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Attachment 4

Revised Section 3.1, Air Quality

3.1 Air Quality

This section describes existing conditions related to air quality, identifies associated regulatory requirements, evaluates potential Project and cumulative impacts, and identifies mitigation measures for any significant or potentially significant impacts related to implementation of the Potentia Viridi Energy Storage Project (Project). This analysis uses the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.) and the emissions-based significance thresholds recommended by the Bay Area Air Quality Management District (BAAQMD) and other applicable thresholds of significance.

3.1.1 Affected Environment

3.1.1.1 Meteorological and Topographical Conditions

The Project Site is located within the boundaries of the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB encompasses all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and the southern portions of Solano and Sonoma Counties.

Air pollutants are emitted by a variety of sources, including mobile sources (vehicles), area sources (hearths, consumer product use, architectural coatings, and landscape maintenance equipment), energy sources (natural gas), and stationary sources (generators or other stationary equipment). Some air pollutants need to be examined at the local level, and others are predominantly an issue at the regional level. For instance, ozone (O_3) is formed in the atmosphere in the presence of sunlight by a series of chemical reactions involving oxides of nitrogen (NO_X) and reactive organic gases (ROGs) (also termed volatile organic compounds [VOCs]). Because these reactions are broad scale in effects, O_3 is typically analyzed at the regional level (i.e., in the SFBAAB) rather than the local level. On the other hand, air pollutants such as coarse particulate matter (particulate matter with an aerodynamic diameter less than or equal to 10 microns, or PM_{10}), fine particulate matter (particulate matter with an aerodynamic diameter less than or equal to 2.5 microns, or $PM_{2.5}$), carbon monoxide (CO), and TACs are a potential concern in the immediate vicinity of the pollutant source because the pollutants are emitted directly by or are formed close to the source. Therefore, the study area for emissions of PM_{10}, $PM_{2.5}$, CO, and TACs is the local area near the source, such as in the vicinity of the Project Site, and the study area for regional pollutants such as NO_x and ROGs is the entire SFBAAB.

Air quality is a function of the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality.

The climate of the SFBAAB is determined largely by a high-pressure system that is usually present over the eastern Pacific Ocean off the west coast of North America. During winter, the Pacific high-pressure system shifts southward, allowing more storms to pass through the region. During summer and early fall, when few storms pass through the region, 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 O_3, and secondary particulates, such as nitrates and sulfates.

In the SFBAAB, temperature inversions can often occur during the summer and winter months. An inversion is a layer of warmer air over a layer of cooler air that traps and concentrates pollutants near the ground. As such, the highest air pollutant concentrations in the SFBAAB generally occur during inversions (BAAQMD 2023).

The Project Site is located in the Livermore Valley climatological subregion. Specific conditions for the subregion are described in BAAQMD's California Environmental Quality Act Air Quality Guidelines (BAAQMD 2023) as follows:

The Livermore Valley is a sheltered inland valley near the eastern border of SFBAAB. The western side of the valley is bordered by 1,000 to 1,500 foothills with two gaps connecting the valley to the central SFBAAB, the Hayward Pass and Niles Canyon. The eastern side of the valley also is bordered by 1,000 to 1,500 foothills with one major passage to the San Joaquin Valley called the Altamont Pass and several secondary passages. To the north lie the Black Hills and Mount Diablo. A northwest to southeast channel connects the Diablo Valley to the Livermore Valley. The south side of the Livermore Valley is bordered by mountains approximately 3,000 to 3,500 feet high.

During the summer months, when there is a strong inversion with a low ceiling, air movement is weak and pollutants become trapped and concentrated. Maximum summer temperatures in the Livermore Valley range from the high-80's to the low-90's, with extremes in the 100's. At other times in the summer, a strong Pacific high-pressure cell from the west, coupled with hot inland temperatures causes a strong onshore pressure gradient which produces a strong, afternoon wind. With a weak temperature inversion, air moves over the hills with ease, dispersing pollutants.

