainment
Hydrogen Sulfide	(No Federal Standard)	Unclassified[b]
Visibility	(No Federal Standard)	Unclassified[b]

Source:
California Air Resources Board. 2013. Top 4 Summary Pollutant/Year Range Selection. Available: http://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed: June 6, 2013; U.S. Environmental Protection Agency. 2013b. The Green Book Nonattainment Areas for Criteria Pollutants. Last revised: July 31, 2013. Available: http://www.epa.gov/oar/oaqps/greenbk/. Accessed: October 2013.

Notes:
CO = carbon monoxide
PM10 = particulate matter less than or equal to 10 microns
PM2.5 = particulate matter less than or equal to 2.5 microns
NO_2 = nitrogen dioxide
SO_2 = sulfur dioxide

a. The federal 1-hour standard of 12 parts per hundred million (pphm) was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in the state implementation plans.

b. *Unclassified* is assigned to areas where there are not enough data available to determine whether the pollutant concentrations are below or exceed the standard.

An inventory of the CP emissions generated by existing uses on the Project site is provided in Table 3.4-4. The CP emissions were estimated using the California Emission Estimator Model (CalEEMod), version 2011.1.1 (see *Methods for Analysis* for more information on this model). CalEEMod is a BAAQMD-approved model for emission estimates for the Project. The inventory includes the following emissions.

- **Area Source Emissions.** Area source emissions are direct emissions sources, which include emissions from landscaping equipment and consumer product use. Existing emissions generated by these sources were estimated using CalEEMod default emission factors and land use assumptions.
- **Emissions Associated with Energy Use.** The combustion of natural gas on-site for heating and other purposes in buildings generates direct emissions of CPs. Existing emissions generated by natural gas usage were estimated using the existing usage data provided by the Sobrato Organization (Project Sponsor).
- **Vehicular Emissions.** Emissions associated with existing vehicle trips were estimated using the employee trips shown in Section 3.3, *Transportation and Traffic*, CalEEMod default emission

factor for the year 2013, and CalEEMod default trip lengths for work-related trips in the San Mateo County.

It is believed that the above sources represent the vast majority of the CP emissions associated with existing operations within the Project area. Therefore, the CP inventory presented in Table 3.4-4 represents a reasonable estimate of all emissions directly associated with current onsite operations. CalEEMod model inputs and assumptions and model outputs are provided in Appendix 3.4-1.

Table 3.4-4. Existing Operational Criteria Pollutant Emissions

Source Category	ROG	NO_X	CO	PM10	PM2.5	ROG	NO_X	CO	PM10	PM2.5
	Average (lbs/day)					Tons/Year				
Area	0.44	0	0	0	0	0.08	0	0	0	0
Energy Use	0	0.02	0.02	0	0	0	0	0	0	0
Vehicular	0.57	0.89	5.64	1.14	0.07	0.09	0.14	0.86	0.14	0.01
Total	1.01	0.91	5.66	1.14	0.07	0.17	0.14	0.86	0.14	0.01

Source: ICF, 2013.
Note:
Please refer to Appendix 3.4-1 for emission calculation assumptions and model inputs and outputs.

Sensitive Receptors

Populations that are more susceptible to the effects of air pollution than the population at large are often referred to as *sensitive receptors*. While the ambient air quality standards are designed to protect public health and are generally regarded as conservative for healthy adults, there is greater concern to protect adults who are ill or have long-term respiratory problems and young children whose lungs are not fully developed. According to ARB, sensitive receptors include children less than 14 years of age, the elderly over 65 years of age, athletes, and people with cardiovascular and chronic respiratory diseases. According to BAAQMD,

> . . . examples of receptors include residences, schools and school yards, parks and play grounds, daycare centers, nursing homes, and medical facilities. Residences can include houses, apartments, and senior living complexes. Medical facilities can include hospitals, convalescent homes, and health clinics. Playgrounds could be play areas associated with parks or community centers.[4]

Sensitive Receptors in the vicinity of the Project site include residences and schools, described below.

- Residential uses located south of the Project site, separated by US 101, approximately 250 feet from the Project site boundary and 500 feet from the center of the Commonwealth Site.
- Beechwood School located southeast of the Project site, separated by the Dumbarton Rail Corridor, approximately 350 feet from the Project site boundary and 950 feet from the center of the Commonwealth Site.

[4] Bay Area Air Quality Management District. 2010. Draft CEQA Air Quality Guidelines. May. Available: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx. Accessed: October 2013.

Environmental Impacts

This section describes the impact analysis relating to air quality for the Project. It describes the methods used to determine the impacts of the Project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the Project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people

A cumulatively considerable net increase of any criteria pollutant for which the Project region is in nonattainment status under federal or state air quality standards, typically also constitutes a significant impact. This issue is discussed in *Cumulative Impacts* section.

According to the State CEQA Guidelines, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make significance determinations for potential impacts on environmental resources. As discussed above, the BAAQMD is responsible for ensuring that state and federal ambient air quality standards are not violated within the SFBAAB. Analysis requirements for construction- and operational-related pollutant emissions are contained in the BAAQMD's *CEQA Air Quality Guidelines*.[5] The *CEQA Air Quality Guidelines* also contain thresholds of significance for ozone, CO, PM2.5, PM10, TACs, and odors; these thresholds are presented in Table 3.4-5.

[5] Bay Area Air Quality Management District. 2010. Draft CEQA Air Quality Guidelines. May. Available: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx. Accessed: October 2013.

Table 3.4-5. BAAQMD Criteria Pollutant Emissions Thresholds

Pollutant	Construction	Operations
ROG	54 lbs/day	54 lbs/day or 10 tons/year
NO_X	54 lbs/day	54 lbs/day or 10 tons/year
CO	No standard	Violation of CAAQS
PM10	82 lbs/day (exhaust)	82 lbs/day or 15 tons/year (total)
PM2.5	54 lbs/day (exhaust)	54 lbs/day or 10 tons/year (total)
PM10/ PM2.5 (fugitive dust)	Best management practices (BMPs)	No standard
TACs (Project-level)	Increased cancer risk of 10 in 1 million; increased non-cancer risk of greater than 1.0 (hazard index [HI]); PM2.5 increase of greater than 0.3 micrograms per cubic meter	Same as construction
TACs (cumulative)	Increased cancer risk of 100 in 1 million; increased non-cancer risk of greater than 10.0; PM2.5 increase of greater than 0.8 microgram per cubic meter at receptors within 1,000 feet	Same as construction
Odors	–	Five complaints per year averaged over three years

Source: Bay Area Air Quality Management District. 2010. Draft CEQA Air Quality Guidelines. May.

