4.3 AIR QUALITY

This section describes and evaluates the effects the project would have on local and regional air quality. The information in this section was obtained from the following sources:

- The Bay Area Air Quality Management District (BAAQMD) California Environmental Quality Act (CEQA) Guidelines, adopted in May 2012
- U.S. Environmental Protection Agency (U.S. EPA)
- California Environmental Protection Agency Air Resources Board (ARB)
- The Air Quality and Greenhouse Gas Emissions Assessment prepared for the project by Illingworth & Rodkin, Inc., July 2017 (see **Appendix B**)
- The *Contra Costa County General Plan 2005-2020* (General Plan)
- The *Contra Costa County Climate Action Plan* (CCCCAP), 2015

These documents are available for review at the Contra Costa County (County), Department of Conservation and Development, Community Development Division, 30 Muir Road, Martinez, California.

No comments regarding air quality were submitted in response to the Notice of Preparation for this draft environmental impact report.

4.3.1 EXISTING CONDITIONS

Physical Setting

The potential for high pollutant concentrations developing at a given location depends on 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 San Francisco Air Basin experiences 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 the fall and winter months, the high pressure condition over the interior regions of the United States (known as the Great Basin High) can produce extended periods of light winds and low-level temperature inversions. This condition is frequently characterized by poor

atmospheric mixing resulting in degraded regional air quality. Ozone (O_3) pollution typically occurs when this condition occurs during the warmer months of the year.

The air pollution potential is lowest in regions closest to the San Francisco Bay, due largely to good ventilation and less influx of pollutants from upwind sources. Light winds in the evenings and early mornings occasionally result in elevated pollutant levels. Wind flow patterns are controlled by air circulation in the atmosphere, which is affected by air pressure and the variable topography of the coastal areas adjacent to the only sea-level gap between the San Francisco Bay and Central Valley - the Carquinez Strait. During the summer and fall months, high pressure offshore coupled with low pressure in the Central Valley causes marine air to flow eastward through the Carquinez Strait.

The air flowing from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon. As the day progresses, the sea breeze layer deepens and increases in velocity while spreading inland. The depth of the sea breeze depends in large part upon the height and strength of the inversion. If the inversion is low and strong, and hence stable, the flow of the sea breeze will be inhibited and stagnant conditions are likely to result. Low wind speed contributes to the buildup of air pollution. Light winds occur most frequently during periods of low sun (i.e., fall and winter, and early morning) and at night.

The project site is located in the eastern region of the Bay Area Air District, and air quality information for this section was gathered from the nearest monitoring station, located in Concord.

Criteria Air Pollutants and Effects

Air quality studies generally focus on five pollutants that are most commonly measured and regulated: carbon monoxide (CO), ground-level O_3, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and suspended particulate matter, specifically PM_{10} and $PM_{2.5}$. In the County, O_3 and particulate matter are the pollutants of greatest concern, as measured air pollution levels show high concentrations of these pollutants at times.

Ambient Air Quality Conditions

Air quality is described by the concentration of various pollutants in the atmosphere. The ambient air quality in a given area depends on the quantities of pollutants emitted within the area, transport of pollutants to and from surrounding areas, local and regional meteorological conditions, and the topography of the air basin. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). State and Federal air quality standards have been set up to define the allowable pollutant concentrations in a given air basin. These standards are designed to ensure that public health and welfare are

protected, while including a reasonable margin of safety to protect the more sensitive individuals in the population. California Ambient Air Quality Standards (CAAQS) are presented in **Table 4.3-1**.

Air Monitoring Data

BAAQMD is primarily responsible for assuring that the national and State standards are attained and maintained in the Bay Area. BAAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities. BAAQMD has jurisdiction over much of the nine-county Bay Area counties, and monitors air quality conditions at more than 30 locations throughout the Bay Area. The closest multi-pollutant monitoring station to the project site is in Concord, which is approximately 9 miles northwest of the project site (BAAQMD, 2015).

