3.3 AIR QUALITY

AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially 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 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?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 Environmental Setting

Topography, Meteorology, and Climate

The San Francisco Bay Area Air Basin (SFBAAB), in which the Project is located, covers approximately 5,540 square miles of complex terrain, made up of coastal mountain ranges, inland valleys, and the San Francisco Bay. The SFBAAB is generally bordered on the west by the Pacific Ocean, on the north by the Coast Ranges, and on the east and south by the Diablo Range.

Meteorological conditions in the SFBAAB are warm and mainly dry in summers, and mild and moderately wet in winters. Marine air has a moderating effect on the climate throughout much of the year. Winds flow through the Golden Gate from the Pacific Ocean, but direct flow into eastern Alameda County is impeded by the East Bay hills. Marine air mostly is blocked from the area until late afternoons or on days when deep marine inversions develop with strong onshore flows.

The Project site is located on the River waterfront north of and adjacent to the city of Antioch in unincorporated Contra Costa County in the Carquinez Strait climatological sub-region of the Bay Area. Prevailing winds here are from the west during summer and

fall months, but occasionally atmospheric conditions can cause the air flow to reverse. East winds usually contain more pollutants from sources in the Central Valley than the cleaner west winds with marine air. The east winds can cause elevated pollutant levels in this sub-region and further west in more central reaches of the Bay Area air basin.[11]

Local Air Quality Conditions

The determination of whether a region's air quality is healthful or unhealthful is made by comparing contaminant levels in ambient air samples to the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). Both the California Air Resources Board (CARB) and U.S. Environmental Protection Agency (USEPA) ambient air concentrations are monitored at various regions throughout the SFBAAB to designate an area's attainment status with respect to the CAAQS and NAAQS, respectively, for criteria air pollutants. The purpose of these designations is to identify areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are "nonattainment," "attainment," and "unclassified." The "unclassified" designation is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. The most recent attainment designations with respect to the SFBAAB are shown in Table 3.3-1, below. With respect to the CAAQS, the SFBAAB is designated as a nonattainment area for ozone, particulate matter less than 10 micrometers (PM_{10}), and particulate matter less than 2.5 micrometers ($PM_{2.5}$), and as an attainment or unclassified area for all other pollutants. With respect to the NAAQS, the SFBAAB is designated as a marginal nonattainment area for ozone and as an attainment or unclassified area for all other pollutants.

The Bay Area Air Quality Management District (BAAQMD) maintains a number of air quality monitoring stations that continually measure the ambient concentrations of major air pollutants throughout the Bay Area. The closest such monitoring station to the Project site is on Bethel Island, about 8 miles to the east. Violations of both the ozone and particulate standards have been recorded at Bethel Island and other monitoring stations near the Project site within the last 3 years.[12]

Many industrial facilities (e.g., oil refineries, chemical plants, etc.) with significant air pollutant emissions are located within the Carquinez Strait sub-region. The pollution potential of this area is often moderated by the high wind speeds usually associated with prevailing westerly (marine) air flow. Areas downwind of these industrial facilities have higher long-term exposure to air contaminants than upwind areas.

[11] For a summary of conditions in the Carquinez Strait climatological sub-region see BAAQMD CEQA Air Quality Guidelines (May 2012; Appendix C, page C-5).

[12] For a county-by-county listing of monitoring stations and then a summary of pollutant monitoring data for each station, see: www.arb.ca.gov/adam/topfour/topfour1.php. For a table of air quality standards and Bay Area Attainment status, see: http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm.

Table 3.3-1. National and California Ambient Air Quality Standards and SFBAAB Attainment Status