The City has independently reviewed the BAAQMD proposed thresholds and determined that they are supported on substantial evidence and are appropriate for use to determine significance in the environmental review of this Project. Specifically, the City has determined that the BAAQMD thresholds are well-grounded on air quality regulations, scientific evidence, and scientific reasoning concerning air quality and GHG emissions. Using these thresholds for the Project also allows a rigorous standardized approach of determining whether the Project would cause a significant air quality impact. BAAQMD's Justification Report explains the agency's reasoning for adopting the thresholds.[6] Below is a summary of the basis upon which the BAAQMD's thresholds were developed.

1. The significance thresholds, as shown in Table 3.4-5, for criteria pollutants (ROG, NO_X, PM10, and PM2.5) are based on the stationary source emission limits of the federal CAA and the BAAQMD Regulation 2, Rule 2. The federal New Source Review (NSR) program, created by the federal CAA, set the emissions limits to ensure that stationary sources of air pollution are constructed in a manner that is consistent with attainment of NAAQS. Similarly, to ensure that new stationary sources do not cause or contribute to a violation of an NAAQS, BAAQMD Regulation 2 Rule 2 requires any new source that emits criteria air pollutants above specified emissions limits to offset those emissions. Although the emission limits are adopted in the regulation to control stationary source emissions, when addressing public health impacts of regional criteria pollutants, the amount of emissions is the key determining factor, regardless of source. Thus, the emission limits are appropriate for the evaluation of land use development and construction activities as well as stationary sources. Those projects that result in emissions

[6] Bay Area Air Quality Management District. 2009. Revised Draft Options and Justification Report: California Environmental Quality Act Thresholds of Significance. October. San Francisco, CA.

below the thresholds would not be considered to be projects that would contribute to an existing or projected air quality violation or result in a considerable net increase in criteria pollutant emissions. The federal NSR emission limits and BAAQMD's offset limits are identified in the regulation on an annual basis (in tons per year). For construction activities, the limits are converted to average daily emissions (in pounds per day), as shown in Table 3.4-5, because of the short-term intermittent nature of construction activities and, if emissions would not exceed the average daily emission limits, the Project would also not exceed the annual levels.

2. Similar to the criteria pollutant thresholds, the health risk impact thresholds are developed based on the cancer and non-cancer risk limits for new and modified sources adopted in the BAAQMD Regulation 2, Rule 5 and the EPA Significant Impact Level (SIL) for PM2.5 emissions. The EPA SIL is a measure of whether a source may cause or contribute to a violation of NAAQS. Health risks due to toxic emissions from construction, though temporary, can still result in substantial public health impacts due to increases cancer and non-cancer risks. Applying quantitative thresholds allows a rigorous standardized method of determining when a construction project will cause a significant increase in increases cancer and non-cancer risks. The cumulative health risk thresholds are based on EPA guidance for conducting air toxics analyses and making risk management decisions at the facility and community-scale level and are also consistent with the ambient cancer risk in the most pristine portions of the Bay Area based on the BAAQMD's recent regional modeling analysis and the non-cancer Air Toxics Hot Spots (ATHS) mandatory risk reduction levels.

3. The odor threshold is consistent with the BAAQMD Regulation 7 for Odorous Substances and reflects the most stringent standards derived from the BAAQMD rule.

Methods for Analysis

The analysis of air quality impacts involves determining the CP and TAC emission inventories for the Project sources and comparing these inventories against thresholds of significance to determine if air quality impacts would result. In addition, a screening-level health risk assessment (HRA) was conducted to determine the impacts of TACs emitted by the Project on existing sensitive receptors consistent with BAAQMD CEQA Guidelines. The HRA described in this document also considers the impacts of other nearby emission sources on existing sensitive receptors to determine the cumulative impacts of the Project. The HRA characterizes the relationship between the magnitude of TAC exposure and the nature and magnitude of adverse health effects that may result from such exposure. The HRA identify the exposure to TAC concentrations by predicting health risks in terms of excess cancer risks, non-cancer hazard indexes, and elevated PM2.5 concentrations.

To conduct an HRA, emission inventories are presented together for both buildings and the landscaping activities at the Project site, where the Jefferson and Commonwealth Sites are counted as one entity. These inventories consider five categories of criteria emissions: construction, area sources, energy use, traffic, and emergency generator testing. The inventories in this report are a reflection of the guidance and knowledge currently available.

CalEEMod is the primary tool used to assist in quantifying the emissions from the Project presented in this section. CalEEMod is a statewide program designed to calculate both CP and GHG emissions from development projects in California. This model was developed under the auspices of the South Coast Air Quality Management District (SCAQMD), which received input from other California air districts, including BAAQMD, and is the currently model accepted by BAAQMD for use in quantifying the emissions associated with development projects undergoing environmental review. CalEEMod utilizes

widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. These models and default estimates use sources, such as the EPA AP-42 compendium of emission factor,[7] ARB's onroad and offroad equipment emission models, such as the EMission FACtor model (EMFAC) and the Offroad Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies, such as the California Energy Commission (CEC) and CalRecycle.

Consistency with the Clean Air Plan. The most current air quality plan for the region is the recently adopted 2010 Clean Air Plan, which updates the 2005 Ozone Strategy and represents a unique approach to air planning by including GHGs, as well as CPs and TACs. For the 2010 Clean Air Plan, the travel activity adjustments used in preparing the on-road mobile source inventory are the same as those used in the Transportation Air Quality Conformity Analysis for MTC's regional transportation plans. MTC's travel demand model utilizes regional demographic forecasts from ABAG's socioeconomic and population projections. Under BAAQMD methodology, for consistency with the 2010 Clean Air Plan, a project or plan must demonstrate that the population or VMT assumptions contained in the Clean Air Plan would not be exceeded and that the project or plan implements transportation control measures (TCMs) as applicable.

Mass Construction Emissions. This section describes the estimation of Criteria Pollutants (CP) emissions from construction activities at the Project site. Construction activities associated with the Project would generate short-term emissions of ROG, NO_X, CO, PM10, and PM2.5. Emissions would originate from onroad hauling trips, workers' commute trips, construction-site fugitive dust, off-gassing from paving, and offroad construction equipment. Construction-related emissions would vary substantially depending on the level of activity, the specific equipment in operation, and wind and precipitation conditions.

CalEEMod was used in quantifying the construction emissions based on the construction activities and the anticipated schedule and durations provided by the Project Sponsor. The construction equipment list was developed independently by ICF, using CalEEMod defaults as a basis, and verified by the Project Sponsor. The equipment load factors were adjusted to reflect the updated load factors from the Carl Moyer Program.[8,9] The CalEEMod model inputs and assumptions are provided for reference in Appendix 3.4-2.

