

4.2 Air Quality

This section addresses the potential for air quality impacts that could result from implementation of the Inner Harbor Specific Plan, including increases in criteria air pollutants. The analysis of emissions focuses on whether implementation of the Specific Plan would cause an exceedance of State ambient air quality standards, and this section describes existing air quality, potential short-term construction related impacts, and direct and indirect operational emissions associated with development under the Specific Plan.

This section analyzes and evaluates the potential impacts of development that could occur under the Specific Plan on regional and local air quality from both stationary and mobile sources of air emissions. The analysis is consistent with methodologies set forth in the Bay Area Air Quality Management District's (BAAQMD) CEQA Guidelines. While potential effects of the environment on the project are arguably not required to be analyzed or mitigated under CEQA, this section nevertheless analyzes potential effects of the air quality environment on development that could occur under the Specific Plan as set forth in CEQA *Guidelines*, Appendix G, Significance Criteria, in order to provide this supplemental information to the public and decision-makers. Mitigation measures are identified to reduce potential impacts to less than significant levels. This air quality analysis is closely coordinated with the analysis of potential impacts with regard to greenhouse gases and climate change, which is provided in Section 4.4, *Greenhouse Gas Emissions and Energy*, of Draft EIR.

This section also presents a project-level analysis of the Harbor View project, which is located largely within the Specific Plan Area.

4.2.1 Environmental Setting

This setting description provides an overview of region-specific information related to climate and meteorology, existing air quality conditions, sensitive receptors, and the regulatory setting pertaining to the Specific Plan Area. The Specific Plan Area is located in Redwood City, San Mateo County.

Climate and Meteorology

The potential for high pollutant concentrations developing at a given location depends upon the quantity of pollutants emitted into the atmosphere in the surrounding area or upwind, and the ability of the atmosphere to disperse the contaminated air. The atmospheric pollution potential, as the term is used here, is independent of the location of emission sources and is instead a function of factors such as topography and meteorology.

The climate of the greater San Francisco Bay Area, including the City of Redwood City, is a Mediterranean-type climate characterized by warm, dry summers and mild, wet winters. The climate is determined largely by a high-pressure system that is often present over the eastern Pacific Ocean off the West Coast of North America. In winter, the Pacific high-pressure system

shifts southward, allowing storms to pass through the region. During summer and fall, air emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants, such as ozone and secondary particulates, such as sulfates and nitrates.

The prevailing wind direction is from the northwest. Average wind speed (measured at the nearby San Carlos airport) is 10.5 miles per hour annually, with June having the highest average wind speed and January having the lowest. (Western, 2014)

The area experiences mild temperatures, with January being the coolest month with a maximum average 58 degrees Fahrenheit (F) and July and August being the warmest times of year with a maximum average 81 degrees F. Approximately 20 inches of rainfall is experienced in Redwood City annually.

Air Pollutants of Concern

The U.S. Environmental Protection Agency (US EPA) has identified criteria air pollutants that are a threat to public health and welfare. These pollutants are called “criteria” air pollutants because standards have been established for each of them to meet specific public health and welfare criteria. Below are descriptions of criteria pollutants that are a concern in the vicinity of the Specific Plan Area.

Ozone

Ground-level Ozone is the main component of smog. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NO_x). ROG and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours.

Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of ROG and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone.

Nitrogen Dioxide

Nitrogen dioxide (NO₂) is an air quality pollutant of concern because it acts as a respiratory irritant. NO₂ is a major component of the group of gaseous nitrogen compounds commonly referred to as NO_x. A precursor to ozone formation, NO_x is produced by fuel combustion in motor vehicles, industrial stationary sources (such as industrial activities), ships, aircraft, and rail

transit. Typically, NO_x emitted from fuel combustion is in the form of nitric oxide (NO) and NO₂. NO is often converted to NO₂ when it reacts with ozone or undergoes photochemical reactions in the atmosphere.

Carbon Monoxide

Carbon monoxide (CO) is a non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia.

Particulate Matter

Particulate matter less than 10 microns in diameter (PM₁₀) and particulate matter less than 2.5 microns in diameter (PM_{2.5}) can be inhaled into air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. According to a recent study by the California Air Resources Board (CARB), exposure to ambient PM_{2.5} can be associated with approximately 14,000 to 24,000 premature annual deaths statewide (CARB, 2009). Particulates can also damage materials and reduce visibility.

Other Criteria Pollutants

Sulfur dioxide (SO₂) is a combustion product of sulfur or sulfur-containing fuels such as coal. SO₂ is also a precursor to the formation of atmospheric sulfate and particulate matter (both PM₁₀ and PM_{2.5}) and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain. In the Bay Area, high concentrations of SO₂ are only a concern in areas close to refinery operations.

Lead has a range of adverse neurotoxic health effects, and was formerly released into the atmosphere primarily via the combustion of leaded gasoline. The phase-out of leaded gasoline in California resulted in decreasing levels of atmospheric lead. In the Bay Area, high concentrations of lead are only a concern in areas close to general aviation airports.

Toxic Air Contaminants

Toxic Air Contaminants (TACs) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer or serious illness) and include, but are not limited to, the criteria air pollutants listed above. Specifically, TACs include diesel particulate matter (DPM) (discussed below) emitted by diesel engines, and benzene and CO emitted by gasoline engines. Air pollution sources located near sensitive receptors are known to pose health risks. Sensitive receptors typically include land uses where individuals are susceptible to health risks when exposed to air pollution, including residences, day cares facilities, schools, medical facilities, and parks and recreational facilities. TACs are typically emitted by on- and off-road motor vehicles, stationary emission sources, and by industrial and commercial manufacturing. The California Office of Environmental Health Hazard Assessment (OEHHA) has identified several TACs that pose short-term (acute health risk), long-term (chronic risk), and/or carcinogenic health risks.

Diesel Particulate Matter

Diesel Particulate Matter (DPM) is the predominant TAC in urban air, with the potential to cause cancer. It is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average). According to the ARB, diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the ARB, and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants programs. California has adopted a comprehensive diesel risk reduction program, and the ARB has adopted many of the rules to implement this plan. The EPA and ARB have adopted low sulfur diesel fuel standards that will reduce diesel particulate matter substantially. These standards went into effect in June 2006. The ARB recently adopted a series of rules to reduce DPM, most notably rules that require replacement or retrofitting of construction equipment and truck fleets.

Existing Air Quality

Bay Area Air Quality Management District (BAAQMD) operates a regional monitoring network that measures the ambient concentrations of the six criteria pollutants (i.e., ozone, PM₁₀, PM_{2.5}, CO, NO₂, and SO₂). Existing and probable future general levels of air quality in the Specific Plan vicinity can generally be inferred from ambient air quality measurements conducted by BAAQMD at its monitoring stations. The major criteria pollutants of concern in the San Francisco Bay Area (i.e., ozone, PM₁₀, PM_{2.5}, CO, NO₂, and SO₂) are monitored at a number of locations. Background ambient concentrations of pollutants are determined by pollutant emissions in a given area, and wind patterns and meteorological conditions for that area. As a result, background concentrations can vary among different locations within the County. However, areas located close together and exposed to similar wind conditions can be expected to have similar background pollutant concentrations. The nearest monitoring station to the Specific Plan Area that measures concentrations of all of the major pollutants of concern is located adjacent to Redwood City at 897 Barron Avenue (in the North Fair Oaks neighborhood of unincorporated Redwood City). **Table 4.2-1** shows a three-year (2011 through 2013) summary of data collected at the Barron Avenue station

compared to National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), which are presented in more detail in **Table 4.2-2**. Attainment of air quality standards is usually evaluated based on the most recent three-year set of data.

As shown in Table 4.2-1, the ambient air quality standards are met in Redwood City on most days. Specifically, the State one-hour ozone standard was not exceeded in 2011 through 2013. The State eight-hour ozone standard was exceeded on one day between 2011 and 2013, while the national eight-hour ozone standard was not exceeded. BAAQMD no longer monitors PM₁₀ at the Redwood City Station. PM_{2.5} is considered a more accurate indicator of health exposure to particulate matter than PM₁₀. From 2011 through 2013, the federal PM_{2.5} 24-hour standard was exceeded once in 2011 and on three days in 2013, while there were no exceedances of the State or federal annual average standards during the summary period. As indicated in the table, no violations of the applicable CO or NO₂ standards were recorded at the Barron Avenue station during the three year period. BAAQMD no longer monitors SO₂ at the Redwood City Station. BAAQMD now only monitors SO₂ in proximity to petroleum refineries as determined in its 2013 Monitoring Plan.