Pollutant	Averaging Time	California Standards[1]		National Standards[2]	
		Concentration	Attainment Status	Primary	Attainment Status
Ozone	1 hour	0.09 ppm (180 µg/m^3)	Nonattainment	—	—
	8 hours	0.070 ppm (137 µg/m^3)	Nonattainment	0.075 ppm (147 µg/m^3)	Nonattainment
Respirable particulate matter (PM_{10})	24 hours	50 µg/m^3	Nonattainment	150 µg/m^3	Nonattainment
	Annual arithmetic mean	20 µg/m^3	Nonattainment	—	—
Fine particulate matter ($PM_{2.5}$)	24 hours	—	—	35 µg/m^3 [13]	Attainment
	Annual arithmetic mean	12 µg/m^3	Nonattainment	12.0 µg/m^3 [6]	Nonattainment[13]
Carbon monoxide (CO)	8 hours	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Attainment
	1 hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Attainment
Nitrogen dioxide (NO_2)[7]	Annual arithmetic mean	0.030 ppm (57 µg/m^3)	Attainment	0.053 ppm (100 µg/m^3)	Attainment
	1 hour	0.18 ppm (339 µg/m^3)	Attainment	0.100 ppb (188 µg/m^3)	Unclassified
Sulfur dioxide (SO_2)[8]	24 hours	0.04 ppm (105 µg/m^3)	Attainment	—	—
	1 hour	0.25 ppm (655 µg/m^3)	Attainment	0.075 ppm (196 µg/m^3)	Attainment
Lead[9,10]	30-day average	1.5 µg/m^3	Attainment	—	—
	Rolling 3-month average	—	—	0.15 µg/m^3	—
Visibility-reducing particles[11]	8 hours	See footnote[12]	Unclassified	No national standards	
Sulfates	24 hours	25 µg/m^3	Attainment		
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m^3)	Unclassified		
Vinyl chloride[12]	24 hours	0.01 ppm (26 µg/m^3)	No information available		

Notes:
mg/m^3 = milligrams per cubic meter
$PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less
PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less
ppb = parts per billion
ppm = parts per million
µg/m^3 = micrograms per cubic meter

[1] California standards for ozone, CO (except 8-hour Lake Tahoe), SO_2 (1- and 24-hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in California Code of Regulations, Title 17, section 70200.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standards.

[3] Concentration expressed first in the units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and reference pressure of 760 torr; parts per million in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] On January 15, 2013, EPA revised the national annual $PM_{2.5}$ standard to 12.0 µg/m^3 to provide increased protection against health risks.

[7] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[8] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[9] The California Air Resources Board (CARB) has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[10] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.

[11] In 1989, CARB converted the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and the “extinction of 0.07 per kilometer” for the statewide and Lake Tahoe Air Basin standards, respectively.

[12] No information is available to designate the region for vinyl chloride.

[13] EPA lowered the 24-hour $PM_{2.5}$ standard from 65 µg/m^3 to 35 µg/m^3 in 2006. The EPA designated the BAAQMD as nonattainment of the $PM_{2.5}$ standard on October 8, 2009. The effective date of the designation is December 14, 2009, and the BAAQMD had 5 years to develop an implementation plan that demonstrates how the region will achieve the revised standard by December 14, 2014. On January 9, 2013, the EPA issued a final rule to determine that the SFBAAB has attained the 24-hour $PM_{2.5}$ NAAQS. This action suspended federal State Implementation Policy planning requirements for the Bay Area, but BAAQMD still needs to submit a redesignation request.

On occasion, there are accidental releases of air pollutants from the industrial facilities that can cause short-term pollutant exposures and odor problems. Also, this sub-region is traversed by major roadways (e.g., I-80 and State Route 4) that cause higher local concentrations of carbon monoxide (CO) and particulate matter (PM), as well as certain toxic air contaminants (TACs) such as benzene and diesel particulate matter (DPM).

3.3.2 Regulatory Setting

Federal and State laws and regulations pertaining to this issue area and relevant to the Project are identified in Table 3.3-2.

Table 3.3-2. Laws, Regulations, and Policies (Air Quality)