Mass Operational Emissions. The baseline against which the Project operation impacts are measured is the vacant Commonwealth Site and the operational Jefferson Site, which is occupied with approximately 30 employees. The operational CP emissions associated with the Project are outlined below. Emissions from Project traffic, area sources, and natural gas combustion would occur every year after build out. Emergency generator testing would also occur periodically. CalEEMod model was used to assist in quantification of the operational emissions, except for emergency generator testing, which was based on the manufacture specified emission factors for the proposed diesel generators and the emission factors from OFFROAD2011.

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[7] The EPA maintains a compilation of Air Pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Website: http://www.epa.gov/ttnchie1/ap42/.

[8] The Carl Moyer Program achieves reductions in emissions of key pollutants that are necessary for California to meet its clean air commitments under regulatory requirements. Eligible projects include cleaner on-road, off-road, marine, locomotive, lawn and garden, light duty passenger vehicles being scrapped and agricultural equipment.

[9] California Air Resources Board. 2011. *The Carl Moyer Program Guidelines*. Approved: April 28, 2011.

Project-specific data and assumptions used to estimate the operational CP emissions for each source category are briefly described below within the additional information and CalEEMod model inputs and assumptions provided in Appendix 3.4-1.

- **Area Source Emissions.** Proposed emissions generated by these area sources were estimated using the same approach described for the existing Project site inventory above.
- **Emissions Associated with Energy Use.** Proposed emissions generated by natural gas usage were estimated using the site-specific data provided by the Project Sponsor. The natural gas analysis takes into account that the Project would meet CalGreen/Title 24 standards (see Section 3.13, *Utilities and Service Systems*).
- **Vehicular Emissions.** Proposed emissions associated with vehicle trips were estimated using the same approach described for the existing Project site inventory above.
- **Emissions Associated with Generator Test.** Emergency generators emit CPs when they are tested to ensure proper functioning. It was assumed that each of the two proposed emergency generators would be tested once per week for 30 minutes, as specified by the Project Sponsor. To calculate emissions, the horsepower rating of the engine is multiplied by an emission factor for each pollutant and the total number of hours operated per year. Manufacture-specified emission factors were obtained from information supplied by the Project Sponsor.

CO Hotspot Analysis. Traffic generated by the Project would have the potential to create CO hotspots at nearby roadways and intersections. The effects of localized CO hotspots were evaluated through CO dispersion modeling consistent with the Transportation Project-Level Carbon Monoxide Protocol, which was developed for the California Department of Transportation (Caltrans) by the Institute of Transportation Studies at the University of California, Davis.[10] The CO protocol details a qualitative step-by-step procedure to determine whether project-related CO concentrations have a potential to generate new air quality violations, worsen existing violations, or delay the attainment of NAAQS or CAAQS for CO.

Existing (2013), build year (2015), and cumulative year (2030) traffic conditions were modeled to evaluate CO hotspot concentrations at the following three intersections: Bayfront Expressway/Marsh Road, Bayfront Expressway/Willow Road, Bayfront Expressway/University Avenue, because these study intersections would result in a combination of high traffic volume and high vehicle delay. CO concentrations were estimated using ARB's EMFAC2011 model, the CALINE4 dispersion model, peak-hour traffic data shown in Section 3.3, *Transportation and Traffic*, and local background CO concentration shown in Table 3.4-2. Detailed information on emissions modeling and quantification methods are included in Appendix 3.4-4.

[10] Garza et al. 1997. Transportation Project-Level Carbon Monoxide Protocol. Davis, CA: Institute of Transportation Studies, University of California, Davis.

Screening-Level Health Risk Assessment. In order to evaluate the impacts of TACs and PM2.5 on nearby existing sensitive receptors, an screening-level HRA was performed in this analysis consistent with BAAQMD's CEQA Air Quality Guidelines and *Air Quality Guidelines and Recommended Methods for Screening and Modeling Local Risks and Hazards*.[11,12]

Analysis of health risks for the Project considers exposure of nearby sensitive receptors to DPM and PM2.5 generated by diesel-powered equipment and vehicles during construction and operations. The HRA evaluates the impact of project construction and operations on cancer risk levels, non-cancer hazard index (HI) levels, and PM2.5 concentrations at the sensitive receptors. While NO_X and ROG influence overall atmospheric chemistry, they do not drive primary health risks associated with the types of activities that would occur under the Project. Accordingly, this analysis focuses on DPM, which are the primary pollutants of concern with regard to diesel-powered equipment.

Project sources include the construction equipment activity under Project construction and testing of emergency generators under Project operation. Other sources within 1,000 feet of the Project site include other commercial generators, US 101, and area sources from industry. The screening-level HRA is performed with the following steps.

1. Use EPA's AERSCREEN model, which is the screening-level model for AERMOD, to predict PM10 and PM2.5 hourly concentrations at sensitive receptors based on the estimated daily exhaust emissions (see discussions of *Mass Construction Emissions* and *Mass Operational Emissions* above).
    - For construction equipment, the average daily exhaust emissions for each phase were converted to the PM 10 and PM 2.5 emission rates based on 8 hour operation per day.
    - For generator test, the exhaust emissions generated during each test were converted to the PM 10 and PM 2.5 emission rates based on one hour operation per test for both generators.
2. Calculate the project-level cancer risk, non-cancer HI, and annual PM2.5 concentrations based on the modeled AERSCREEN hourly concentrations at the sensitive receptors.
    - For construction, the health risk and hazard are calculated for each construction phase using the construction duration for each phase.
    - For generator test, the health risk and hazard are calculated based on the proposed test schedule (30 minutes for each generator per test at 60 minutes total for both generators, one test per week, and 52 weeks per year).
3. Identify background stationary and roadway sources within 1,000 feet of the Project site that contribute to existing cancer and non-concern risk, using Google Earth map files provided by the BAAQMD. The following background sources were identified and included in the analysis.
    - Stationary: Three stationary sources were identified using Google Earth map files provided by BAAQMD: Infolmage generator set (#18216), Geron Corporation generator

[11] Bay Area Air Quality Management District. 2010. Draft CEQA Air Quality Guidelines. May. Available: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx. Accessed: October 2013.

[12] Bay Area Air Quality Management District. 2012. Recommended Methods for Screening and Modeling Local Risks and Hazards. May. San Francisco, CA. Available: http://www.baaqmd.gov/Home/Divisions/Planning%20and%20Research/CEQA%20GUIDELINES/Tools%20and%20Methodology.aspx. Accessed: October 2013.

set (#16110), and Caltrans generator set at the edge of US 101 in front of Project site (#19890). The Google Earth map file include estimated health risk and hazard index at each site, which were converted to the health risk and hazard index at the sensitive receptors using the BAAQMD's distance multiplier tool for backup generators.[13]

- Roadway: US 101 is the only roadway source within 1,000 feet of the Project site with daily traffic volume greater than 10,000 vehicles. Health risk and hazard index associated with US 101 in the project vicinity were estimated using the Google Earth map file for highway sources, which provides the health risk and hazard index at various distances from the highway segment.