In the winter, with the exception of an occasional storm moving through the area, air movement is often dictated by local conditions. At night and early morning, especially under clear, calm, and cold conditions, gravity drives cold air downward. The cold air drains off the hills and moves into the gaps and passes. On the eastern side of the valley the prevailing winds blow from north, northeast and east out of the Altamont Pass. Winds are light during the late night and early morning hours. Winter daytime winds sometimes flow from the south through the Altamont Pass to the San Joaquin Valley. Average winter maximum temperatures range from the high-50's to the low-60's, while minimum temperatures are from the mid-to-high-30's, with extremes in the high teens and low-20's.

Air pollution potential is high in the Livermore Valley, especially for photochemical pollutants in the summer and fall. High temperatures increase the potential for ozone to build up. The valley not only traps locally generated pollutants but can be the receptor of ozone and ozone precursors from San Francisco, Alameda, Contra Costa, and Santa Clara counties. On northeasterly wind flow days, most common in the early fall, ozone may be carried west from the San Joaquin Valley to the Livermore Valley.

During the winter, the sheltering effect of the valley, its distance from moderating water bodies, and the presence of a strong high-pressure system contribute to the development of strong, surface-based temperature inversions. Pollutants such as carbon monoxide and particulate matter, generated by motor vehicles, fireplaces, and agricultural burning, can become concentrated. Air pollution problems could intensify because of population growth and increased commuting to and through the subregion (BAAQMD 2023).

3.1.1.2 Pollutants and Effects

3.1.1.2.1 Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, NO_2, CO, sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead. These pollutants are discussed in the following paragraphs.[1] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone (O_3). O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly NO_x and ROGs. The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric O_3) and at the Earth's surface in the troposphere.[2] The O_3 that the U.S. Environmental Protection Agency (EPA) and the CARB regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2023b). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide (NO_2). NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. NO_x plays a major role, together with ROGs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (CARB 2023a).

Carbon Monoxide (CO). CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the Project location, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

1 The following descriptions of health effects for each of the criteria air pollutants associated with Project construction and operations are based on the U.S. Environmental Protection Agency's "Criteria Air Pollutants" (EPA 2023a) and the California Air Resources Board's "Glossary" (CARB 2023b) published information.

2 The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions (CARB 2023c).

Sulfur Dioxide (SO_2). SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter (PM). Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter and is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter and is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and ROGs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$ (EPA 2009).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including IQ performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Reactive Organic Gases. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as ROGs or VOCs. Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry-cleaning solutions, and paint.

The primary health effects of ROGs result from the formation of O_3 and its related health effects. High levels of ROGs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs.

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere and can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles. Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$.

3.1.1.2.2 Non-Criteria Pollutants

Toxic Air Contaminants (TACs). A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the State of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics “Hot Spots” Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter (DPM). DPM is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2023a). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2023a). CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) as a TAC in August 1998 (17 CCR 93000). DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2023a). Those most vulnerable to non-cancer health effects are children whose lungs are still developing and the elderly who often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

3.1.1.3 Sensitive Receptors

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion.

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by the California Air Resources Board (CARB), include children, older adults, and people with cardiovascular and chronic respiratory diseases. Accordingly, land uses where sensitive-receptor population groups are likely to be located include hospitals, medical clinics, schools, playgrounds, childcare centers, residences, and retirement homes (BAAQMD 2023). These uses are considered to be relatively 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 The closest sensitive receptor to the Project site is a residence located approximately 400 feet from the Project's gen-tie line and approximately 1,900 feet from the nearest battery within the Project site~~southern boundary~~.

3.1.2 Regional and Local Air Quality

3.1.2.1 San Francisco Bay Area Air Basin Attainment Designation

Pursuant to the 1990 CAA Amendments, EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. As previously discussed, these standards are set by EPA or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable."

The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are redesignated as maintenance areas and must have approved maintenance plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on the CAAQS rather than the NAAQS.

Table 3.1-1 summarizes SFBAAB's federal and state attainment designations for each of the criteria pollutants.