As shown in Table 4.2-2, the Bay Area is currently classified as non-attainment for the one-hour State ozone standard as well as for the federal and State eight-hour standards. Additionally, the Bay Area is classified as non-attainment for the State 24-hour and annual arithmetic mean PM₁₀ standards as well as the State annual arithmetic mean and the national 24-hour PM_{2.5} standards. The Bay Area is unclassified or classified as attainment for all other pollutants standards (BAAMQD, 2013).

The BAAQMD has also been monitoring TAC inhalation cancer risk levels (e.g., from diesel particulate matter--DPM) in potential cases per million at selected locations throughout the District, including parts of Redwood City, as part of the District's Community Air Risk Evaluation (CARE) program (see Regulatory Setting, below). BAAQMD had originally designated a portion of Redwood City as a "priority community" where BAAQMD CARE program Mitigation Action Plan risk reduction activities were to be focused in 2009. This area was included in the first (2009) version map because of relatively high cancer risk, which is lower in the 2013 analysis due to significant reductions in emissions of diesel PM in 2015 compared to 2005. Fine PM levels in Redwood City are generally similar to those in most other Bay Area communities and ozone values are lower (BAAQMD, 2014).

Areas along portions of certain Bay Area freeways, including local segments of US Highway 101 and State Highway 84, typically have higher measured risks. The modeled inhalation cancer risk in certain parts of Redwood City ranged from 250 to below 500 cases per million. More densely urbanized portions of the Bay Area, such as eastern San Francisco and western Oakland, had higher risks of nearly 1,000 in a million. With all CARE program-identified diesel risk reduction measures implemented, the District predicts that the overall inhalation health risk in the Bay Area will decrease substantially. BAAQMD estimates that DPM comprises approximately 80 percent of TAC emissions that contribute to the inhalation cancer risk in the Bay Area.

**TABLE 4.2-1
AIR QUALITY DATA SUMMARY (2011–2013) FOR THE PROJECT VICINITY**

Pollutant	Standard	Monitoring Data by Year		
		2011	2012	2013
Ozone, O₃				
Highest 1-Hour Average, parts per million (ppm)	0.09	0.076	0.063	0.083
Days over State Standard		0	0	0
Highest 8-Hour Average, ppm	0.070 / 0.075	0.061	0.054	0.075
Days over State/National Standards		0/0	0/0	1/0
Carbon Monoxide, CO				
Highest 8-Hour Average, ppm	9.0	1.7	1.8	1.6
Days over State Standards		0	0	0
Nitrogen Dioxide, NO₂				
Highest 1-Hour Average, ppm	0.18 / 0.100	0.056	0.060	0.054
Days over State/National Standards		0	0	0
Annual Average, ppm	0.030 / 0.053	0.012	0.011	0.013
Exceed State/National Standards?		No	No	No
Fine Particulate Matter, PM_{2.5}				
Highest 24-Hour Average, µg/m ³	35.0	39.7	33.3	39.0
Estimated days over National Standard Exceedances/Samples ^e		1	0	3
Annual Average, µg/m ³	12 / 12.0**	9	9	11
Exceed State/National Standards?		No	No	No

NOTES: All data were measured at the Barron Avenue station. Generally, state standards are not to be exceeded and national standards are not to be exceeded more than once per year. Values in bold are in excess of applicable standard. ppm = parts per million; µg/m³ = micrograms per cubic meter; and NA = Data Not Available. BAAQMD no longer monitors SO₂ or PM₁₀ at the Redwood City Station. SO₂ is now only monitored in proximity to petroleum refineries. PM_{2.5} is considered a more accurate indicator of health exposure to particulate matter than PM₁₀.

** The new national PM_{2.5} annual average standard was strengthened to 12.0 µg/m³ on December 14, 2012.

SOURCE: BAAQMD, 2014.

**TABLE 4.2-2
AMBIENT AIR QUALITY STANDARDS AND BAY AREA AIR BASIN ATTAINMENT STATUS**

Pollutant	Averaging Time	State Standard		National Standard	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	One-Hour Eight-Hour	0.09 ppm 0.070 ppm	Non-attainment Non-attainment	– 0.075 ppm	– Non-Attainment
Carbon Monoxide	One-Hour Eight-Hour	20 ppm 9.0 ppm	Attainment Attainment	35 ppm 9 ppm	Attainment Attainment
Nitrogen Dioxide	One-Hour Annual	0.18 ppm 0.030 ppm	Attainment Attainment	– 0.053 ppm	– Attainment
Sulfur Dioxide	One-Hour Three-Hour 24-Hour Annual	0.25 ppm – 0.04 ppm –	Attainment – Attainment –	– 0.5 ppm 0.14 ppm 0.030 ppm	– Attainment Attainment Attainment
Respirable Particulate Matter (PM ₁₀)	24-Hour Annual	50 µg/m ³ 20 µg/m ³	Non-Attainment Non-Attainment	150 µg/m ³ –	Unclassified –
Fine Particulate Matter (PM _{2.5})	24-Hour Annual	– 12 µg/m ³	– Non-Attainment	35 µg/m ³ 12 µg/m ³	Non-Attainment Attainment*
Lead	Monthly Quarterly	1.5 µg/m ³ –	Attainment –	– 1.5 µg/m ³	– Attainment

NOTES: ppm = parts per million; µg/m³ = micrograms per cubic meter

* The new national PM_{2.5} annual average standard was strengthened to 12.0 µg/m³ on December 14, 2012; attainment for this new standard has yet to be determined. The Bay Area was attainment of the previous national PM_{2.5} standard (15 µg/m³).

SOURCE: BAAQMD, 2015.

Sources of Toxic Air Contaminants

The sources of TACs identified within the Specific Plan Area include emissions from vehicles traveling on US Highway 101, on-site generators at the manufacturing facilities in the Seaport Centre office park on Galveston Drive and Penobscot Drive as well as the City Police Station, and dust and particulates emissions associated with operation of the Graniterock facility. Each of these is discussed below. California Air Resources Board guidance recommends a minimum buffer of 500 feet from the edge of freeways to sensitive receptors.

The BAAQMD database also identifies the existing police and county jail facilities as posing potential health risks associated with periodic emergency backup diesel generators that do not operate more than 50 hours per year.

US Highway 101

Vehicles traveling on Highway 101 generate TACs that include DPM and benzene, among other pollutants. California Air Resources Board guidance recommends a minimum buffer of 500 feet from the edge of freeways to sensitive receptors. Because the predominate winds in the Specific Plan Area are from the southwest and northwest quadrants, the predominant winds blow from

Highway 101 toward the Specific Plan Area. The Bay Area Air Quality Management District (BAAQMD) has developed a Google Earth database that shows health risks for various emission sources. That database shows that at 500 feet from Highway 101, health risks within the Specific Plan Area would be reduced to acceptable levels.

A portion of the existing and proposed Bay Trail is located within 500 feet of Highway 101. However, health risks to trail users are expected to be relatively minor because users would not be expected to be within 500 feet of Highway 101 for an extended time period.

Manufacturers Located in the Seaport Centre Office Park on Galveston Drive and Penobscot Drive

Several facilities located in the Seaport Centre office park on Galveston Drive and Penobscot Drive, east of the Specific Plan Area, are shown in BAAQMD's database as posing potential health risks due to TACs. The Seaport Centre, consisting of 623,000 square feet of developed building area, is one of the largest biotechnology research complexes in the San Francisco Bay Area. It houses laboratory, bio-tech, and other similar facilities, and has served as a research and development hub for the biotech industry since the 1980s. Additionally, the Redwood City police station operates a fueling facility and a backup generator that are also BAAQMD-permitted stationary sources.

Particulate Emissions Sources

In the BAAQMD's health risk database, the Graniterock manufacturing plant located immediately adjacent to the east side of the Specific Plan Area shows an annual average PM_{2.5} concentration of 206 micrograms per cubic meter. This level represents a potential health risk to sensitive receptors in the vicinity of this facility. The Specific Plan proposes that the proposed Bay Trail would be routed along the southern edge of the Graniterock plant.