4. Calculate the cumulative-level health risks by adding the background health risks sources identified in step 3 to the project-level health risk and hazard impacts estimated in step 2.

Additional details for health risk calculations and AERSCREEN model inputs and outputs are provided in Appendix 3.4-3.

Impacts and Mitigation Measures

Impact AQ-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Plan. The Project would not conflict with or obstruct implementation of the applicable air quality plan. (LTS)

Metropolitan Transportation Commission (MTC) maintains an inventory of population for the region and by county, the latest version of which was published in 2008.[14] The MTC population estimates cite a 2035 population of 861,600 in San Mateo County. Implementation of the Project would result in an employment increase of approximately 1,300. As discussed in Section 3.11, *Population and Housing*, this represents approximately 262 new residents in the region, which represents approximately 0.04 percent of the total anticipated growth in the County according to ABAG 2013 Projections.

MTC also maintains an inventory of VMT for the Bay Area region and by county. For 2035, MTC data shows VMT for San Mateo County to be 19,657,142 miles per day. Full operation of the Project would result in a vehicle trip generation of 3,713 trips per weekday. The resulting regional increase in VMT would be 37,130 miles per weekday.[15] The addition of Project-related VMT represents approximately 0.2 percent of the total anticipated VMT growth in the Bay Area in 2035. The Project's contribution to VMT would not exceed the regional VMT projections and do not constitute a significant share of overall VMT for the Bay Area according to MTC's VMT inventory.

[13] Bay Area Air Quality Management District. 2012b. Google Earth map files for San Mateo County to identify stationary and highway sources and associated estimated risk and hazard impacts for the cumulative analysis. Last updated: May 31. Available at: http://www.baaqmd.gov/Divisions/ Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx. Accessed: October 2013.

[14] Metropolitan Transportation Commission. 2008. Travel Forecasts Data Summary, Transportation 2035 Plan For the San Francisco Bay Area. December. Available: http://www.mtc.ca.gov/planning/2035_plan/Supplementary/T2035-Travel_Forecast_Data_Summary.pdf. Accessed: October 2013.

[15] The average trip length is assumed to be 10 miles per one-way trip based on the CalEEMod's default trip length for work-related trips in San Mateo County.

Both the 2010 Clean Air Plan and the 2005 Ozone Strategy emphasize the need for smart growth and a reduction of single automobile usage. The Project includes a TDM program to reduce vehicular traffic generated by the Project, as described in Section 3.3, *Transportation and Traffic*. The Project would also enhance non-automotive access to and within the Project site, including providing bicycle parking and showers and changing rooms for cyclists.

The transportation improvements explained in more detail in Section 3.3, *Transportation and Traffic*, would collectively promote carpool and vanpool, increase accessibility to transit, and promote safe bicycle circulation. These improvements are consistent with and supportive of the TCMs identified in the 2005 Ozone Strategy and the 2010 Clean Air Plan, as critical to attaining the CCAA ozone standard. Therefore, the Project does not conflict with or obstruct implementation of the applicable Air Quality Plan, and impacts are considered ***less than significant***.

Impact AQ-2: Violation of Any Air Quality Standard During Construction. The Project could result in the violation of a BAAQMD air quality standard or substantial contribution to an existing or projected air quality violation during Project construction. (PS)

Construction of the Project has the potential to create air quality impacts through the use of heavy-duty construction equipment, construction worker vehicle trips, and truck hauling trips. In addition, fugitive dust emissions would result from demolition of existing structures, excavation, and grading. Mass criteria pollutant emissions generated by these sources were quantified using CalEEMod (version 2011.1.1) and information provided by the Project Sponsor.

Estimation of construction emissions are described above in the *Methods for Analysis* section, and the estimated construction emissions are summarized in Table 3.4-6. The construction activities are categorized into three major construction phases: demolition; excavation and grading; and building construction. Table 3.4-6 shows the maximum daily emissions that would be generated during these major phases and accounts for the overlapping construction activities that would occur during the building construction phase.

It is anticipated that the construction process would start in April 2014 with the demolition of the existing buildings and would continue over approximately 15 months, with full buildout by mid-2015. As shown in the Table 3.4-6, daily construction emissions generated during demolition and excavation/grading phases and the portion of building construction phase in 2014 would exceed the BAAQMD threshold for NO_X emissions. The exceedance is due to the larger amount of construction equipment required onsite for these construction phases and the larger amount of truck hauling trips occurring during site excavation and grading. During the 15-month construction period, NO_X construction emissions are estimated to exceed the BAAQMD threshold for 91 days. Therefore, impacts would be ***potentially significant***.

Table 3.4-6. Project Construction Criteria Air Pollutant Emissions by Phase

Construction Phase	Days of Construction	ROG	NO_X	CO	PM10 Dust	PM10 Exhaust	PM2.5 Dust	PM2.5 Exhaust
		Maximum Daily Emission in pounds per day						
Demolition	60	7.02	54.33	39.58	27.20	2.54	0.06	2.54
Excavation and Grading	6	15.44	123.26	111.26	23.73	4.56	1.88	4.56
Building Construction (2014) [a]	123	11.89	86.61	45.11	1.63	4.14	0.08	4.14
Building Construction (2015) [a]	145	6.44	39.03	12.46	1.63	1.80	0.08	1.80
BAAQMD Thresholds		54	54	-	BMPs	82	BMPs	54
Exceed Thresholds?		No	Yes	-	-	No	-	No
Number of days Exceed Thresholds			91					

Source: ICF, 2013.
Notes:
Please refer to Appendix 3.4-2 for a summary of phases assumed during each construction period.
Underlined emissions exceed BAAQMD thresholds.
a. Building construction would take place in both 2014 and 2015.

MITIGATION MEASURE. Because construction emissions are predicted to exceed BAAQMD's daily emissions threshold for NO_X, this impact is considered significant and would require implementation of Mitigation Measure AQ-2.1, below.

AQ-2.1: Implement Tailpipe Emission Reduction for Project Construction. NO_X emissions generated during construction are primary contributed by tailpipe exhaust emissions from diesel powered construction equipment and haul trucks. Therefore, in order to reduce the NO_X emissions, mitigation measures to reduce tailpipe exhaust emissions during construction shall be implemented according to the mitigation measures recommended by the BAAQMD's CEQA Guidelines.

The Project Sponsor shall require all construction contractors to implement the Basic Construction Mitigation Measures and Additional Construction Mitigation Measures recommended by BAAQMD to control tailpipe emissions. Emission reduction measures shall include at least the following measures and may include other measures identified as appropriate by the air district and/or contractor:

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 2 minutes.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities in the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
- The Project shall develop a plan that demonstrates that the offroad equipment (more than 50 horsepower) to be used in construction of the Project (i.e., owned, leased, and subcontractor vehicles) shall achieve a Project-wide fleet-average 20 percent NO_X

reduction and 45 percent PM reduction compared with the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.