Attainment Status

Areas that violate standards are considered to be in "nonattainment." Areas that do not violate standards are considered to be in "attainment." Federal regulations also include a designation known as "unclassified," which identifies areas where data are incomplete and do not support a designation of attainment or nonattainment. **Table 4.3-2** shows the number of days per year that air pollutant levels exceeded State or Federal standards from 2012 to 2014.[1]

- O_3: The Bay Area as a whole is in nonattainment for ground level O_3, according to State and Federal standards. The Bay Area also is classified as marginally nonattainment according to the National Ambient Air Quality Standards (NAAQS) 2005 8-hour O_3 standard.
- CO: The Bay Area has met the CO standards for over a decade and is classified as being in attainment by the U.S. EPA.
- PM_{10} and $PM_{2.5}$: The Bay Area is classified as nonattainment for PM_{10} and $PM_{2.5}$ according to CAAQS standards, which are more stringent. The U.S. EPA grades region as nonattainment for the new 2012 $PM_{2.5}$ standard. This EPA designation was effective April 15, 2015.

The U.S. EPA and the State grade the region "in attainment" or "unclassified" for all other air pollutants.

[1] Information in Table 4.2-3 is the most recent published data as of January 13, 2016.

Table 4.3-1 California Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	California Standards	Form
Carbon Monoxide		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	20 ppm	
Lead		primary and secondary	Rolling 3 month average	1.5 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide		primary	1-hour	0.18 ppm	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	Annual mean	0.30 ppm (2)	Annual Mean
Ozone		primary and secondary	8-hour	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
		Primary and secondary	1-hour	0.09 ppm	-
Particle Matter	$PM_{2.5}$	primary	Annual	12 µg/m^3	annual mean, averaged over 3 years
		secondary	Annual	15 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	24-hour	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24-hour	50 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide		primary	1-hour	0.25 ppm (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Source: Illingworth and Rodkin, 2017.

Notes: (1) Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

(2) The official level of the annual NO2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

(3) Standards shown are National standards. Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard ("anti-backsliding"). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.

(4) Final rule signed June 2, 2010. The 1971 annual and 24-hour SO2 standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

ppm = parts per million, µg/m3 = micrograms per cubic meter

Sensitive Receptors

Sensitive receptors include individuals and locations with individuals who are particularly susceptible to the adverse effects of air pollution. The California ARB has identified sensitive receptors to include children under 14, persons over 65, athletes, and people with cardiovascular and chronic respiratory diseases. Locations that contain a high concentration of these sensitive population groups include residential neighborhoods, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. Both CAAQS and NAAQS were developed with the intent to protect sensitive receptors from the adverse impacts of air pollution.

Sensitive receptors within close proximity to the project site include residents in the neighborhoods to the north, northeast, and east of the project site. The nearest residences to the project site are located as close as 40 feet from the shared property lines. Nearby sensitive receptors also include users of Madrone Trail, which begins at the end of Camille Avenue near the project site's eastern property boundary.

Table 4.3-2 Annual Number of Days Exceeding Ambient Air Quality Standards

Pollutant	Standards	Monitoring Station	Days Exceeding Standard		
			2012	2013	2014
Ozone (O_3)	NAAQS 8-hr	Concord	2	0	2
		Bay Area	4	3	5
	CAAQS 1-hr	Concord	0	0	1
		Bay Area	3	3	3
	CAAQS 8-hr	Concord	3	0	2
		Bay Area	8	3	10
Coarse Particulate Matter (PM_{10})	CAAQS 24-hr	Concord	0	1	0
		Bay Area	2	6	2
	NAAQS 24-hr	Concord	0	0	0
		Bay Area	0	0	0
Fine Particulate Matter ($PM_{2.5}$)	NAAQS 24-hr	Concord	0	1	0
		Bay Area	3	13	3
All Other	All Other	Concord	0	0	0
		Bay Area	1[(1)]	0	0

Source: BAAQMD, 2012-2014.

Notes: [1] In 2012, there was 1 day when Nitrogen Dioxide (NO_2) exceeded the Federal 1-hour NO_2 standard.

Toxic Air Contaminants

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and

commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter [DPM] near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and Federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three quarters of the cancer risk from TACs (based on the San Francisco Bay Area 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.