U.S.	Federal Clean Air Act (FCAA) (42 USC 7401 et seq.)	The FCAA requires the U.S. Environmental Protection Agency (USEPA) to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. National standards are established for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). In 2007, the U.S. Supreme Court ruled that carbon dioxide (CO_2) is an air pollutant as defined under the FCAA, and that the USEPA has authority to regulate greenhouse gas (GHG) emissions. Pursuant to the 1990 FCAA Amendments, USEPA classifies air basins (or portions thereof) as in "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the NAAQS are achieved. The classification is determined by comparing monitoring data with State and Federal standards. • An area is classified as in "attainment" for a pollutant if the pollutant concentration is lower than the standard. • An area is classified as in "nonattainment" for a pollutant if the pollutant concentration exceeds the standard. • An area is designated "unclassified" for a pollutant if there are not enough data available for comparisons.
CA	California Clean Air Act of 1988 (CCAA) (Assembly Bill [AB] 2595)	The CCAA requires all air districts in the State to endeavor to achieve and maintain State ambient air quality standards for O_3, CO, SO_2, NO_2, and PM; attainment plans for areas that did not demonstrate attainment of State standards until after 1997 must specify emission reduction strategies and meet milestones to implement emission controls and achieve more healthful air quality. The 1992 CCAA Amendments divide O_3 nonattainment areas into four categories of pollutant levels (moderate, serious, severe, and extreme) to which progressively more stringent requirements apply. State ambient air standards are generally stricter than national standards for the same pollutants; California also has standards for sulfates, hydrogen sulfide (H_2S), vinyl chloride, and visibility-reducing particles.
CA	Other	• Under California's Diesel Fuel Regulations, diesel fuel used in motor vehicles, except harbor craft, has been limited to 500 parts per million (ppm) sulfur since 1993. The sulfur limit was reduced to 15 ppm beginning September 1, 2006, and harbor craft were included starting in 2009. • The California Air Resources Board's (CARB) Heavy Duty Diesel Truck Idling Rule (Cal. Code Regs., tit. 13, § 2485) prohibits heavy-duty diesel trucks from idling for longer than 5 minutes at a time (except while queuing, provided the queue is located beyond 100 feet from any homes or schools). • The Statewide Portable Equipment Registration Program (PERP) regulates portable engines/engine-driven equipment units. Once registered in the PERP, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts.

Local

The Project site is within an area of Contra Costa County that was annexed by the city of Antioch in 2013; however, Contra Costa County information is also provided for context.

The Conservation Element of the Contra Costa County General Plan 2005-2020 includes goals and policies that aim to improve local and regional air quality throughout the County. The following air resources policies may be applicable to the Project:

- Policy 8-103 - When there is a finding that a proposed project might significantly affect air quality, appropriate mitigation measures shall be imposed.
- Policy 8-104 - Proposed projects shall be reviewed for their potential to generate hazardous air pollutants.

Regional Context

The Project site is located in Contra Costa County, which is part of the SFBAAB. The BAAQMD is the regional agency with jurisdiction over the nine-county SFBAAB, which includes Contra Costa, San Francisco, Alameda, Marin, San Mateo, Santa Clara, Napa, southern portion of Sonoma, and southwestern portion of Solano Counties. The BAAQMD is responsible for attaining and maintaining air quality in the SFBAAB within federal and State air quality standards, as established by the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA), respectively. Specifically, the BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the SFBAAB and to develop and implement strategies to attain applicable federal and State standards. The BAAQMD (2010a) adopted the most recent air quality plan, the 2010 Clean Air Plan, on September 15, 2010. The 2010 Clean Air Plan serves to:

- 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, particulate matter, air toxics, and greenhouse gases (GHGs) in a single, integrated plan; and
- Establish emission-control measures to be adopted or implemented.

The 2010 Clean Air Plan contains the following primary goals:

- Attain air quality standards;
- Reduce population exposure and protect public health in the SFBAAB; and
- Reduce GHG emissions and protect the climate.

The 2010 Clean Air Plan represents the most current applicable air quality plan for the SFBAAB. Consistency with this plan is the basis for determining whether the Project would conflict with or obstruct implementation of air quality plans.

Criteria Air Pollutants

In accordance with the State and federal CAAs, air pollutant standards are identified for the following six criteria air pollutants: ozone, CO, PM, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). These air pollutants are termed criteria air pollutants because they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. In general, the SFBAAB experiences low concentrations of most pollutants when compared to federal or State standards. The SFBAAB is designated as either in attainment or unclassified for most criteria pollutants with the exception of ozone, $PM_{2.5}$, and PM_{10}, for which these pollutants are designated as non-attainment for either the State or federal standards (see Table 3.3-1, above).

By its very nature, regional air pollution is largely a cumulative impact in that no single project is sufficient in size to, by itself, result in non-attainment of air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality impacts. If a project's contribution to cumulative air quality impacts is considerable, then the project's impact on air quality would be considered significant.