- All construction equipment, diesel trucks, and generators shall be required to be equipped with Best Available Control Technology for emission reductions of NO_X and PM.
- All contractors shall be required to use equipment that meets ARB's most recent certification standard for offroad heavy-duty diesel engines.

Table 3.4-7 summarizes the maximum daily emissions with the implementation of Mitigation Measure AQ-2.1, which results in a 20 percent reduction of NO_X emissions and 45 percent reduction of PM10 and PM2.5 emissions generated from onsite equipment exhaust. However, even with the implementation of Mitigation Measure AQ-2.1, NO_X emissions would still exceed BAAQMD's NO_X threshold during the short-period of excavation/grading phase and the portion of 2014 building construction phase for about 20 days. Because the mitigated emissions would still exceed the threshold, the impact would be ***significant and unavoidable***.

Note that while PM10 and PM2.5 exhaust emissions do not exceed BAAQMD thresholds, the mitigation measures to reduce the tailpipe emissions would also reduce the PM10 and PM2.5 emissions that are part of the exhaust emissions generated by diesel powered construction equipment and haul trucks. Therefore, although the construction emissions impact from PM10 and PM2.5 is less than significant, the implementation of Mitigation Measure AQ-2.1 to reduce the significant impact of NO_X emissions would further reduce the impact level of PM10 and PM2.5 emissions.

MITIGATION MEASURE. With respect to fugitive dust emissions of PM10 and PM2.5, BAAQMD does not have mass emission thresholds for fugitive emissions, but rather requires implementation of BMPs as mitigation measures for all proposed projects. The BAAQMD CEQA Guidelines consider dust impacts to be less than significant if BMPs are employed to reduce these emissions. Implementation of Mitigation Measure AQ-2.2, below, would further reduce the less-than-significant impact of construction-related dust.

AQ-2.2: Implement BAAQMD Basic Construction Mitigation Measures to Reduce Construction-Related Dust. The Project Sponsor shall require all construction contractors to implement the basic construction mitigation measures recommended by BAAQMD to reduce fugitive dust emissions. Emission reduction measures shall include, at a minimum, the following measures. Additional measures may be identified by BAAQMD or contractor as appropriate.

- 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 offsite 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.
- A publicly visible sign shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Table 3.4-7. Construction Criteria Air Pollutant Emissions - Mitigated

Construction Phase	Days of Construction	ROG	NO_X	CO	PM10 Dust	PM10 Exhaust	PM2.5 Dust	PM2.5 Exhaust
		Maximum Daily Emission in pounds per day						
Demolition	60	7.02	45.25	39.58	27.20	1.51	0.06	1.51
Excavation and Grading	6	15.44	111.11	111.26	23.73	3.30	1.88	3.30
Building Construction (2014) [a]	123	11.89	70.54	45.11	1.63	2.36	0.08	2.36
Building Construction (2015) [a]	145	6.44	39.03	12.46	1.63	1.07	0.08	1.07
BAAQMD Thresholds		54	54	-	BMPs	82	BMPs	54
Exceed Thresholds?		No	Yes	-	-	No	-	No
Number of days Exceed Thresholds			21					

Notes:
Please refer to Appendix 3.4-2 for a summary of phases assumed during each construction period.
Underlined emissions exceed BAAQMD thresholds.
a. Building construction would take place in both 2014 and 2015.

Impact AQ-3: Violation of Any Air Quality Standard during Operation. Project operations would not result in a violation of a BAAQMD air quality standard or a substantial contribution to an existing or projected air quality violation. (LTS)

Project operation has the potential to create air quality impacts primarily associated with mobile and area sources. Motor vehicle traffic would include daily employee trips, visitor trips, vender delivery trucks, and waste management trucks. Area sources include landscaping equipment and consumer products. Onsite natural gas combustion for space and water heating represents another type of area source associated with the Project. Each of these sources was taken into account in calculating the Project's long-term operational emissions, which were quantified using CalEEMod (version 2011.1.1) and traffic data provided in Section 3.3, *Transportation and Traffic*. In addition, emissions from emergency generator testing were quantified based on the manufacture specified emission factors for the proposed diesel generators and the emission factors from OFFROAD2011.

Estimated operational emissions under both existing and Project conditions are summarized in Table 3.4-8. The difference in operational emissions between the Project and the existing land uses represents the net new impact of the Project. As shown in Table 3.4-8, operation of the Project is expected to result in an increase in all criteria pollutant emissions, relative to existing conditions. However, these increases would all be below applicable BAAQMD significance thresholds. Therefore, this impact is considered ***less than significant***.

Table 3.4-8. Project Operational Criteria Air Pollutants

Source Category	ROG	NO_X	CO	PM10	PM2.5	ROG	NO_X	CO	PM10	PM2.5
	Average lbs/day					tons/year				
Existing Operations (164 Jefferson Only) [a]										
Area [b]	0.44	0	0	0	0	0.08	0	0	0	0
Energy Use [c]	0	<0.01	<0.01	0	0	0	0	0	0	0
Vehicular	0.65	1.05	6.59	1.37	0.09	0.10	0.16	0.98	0.16	0.01
Total Existing Emissions	1.09	1.05	6.59	1.37	0.09	0.18	0.16	0.98	0.16	0.01
Proposed Operations [d]										
Area [b]	5.56	0	0	0	0	1.02	0	0	0	0
Energy Use [c]	0.04	0.41	0.34	0.03	0	0.01	0.07	0.06	0.01	0.01
Vehicular	17.9	26.88	173.92	45.28	2.88	2.31	3.79	22.94	4.8	0.39
Generator	0.07	1.18	0.00	0.06	0.05	0.002	0.031	0.000	0.002	0.001
Total Project Emissions	23.57	28.47	174.26	45.37	2.96	3.34	3.89	23.00	4.81	0.40
Net Emission Increase [e]	22.48	27.42	167.67	44.00	2.87	3.16	3.70	22.02	4.65	0.39
BAAQMD Thresholds	54	54	CAAQS [f]	82	54	10	10	CAAQS [f]	15	10
Exceed Thresholds?	No	No	-	No	No	No	No	-	No	No

Notes:

Please refer to Appendix 3.4-1 for emission calculation assumptions and model inputs and outputs.

a. Represents emissions associated with existing commercial uses currently operating on the Project site. Emissions would cease with implementation of the Project. Emissions estimates are based on CalEEMod defaults for the land uses similar to those currently operating on the Project site.

b. Area sources include landscaping equipment and consumer products.

c. Energy use includes onsite natural gas use.

d. Represents emissions associated with the Project. Emissions are modeled for the first operational year of 2016.

e. Represents the net Project impact, or the change in emissions relative to existing conditions.

f. Refer to the CO hotspot analysis under Impact AQ-5.