Sensitive Receptors

For the purposes of this air quality analysis, sensitive receptors are places with people who are considered to be more sensitive than others to air pollutants. As introduced above (see "Toxic Air Contaminants" and "Existing Air Quality"), the reasons for greater-than-average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with some forms of recreation places a high demand on the human respiratory system.

There are no traditional residential uses within the Plan Area. The residential receptors nearest to the Plan Area are the condominium developments (One Marina and Marina Point) west of the Plan Area, across Redwood Creek. The existing residents of live-aboard vessels in Docktown Marina would represent existing sensitive receptors within the Plan Area. The San Mateo County Women's Jail and Work Furlough Facility (existing) and the Replacement County Jail on Maple Street (currently under construction) are located within the south/southwest portion of the Plan Area and contain group living quarters. The existing Women's Jail is located approximately 700 feet from the closest Harbor View project site boundary. The Replacement County Jail is located adjacent to the Harbor View project boundary (with the new jail facility located approximately 100 feet away from the boundary), and upon completion of construction would also house the occupants of the existing Women's Jail. Therefore, the inmates housed within the Replacement County Jail, would be considered the most impacted sensitive receptors within the Plan Area.

4.2.2 Regulatory Setting

Criteria Air Pollutants

Regulation of air pollution is achieved through both national and State ambient air quality standards and emission limits for individual sources of air pollutants. As required by the federal Clean Air Act (CAA), the US EPA has identified criteria pollutants and has established NAAQS to protect public health and welfare. NAAQS have been established for ozone, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, and lead. To protect human health and the environment, the US EPA has set "primary" and "secondary" maximum ambient thresholds for each of the criteria pollutants. Primary thresholds were set to protect human health, particularly sensitive receptors such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent further deterioration of animals, crops, vegetation, and buildings.

The NAAQS are defined as the maximum acceptable concentration that may be reached, but not exceeded more than once per year. California has adopted more stringent ambient air quality standards for most of the criteria air pollutants. Table 4.2-2 presents both sets of ambient air quality standards (i.e., national and State) and the Bay Area Air Basin's attainment status for each standard. California has also established State ambient air quality standards for sulfates, hydrogen sulfide, and vinyl chloride.

Toxic Air Contaminants

The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources, but does not directly regulate air toxics emissions. Under the Act, toxic air contaminant (TAC) emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings. Depending on the risk levels, emitting facilities are required to implement varying levels of risk reduction measures. The BAAQMD implements AB 2588, and is responsible for prioritizing facilities that emit air toxics, reviewing health risk

assessments, and implementing risk reduction procedure. Pursuant to the requirements of AB 2588, the BAAQMD publishes an air toxics emissions inventory that details the TAC emissions of facilities throughout the District.

Federal

US EPA is responsible for implementing the programs established under the federal CAA, such as establishing and reviewing the NAAQS and judging the adequacy of State Implementation Plans (SIPs), but has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented.

State of California

CARB is responsible for establishing and reviewing the State standards, compiling the California SIP and securing approval of that plan from US EPA, conducting research and planning, and identifying toxic air contaminants. CARB also regulates mobile sources of emissions in California, such as construction equipment, trucks, and automobiles, and oversees the activities of California's air quality management districts, which are organized at the county or regional level. County or regional air quality management districts are primarily responsible for regulating stationary sources at industrial and commercial facilities within their geographic areas and for preparing the air quality plans that are required under the federal CAA and California CAA.

Bay Area Air Quality Management District

BAAQMD is the regional agency with jurisdiction over the nine-county region located in the Bay Area Air Basin. The Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various non-governmental organizations also join in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs. BAAQMD is also responsible for attaining and/or maintaining air quality in the Bay Area Air Basin within federal and State air quality standards. Specifically, BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the Bay Area and to develop and implement strategies to attain the applicable federal and State standards.

Any person or facility that puts in place, builds, erects, installs, modifies, modernizes, alters or replaces any article, machine, equipment or other contrivance, the use of which may cause, reduce or control the emission of air contaminants, shall first secure written authorization from the BAAQMD in the form of an Authority to Construct, unless the source is specifically excluded or exempt from permit requirements. The BAAQMD's permit process is a pre-construction review and approval process. The BAAQMD's review is conducted after the equipment is designed, but before it is installed.

California Environmental Quality Act (CEQA) Guidelines

BAAQMD adopted updated *CEQA Air Quality Guidelines*, including new thresholds of significance in June 2010, and revised them in May 2011 (BAAQMD, 2012). The Air Quality Guidelines advise lead agencies on how to evaluate potential air quality impacts, including establishing quantitative and qualitative thresholds of significance. The thresholds BAAQMD adopted were called into question by a minute order issued January 9, 2012 in *California Building Industry Association v. BAAQMD*, Alameda Superior Court Case No. RGI0548693. The minute order states that “The Court finds [BAAQMD’s adoption of thresholds] is a CEQA Project, the court makes no further findings or rulings.” The claims made in the case concerned the CEQA impacts of adopting the thresholds, particularly, how the thresholds would affect land use development patterns. Petitioners argued that the thresholds for Health Risk Assessments encompassed issues not addressed by CEQA. As a result, the BAAQMD resolutions adopting and revising the significance thresholds in 2011 were set aside by a judicial writ of mandate on March 5, 2012. In May of 2012, BAAQMD updated its CEQA Air Quality Guidelines to continue to provide direction on recommended analysis methodologies, but without recommended quantitative significance thresholds. On August 13, 2013, the First District Court of Appeal ordered the trial court to reverse the judgment and upheld the BAAQMD’s CEQA thresholds. *California Building Industry Ass’n v. Bay Area Air Quality Mgmt. Dist.*, Case No. A135335 & A136212 (Court of Appeal, First District, August 13, 2013). BAAQMD has not formally re-instated the thresholds or otherwise responded to this Appellate Court reversal at this time.

The air quality impact analysis in this EIR uses the previously-adopted thresholds and methodologies from the 2011 BAAQMD *CEQA Air Quality Guidelines* to determine the potential impacts of the Specific Plan. While the significance thresholds adopted by BAAQMD in 2011 are not currently recommended by the BAAQMD, these thresholds are based on substantial evidence identified in BAAQMD’s 2009 *Justification Report* (BAAQMD, 2009) and are therefore used within this document.

Air Quality Plans

Air quality plans developed to meet federal requirements are referred to as SIPs. The federal CAA and the California CAA require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the State PM₁₀ standard). At a public hearing on September 15, 2010, the BAAQMD Board of Directors adopted the final Bay Area 2010 Clean Air Plan (2010 CAP), and certified the Final Environmental Impact Report on the 2010 CAP. The 2010 CAP serves to update the 2005 Bay Area Ozone Strategy in compliance with the requirements of the Chapter 10 of the California Health & Safety Code. This plan includes ozone control measures and also considers the impacts of these control measures on particulate matter, air toxics, and greenhouse gas emissions in a single, integrated plan.

The 2010 CAP control strategy includes revised, updated, and new measures in the three traditional control measure categories: stationary sources measures, mobile source measures, and transportation control measures. In addition, the 2010 CAP identifies two new categories of control measures, including land use and local impact measures and energy and climate measures (BAAQMD, 2010).

Air Toxics Program

The BAAQMD's Air Toxics Program integrates federal and State air toxics mandates with local goals that have been established by the BAAQMD's Board of Directors. The program consists of several elements that are designed to identify and reduce public exposure TACs. Under the preconstruction review of new and modified sources program, proposed projects are reviewed for potential health impacts, with the requirement that significant new/modified sources use the Best Available Control Technology to minimize TAC emissions. All applications for new or modified permits are reviewed for air toxics impacts, in accordance with the BAAQMD's Risk Management Policy and by Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.

Redwood City General Plan

The Redwood City General Plan *Public Safety Element* includes the following policies that pertain to air quality of the Specific Plan and/or the Harbor View project, and were adopted for the purpose of avoiding or mitigating an environmental effect issues. Policies listed below that are also considered land use policies are addressed in Section 4.9, *Land Use and Planning*, of this Draft EIR.