Land use projects may contribute to regional criteria air pollutants during the construction and operational phases of a project. Table 3.3-3 identifies air quality significance thresholds followed by a discussion of each threshold, based on the BAAQMD's *CEQA Air Quality Guidelines*.

Table 3.3-3. Criteria Air Pollutant Significance Thresholds

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (pounds/day)	Average Daily Emissions (pounds/day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Notes: ROG = reactive organic gases NO_X = oxides of nitrogen PM_{10} = particulate matter with aerodynamic diameter less than 10 microns $PM_{2.5}$ = particulate matter with aerodynamic diameter less than 2.5 microns			

Projects that would result in criteria air pollutant emissions below these significance thresholds would not violate an air quality standard, contribute substantially to an air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants within the SFBAAB. The BAAQMD *CEQA Air Quality Guidelines* also establish a relevant zone of influence for an assessment of project-level and cumulative health risks to sensitive receptors within 1,000 feet of a project site from exposure to TACs. Project construction-related or operational TAC impacts to sensitive receptors within the zone of influence that exceed any of the following thresholds are considered significant:

- An excess cancer risk level of more than 10 in one million, or a non-cancer hazard index greater than 1.0.
- An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) for annual average $PM_{2.5}$ concentrations.

Cumulative impacts from TACs emitted from freeways, state highways or high volume roadways (i.e., the latter defined as having traffic volumes of 10,000 vehicles or more per day or 1,000 trucks per day), and from all BAAQMD-permitted stationary sources sources within the zone to sensitive receptors within the zone that exceed any of the following thresholds are considered cumulatively significant:

- A combined excess cancer risk levels of more than 100 in one million.
- A combined non-cancer hazard index greater than 10.0.

A combined incremental increase in annual average PM2.5 concentrations greater than 0.8 $\mu g/m^3$.

Ozone Precursors

The SFBAAB is currently designated as non-attainment for ozone and PM. Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NOx). The potential for a project to result in a cumulatively considerable net increase in criteria air pollutants, which may contribute to an existing or projected air quality violation, are based on the CCAA and federal CAA emissions limits for stationary sources. To ensure that new stationary sources do not cause or contribute to a violation of an air quality standard, BAAQMD Regulation 2, Rule 2 requires that any new source that emits criteria air pollutants above a specified emissions limit must offset those emissions. For ozone precursors ROG and NOx, the offset emissions level is an annual average of 10 tons per year (or 54 pounds per day). These levels represent emissions by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants.

Particulate Matter (PM_{10} and $PM_{2.5}$) and Fugitive Dust

The federal New Source Review program was created by the CAA to ensure that stationary sources of air pollution are constructed in a manner that is consistent with attainment of federal health-based ambient air quality standards. For PM_{10} and $PM_{2.5}$, the emissions limit under New Source Review is 15 tons per year (82 pounds per day) and 10 tons per year (54 pounds per day), respectively. These emissions limits represent levels at which a source is not expected to have an impact on air quality. Although the regulations specified above apply to new or modified stationary sources, land use development projects result in ROG, NO_x, PM_{10}, and $PM_{2.5}$ emissions from increases in vehicle trips, architectural coating, and construction activities. Therefore, the above thresholds can be applied to the construction and operational phases of land use projects and those projects that result in emissions below these thresholds would not be considered to contribute to an existing or projected air quality violation or result in a considerable net increase in ozone precursors or particulate matter. Due to the temporary nature of this Project's activities, only the average daily thresholds are applicable to construction-phase emissions.

Fugitive dust emissions are typically generated during construction phases. Studies have shown that the application of best management practices (BMPs) at construction sites significantly control fugitive dust. Individual measures have been shown to reduce fugitive dust by anywhere from 10 to 98 percent (Western Regional Air Partnership 2006). The BAAQMD has identified a number of BMPs to control fugitive dust emissions from construction activities.

Local Health Risks and Hazards

In addition to criteria air pollutants, individual projects may emit TACs. TACs collectively refer to a diverse group of air pollutants that are capable of causing chronic (i.e., of long duration) and acute (i.e., severe but of short-term) adverse effects to human health, including carcinogenic effects. Human health effects of TACs include birth defects, neurological damage, cancer, and mortality. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

Unlike criteria air pollutants, TACs do not have ambient air quality standards but are regulated by the BAAQMD using a risk-based approach to determine which sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in which human health exposure to toxic substances is estimated, and considered together with information regarding the toxic potency of the substances, to provide quantitative estimates of health risks.