Table 3.1-1. San Francisco Bay Area Air Basin Attainment Designation

Pollutant	Federal Designation	State Designation
Ozone (O_3), 1-hour	No NAAQS	**Nonattainment**
Ozone (O_3), 8-hour	**Nonattainment–marginal**	**Nonattainment**
Nitrogen dioxide (NO_2)	Unclassifiable/attainment	Attainment
Carbon monoxide (CO)	Attainment/maintenance	Attainment
Sulfur dioxide (SO_2)	Unclassifiable/attainment	Attainment
Coarse particulate matter (PM_{10})	Unclassifiable/attainment	**Nonattainment**
Fine particulate matter ($PM_{2.5}$)	**Nonattainment–moderate**	**Nonattainment**
Lead	Unclassifiable/attainment	Attainment
Hydrogen sulfide	No NAAQS	Unclassified
Sulfates	No NAAQS	Attainment
Visibility-reducing particles	No NAAQS	Unclassified
Vinyl chloride	No NAAQS	No designation

Sources: EPA 2022b (NAAQS); CARB 2020 (CAAQS).

Notes: NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; bold text = not in attainment; attainment = meets the standards; attainment/maintenance = achieves the standards after a nonattainment designation; nonattainment = does not meet the standards; unclassified or unclassifiable = insufficient data to classify; unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

In summary, the SFBAAB is designated as a nonattainment area for federal and state O_3 and $PM_{2.5}$ standards. The SFBAAB is also designated as a nonattainment area for the state PM_{10} standards. The SFBAAB is designated as unclassified or in attainment for all other criteria air pollutants.

3.1.2.2 Air Quality Monitoring Data

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. BAAQMD monitors local ambient air quality within the SFBAAB, including a Livermore monitoring station that is representative of ambient air quality near the Project Site. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2020 to 2022 are presented in Table 3.1-2. The data collected at this station is considered generally representative of the air quality experienced in the Project vicinity. The number of days exceeding the ambient air quality standards is also shown in Table 3.1-2.

Table 3.1-2. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	AAQS	Measured Concentration by Year			Exceedances by Year		
					~~2020~~ 2021	~~2021~~ 2022	~~2022~~ 2023	~~2020~~ 2021	~~2021~~ 2022	~~2022~~ 2023
Ozone (O_3)										
Livermore	ppm	Maximum 1-hour concentration	State	0.09	~~0.095~~ 0.113	~~0.113~~ 0.101	~~0.101~~ 0.088	~~1~~ 3	~~3~~ 2	~~2~~ 0
	ppm	Maximum 8-hour concentration	State	0.070	~~0.077~~ 0.086	~~0.086~~ 0.078	~~0.077~~ 0.076	~~2~~ 9	~~9~~ 2	2
			Federal	0.070	~~0.078~~ 0.086	~~0.086~~ 0.077	~~0.078~~ 0.075	~~2~~ 9	~~9~~ 2	~~2~~ 1
Nitrogen Dioxide (NO_2)										
Livermore	ppm	Maximum 1-hour concentration	State	0.18	~~0.045~~ 0.037	~~0.036~~ 0.042	~~0.042~~ 0.035	0	0	0
			Federal	0.100	~~0.045~~ 0.037	~~0.036~~ 0.042	~~0.042~~ 0.035	0	0	0
	ppm	Annual concentration	State	0.030	~~0.007~~ 0.006	~~0.006~~ 0.008	~~0.008~~ 0.006	—	—	—
			Federal	0.053	~~0.008~~ 0.006	~~0.006~~ 0.008	~~0.008~~ 0.006	—	—	—
Carbon Monoxide (CO)										
Pleasanton	ppm	Maximum 1-hour concentration	State	20	~~3.6~~ 1.3	~~1.3~~ 1.2	~~1.2~~ 16.5	0	0	0
			Federal	35	~~3.6~~ 1.3	~~1.3~~ 1.2	~~1.2~~ 16.5	0	0	0
	ppm	Maximum 8-hour concentration	State	9.0	~~2.1~~ 1.0	~~1.0~~ 0.8	~~0.8~~ 3.7	0	0	0
			Federal	9	~~2.1~~ 1.0	~~1.0~~ 0.8	~~0.8~~ 3.7	0	0	0
Corse Particulate matter (PM_{10})[a]										
Concord	$\mu g/m^3$	Maximum 24-hour concentration	State	50	~~165~~ 26.0	~~25~~ 33.4	~~33~~ 39.7	~~1~~ 0	0	0
			Federal	150	~~165~~ 25.0	~~25~~ 33.4	~~33~~ 38.8	~~1~~ 0	0	0