Odors

Offensive odors can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and BAAQMD. Offensive odors are typically associated with wastewater treatment plants, sanitary landfills, feedlots and dairies, and industrial facilities. The occurrence and severity of odor problems depends on numerous factors, including the nature, frequency, and intensity of the source, wind speed, and direction, and the sensitivity of the receptor(s). BAAQMD Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds.

4.3.2 REGULATORY SETTING

Federal

United States Environmental Protection Agency

The U.S. EPA is responsible for enforcing the Federal Clean Air Act (CAA). The U.S. EPA is also responsible for establishing the NAAQS. The U.S. EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The agency establishes various emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by ARB.

Project Consistency Analysis

The project would be required to comply with Federal regulations and standards set by the U.S. EPA.

State

California Air Resources Board (CARB)

ARB, part of the CalEPA, is responsible for meeting the State requirements of the Federal CAA, administering the California Clean Air Act (CCAA), and establishing the CAAQS. The California CAA requires all air districts in the State to endeavor to achieve and maintain CAAQS. CARB regulates mobile air pollution sources, such as motor vehicles, and is responsible for setting emission standards for vehicles sold in California for other emission sources, such as consumer products, and for certain off-road equipment. ARB has established passenger vehicle fuel specifications and oversees the functions of local air pollution control districts and air quality management districts, which in turn prepare air quality attainment plans at the regional level. ARB also conducts or supports research into the effects of air pollution on the public and develops innovative approaches to reduce air pollutant emissions.

CARB Regulations of Construction Vehicles

On July 26, 2007, CARB adopted new regulations intended to reduce emissions of PM_{10} and $PM_{2.5}$ and NO_x from certain diesel-powered vehicles by requiring businesses to retrofit or "turnover" their fleets over time (13 California Code of Regulations [CCR] Section 2449). The regulations apply to any person, business or government agency that owns or operates any diesel-powered off-road vehicle in California with 25 or greater horsepower, including vehicles used in construction (i.e., backhoes, tractors).

The emission requirements are intended to require fleets to apply exhaust retrofits that capture pollutants before they are emitted, and to accelerate turnover of fleets to newer, less-polluting engines. “Turnover” means retrofitting an engine to capture pollutants, replacing a dirty engine with a clean engine, retiring a dirty vehicle, replacing a vehicle with a new or used piece, or re-designating a vehicle as “low-use.” “Low-use” vehicles (which operate for less than 100 hours per year) are exempt from emission requirements, but still must be properly labeled and reported to CARB.

The requirements and deadlines for compliance vary depending on fleet size. As of December 2011 the Office of Administrative Law approved an amendment that delayed the initial compliance date for all fleets by four years. For small fleets, which include small businesses or municipalities with a combined horsepower of 2,500 or less, implementation does not begin until 2019. Medium fleets, with 2,501 to 5,000 horsepower, have until 2017, while large fleets, with over 5,000 horsepower, must begin complying in 2014. State and Federally owned fleets are considered "large fleets" without regard to total horsepower. Affected vehicles include bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The regulations also include standards regarding

the use of gasoline-powered vehicles to replace diesel vehicles (Illingworth and Rodkin, 2017).

ARB expects the new regulations will result in a 92 percent reduction of diesel PM and a 32 percent reduction of NO_x from 2000 emissions by 2020. Other new ARB regulations and amendments to existing regulations include:

- Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (12 CCR, Section 2485): reduces public exposure to diesel particulate matter and other air contaminants by establishing idling restrictions, emission standards, and other requirements for heavy duty diesel engines and alternative idle reduction technologies to limit the idling of diesel-fueled commercial motor vehicles.
- Final Regulation Order requirements to reduce idling emissions from new and in-use trucks, beginning in 2008, which includes amendments and updates to the following sections of 13 CCR: Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Year Heavy-Duty Engines and Vehicles (§ 1956.8); Emission Control Labels and Consumer Information – 1995 and Later Small Off-Road Engines (§ 2404); Emission Control Labels – 1996 and Later Off-Road Compression-Ignition Engines (§ 2424); Defects Warranty Requirements for 1996 and Later Off-Road Compression-Ignition Engines (§ 2425); Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (§ 2485).
- Final Regulation Order for In-Use Off-Road Diesel Vehicles which adds Section 2449 General Requirements for In-Use Off-Road Diesel-Fueled Fleets, 2449.1 NOx Performance Requirements, 2449.2 PM Performance Requirements, 2449.3 Surplus Off-Road Opt-In for NOx (SOON) Program 2008 California Statewide Truck and Bus Rule: requires all heavy-duty diesel trucks and buses that operate in California to retrofit or replace engines in order to reduce diesel emissions.

Project Consistency Analysis

The project would be required to comply with State regulations pertaining to emissions of air pollutant during construction and operation of the project.

Bay Area Air Quality Management District

BAAQMD is primarily responsible for assuring that the national and State ambient air quality standards are attained and maintained in the Bay Area. BAAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities. BAAQMD has jurisdiction over much of the nine-county Bay Area counties, including the County.

Clean Air Plans

To achieve the CAAQS, BAAQMD develops air quality plans addressing the California CAA and updates them approximately every three years. The most recent air quality plan was adopted on April 19, 2017, entitled *Spare the Air, Cool the Climate* (2017 CAP). The plan includes 85 distinct control measures to help reduce air pollutants and has a long-term strategic vision, which forecasts what a clean air Bay Area will look like in the year 2050.

BAAQMD CEQA Guidelines

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD's website and included in the Air District's updated CEQA Guidelines (updated May 2017). The significance thresholds identified by BAAQMD and used in this analysis are summarized in **Table 4.3-3**.

BAAQMD's adoption of significance thresholds was called into question by an order issued March 5, 2012, in California Building Industry Association (CBIA) v. BAAQMD (Alameda Superior Court Case No. RGI0548693). The order required BAAQMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. The ruling made in the case concerned the environmental impacts of adopting the thresholds and how the thresholds would indirectly affect land use development patterns. In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds (Cal. Court of Appeal, First Appellate District, Case Nos. A135335 & A136212). CBIA sought review by the California Supreme Court on three issues, including the appellate court's decision to uphold BAAQMD's adoption of the thresholds, and the Court granted review on just one: Under what circumstances, if any, does CEQA require an analysis of how existing environmental conditions will impact future residents or users of a proposed project?

Table 4.3-3 BAAQMD Air Quality Significance Thresholds

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
Criteria Air Pollutants			
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82	82	15
$PM_{2.5}$	54	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards for New Sources			
Excess Cancer Risk	>10 per one million		
Chronic or Acute Hazard Index	>1.0		
Incremental annual average $PM_{2.5}$	>0.3 µg/m^3		
Health Risks and Hazards for Sensitive Receptors (Cumulative from all sources within 1,000 foot zone of influence) and Cumulative Thresholds for New Sources			
Excess Cancer Risk	>100 per one million		
Chronic Hazard Index	>10.0		
Annual Average $PM_{2.5}$	>0.8 µg/m^3		
Greenhouse Gas Emissions			
GHG Annual Emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons or 4.6 metric tons per capita		

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less; and GHG = greenhouse gas.

In December 2015, the Supreme Court determined that an analysis of the impacts of the environment on a project is only required under two limited circumstances: (1) when a statute provides an express legislative directive to consider such impacts; and (2) when a proposed project risks exacerbating environmental hazards or conditions that already exist (Cal. Supreme Court Case No. S213478). The Supreme Court reversed the Court of Appeal's decision and remanded the matter back to the appellate court to reconsider the case in light of the Supreme Court's ruling. Though not necessarily a CEQA issue, the effect of existing TAC sources on future project receptors (residences) is analyzed to comply with the 2017 CAP key goal of reducing population TAC exposure and protecting public health in the Bay Area.