Air pollution does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Land uses such as residences, schools, children's day care centers, hospitals, and nursing and convalescent homes are considered to be the most sensitive to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress or, as in the case of residential receptors, their exposure time is greater than for other land uses. Therefore, these groups are referred to as sensitive receptors. Exposure assessment guidance typically assumes that residences would be exposed to air pollution 24 hours per day, 350 days per year, for 70 years. Therefore, assessments of air pollutant exposure to residents typically result in the greatest adverse health outcomes of all population groups.

Exposures to $PM_{2.5}$ are strongly associated with mortality, respiratory diseases, and lung development in children, and other endpoints such as hospitalization for cardiopulmonary disease. In addition to $PM_{2.5}$, DPM is also of concern. The CARB (1998) identified DPM as a TAC in 1998, primarily based on evidence demonstrating cancer effects in humans. The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other TAC routinely measured in the region.

Excess Cancer Risk

The above 100 per one million persons (100 excess cancer risk) criteria is based on USEPA guidance for conducting air toxic analyses and making risk management decisions at the facility- and community-scale level. As described by the BAAQMD, the USEPA considers a cancer risk of 100 per million to be within the "acceptable" range of cancer risk. Furthermore, in the 1989 preamble to the benzene National Emissions Standards for Hazardous Air Pollutants rulemaking, the USEPA states that it

> *…strives to provide maximum feasible protection against risks to health from hazardous air pollutants by (1) protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately one in one million and (2) limiting to no higher than approximately one in 10,000 [100 in one million] the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years.*

The 100 per one million excess cancer cases is also consistent with the ambient cancer risk in the most pristine portions of the San Francisco Bay Area based on BAAQMD regional modeling.

Fine Particulate Matter

In April 2011, the USEPA published *Policy Assessment for the Particulate Matter Review of the National Ambient Air Quality Standards*, "Particulate Matter Policy Assessment." In this document, USEPA staff concludes that the current federal annual $PM_{2.5}$ standard of 15 µg/m^3 should be revised to a level within the range of 13 to 11 µg/m^3, with evidence strongly supporting a standard within the range of 12 to 11 µg/m^3. The Air Pollutant Exposure Zone for San Francisco is based on the health-protective $PM_{2.5}$ standard of 11 µg/m^3, as supported by the USEPA's Particulate Matter Policy Assessment, although lowered to 10 µg/m^3 to account for uncertainty in accurately predicting air pollutant concentrations using emissions modeling programs.

Land use projects within the Air Pollutant Exposure Zone require special consideration to determine whether the project's activities would expose sensitive receptors to substantial air pollutant concentrations or add emissions to areas already adversely affected by poor air quality.

3.3.3 Impact Analysis

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. The Project would have a less than significant impact on the implementation of BAAQMD's 2010 Clean Air Plan because ROG, NOx and PM emissions generated during Project construction (i.e., August 1 to November 30) would be less than the BAAQMD CEQA significance thresholds (see estimates and discussion under Item c) below. Therefore, the Project would not have regionally significant impacts impeding the implementation of the control strategies or the attainment of goals set in the BAAQMD's 2010 Clean Air Plan.

Rehabilitation of the wharf would not result in an increase to the cargo handling/storage capacity of the Plant, current terminal gypsum off-loading capacity, on-land gypsum storage, or truck/train loading capacity. Gypsum supplied to the Plant through the upgraded wharf would be used to accommodate housing, employment, and population growth in the SFBAAB within the projections that underlie the Clean Air Plan.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less Than Significant Impact. The Project would not violate any air quality standards or contribute substantially to any existing or projected air quality violation because Project-related emissions are considered short-term and temporary in nature. All work would be carried out from barges, not from any upland areas, and removal, installation, and repair activities for the Project are anticipated to occur over approximately 2

months. In addition, Project activity emissions would occur intermittently throughout Project implementation (i.e., equipment would not operate continuously for 8 hours each day). Exhaust emissions would be generated from a variety of sources: removal and installation equipment, commercial marine equipment, and personnel commuting. These activities would involve the use of diesel- and gasoline-powered equipment that would generate emissions of criteria pollutants. The Project's emissions would be well below the BAAQMD's threshold of significance. Emissions calculations for each category of pollutant are summarized in Table 3.3-4 and included in Appendix A.