Table 3.1-2. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	AAQS	Measured Concentration by Year			Exceedances by Year		
					~~2020~~ 2021	~~2021~~ 2022	~~2022~~ 2023	~~2020~~ 2021	~~2021~~ 2022	~~2022~~ 2023
	µg/m³	Annual concentration	State	20	~~9.7~~ 6.4	~~6.4~~ 6.5	~~6.5~~ 6.7	—	—	—
Fine Particulate Matter ($PM_{2.5}$)[a]										
Livermore	µg/m³	Maximum 24-hour concentration	Federal	35	~~122.0~~ 43.5	~~43.5~~ 25.9	~~25.9~~ 43.2	~~17.2 (17)~~ 2.0 (2)	~~2.0 (2)~~ 0 (0)	~~0 (0)~~ 1.1 (1)
	µg/m³	Annual concentration	State	12	~~10.6~~ 8.0	~~8.0~~ ND	ND	—	—	—
			Federal	12.0	~~10.5~~ 7.9	~~7.9~~ 7.5	~~7.5~~ 6.4	—	—	—

Sources: CARB 2023d, EPA 2023b.

Notes: ppm = parts per million; — = not available or applicable; µg/m³ = micrograms per cubic meter; ND = insufficient data available to determine the value.

Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.

Exceedances of federal and state standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

The Livermore monitoring station is located at 793 Rincon Ave, Livermore, California.

The Concord monitoring station is located at 2956-A Treat Boulevard, Concord.

The Pleasanton monitoring station is located at Owens Ct., Pleasanton, California.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored.

3.1.3 Significance Criteria and Methodology

3.1.3.1 Thresholds of Significance

The State of California has developed guidelines to address the significance of air quality impacts based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.), which provides guidance that a Project would have a significant environmental impact if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to determine whether a Project would have a significant impact on air quality.

Notably, in the *California Building Industry Association v. Bay Area Air Quality Management District* case decided in 2015, the California Supreme Court held that CEQA does not generally require lead agencies to consider how existing environmental conditions might impact a Project's occupants, except where the Project would significantly exacerbate an existing environmental condition. Accordingly, the significance criterion above related to exposure of sensitive receptors to substantial pollutant concentrations is relevant only to the extent that the Project would exacerbate existing air quality conditions.

While BAAQMD has initiated an update to their CEQA Air Quality Guidelines, the timeline for its release is unknown. Therefore, the BAAQMD CEQA Air Quality Guidelines remain as the applicable guidelines for the Project and include thresholds for criteria air pollutants, TACs, and GHG emissions (BAAQMD 2023). BAAQMD significance thresholds are summarized in Table 3.1-3.

Table 3.1-3. Air Quality – Thresholds of Significance

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (Pounds/Day)	Average Daily Emissions (Pounds/Day)	Maximum Annual Emissions (Tons/Year)
ROGs	54	54	10
NO_x	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
PM_{10}/$PM_{2.5}$ (fugitive dust)	Best management practices	None	
Local CO	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	

Table 3.1-3. Air Quality – Thresholds of Significance

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (Pounds/Day)	Average Daily Emissions (Pounds/Day)	Maximum Annual Emissions (Tons/Year)
Risks and hazards (individual project)	Compliance with qualified community risk reduction plan or Increased cancer risk of >10.0 in a million Increased noncancer risk of >1.0 Hazard Index (chronic or acute) Ambient $PM_{2.5}$ increase >0.3 µg/m³ annual average Zone of Influence: 1,000-foot radius from property line of source or receptor		
Risks and hazards (cumulative)	Compliance with qualified community risk reduction plan or Cancer risk of >100 in a million (from all local sources) Noncancer risk of >10.0 Hazard Index (chronic, from all local sources) Ambient $PM_{2.5}$ >0.8 µg/m³ annual average (from all local sources) Zone of Influence: 1,000-foot radius from property line of source or receptor		
Accidental release of acutely hazardous air pollutants	None	Storage or use of acutely hazardous material located near receptors or new receptors located near stored or used acutely hazardous materials considered significant	
Odors	None	Five confirmed complaints to BAAQMD per year averaged over 3 years	

Source: BAAQMD 2023
Notes: ROGs = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; CO = carbon monoxide; ppm = parts per million; µg/m³ = micrograms per cubic meter; BAAQMD = Bay Area Air Quality Management District.