Project Consistency Analysis

The project would be required to comply with BAAQMD standards and regulations regarding air pollutant emissions during project construction and operation. This section was prepared following BAAQMD CEQA Guidelines, and the project's air quality effects were analyzed against the 2017 CEQA Air Quality Guidelines to provide a conservative assessment of potential impacts. A discussion of project consistency with BAAQMD air quality plans and regulations is provided in **Subsection 4.3.3**.

Local

Contra Costa County

The County has no direct responsibility or authority to regulate air quality. However, as the CEQA lead agency, the County is responsible for assessing the air quality impacts of proposed developments, and when necessary, adopting measures to mitigate those impacts to less than significant levels.

Contra Costa County General Plan

The Conservation Element of the General Plan contains the following relevant policies related air quality.

Conservation Element

8-99: The free flow of vehicular traffic shall be facilitated on major arterials.

8-100: Vehicular emissions shall be reduced throughout the County.

8-101: A safe, convenient, and effective bicycle and trail system shall be created and maintained to encourage increased bicycle use and walking as alternatives to driving.

8-102: A safe and convenient pedestrian system shall be created and maintained in order to encourage walking as an alternative to driving.

8-103: When there is a finding that a proposed project might significantly affect air quality, appropriate mitigation measures shall be imposed.

8-104: Proposed projects shall be reviewed for their potential to generate hazardous air pollutants.

8-105: Land uses which are sensitive to air pollution shall be separated from sources of air pollution.

8-106: Air quality planning efforts shall be coordinated with other local, regional, and State agencies.

8-107: New housing in infill and peripheral areas which are adjacent to existing residential development shall be encouraged.

Project Consistency Analysis

As part of the environmental review period, and in compliance with policies 8-103, 8-104, and 8-106, the project would be required to comply with State and Federal air quality plans, incorporating mitigation measures where applicable. The project would not result in an increase in local roadways, aside from an additional emergency vehicle access route. The project would not impede or congest the roadways to the extent that it would substantially increase vehicular traffic, in compliance with policies 8-99 and 8-100. Refer to **Section 4.16, Transportation and Traffic**, for a discussion of project generated-traffic.

In response to policies 8-101 and 8-102, roadways and sidewalks would be constructed to provide public and private pedestrian and trail access. The project site is surrounded by residential development and open space. Specifically, the development is in compliance with policy 8-107 as it is an infill site that is adjacent to existing residential development, and is also in compliance with policy 8-105 as it is not located near a land use identified as a significant source of air pollution.

Contra Costa County Climate Action Plan

On December 15, 2015, the CCCCAP was approved by the Board of Supervisors. The CCCCAP outlines how the County will achieve the 15 percent below baseline levels by 2020, as per the AB 32 GHG emissions reduction target. Additionally, the CCCCAP aims to support other public health, energy efficiency, water conservation, and air quality goals identified in the County's General Plan and other policy documents.

Project Consistency Analysis

The proposed project would not conflict with the CCCCAP planning efforts since the project would have emissions well below BAAQMD thresholds, as discussed in **Subsection 4.3.3**. The CCCCAP is a tiered document, which relies on the CEQA and BAAQMD's guidelines for air quality standards, and GHG reduction strategies. Therefore, the project is consistent with the policies established in the CCCCAP, as described below**.**

4.3.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Result in a community risk due to an increased cancer risk of greater than 10 people in a million, an increased non-cancer risk of greater than 1.0 Hazard Index, or increased $PM_{2.5}$ of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) if the project is within 1,000 feet from a TAC source.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Create objectionable odors affecting a substantial number of people.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is classified as non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- Conflict with or obstruct implementation of the applicable air quality plan.
- Expose sensitive receptors to substantial pollutant concentrations.

BAAQMD CEQA Guidelines, adopted May 2012, were used to evaluate the environmental air quality impacts of the project as follows:

- The operational thresholds of significance for ROG and NO_x are 54 pounds per day and 10 tons per year.
- The PM_{10} operational threshold is 82 pounds per day or 15 tons per year, considering only exhaust emissions.
- The $PM_{2.5}$ operational threshold is 54 pounds per day or 10 tons per year (exhaust emissions).
- The construction thresholds of significance are equivalent to the operational thresholds and are based on averaged daily emissions.