- Policy PS-1.2: Minimize vehicle emissions by reducing automobile use and encouraging alternative means of transportation.
- Policy PS-1.3: Pursue efforts to reduce air pollution and greenhouse gas emissions by promoting the use of renewable energy (e.g., solar, wind, and hydroelectric power), and implement effective energy conservation and efficiency measures.
- Policy PS-1.5: Require projects that generate potentially significant levels of air pollutants to incorporate the most effective air quality mitigation into project design, as feasible.
- Policy PS-2.1: Consider surrounding land uses when locating sensitive receptors such as schools, hospitals, and residential uses so they are not unreasonably exposed to uses that generate pollutants considered detrimental to human health.
- Policy PS-2.4: Avoid placing sensitive uses within 500 feet—or other distance deemed to be appropriate based on project-specific health risk assessment data—of the Port of Redwood City, related heavy industrial areas, and any roadways serving Port uses.
- Policy PS-2.6: Require all land uses proposed within 500 feet of U.S. 101, El Camino Real, and Woodside Road that will house, accommodate, or serve sensitive receptors to incorporate appropriate design and construction features (e.g., filters on HVAC systems) that reduce potential exposure of persons to pollutants.
- Policy PS-2.7: Discourage the establishment of any new school or housing for senior residents within 500 feet of a freeway.
- Policy PS-3.3: Implement policies of the Built Environment Element that provide for compact, urban-style forms of development and complete streets and neighborhoods to reduce vehicle emissions by placing residents closer to jobs and services and providing alternative modes of transportation.
- Policy PS-3.4: Implement the policies of the Built Environment Element that promote transportation mode shifts away from private automobile travel.

- Policy PS-4.4: Promote urban forestation and other ecosystems that offer significant carbon mitigation potential.

4.2.3 Project Baseline

Under CEQA, the project baseline is normally defined as the physical conditions of the environment as it exists at the time of publication of the Notice of Preparation of the project EIR. However, information regarding emissions from existing uses was not readily available. Therefore, this analysis evaluates impacts of the Specific Plan and Harbor View project conservatively assuming baseline emissions from existing uses to be zero.

4.2.4 Significance Criteria

Based on CEQA *Guidelines* Appendix G, a project would cause adverse impacts to air quality if it would:

- a) Conflict with or obstruct implementation of the applicable air quality plan;
- b) Violate any air quality standard or contribute to an existing or projected air quality violation;
- c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- d) Expose sensitive receptors to substantial pollutant concentrations; or
- e) Create objectionable odors affecting a substantial number of people, as measured by an average of five or more confirmed odor complaints per year over three years.

Approach to Analysis

Inner Harbor Specific Plan

The analysis used in this document uses the methodologies provided in the BAAQMD's 2011 *CEQA Air Quality Guidelines*. Further, this analysis follows CEQA Guidelines released by the BAAQMD in May 2012. However, since the May 2012 CEQA Air Quality Guidelines do not provide specific significance thresholds, the thresholds and methodologies from the BAAQMD's 2011 *CEQA Air Quality Guidelines* were used to evaluate the potential impacts of construction and operation of the Specific Plan. According to the 2011 *CEQA Air Quality Guidelines*, the Specific Plan would be considered to have a significant air quality impact if would:

- Fundamentally conflict with the primary goals of the Bay Area Clean Air Plan (CAP);
- Not include special overlay zones containing goals, policies, and objectives to minimize potential Toxic Air Contaminant (TAC) impacts in areas located (a) near existing and planned sources of TACs and (b) within 500 feet of freeways and high-volume roadways containing 100,000 or more average daily vehicle trips; or
- Not identify existing and planned sources of odors with policies to reduce potential odor impacts.

The BAAQMD 2011 *CEQA Air Quality Guidelines* recommend comparison to quantitative significance thresholds only for project-level analyses and not for plan level analyses. Therefore, significance criteria “b” and “c” do not apply to the program-level analysis of the Specific Plan.

Harbor View Project

For the project level analysis conducted for the Harbor View project, the 2011 *CEQA Air Quality Guidelines* recommends quantitative emissions thresholds for both construction and operational emissions. Impacts related to project construction are evaluated by comparing estimated construction emissions to the significance thresholds, which for short-term construction emissions are 54 pounds per day for ROG, NO_x, and PM_{2.5}; and 82 pounds per day for PM₁₀. Only the exhaust portion of PM_{2.5} and PM₁₀ emissions are compared against the construction thresholds. The BAAQMD recommends that analyses focus on implementation of dust control measures rather than comparing estimated levels of fugitive dust to a quantitative significance threshold. Rather, the BAAQMD considers implementation of the BAAQMD-recommended mitigation measures for fugitive dust sufficient to ensure that construction-related fugitive dust is reduced to a less-than-significant level. The BAAQMD Guidelines provide feasible control measures for construction emission of PM₁₀. If the appropriate construction controls are implemented, air pollutant emissions for construction activities would be considered mitigated to a less-than-significant level.

For long-term operations, BAAQMD has two sets of significance thresholds, including daily thresholds that are the same as the construction thresholds, and annual thresholds that are 10 tons per year for ROG, NO_x, and PM_{2.5}; and 15 tons per year for PM₁₀.

The health risk analysis conducts a quantitative analysis for project construction given the close proximity of the project site to sensitive receptors, and conducts a qualitative analysis for project operations, as described below. For project construction, DPM emissions have the potential to cause significant health risks to inmates in the living quarters of the County Replacement Jail Facility that is under construction within 100 feet of the Harbor View project site. The construction analysis evaluates whether the project would cause health risks that exceed BAAQMD’s thresholds. These include a cancer risk threshold of 10 in a million, an acute and chronic hazard index threshold of 1.0, and a PM_{2.5} threshold of 0.3 μ/m³. DPM does not represent an acute health risk. Therefore, acute health risks were not evaluated. Health risks from the operation of the Harbor View project are evaluated quantitatively because the project would not be a significant source of TACs, and it would not include any land uses considered sensitive to TACs emitted by surrounding land uses.

Impacts from the Environment

CEQA requires the analysis of potential adverse effects of a project on the environment. Potential effects of the environment on a project, such as air quality emissions from non-project sources – are arguably not required to be analyzed or mitigated under CEQA. However, this EIR analyzes potential effects of “the environment on the project” in order to provide information to the public and decision-makers.

Cumulative

Regarding the assessment of cumulative impacts, a project’s contribution to cumulative impacts to regional air quality would be considered significant if the project’s impact individually would be significant (i.e., exceeds the BAAQMD’s quantitative thresholds). For a project that would not result in a significant impact individually, the project’s contribution to any cumulative impact would be considered less than significant if the project is consistent with the local general plan and the local general plan is consistent with the applicable regional air quality plan. In this case, the applicable regional air quality plan is the 2010 CAP.

4.2.5 Program-Level Impacts of the Inner Harbor Specific Plan

Impact AIR-1.SP: Adoption and development under the Specific Plan would be consistent with the primary goals of the Bay Area Clean Air Plan (CAP) and would not fundamentally conflict with the CAP because the Specific Plan demonstrates reasonable efforts to implement control measures contained in the CAP (Criterion a). (Less than Significant)

The 1988 California Clean Air Act, Section 40919(d) requires regions to implement “transportation control measures to substantially reduce the rate of increase in passenger vehicle trips and miles traveled.” Consistent with this requirement, one of the goals of the 2010 CAP is to reduce the number of trips and vehicle miles Bay Area residents travel in single-occupant vehicles through the implementation of five categories of transportation control measures (TCMs).

Table 4.2-3 identifies those five categories of TCMs that local governments should implement through local plans to be considered in conformance with the 2010 CAP. These measures lend themselves for application to large scale land use development projects, such as those proposed under the Specific Plan.

**TABLE 4.2-3
TRANSPORTATION CONTROL MEASURES IN THE 2010 CLEAN AIR PLAN**

-
1. Improve Transit Services (TCM A)
 2. Improve System Efficiency (TCM B)
 3. Encourage Sustainable Travel Behavior (i.e., voluntary employer-based trip reduction program) (TCM C)
 4. Support Focused Growth (Bicycle and Pedestrian friendliness) (TCM D)
 5. Implement Pricing Strategies (TCM E)
-

SOURCE: BAAQMD, 2010.