Impact AQ-4: Exposure to Diesel Particulate Matter (DPM) Concentrations. The Project would not expose existing sensitive receptors to excessive DPM concentrations. (LTS)

Diesel-fueled engines, which generate DPM, would be used during Project construction and operation. The BAAQMD considers PM2.5 emissions to be the DPM of greatest health concern. Cancer risks associated with exposure to diesel exhaust are typically associated with chronic exposure, in which a 70-year exposure period is assumed. In addition, DPM concentrations, and thus cancer risks, dissipate as a function of distance from the emissions source. The BAAQMD has determined that operation of diesel-fueled engines occurring at distances of greater than 1,000 feet from a sensitive receptor likely do not pose a significant health risk.

Multiple sensitive receptors are located within 1,000 feet of the Project site, including single-family residences located south of the Project site across US 101 and the Belle Haven neighborhood and Beechwood School located southeast of the Project site (across the Dumbarton Rail Corridor). Kelly Park, located next to the Beechwood School, is closer to the Project site; however, the exposure duration and frequency of park users to the Project construction and operation sources would be much less than the students at the adjacent Beechwood School. In addition, distance between Kelly Park and the Project site is similar to the distance between the nearest single-family residences and the Project site except that the single-family residences would have much higher exposure duration and frequency. Therefore, the analysis focuses on evaluating health risk at the Beechwood School and the nearest single-family residences. Exposure to DPM and PM2.5 emissions were assessed by predicting the cancer risks, non-cancer HI levels, and elevated PM2.5 concentrations at these nearest sensitive receptors.

A screening-level HRA was performed using the AERSCREEN dispersion model with the estimated PM10 and PM2.5 exhaust emissions, as discussed in Impact AQ-2 and Impact AQ-3. The results of the HRA are summarized in Table 3.4-9 and are compared to BAAQMD's project-level health risk thresholds. The analysis calculated the cancer risks, non-cancer HI levels, and PM2.5 concentrations for each construction phase using the PM10 and PM2.5 concentrations modeled by AERSCREEN, construction duration of each phase, and exposure duration and frequency of the analysis receptors. The calculated risks for each construction phase are individually compared to the BAAQMD thresholds to determine the health risk impacts of the construction activities. For health risks at analysis receptors due to generator testing during Project operation, the cancer risks, non-cancer HI levels, and PM2.5 concentrations were calculated using the PM10 and PM2.5 concentrations modeled by AERSCREEN, operation duration and frequency of the generators, and exposure duration and frequency of the analysis receptors. The calculated risks for generator testing are also compared to the BAAQMD thresholds to determine the health risk impacts of Project operation.

As shown in Table 3.4-9, Project construction and operation would not result in significant increases of the non-cancer HI, cancer risk, or annual PM2.5 concentrations at sensitive receptors within 1,000 feet of the Project site. Therefore, this impact is considered ***less than significant***.

As noted under Impact AQ-2, the implementation of Mitigation Measure AQ-2.1 to reduce tailpipe NO_X emissions from construction equipment and diesel vehicles would also reduce the PM10 and PM2.5 emissions because they are part of the exhaust emissions generated by diesel powered construction equipment and haul trucks. Therefore, although significant impacts related to health risk were not identified, implementation of Mitigation Measure AQ-2.1 would further reduce this less-than-significant impact at nearby receptors during Project construction.

Table 3.4-9. Maximum Project-Level Health Risks at Sensitive Receptors

Source	Maximum Project-Level Health Risk at Nearest Residence[a]			Maximum Project-Level Health Risk at Nearest School (Beechwood)[b]		
	Non-Cancer Hazard Index	Increased Cancer Risk (per million)	Annual PM2.5 Concentration (µg/m3)	Non-Cancer Hazard Index	Increased Cancer Risk (per million)	Annual PM2.5 Concentration (µg/m3)
Project Construction						
Demolition	0.03	1.09	0.14	0.02	0.45	0.09
Excavation and Grading	0.003	0.13	0.02	0.002	0.06	0.01
Building Construction (2014)	0.06	2.17	0.28	0.04	0.90	0.18
Building Construction (2015)	0.03	1.10	0.14	0.02	0.45	0.09
Project Operation						
Emergency Generator Routine Test	0.002	6.29	0.009	0.001	0.22	0.006
BAAQMD Thresholds	1	10	0.3	1	10	0.3
Exceed Thresholds?	No	No	No	No	No	No

Notes:

Please refer to Appendix 3.4-3 for health risk calculation and model inputs and outputs.

[a] Nearest residence is modeled at about 550 feet to the center of construction activities in the Commonwealth site and at about 300 feet to the proposed generators.

[b] Beechwood School is modeled at about 800 feet to the center of construction activities in the Commonwealth site and at about 950 feet to the proposed generators.

Consistent with the BAAQMD's *CEQA Guidelines*, cumulative health risk exposure at the analysis sensitive receptors was evaluated by adding background health risks to the estimated health risks for the Project (Table 3.4-9). Table 3.4-10 summarizes the estimated background health risks (without the Project) at the analysis sensitive receptors. US 101, Infolmage generator set (#18216), Geron Corporation generator set (#16110), and Caltrans generator set at the edge of US 101 in front of the Project site (#19890) were identified as background sources within 1,000 feet of the Project Site. The results of the cumulative HRA are summarized in Table 3.4-11 by adding the results of Table 3.4-10 and Table 3.4-9.

Table 3.4-10. Background Health Risks at Sensitive Receptors

Source	Maximum Project-Level Health Risk at Nearest Residence			Maximum Project-Level Health Risk at Nearest School (Beechwood)		
	Non-Cancer Hazard Index	Increased Cancer Risk (per million)	Annual PM2.5 Concentration (µg/m3)	Non-Cancer Hazard Index	Increased Cancer Risk (per million)	Annual PM2.5 Concentration (µg/m3)
Infolmage	0.00	0.16	0.00	0.00	0.16	0.00
Geron Corporation	n/a	0.03	0.00	n/a	0.03	0.00
Caltrans	0.00	0.28	0.00	0.00	0.04	0.00
US 101	0.04	41.07	0.41	0.01	12.39	0.12
Total Background Sources	0.04	41.52	0.41	0.01	12.59	0.12

Note:
Please refer to Appendix 3.4-3 for health risk calculation and model inputs and outputs.

As shown in Table 3.4-11, construction and operation of the project would not result in cumulatively considerable increases of the non-cancer HI, cancer risk, or annual PM 2.5 concentrations. This impact is, therefore, ***less than significant***. No mitigation is required.