Discussion of Less-than-Significant Impacts

Would the project create objectionable odors affecting a substantial number of people?

Facilities such as wastewater treatment plants, landfills, refineries, and manufacturing plants are types of land uses that emit objectionable odors. Activities associated with residential construction and operation do not typically

result in the creation of objectionable odors affecting a substantial number of people.

Project construction would generate localized diesel odors during the construction, period. These emissions may be occasionally noticeable when heavy construction equipment operates directly adjacent to nearby homes, but will diffuse and become imperceptible as construction equipment moves away from shared property boundaries. Odors associated with diesel emissions will be temporary, localized, and typical of odors associated with construction.

The only potential source of odor associated with project operation would be the garbage or waste associated with land uses proposed onsite. Any garbage or waste generated by the residential uses would be collected and disposed of according to policies found in the County Code Chapter 418: Refuse. Proper collection and disposal of generated waste would avoid the creation of objectionable odors affecting residents of the project or surrounding neighborhoods.

Given the above, this impact would be less than significant.

Would the project conflict with or obstruct implementation of the applicable air quality plan?

The most recent clean air plan is the 2017 CAP that was adopted by BAAQMD in April 2017. The project would not conflict with the 2017 CAP since the project would comply with applicable land use designations, would have emissions well below BAAQMD thresholds (see **Table 4.3-4**) and, as discussed below, would not contribute to an air quality violation. Since the project does not exceed BAAQMD pollutant significance thresholds, it would not be required to incorporate project-specific transportation control measures listed in the 2017 CAP. This impact would be less than significant.

Would the project expose sensitive receptors to substantial pollutant concentrations?

and

Would the project result in a community risk due to an increased cancer risk of greater than 10 people in a million, an increased non-cancer risk of greater than 1.0 Hazard Index, or increased $PM_{2.5}$ of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) if the project is within 1,000 feet from a TAC source?

Project impacts related to increased community risk can occur either by introducing a new sensitive receptor (such as a residence) near an existing source of TACs, or by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors. According to BAAQMD, sources of TACs generally freeways and high volume roadways, truck distribution centers, ports, rail yards, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities.

Construction

For the purpose of this analysis, the project schedule conservatively assumes that the project would be built out over a period of approximately 30 months, or 660 construction workdays (based on an average of 22 workdays per month). Average daily emissions were computed by dividing the total construction emissions by the number of construction days.

The project includes 35 single-family dwelling units on approximately 20 acres. It was estimated that the project would require up to 125,000 square feet of building and pavement demolition, in addition to approximately 1,800 one-way trips of concrete trucks during the building construction phase, and 1,000 cubic yards of asphalt and concrete during the paving phase.

Construction activity would generate two TACs – $PM_{2.5}$ and DPM – that could temporarily affect nearby sensitive receptors. Construction equipment and heavy-duty truck traffic generate DPM, which is identified by California as a toxic air contaminant due to the potential to cause cancer. $PM_{2.5}$ is generated by construction equipment exhaust and fugitive dust. While not a TAC, $PM_{2.5}$ has been identified by BAAQMD as a pollutant with potential non-cancer health effects that should be included when evaluating potential community health impacts under CEQA. For projects involving construction, $PM_{2.5}$ impacts include those from construction equipment/vehicle exhaust in addition to fugitive dust impacts. When considering $PM_{2.5}$ impacts, the contribution from sources such as construction equipment, vehicle exhaust, and fugitive dust were included.

A community risk assessment was conducted to evaluate potential health effects to nearby sensitive receptors from DPM and $PM_{2.5}$ during the construction period (see **Appendix B**). Maximum DPM and $PM_{2.5}$ concentrations were compared to BAAQMD exposure thresholds. According to this assessment, the maximum annual $PM_{2.5}$ concentration was 0.1 $\mu g/m^3$, well below BAAQMD's corresponding 0.3 $\mu g/m^3$ exposure threshold. Maximum annual DPM concentrations were 0.0329 $\mu g/m^3$, below BAAQMD's corresponding 5 $\mu g/m^3$ exposure threshold.