Locational and Use Characteristics

The Specific Plan contains the following goals that address reduced trip generation and would be considered to help attain the goals of the CAP:

- Enhance connectivity to downtown Redwood City and other nearby areas
- Improve multi-modal access for safer use by pedestrians and bicyclists

- Implement bicycle facilities in the Inner Harbor Area as envisioned for the San Francisco Bay Trail

As discussed in Section 4.9, *Land Use and Planning*, of this Draft EIR, although the Plan would increase the maximum amount of development that would occur in the Plan Area, the area's infill location and proximity to transit options reduces the distance that customers would drive in motor vehicles by providing increased retail and employment opportunities within the Plan Area. By providing a mix of residential, institutional, recreational and professional office uses, the Plan would benefit and serve the needs of land uses adjacent and nearby. A more active bicycle and pedestrian friendly environment would serve to enhance connections within the Plan Area, as well as to, and between, the surrounding neighborhoods. Taken together, these locational characteristics of the Specific Plan Area help reduce the number of potential motor vehicle trips.

Transportation Demand Management

In addition to the locational characteristics of the Specific Plan described above, the Specific Plan includes a suite of Transportation Demand Management (TDM) strategies to reduce peak single-occupancy vehicle trips and encourage use of transit, walking, and biking as transportation modes. These strategies (or measures) constitute a TDM Plan, and all future private development projects within the Plan Area will be required to participate in a transportation management association, which will administer the TDM Plan and monitor its effectiveness.

TDM measures will be instituted by the Inner Harbor's various property owners and managers to reduce vehicle use and significantly enhance mobility for people accessing the Plan Area. The program will require close coordination among multiple agencies, including SamTrans, C/CAG, San Mateo County, and Caltrans. The Specific Plan specifies TDM measures listed below that could be instituted by the Inner Harbor's various property owners and managers and that are based on best practices for TDM programs. While not an exhaustive list of all potential measures, the TDM program will be regularly evaluated by the transportation management association to ensure the widest range of options is available to reduce the number of single occupancy vehicle trips.

- **Plan Area TDM Coordinator** - Private development projects under the Specific Plan would be required to coordinate and create one "shared" TDM coordinator for the entire Inner Harbor neighborhood. The TDM coordinator will manage and promote TDM programs and oversee monitoring to determine the program's effectiveness. The TDM Coordinator will provide information via flyers, posters, e-mail, and educational programs regarding non-auto access and circulation options. The TDM Coordinator's role may also include actively marketing alternative mode use, administering a neighborhood ridematching program, and overseeing a Guaranteed Ride Home program (working with a local taxi service or rental car agency). The TDM Coordinator could also help implement or support parking and vehicle management strategies.
- **Neighborhood EcoPass** - Provide a transit subsidy ("commuter check" or "EcoPass") to all residents and employees. This program will reduce the cost of using transit service to access the Inner Harbor Plan Area.
- **Guaranteed Ride Home Program/Taxi Service** - Provide a guaranteed ride home program. One of the reasons many commuters choose to drive to work and/or transit

stations, rather than being dropped off or taking transit, is their inability to go home unexpectedly or the fear of being stranded if returning late without a car at the station. Guaranteed Ride Home programs are designed to allay these fears. With this program, transit riders are able to use a complimentary or reduced price taxi service to get home. Adequate taxi service is necessary for the Guaranteed Ride Home program to be successfully implemented.

- **Neighborhood Ridematching and Ridesharing** - Carpools consist of two or more people riding in one vehicle for commute purposes. A vanpool consists of seven to fifteen passengers, including the driver, and the vehicle is either owned by one of the vanpoolers or their employer or leased by a vanpool rental company. Carpools and vanpool formations often require ridematching assistance. Additionally, the Guaranteed Ride Home program (see above) will provide an insurance plan to those hesitant to join carpools for concerns of being unable to respond to an emergency, sick child, or other issue. To facilitate the formation of carpools, the TDM coordinator will administer an on-site carpool and vanpool matching service for commuters and maintain a list of available vanpools that provide service between the Plan Area and various residential neighborhoods. The coordinator could also direct patrons to the 511.org Rideshare website to access additional ridematching services.
- **Preferential Parking for Vanpool or Carpool** - Reserve convenient parking spaces for high-occupancy vehicles (HOVs) to encourage ridesharing. Preferential spaces could be striped and signed at a low cost. By implementing this strategy, there will be minimal enforcement costs. Complementary strategies such as a Guaranteed Ride Home program and a ridematching program will further encourage ridesharing.
- **Bay Area Bike Share** – Based on demand and availability of funds, the Bay Area Bike Share could be expanded to the Inner Harbor neighborhood to provide bicycles for use on a temporary basis. This would reduce vehicle trips by providing a means of transportation in the area for individuals who would not drive but use transit or rideshare as a commute mode. Bay Area Bike Share currently operates over 50 bike share stations in San Francisco and throughout the Bay Area Peninsula, including stations in Redwood City. Over 100 bicycle docking stations are provided in the Redwood City Downtown area and at the Caltrain station. The closest bike share station to the Plan Area is the Redwood City Medical Center station (Kaiser Hospital) at the corner of Maple Street and Marshall Street, about ½ mile from the Plan Area. Any future Bike Share stations should be located adjacent to major land uses and near proposed bicycle and pedestrian connections across Highway 101.

A vehicle trip cap will monitor the effectiveness of the TDM program and the traffic generated from the Plan Area. The Specific Plan also recommends regular evaluation of the TDM measures to ensure that the widest range of options is available to reduce the number of single occupancy vehicle trips. The TDM measures will be most effective when they are provided for all user groups in the Plan Area. The TDM Plan must be approved by the City of Redwood City and reviewed by C/CAG.

As discussed in detail in Section 4.14, *Transportation and Traffic*, in this Draft EIR, although TDM plans have the potential to reduce traffic result in mode shifts (e.g., use of bicycles or transit instead of single occupancy vehicles) to the Plan Area, the feasibility, funding sources, and effectiveness of TDM strategies would not be fully known until project-specific assessments. However, the Specific Plan's requirement for implementation of a TDM Plan incorporating a

suite of proposed transportation control measures consistent with the 2010 CAP, and the fact that implementation is mandatory for all future private development projects in the Plan Area, adoption of and development under the Specific Plan would not be considered to fundamentally conflict with the 2010 CAP. This would be a less-than-significant air quality impact with regard to TCM implementation.

Mitigation: None Required.

Impact AIR-2.SP: Adoption and development under the Specific Plan would include special overlay zones containing goals, policies, and objectives to minimize potential Toxic Air Contaminant (TAC) impacts in areas located (a) near existing and planned sources of TACs and (b) within 500 feet of freeways and high-volume roadways containing 100,000 or more average daily vehicle trips (Criterion d). (Less than Significant)

CARB makes recommendations for specific buffer zones around certain types of TAC emitters of particular concern, such as for dry cleaners (500 feet) and chrome platers (1,000 feet). The BAAQMD Guidelines recommend special overlay zones containing goals, policies, and objectives to minimize potential TAC impacts in areas located within 1,000 feet of existing and planned TAC sources. CARB guidance recommends a minimum buffer of 500 feet from the edge of freeways to sensitive receptors.

As discussed earlier in this section, the three sources of TACs identified in the Specific Plan Area include emissions from vehicles traveling on Highway 101, on-site generators at the manufacturing facilities in the Seaport Centre office park on Galveston Drive and Penobscot Drive, and dust and particulates associated with operation of the Graniterock facility. The Specific Plan proposes residential development in the proposed IH-1 and IH-2 districts as well as water-based liveaboard units in the WD-2 district. A significant portion of the IH-1 and IH-2 districts is located within a 500 feet distance from Highway 101 and therefore would be affected by TAC emissions from the high volumes of traffic on the freeway. The northern portions of IH-2 and proposed water based residential development in WD-2 would also be affected by particulate emissions from the Graniterock facility. Therefore, proposed residential development under the Specific Plan could be located within areas of concern from the TAC and PM_{2.5} emissions from one or more of the stationary TAC sources as well as from high volumes of vehicle traffic on Highway 101.

Residential Location Restrictions

However, Section 4.6.2.B of the Specific Plan restricts the location of residential development within the Plan Area. Specifically, new residential development (either land- or water-based) is not permitted within 200 feet of areas zoned General Industrial or within 500 feet of the outermost lane of a freeway. An exception to these restrictions may be allowed however, pending a screening analysis and only if such residential uses are further than 100 feet from the freeway. The project applicant would be required to conduct a screening analysis to indicate whether new receptors will be exposed to roadway TAC emissions at concentrations exceeding the threshold of significance as determined and periodically updated by the BAAQMD. The screening analysis

would be submitted to Redwood City Community Development Services for review. If the results of the screening analysis indicate thresholds of significance would be exceeded by the project, a quantitative health risk assessment shall be required to identify exposure levels to TACs below those recommended by the BAAQMD. If the project were to exceed the screening criteria, a project-specific HRA would be prepared to quantify the project-specific health risk.