Table 3.4-11. Maximum Cumulative-Level Health Risks at Sensitive Receptors

Source	Maximum Cumulative-Level Health Risk at Nearest Residence, 500 feet to the center of the Commonwealth site			Maximum Cumulative-Level Health Risk at Nearest School (Beechwood)		
	Non-Cancer Hazard Index	Increased Cancer Risk (per million)	Annual PM2.5 Concentration (µg/m3)	Non-Cancer Hazard Index	Increased Cancer Risk (per million)	Annual PM2.5 Concentration (µg/m3)
Project Construction plus Background Sources						
Demolition	0.07	42.60	0.55	0.03	13.04	0.21
Excavation and Grading	0.04	41.65	0.43	0.01	12.64	0.13
Building Construction (2014)	0.10	43.68	0.69	0.05	13.49	0.30
Building Construction (2015)	0.07	42.61	0.55	0.03	13.04	0.21
Project Operation plus Background Sources						
Emergency Generator Routine Test	0.04	47.81	0.42	0.01	12.81	0.13
BAAQMD Thresholds	10	100	0.8	10	100	0.8
Exceed Thresholds?	No	No	No	No	No	No

Note:
Please refer to Appendix 3.4-3 for health risk calculation and model inputs and outputs.

Impact AQ-5: Exposure to CO Concentrations. The Project would not expose existing sensitive receptors to excessive CO concentrations. (LTS)

Traffic generated by the Project would have the potential to create CO hotspots at nearby roadways and intersections. Existing (2013), build year (2015), and cumulative (2030) traffic conditions were modeled using the CALINE4 model to evaluate CO concentrations relative to the state and federal air quality standards. CO concentrations were modeled at the following three intersections: Bayfront Expressway/Marsh Road, Bayfront Expressway/Willow Road, Bayfront Expressway/University Avenue, because these study intersections combine high traffic volumes with high vehicle delays.

Table 3.4-12 presents the results of the CO hotspot modeling. CO concentrations are not expected to occur or contribute to any new localized violations of the 1-hour or 8-hour ambient air quality standards. Consequently, this impact is ***less than significant***.

Table 3.4-12. CO Hotspot Concentrations at Affected Intersections

	Existing No Project		2015 No Project		2015 Plus Project		2030 No Project		2030 Plus Project	
	1-hr	8-hr	1-hr	8-hr	1-hr	8-hr	1-hr	8-hr	1-hr	8-hr
Intersection	(parts per million)									
Bayfront Expy/Marsh Rd	10.20	6.28	10.00	6.14	10.20	6.28	5.70	3.13	5.80	3.20
Bayfront Expy/Willow Rd	9.4	5.72	9.10	5.51	9.20	5.58	5.50	2.99	5.60	3.06
Bayfront Expy/University Ave	11.9	7.49	11.10	6.91	11.20	6.98	6.10	3.41	6.10	3.41
NAAQS CO Standard	35	9	35	9	35	9	35	9	35	9
CAAQS CO Standard	20	9	20	9	20	9	20	9	20	9
Exceeds Thresholds?	No	No	No	No	No	No	No	No	No	No

Impact AQ-6: Exposure to Objectionable Odors. The Project would not create objectionable odors affecting a substantial number of people. (LTS)

Although offensive odors rarely cause any physical harm, they can be unpleasant and lead to considerable distress among the public. This distress may often generate citizen complaints to local governments and air districts. Any project with the potential to expose the public to objectionable odors frequently would be deemed as one having a significant impact.

According to ARB's *Air Quality and Land Use Handbook*,[16] land uses associated with odor complaints typically include sewage treatment plants, landfills, recycling facilities, and manufacturing plants. Odor impacts on residential areas and sensitive receptors, such as hospitals, day care centers, schools, etc., warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, work sites, and commercial areas.

Potential odor sources during construction include diesel exhaust from heavy-duty equipment. Construction-related operations near existing receptors would be temporary in nature, and construction activities would not be likely to result in nuisance odors that would violate BAAQMD Regulation 7 (Odorous Substances). This impact is ***less than significant***.

[16] California Air Resources Board. 2005. Air Quality and Land Use Handbook: A Community Health Perspective. April 2005. Available: http://www.arb.ca.gov/ch/handbook.pdf. Accessed: October 2013.

Potential odor sources from Project operations would include diesel exhaust from landscaping equipment and emergency generators during routine maintenance. The odor impacts from Project operation would be limited and infrequent. Project operation is not expected to result in odor impacts that would exceed BAAQMD's odor threshold. This impact is less than significant. The Project would not create objectionable odors affecting a substantial number of people during construction or operation and, therefore, the overall impact would be ***less than significant***.

Cumulative Impacts

The geographic context for a discussion of cumulative impacts on regional air quality, such as ozone, is the SFBAAB, and for localized air quality, such as for CO and PM10, the geographic context is the Project vicinity (including the City and San Mateo County). This cumulative analysis examines the effects of the Project, in combination with other current projects, probable future projects, and projected future growth within the SFBAAB, San Mateo County, and the City in the next 20 years.

Odors are not addressed cumulatively for the Project because the types of uses anticipated to be developed or allowed under the proposed zoning would not generate significant sources of odor. In addition, the Project site is not located in an area where existing or future odor-producing uses are proposed. Therefore, the additive effect of assessing cumulative odor impacts is not relevant for this Project and would not be cumulatively considerable.

The BAAQMD CEQA Guidelines are applied to the cumulative analysis of impacts to regional air quality. Based on the justification that BAAQMD utilized in establishing its thresholds of significance for air quality pollutants, it is not necessary to consider the impacts of other foreseeable projects, such as the Tier 1 and Tier 2 projects. As stated on page 2-1 of BAAQMD's CEQA Guidelines,

> . . . In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is unnecessary.

Although additional analysis to assess cumulative impacts is not required, it is consistent with the analysis approach of the Project for cumulative impacts; therefore, below is a detailed discussion of Project impacts, in combination with Tier 1 and Tier 2 projects, on regional and local air quality.

Impact C-AQ-1: Conflict with or Obstruct Implementation of the Applicable Air Quality Plan. The Project, combined with other development within the City, would not conflict with or obstruct implementation of the applicable air quality plan. (LTS)

Tier 1

As discussed above, the 2010 Clean Air Plan is based on ABAG's projections. Under BAAQMD methodology, for consistency with the 2010 Clean Air Plan, a project or plan must demonstrate that the population or VMT assumptions contained in the Clean Air Plan would not be exceeded and that the project or plan implements TCMs as applicable. As discussed in Section 3.11, *Population and Housing*, the Tier 1 projects would develop 98 dwelling units, which, when taken together with the Project's 262 new residents, would result in an increase in resident population of 514 (based on the current City persons per household [pph] ratio of 2.57).[17] ABAG projects that the City's population will be approximately

[17] 514 new residents = 262 residents resulting from the Project + (98 dwelling units * 2.57 pph)

38,700 in 2020. If the Tier 1 projects are completed concurrently with the Project, an increase of 514 total residents would result from cumulative development. Added to the current population of 36,820, this would result in a total City population of 37,334 persons in 2020, which is below ABAG projections. Therefore, implementation of the Tier 1 projects would not result in a conflict with the Clean Air Plan. The cumulative impacts associated with Tier 1 projects are considered ***less than significant***.