Potential increased cancer risk from inhalation of TACs are calculated based on the TAC concentration over the period of exposure, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer-causing TACs. Given the projected construction emissions, the Office of Environmental Health Hazard Assessment (OEHHA) guidelines and newly recommended BAAQMD exposure parameters were used to calculate the potential increased cancer risk associated with project implementation. The maximum-modeled DPM and $PM_{2.5}$ concentrations occurred in the residential area southeast of the project site on Underhill Drive for the maximally exposed individual (MEI; see **Appendix B**). Using the maximum annual modeled DPM concentration, the maximum increased cancer risk was calculated. Results of the assessment for project construction indicate the maximum excess residential infant cancer risk would be 8.1 in one million and the residential adult

incremental cancer risk would be 0.2 in one million. Therefore, excess cancer risk at off-site residential receptors would be below BAAQMD significance threshold of 10 in one million, and construction-related impacts that could increase community risk would be less than significant.

Operation

BAAQMD CEQA Air Quality Guidelines describe the potential for significant community risk impacts to occur when new sensitive receptors are located near sources of TAC and/or $PM_{2.5}$ emissions. Common sources include high-volume roadways such as freeways, stationary combustions sources permitted by BAAQMD, and gasoline stations. BAAQMD recommends that these types of sources within 1,000 feet of a project with sensitive receptors be assessed to evaluate potential impacts. There are no existing TAC sources within 1,000 feet of the project site. Additionally, no stationary sources of TACs, such as generators, are proposed as part of the project.

The project would introduce new sensitive receptors to the area in the form of future residences. However, there are no existing TAC sources (e.g., high-volume roadways or highways, emergency back-up generators, and gas stations) within 1,000 feet of the project.

Foreseeable construction projects within 1,000 feet of the project site include a three-lot subdivision at 512 Hemme Avenue, Alamo (see **Section 4.0, Setting, Impacts, and Mitigation Measures**). Construction of this project could generate dust during ground disturbance activities that could potential expose future project residents to concentrations of DPM and $PM_{2.5}$ (County, 2015). However, construction-period DPM and $PM_{2.5}$ represents a temporary impact, and the 512 Hemme Avenue project would implement mitigation measures to reduce construction dust and exhaust, which would limit potential impacts to future project residents.

Given the above, this impact would be less than significant.

Discussion of Significant Impacts

Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable State or Federal ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

and

Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

The Bay Area is considered a non-attainment area for ground-level ozone and $PM_{2.5}$ under both the Federal Clean Air Act and the California Clean Air Act. The Bay Area is also considered nonattainment for PM_{10} under the California Clean Air Act. As part of an effort to attain and maintain ambient air quality standards for ozone and PM_{10}, BAAQMD established thresholds of significance for these air pollutants and their precursors (see **Table 4.3-4**). These thresholds are for ozone precursor pollutants (ROG and NO_x), PM_{10}, and $PM_{2.5}$ and apply to both construction period and operational period impacts.

Intersections with large traffic volumes can cause localized concentrations of CO. For land-use projects, BAAQMD 2017 CEQA Air Quality Guidelines state that a proposed project would result in a less-than-significant impact to localized CO concentrations if the project would not increase traffic by over 44,000 vehicles per hour at affected intersections. Project construction would not generate 44,000 trips per hour and, according to the traffic report, project operation would generate approximately 32 AM peak hour trips and 43 PM peak hour trips (see **Section 4.16, Transportation and Traffic**). Therefore, intersections affected by the project, individually and cumulatively, would have traffic volumes less than BAAQMD screening criteria and, thus, would have a less-than-significant CO contribution.

Construction

Construction Emissions

The project consists of 35 units, which is well under BAAQMD construction-related screening size of 114 dwelling units. Nevertheless, modeling was conservatively undertaken to evaluate the project's construction-related emissions. The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to predict construction emissions using project type, size, and schedule assumptions (see **Appendix B**). For modelling purposes, the project's inputs assumed 35 single-family dwelling units on approximately 20 acres, 125,000 square feet of building and pavement demolition, approximately 1,800 one-way trips for concrete trucks during the building construction phase, and 1,000 cubic yards of asphalt and concrete during the paving phase. The project schedule assumes that the project

construction would be built out over a period of approximately 30 months beginning in spring 2019.