Adoption and development under the Specific Plan would be required to implement any project-specific recommendations to reduce the potential health risk. Recommendations may include having the future project applicant install, operate and maintain a central heating and ventilation system or other air intake system in the building or in each individual residential unit that sufficiently reduces exposure to diesel particulate matter from Highway 101 and PM_{2.5} concentrations from the Graniterock facility.

Because the proposed Specific Plan mandates minimum set backs from any freeway or areas zoned General Industrial, and requires health risk assessments for any residential land uses proposed within those setbacks, this impact would be less than significant.

Mitigation: None Required.

Impact AIR-3.SP: Development under the Specific Plan would not identify existing and planned sources of objectionable odors (Criterion e). (Less than Significant)

Typical odor sources of concern for people include wastewater treatment plants, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing facilities, fiberglass manufacturing facilities, auto body shops, rendering plants, and coffee roasting facilities.

There are no potential odor generating sources within the Plan Area or within one-half mile of the Plan Area, particularly odors considered objectionable. The nearest potential odor source is Sims Metal Management approximately one mile north and downwind of the Plan Area. This facility recently implemented an Emissions Minimization Plan pursuant to newly adopted Rule 6-4 of the BAAQMD related to metal recycling operations which will control odors as well as fugitive particulate emissions (CARB, 2014).

Also, development under the Specific Plan would not introduce any potential sources of objectionable odor in the Plan Area. Land uses that could occur within the Plan Area (detailed in Appendix B to this Draft EIR) include residential, commercial, and open space and recreational uses; research and development uses would be subject to approval of a use permit. Therefore, the potential for a substantial number of people (sensitive receptors) within the Plan Area to be impacted by objectionable odors would be less than significant.

Mitigation: None Required.

4.2.6 Project-Level Impacts of the Harbor View Project

Construction Emissions

Impact AIR-1.HV: Construction activities associated with the Harbor View project would generate fugitive dust and exceed construction criteria air pollutants emissions (NOx) (Criterion b). (Significant)

Construction activities are short-term and typically result in emissions of ozone precursors and particulate matter in the form of dust (fugitive dust) and exhaust (e.g., vehicle tailpipe emissions). Emissions of ozone precursors and particulate matter are primarily a result of the combustion of fuel from on-road vehicles and off-road construction equipment. However, ROG's are also emitted from activities that involve painting, other types of architectural coatings, and asphalt paving. The proposed project includes demolition of approximately 37,000 square feet in area and the construction of four buildings that house approximately 1,250,468 square feet of office space in total on the 25 acre project site.¹ During the project's construction period construction activities would have the potential to result in emissions of fugitive dust, ozone precursors, and particulate matter, as discussed below.

Fugitive Dust

Project-related demolition, excavation, grading, and other construction activities could cause wind-blown dust that would contribute particulate matter into the local atmosphere. Dust can be an irritant causing watering eyes or irritation to the lungs, nose, and throat. Depending on exposure, adverse health effects can occur due to particulate matter in general and also due to specific contaminants such as lead or asbestos that may be constituents of soil or the demolished buildings.

Rather than quantifying fugitive dust emissions to evaluate impacts, BAAQMD emphasizes the implementation of appropriate mitigation measures for dust control during all construction activities. The BAAQMD Guidelines provide feasible control measures for construction emission of PM₁₀ and implementation of these measures would ensure that construction impacts from fugitive dust would be less than significant. The BAAQMD recommended dust control measures are listed in Mitigation Measure AIR-1.HV below. With the implementation of the Mitigation Measure, the project's fugitive dust impacts would be mitigated to less than significant.

Criteria Air Pollutants

Criteria pollutant emissions would be generated by construction equipment exhaust, on-road vehicle trips of haul trucks for delivering construction material and removing debris and excavation spoils, and construction worker commutes to and from the project site.

Construction-related criteria air pollutant emissions for the proposed project were estimated using CalEEMod (California Emissions Estimator Model, version 2013.2.2). This version of the

¹ The Harbor View project is conservatively analyzed throughout this EIR as 1,400,000 square feet of commercial office use. The project sponsor's application to the City proposes 1,250,468 square feet of commercial office use.

CalEEMod model was released in October 2013 and uses emission factors from the OFFROAD2007 model and the 2011 Inventory Model for the In-use Off-road Equipment Rule of the ARB. For the estimation of on-road emissions, the model uses EMFAC2011 emission factors and estimated daily trips based on the square feet of proposed area to be built.

Project specific data for construction phasing schedule and equipment fleet provided by the project sponsor was used in the model to estimate emissions over the 19 month construction period. The total uncontrolled emissions generated over the duration of construction was divided by the number of construction days (estimated 422 days) to get an average daily emissions estimate for construction emissions, as shown in **Table 4.2-4**. As shown in the table, only NOx emissions from project construction would exceed the significance thresholds for construction-related criteria air pollutants. Emissions of ROG, PM₁₀, and PM_{2.5} would be below their respective significance thresholds. Therefore the project would have a significant impact related to construction criteria air pollutant emissions.

Implementation of Mitigation Measure AIR-1A.HV would reduce emissions, primarily fugitive dust emissions. NOx emissions would have to be reduced by 50 percent to avoid a significant impact. Implementation of Mitigation Measure AIR-1B.HV would reduce NOx emissions between 20 to 30 percent depending on the level of implementation; however, the reduction would not be enough to bring construction NOx levels to less than significant levels. Therefore, it is reasonable to assume that the proposed project could contribute substantially to a criteria pollutant standard violation, resulting in a significant and unavoidable impact.

**TABLE 4.2-4
UNCONTROLLED PROJECT CONSTRUCTION-RELATED EMISSIONS**

	Construction Emissions			
	ROG	NOx	PM ₁₀	PM _{2.5}
Total Construction Emissions (tons)	11.03	22.5	2.6	1.6
Number of construction days	422	422	422	422
Average Daily Construction Emissions (lbs/day)	52.3	106.8	12.4	7.7
Significance Threshold (lbs/day)	54	54	82	54
Significant?	No	Yes	No	No

SOURCE: ESA, 2015

Mitigation Measure AIR-1A.HV: Implement BAAQMD Basic Construction Mitigation Measures. The project sponsor shall require construction contractors to implement the following applicable BAAQMD Basic Construction Mitigation Measures to reduce emissions of fugitive dust and equipment exhaust:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure AIR-1B.HV: Implement BAAQMD additional construction mitigation measures. The project sponsor shall require construction contractors to implement the following measures, recommended for projects with construction emissions above significance thresholds to further reduce fugitive dust and exhaust emissions.

- All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
- Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on 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.

- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Minimizing the idling time of diesel powered construction equipment to two minutes.
- Develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NO_x reduction compared to the most recent CARB 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.
- Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO_x and PM.
- Requiring all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.

Significance after Mitigation: Significant and Unavoidable

Impact AIR-2.HV: Construction activities associated with the Harbor View project would generate toxic air contaminants (TACs), including diesel particulate matter (DPM), but would not expose sensitive receptors to substantial pollutant concentrations (Criterion c). (Less than Significant)

DPM emitted by construction activities for the proposed project was evaluated for potential health risks. The analysis focused on whether DPM would cause significant health risks to inmates living in group living quarters of the County Jail Replacement Facility under construction on Maple Street, located 100 feet west of the Harbor View project site. The Replacement Jail Facility is expected to be operational and occupied prior to construction of the Harbor View project. No other sensitive receptors exist within 1,000 feet of the project.

The Atmospheric Dispersion Modeling System (AERMOD) was used to estimate DPM concentrations at the Maple Street Facility from project construction (USEPA, 2015). Then, the estimated DPM concentrations were entered into the Hotspots Analysis Reporting Program (HARP) 2 Risk Assessment Standalone Tool (OEHHA, 2015; CARB, 2015). This tool uses

pollutant concentrations (from Table 4.2-4, above) to calculate cancer, chronic, and acute health risks.