Tier 2

The Tier 2 projects encompass a larger geographic area and consist of projects that are in the early stages of planning or whose development could be considered somewhat speculative. The geographic context for the Tier 2 analysis would be the County of San Mateo. As discussed, in Section 3.11, *Population and Housing*, the Tier 2 projects, if completely realized, could result in a direct population increase of 13,305 residents[18] and an indirect population increase through creation of approximately 9,830 jobs[19] that would generate 1,971 new residents.[20] The direct and indirect growth from (13,305 direct and 1,971 indirect) Tier 2 projects would total approximately 15,276 new residents.

Population in San Mateo County is projected to increase by approximately 56,650 residents from 2010 to 2020. The growth resulting from Tier 2 projects would total approximately 27 percent of this forecasted population growth. The Project would add approximately 262 new residents to San Mateo County, which represents approximately 1.7 percent of the population growth that could result from Tier 2 projects, or 0.46 percent of total projected San Mateo County growth. The Project's contribution to this potential cumulative impact is not considerable. Therefore, the Project's cumulative impact regarding consistency with the Clean Air Plan would be ***less than significant*.**

Impact C-AQ-2: Violation of a BAAQMD Air Quality Standards or Substantial Contribution to an Existing or Projected Air Quality Violation during Project Construction. Construction activities associated with the Project, in combination with other construction activities in the City, could generate substantial NO_X emissions in excess of BAAQMD threshold. (PS)

Tier 1

There are 10 Tier 1 projects around the Project area. As discussed in Impact AQ-2, NO_X emissions generated during Project construction would exceed the BAAQMD threshold and are considered a significant and unavoidable impact. BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, the Project, in combination with these Tier 1 projects that would be built in the same time frame as the Project, would result in a cumulatively significant impact for NO_X.

Mitigation Measures AQ-1, as discussed in Impact AQ-2, has been identified to reduce the exhaust NO_X emissions but would not reduce the emissions below the BAAQMD threshold. Therefore, the cumulative impact of the Project and Tier 1 projects for NO_X emissions is therefore ***significant and unavoidable*.**

[18] 13,305 residents = 5,177 dwelling units * 2.57 pph
[19] Based on an average of 3.5 employees per 1,000 sf and one employee per four hotel rooms
[20] 1,971 new residents = 9,830 new jobs * 7.8 percent City share * 2.57 pph

Tier 2

Tier 2 cumulative projects are still in their planning stages and may not be completed as currently planned or programmed. Therefore, the evaluation of their specific potential impacts would be speculative. While construction-related emissions are localized and tend not to cumulate with other projects unless they are immediately nearby, the Project would build out over a 2-year period, making it possible that other projects could occur in the Project vicinity, but unlikely in this time frame. It is assumed that any of these projects going forward would conduct analyses that assess their emissions and implement feasible mitigation to reduce any large emissions, including the dust control BMPs typically required by BAAQMD. Small projects with short construction schedules would likely not add to large amounts of emissions based on the screening criteria in BAAQMD's CEQA guidelines. Since the larger Tier 2 projects would not likely be constructed concurrently with the Project, whose buildout is anticipated to be completed by 2015, cumulative emissions are considered ***less than significant***.

Impact C-AQ-3: Violation of a BAAQMD Air Quality Standard or Substantial Contribution to an Existing or Projected Air Quality Violation from Project Operation. The Project operation, in combination with other cumulative development within the City, would not generate substantial CP emissions in excess of BAAQMD thresholds. (LTS)

Tier 1 and Tier 2

As discussed in Impact AQ-3, criteria pollutant emissions generated during Project operation would be below the BAAQMD thresholds and are considered a less-than-significant impact. BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions.

Because the Project operation would result in a less-than-significant impact on criteria pollutant emissions, the Project, in combination with the Tier 1 and Tier 2 projects within the City would also result in a ***less-than-significant*** impact for cumulative criteria pollutant emissions.

Impact C-AQ-4: Exposure of Existing Sensitive Receptors to Excessive DPM Concentrations. Cumulative development in the Project vicinity would not expose sensitive receptors to substantial DPM emissions. (LTS)

Tier 1 and Tier 2

According to the BAAQMD CEQA Guidelines, analysis of local community risks and hazards cumulative impacts should examine the DPM sources within 1,000 feet of a proposed project site. This includes both existing and foreseeable sources. As show in Figure 3.0-1, there are no Tier 1 and Tier 2 projects, with the exception of the Dumbarton Rail Corridor Project, located within 1,000 feet of the Project site and the sensitive receptors identified for the Project. Therefore, the cumulative HRA analysis considered the existing stationary and roadway sources within 1,000 feet of the Project site. As discussed in Impact AQ-4, cumulative health risk exposure at the analysis sensitive receptors was evaluated by adding background health risks to the estimated health risks for the Project. As shown in Table 3.4-11, construction and operation of the project would not result in cumulatively considerable increases of the non-cancer HI, cancer risk, or annual PM 2.5 concentrations. The cumulative impact on health risks at sensitive receptors within 1,000 feet of the Project site is, therefore, ***less than significant***.

The Dumbarton Rail Corridor Project, a Tier 2 project, could have the potential to result in a cumulatively considerable health risk impacts at the sensitive receptors in the Project vicinity during construction and operation of the Project. The Dumbarton Rail Corridor Project would be subject to CEQA and would be required to mitigate impacts to the extent feasible.

Impact C-AQ-5: Exposure of Existing Sensitive Receptors to Excessive CO Concentrations. Cumulative development in the Project vicinity would not result in CO concentrations above the ambient air quality standards. (LTS)

Tier 1 and Tier 2

Cumulative growth in the City could lead to increased local CO concentrations from vehicular traffic, although there is the possibility that future traffic noise could be decreased through implementation of TDM measures and a focus on transit-oriented development that would reduce vehicle trips. The traffic model used to predict future traffic levels assumed approved development and regional growth through the year 2030.

As noted above under Impact AQ-5, the Project generated traffic, in combination with traffic from other development in the City, would create CO hotspots at intersections in the Project vicinity. As shown in Table 3.4-12, CO concentrations are not expected to contribute to any new localized violations of the 1-hour or 8-hour ambient air quality standards. Consequently, the cumulative impact on local CO concentrations is ***less than significant***.