Table 3.3-4. Project Construction Criteria Pollutant Emissions

Construction Source	Construction Source Emissions (lbs./day)			
	ROG	**NO_x**	**Exhaust PM_{10}**	**Exhaust $PM_{2.5}$**
Construction Equipment	131.5	1,094.6	50.3	47.8
Marine Engines	332.7	2,085.1	65.7	65.7
Haul/Worker Vehicles	0.8	7.8	0.5	0.5
Total Construction	**465.0**	**3,187.5**	**116.5**	**113.9**
	Average Daily Construction Emissions (lbs./day) (62 days)			
Average Total Construction	7.5	51.4	1.9	1.8
BAAQMD Daily Threshold	**54**	**54**	**82**	**54**
Exceeds Threshold	**No**	**No**	**No**	**No**

Source: Emission estimates were based on project construction phasing, equipment use, pile debris transport and worker commute provided by the GP Antioch project design engineers; construction equipment pollutant emission rates provided by the CARB's OFFROAD model as included in the California Emissions Estimator Model (CalEEMod) emission model; the CARB's *Emissions Estimation Methodology for Commercial Harbor Craft Operating in California* (2007); and motor vehicle pollutant emission rates provided by the CARB's EMFAC2011 model.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant Impact. Project impacts on air quality that are potentially significant on an individual level may also cause a cumulatively considerable contribution. Thus, it is reasonable to consider projects that do not have potentially significant impacts on air quality on an individual level will not have the potential to cause a cumulatively considerable contribution to air quality impacts. The BAAQMD currently recommends that for projects not having potentially significant impacts on air quality on an individual level, the potential cumulative impacts also should be evaluated for consistency with the local general plan. The Project is not a typical land use project that can be compared with or evaluated against land use designations or zoning from a

general plan; therefore, the second criteria is not applicable to the Project. Thus, the first criterion of whether the Project's individual or "project-level" emissions are potentially significant has been used to determine its potential cumulative impact.

Emissions would be temporary and short-term which would ensure that the Project would not generate a cumulatively considerable contribution to regional air quality pollutants in the Project area that are nonattainment under a State or Federal ambient air quality standard. Therefore, the Project would not result in a cumulatively considerable incremental contribution to a significant cumulative impact on air quality, and this impact would be considered less than significant.

d) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Project activities would generate DPM exhaust emissions as estimated in Table 3.3-4. DPM has been classified as a TAC by the CARB, and even acute exposure may result in health impacts. Removal, installation, and repair activities for the Project are minimal and short-term, anticipated to occur over 8 weeks within a 12-week window. In addition, Project activity emissions would occur intermittently throughout Project implementation (i.e., removal equipment would not operate continuously for 8 hours each day).

The exposure of sensitive receptors to ambient TACs would be less than significant because there are no sensitive receptors within the 1,000-foot zone-of-influence around the Project site as recommended by the BAAQMD for screening of project-level and cumulative health risks. The closest sensitive receptors (houses and schools) to the area of construction activity around the wharf are 1,800 feet or more to the south in the city of Antioch.

e) Create objectionable odors affecting a substantial number of people?

Less Than Significant Impact. The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and cause citizens to submit complaints to local governments and regulatory agencies. Projects with the potential to frequently expose individuals to objectionable odors are deemed to have a significant impact. Typical facilities that generate odors include wastewater treatment facilities, sanitary landfills, composting facilities, petroleum refineries, chemical manufacturing plants, and food processing facilities.

As described above, project equipment would generate DPM exhaust, which can be considered offensive by some individuals; however, these Project activity areas would

be located approximately 1,800 feet from residences and other members of the public. Because of this distance, the potential for objectionable odors to reach the nearest sensitive receptor is expected to be negligible. In addition the removal activities are not intensive, occur for a very short duration, and will cease at night. These distant, intermittent, and temporary activities are not expected to cause a significant odor impact on a substantial number of sensitive receptors, nor would they expose a substantial number of receptors to odor emissions, therefore the Project's impact would be less than significant.

3.3.4 Mitigation Summary

The Project would not result in significant impacts to Air Quality; therefore, no mitigation is required.