The maximum cancer risk to inmates is estimated at 5.1 per million, less than the BAAQMD's significance threshold of 10 in a million. The maximum chronic health risk index equaled 0.14, less than BAAQMD's chronic hazard index threshold of 1.0. Also, project construction would not expose inmates to concentrations exceeding BAAQMD's PM_{2.5} significance threshold of 0.3 µg/m³ (as an annual average). Factored into this assessment is Mitigation Measure AIR-2 that was adopted as part of the Initial Study / Mitigated Negative Declaration (IS/MND) prepared for the Maple Street Replacement Facility (2010). Mitigation Measure AIR-2 from the IS/MND requires that all heating ventilation and air conditioning equipment (HVAC) air filters installed at the Maple Street Replacement Facility achieve indoor PM_{2.5} concentrations equal to or less than BAAQMD's significance threshold of 0.3 µg/m³ (San Mateo Sheriff's Department, 2010).

In conclusion, construction of the Harbor View project would not expose sensitive receptors to substantial TAC concentrations and would therefore result in less than significant health risk impacts.

Mitigation: None Required.

Operational Emissions

Impact AIR-3.HV: The Harbor View project would not conflict with, or obstruct implementation of the 2010 Clean Air Plan (Criterion a). (Less than Significant)

The most recently adopted air quality plan for the Bay Area is the *2010 Clean Air Plan*. The *2010 Clean Air Plan* is a road map that demonstrates how the San Francisco Bay Area will achieve compliance with the state ozone standards as expeditiously as practicable and how the region will reduce the transport of ozone and ozone precursors to neighboring air basins. In determining consistency with the *2010 Clean Air Plan* (CAP), this analysis considers whether the project would: (1) support the primary goals of the CAP, (2) include applicable control measures from the CAP, and (3) avoid disrupting or hindering implementation of control measures identified in the CAP.

The primary goals of the CAP are to: (1) Reduce emissions and decrease ambient concentration of harmful pollutants; (2) Safeguard the public health by reducing exposure to air pollutants that pose the greatest risk; and (3) Reduce greenhouse gas emissions. To meet the primary goals, the CAP recommends specific control measures and actions. These control measures are grouped into various categories and include stationary and area source measures, mobile source measures, transportation control measures, land use measures, and energy and climate measures. The CAP recognizes that to a great extent, community design dictates individual travel mode, and that a key long term control strategy to reduce emissions of criteria pollutants, air toxics, and greenhouse gases from motor vehicles is to channel future Bay Area growth into urban

communities where goods and services are close at hand, and people have a range of viable transportation options. To this end, the *2010 Clean Air Plan* includes 55 control measures aimed at reducing air pollution in the Bay Area Air Basin.

The measures most applicable to the proposed project are energy and climate control measures and transportation control measures. The proposed project's impact with respect to energy and GHGs are discussed in Section 4.6, *Greenhouse Gas Emissions and Energy*, of this Draft EIR, which demonstrates that the proposed project would comply with those particular policies of the City's General Plan.

Transportation control measures that are identified in the *2010 Clean Air Plan* are implemented by the Redwood City General Plan and the Zoning Ordinance. By complying with these requirements, the project would include relevant transportation control measures specified by the *2010 Clean Air Plan*. Specifically, the Specific Plan, which encompasses most of the Harbor View project site, explicitly requires individual development proposals in the Plan Area to implement a TDM plan (see Impact AIR-1.SP, above). Therefore, the project sponsor of the Harbor View project has developed a project-specific draft TDM plan, and the proposed measures are listed below.²

Aspects of the proposed Harbor View project TDM Plan include several potential strategies that are consistent with the measures C/CAG has identified as acceptable and to which it has assigned peak-hour trip credits to assist effectiveness. Some of the Harbor View TDM strategies aimed at peak hour employee trips include allowing alternative work schedules and telecommuting, local shuttle and commute bus services, bicycle storage facilities, employee showers and changing rooms. The proposed project also includes extensive onsite amenities intended to reduce peak hour traffic by encouraging employees to arrive early or stay late; these include fitness areas for individual training and group fitness classes, and the proposed High Garden that includes a café and areas for basketball, volleyball, a putting green and bocce ball, as well as vegetable beds. These elements align with the goals of the 2010 CAP with regard to TCM implementation.

TDM Measures

- Secure bicycle storage - Bike racks/lockers
- Showers and lockers
- Peak hour shuttle seats (22 seat shuttle, every 15 minutes) -
- Commuter checks (all transit riders)
- Vanpool program
- Guaranteed Ride Home (all non-SOV users)
- Preferential Carpool Parking
- Preferential Vanpool Parking

- Annual Employee Travel Survey
- Alternative Work Schedules

Commute Assistance Center Features

- Staffed 4 hours / week
- Transit Brochure Rack
- Trip Planning Assistance
- Bike to Work Program and Discounts

On-Site Amenities

- Fitness center and fitness classes

² *Preliminary Summary of TDM Strategies for Harbor View Development, Redwood City, California*; Kimley Horn & Associates, February 4, 2015.

Examples of projects that could cause the disruption or delay of *Clean Air Plan* control measures are projects that would preclude the extension of a transit line or bike path, or projects that would include excessive parking beyond parking requirements. The Harbor View project would provide for extension of bike and transit facilities to the area to provide direct access to other areas within the Specific Plan Area as well as offsite areas. The project also proposes pedestrian and bicycle pathways proposed through the project site. The project would not provide excessive parking; it proposes approximately 631 fewer onsite parking spaces than required by the City's Zoning Ordinance, and approximately 60 more spaces than estimated by parking demand (see Section 4.14, *Transportation and Circulation* of this Draft EIR). Further, as part of the project's proposed TDM Plan mentioned above, the project proposes to include special parking for vanpools, carpools, electric vehicles as well as space for shuttle stops. Bicycle parking will be distributed throughout the campus and shower facilities will be provided at the amenities building. The project sponsor has also indicated that the project will be designed to a LEED gold standard and will meet all new state energy requirements for both buildings and site design components.

Taken together, the proposed project would not disrupt or hinder implementation of control measures identified in the CAP because it includes characteristics that will help reduce single occupant vehicle trips generated and consequently the vehicle miles travelled due to the project and its associated emissions. Therefore, the proposed project would not be considered to conflict with, or obstruct implementation of the *2010 Clean Air Plan*, and this impact would be less than significant under CEQA.

Mitigation: None Required.

Impact AIR-4.HV: The Harbor View project would result in emissions of criteria air pollutants at levels that could violate an air quality standard, or contribute to an existing or projected air quality violation (Criterion b). (Significant)

The emissions increase attributable to operation of the Harbor View project would be primarily from the vehicle trips generated by the future occupants of the project. Area sources such natural gas combustion for heating, landscape maintenance, use of consumer products, and architectural coatings would also contribute to a lesser extent.

Project operational criteria pollutant emissions from mobile and area sources associated with the project were estimated using the CalEEMod model. The model was refined to reflect the project-specific trip generation as determined by the traffic study, which considered the availability of transit options in the area. Vehicle trip lengths from CalEEMod, which were developed with input from the BAAQMD, were used to determine the increase in vehicle miles travelled from the proposed project because project-specific trip lengths are not estimated in the transportation analysis. CalEEMod default emission factors for motor vehicle trips are based on EMFAC2011 emission factors. According to the traffic study, the proposed project would result in an average increase of 9,171 daily vehicle trips to the site.

Criteria pollutant emissions from the anticipated project-related operational sources are quantified in **Tables 4.2-5**. As shown, operation of the proposed project would generate emissions that would exceed significance thresholds for all criteria air pollutants, and the project would therefore result in a significant impact. Mobile sources are the main contributor to project operational emissions. The project’s 9,171 daily vehicle trips (from Table 4.14-17 in Section 4.14 of this Draft EIR) account for 59 percent of total ROG, 95 percent of NO_x, 99 percent of PM₁₀ and 98 percent of PM_{2.5} emissions.