Table 4.3-4 shows the projected average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during the construction period. As indicated in **Table 4.3-4**, predicted project construction-related missions would not exceed BAAQMD significance thresholds.

Table 4.3-4 Project Construction Period Emissions

Scenario	ROG	NO_x	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction emissions (tons)	0.68 tons	2.20 tons	0.11 tons	0.11 tons
Average daily emissions (pounds)[1]	2.1 lbs	6.7 lbs	0.3 lbs	0.3 lbs
BAAQMD Thresholds (pounds per day)	54 lbs/day	54 lbs/day	82 lbs/day	54 lbs/day
Exceed Threshold?	**No**	**No**	**No**	**No**

Source: Illingworth and Rodkin, 2017.
Notes: [1]Assumes 660 workdays, or approximately 30 months based on an average of 22 workdays per month.

Fugitive Dust

Impact AQ-1: Site preparation and grading would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$ (Less than Significant with Mitigation).

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Sources of fugitive dust include disturbed soils at the construction site, trucks carrying uncovered loads of soils, and mud deposited on local streets that can dry and become airborne. As analyzed above, the project would not generate significant emissions when compared to BAAQMD thresholds. Nevertheless, BAAQMD CEQA Air Quality Guidelines states that the implementation of best management practices, listed below in **Mitigation Measure AQ-1**, would reduce fugitive dust emissions to a less-than-significant level.

Mitigation Measure AQ-1: The contractor will adhere to the following best management practices during construction:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material offsite shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (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 CCR). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the construction contractor's office 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.

Significance after Mitigation: Mitigation Measure AQ-1 would implement BMPs to reduce fugitive dust levels to a less-than-significant level.

Operation

In the 2017 update to the CEQA Air Quality Guidelines, BAAQMD identifies screening criteria for land use projects that could result in significant air pollutant emissions. For operational impacts, the screening project size is identified at 325 dwelling units. Single family housing projects of smaller size would be expected to have less-than-significant impacts with respect to operational-period emissions. Since the project proposes to develop up to 35 dwelling units, project emissions would be below BAAQMD significance thresholds for the operational period. Furthermore, stationary sources of air pollution (e.g., back-up generators) are not proposed under the project.

4.3.4 CUMULATIVE IMPACTS

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is not considerable, then the project's impact on air quality would be considered less than significant.

As discussed above, the project may produce PM_{10} and $PM_{2.5}$ in the form of fugitive dust during construction. The Bay Area is considered a non-attainment area $PM_{2.5}$ under both the CAA and the CCAA, and nonattainment for PM_{10} under the CCAA. However, with implementation of **Mitigation Measure AQ-1**, the increase of fugitive dust generated during project construction would not be cumulatively considerable, and the project would not contribute to air quality violations related to PM_{10} and/or $PM_{2.5}$.

With regards to cumulative health hazards, a project would have a significant cumulative impact if the total of all past, present, and foreseeable future TAC sources within 1,000 feet of the project exceeds 0.8 $\mu g/m^3$ annual average $PM_{2.5}$, a 100 in a million cancer risk, or a 10.0 Hazard Index. As discussed above, there are no existing TAC sources within 1,000 feet of the project area. A three-lot subdivision located at 512 Hemme Avenue, Alamo could be constructed approximately 1,000 feet from the project site. This project is well below BAAQMD air quality impact thresholds, so health risks associated with construction and operation of 512 Hemme Avenue would be negligible, and, when combined with the project's health risks would not result in an exceedance of an applicable thresholds of significance.

With respect to odors, there is no foreseeable odor-generating project within 1,000 feet of the project site, and thus no potential for a cumulative odor impact.

4.3.5 REFERENCES

Bay Area Air Quality Management District, 2012-2014. *Air Quality Summary Reports*. Available: http://www.baaqmd.gov/about-air-quality/air-quality-summaries. Accessed September 1, 2015.

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