**TABLE 4.2-5
OPERATIONAL EMISSIONS OF THE PROPOSED PROJECT**

Source	ROG	NO _x	PM ₁₀	PM _{2.5}
Average Daily Emissions (pounds/day)				
Area Sources	34.0	<0.1	<0.1	<0.1
Energy	0.6	5.6	0.4	0.4
Mobile Sources	50.7	101.7	87.2	24.3
Total Project Emissions	85.3	107.3	87.6	24.7
Daily Significance Threshold	54	54	82	54
Significant?	Yes	Yes	Yes	No
Maximum Annual Emissions (tons/year)				
Total Project Emissions	15.6	19.6	16.0	4.5
Annual Significance Threshold	10	10	15	10
Significant?	Yes	Yes	Yes	No

SOURCE: ESA, 2015

As discussed for Impact AIR-3.HV, the project sponsor of Harbor View has developed a project-specific draft TDM Plan for the project. The TDM Plan is under review by C/CAG and then will be verified by the City prior to implementation of the Harbor View project. Aspects of the proposed Harbor View TDM Plan include several potential strategies that are consistent with the measures C/CAG has identified as acceptable and assigned peak-hour trip credits to assist in evaluating effectiveness.

The strategies chosen for the proposed Harbor View project would reduce the project’s peak-hour vehicle trips by up to 11 percent (as presented in Table 4.14-28 and Table 4.14-29 in Section 4.14 of this Draft EIR). Although the actual trip reduction that would result will depend on the level of implementation of the strategies, the proposed Harbor View TDM Plan would not reduce vehicle trips (mobile sources) enough to achieve less-than-significant emissions levels (i.e., by at least 64 percent for NO_x emissions, 53 percent for ROG emissions, and 9 percent for PM₁₀). Therefore, even with **Mitigation Measure AIR-4.HV** below, the residual impact of the project’s operational emissions would be significant and unavoidable.

Mitigation Measure AIR-4.HV: The project applicant shall develop and implement the proposed Harbor View TDM Plan described in Tables 4.14-28 and 4.14-29 of this Draft EIR, subject to the TDM Plan’s review by C/CAG and approval by City of Redwood City prior to City approval of any development agreement.

Mitigation Measure AIR-4.HV is consistent with several secondary mitigation measures identified in this EIR to reduce single-occupancy vehicle trips generated by development projects in the Plan Area. Due to the level of exceedances in operational emissions due to mobile sources from the Harbor View project, the likelihood that a TDM Plan could reduce this impact to less-than-significant levels is low. Therefore, this impact would be significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable

Impact AIR-5.HV: The Harbor View project would generate toxic air contaminants (TACs), including diesel particulate matter, but would not expose sensitive receptors to substantial air pollutant concentrations (Criterion d). (Less than Significant)

The project site is located adjacent to Highway 101, which a source of TACs in the area. However, the project does not propose any sensitive land uses such as residences, schools, hospital, or day care centers. Office uses are generally considered less sensitive because they do not involve private residences, children, or the elderly for extended periods of time.

The project would result in emissions of toxic air contaminants primarily from vehicle trips. Impacts from project operation are expected to be minimal due to the use of natural gas (not diesel) fired generators, which emit only negligible levels of TACs. The BAAQMD considers roads with less than 10,000 vehicles per day “minor, low-impact” sources that do not pose a significant health impact even in combination with other nearby sources and recommends that these sources be excluded from the environmental analysis. The proposed project’s 9,171 vehicle trips would be distributed over the surrounding roadway network and would not add to any one roadway segment. Given the absence of sensitive receptors in the area, the increase in traffic due to the project would not result in significant exposure of receptors to substantial pollutant concentrations of TACs. Therefore, an assessment of project-generated TACs resulting from vehicle trips is not required, and this impact would be less than significant.

Mitigation: None Required.

Impact AIR-6.HV: The Harbor View project would not create objectionable odors that would affect a substantial number of people (Criterion e). (Less than Significant)

Typical odor sources of concern include wastewater treatment plants, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing facilities, fiberglass manufacturing facilities, auto body shops, rendering plants, and coffee roasting facilities. There are no odor sources associated with the existing project site and the proposed project would not create any new source of odors. During construction, diesel exhaust from construction equipment would generate some odors. However, construction-related odors would be

temporary and would not persist upon project completion. Therefore, odor impacts would be less than significant.

Mitigation: None Required.

4.2.7 Cumulative Impacts

Impact AIR-1.CU: Development under the Specific Plan and/or the Harbor View Place project, combined with cumulative development in the Plan Area and citywide, including past, present, existing, approved, pending, and reasonably foreseeable future development in the project area, would result in cumulative air quality impacts (Criterion c). (Significant)

Consistency with Clean Air Plan

Regional air pollution is by its very nature, is largely a cumulative impact. Emissions from past, present, and future projects contribute to the region's adverse air quality on a cumulative basis. The Bay Area's nonattainment status with respect to ozone and particulate matter is a result of past and present development within the Bay Area. Ambient air quality standards are violated or approach nonattainment levels due to past development that has formed the urban fabric, and plans for attainment of standards in the future can be jeopardized by increasing emissions-generating activity in the region. Therefore, all new development in the Bay Area that results in an increase in air pollutant emissions above those assumed in regional air quality plans contributes to cumulative air quality impacts.

As discussed in Section 4.9, *Land and Planning*, and other sections of this Draft EIR, the Redwood City General Plan's development assumptions for the "Redwood Creek/Harbor Center" area (which generally encompasses the Specific Plan Area), are generally consistent with the maximum theoretical buildout scenario) for the Specific Plan (see Table 3-1 in Chapter 3 of this Draft EIR), in addition to consideration of the Harbor View project.³ The associated land use changes and population and employment projections proposed in the General Plan formed the basis of air quality planning for the area in the 2010 CAP. While similar in overall development assumed, the proposed Specific Plan requires amendments to the General Plan and zoning to accommodate maximum theoretical buildout of the Specific Plan and/or the Harbor View project, and therefore is not considered to be fully consistent with assumptions in the 2010 CAP to achieve attainment of ozone and particulate matter standards.⁴ Therefore, development as proposed under the Specific Plan and /or the Harbor View project would be *conservatively*

³ The General Plan assumes up to 892 residential units and approximately 1.3 million square feet (msf) of non-residential uses. However, existing zoning is not consistent with the existing General Plan and would further constrain the potential development that could currently occur in the Inner H area under the existing General Plan allowances. Moreover, the existing General Plan supports a range of light industrial uses in the area, which the proposed Specific Plan limits to research and development uses.

⁴ The Specific Plan is *not* fundamentally in conflict with the CAP specifically with regard to TCM implementation, as discussed in Impact AIR-1.SP.

considered to lead to a cumulatively significant air quality impact. The impact would be significant.

Project Contribution to Cumulative Effects

No single project by itself would be sufficient in size to result in regional nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative adverse air quality impacts, and while its emissions may be individually limited, it could be cumulatively considerable when taken in combination with past, present, and future development projects (BAAQMD, 2011).

The project-level thresholds for criteria air pollutants are based on levels at which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants. Therefore, if a project leads to a significant impact individually, the project would also be considered to contribute significantly to the cumulative impact.

As discussed earlier, the proposed Harbor View project would exceed project level significance thresholds for both construction (Impact AIR-1.HV) and operational emissions (Impact AIR-4.HV); both these impacts would be significant and unavoidable even with implementation of Mitigation Measures AIR-1A.HV, AIR-1B.HV and AIR-4.HV. Therefore, the contribution of the Harbor View project to the cumulative, regional air quality impacts related to criteria pollutants would be considerable, and the project's contribution to any cumulative air quality impacts would be significant.

The project's incremental increase in localized TAC emissions resulting from new vehicle trips and the operation of back-up generators would be minor given the project's proposed use of natural-gas (not diesel) fired generators (Impact AIR-5.HV). The project would not contribute substantially to cumulative TAC emissions that could affect nearby existing and nearby proposed sensitive land uses. Therefore, the project's contribution to any cumulative air quality impacts related to exposure to TACs would be considered less than significant.

Implementation of mitigation measures for individual projects (such as **Mitigation Measures AIR-1A.HV, AIR-1B.HV and AIR-4.HV** for the Harbor View project) would reduce individual project emissions as well as the cumulatively considerable impacts. However, the resulting emissions reductions from these mitigation measures are not anticipated to reduce the project-level effects to less than significant. Therefore, the cumulative impact of the Inner Harbor Specific Plan as a whole, as well as Harbor View project's contribution, would remain significant and unavoidable.

Mitigation Measure AIR-1.CU: Implement Mitigation Measures AIR-1A.HV, AIR-1B.HV and AIR-4.HV.

Significance after Mitigation: Significant and Unavoidable

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