The evaluation of whether the Project would conflict with or obstruct implementation of the applicable air quality plan (14 CCR 15000 et seq., Appendix G, Air Quality Threshold 1) is based on the BAAQMD CEQA Air Quality Guidelines, which identify a three-step methodology for determining a project's consistency with the current Clean Air Plan. The questions associated with these steps are as follows:

1. Does the project support the goals of the Clean Air Plan?
2. Does the project include applicable control measures from the Clean Air Plan?
3. Does the project disrupt or hinder implementation of any control measures from the Clean Air Plan?

The BAAQMD-recommended measure to assess the first question is consistency with BAAQMD thresholds of significance, which is addressed in detail in Section 3.1.4 (see Section 3.1.4, Impact Analysis). The second criterion is whether the Project would incorporate all feasible air quality plan control measures from the Clean Air Plan, which is discussed in Section 3.1.5. Regarding the third criterion, examples of how a project may cause the disruption or delay of control measures include a project that precludes an extension of a transit line or bike path or proposes excessive parking beyond parking requirements. This is also discussed in Section 3.1.5.

To evaluate the potential for the Project to result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in nonattainment under an applicable federal or state ambient air quality standard (14 CCR 15000 et seq., Appendix G, Air Quality Threshold 2), this analysis applies BAAQMD's construction criteria pollutants average daily thresholds, as shown in Table 3.1-3. BAAQMD states that these thresholds are intended to maintain ambient air quality concentrations of these criteria air pollutants below state and federal standards and to prevent a cumulatively considerable contribution to regional nonattainment with ambient air quality standards. A project would potentially result in a cumulatively considerable net increase in O_3, which is a nonattainment pollutant, if the project's construction or operational emissions would exceed the BAAQMD ROG or NO_x thresholds shown in Table 3.1-3. These emissions-based thresholds for O_3 precursors are intended to serve as a surrogate for an ozone significance threshold (i.e., the potential for adverse O_3 impacts to occur). This approach is used because O_3 is not emitted directly, and the effects of an individual project's emissions of O_3 precursors (ROGs and NO_x) on O_3 levels in ambient air cannot be determined reliably or meaningfully through air quality models or other quantitative methods.

The assessment of the Project's potential to expose sensitive receptors to substantial pollutant concentrations (14 CCR 15000 et seq., Appendix G, Air Quality Threshold 3) includes an assessment of potential health risk impacts at existing off-site and future on-site sensitive receptors associated with TACs generated by Project construction, as well as cumulative health risk impacts at future on-site residential receptors from all sources of TACs within 1,000 feet of the Project Site boundary. Cancer risk, chronic risk, and $PM_{2.5}$ concentration impact determinations were based on the respective thresholds depicted in Table 3.1-3. In addition, localized impacts associated with CO hotspots were also evaluated based on whether the concentration thresholds in Table 3.1-3 would be exceeded. According to BAAQMD, a project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met (BAAQMD 2023):

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

Finally, the potential for the Project to result in other emissions, specifically an odor impact (14 CCR 15000 et seq., Appendix G, Air Quality Threshold 4), is based on the Project's land-use types and anticipated construction activity, and the potential for the Project to create an odor nuisance.

3.1.3.2 Approach and Methodology

3.1.3.2.1 Construction Mass Emissions

Emissions from the construction phase of Project components were estimated using the California Emissions Estimator Model (CalEEMod) Version 2022.1.1[3]. Per preliminary Project details, it is conservatively assumed that construction of the Project would begin in February 2027 and would last approximately ~~15~~ 18 months, ending in ~~April~~ June 2028. The Project is assumed to have a 30-year lifespan, and at the end of operation, will be decommissioned. However, the EMFAC and OFFROAD models in CalEEMod only have emission factors through

3 CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform to calculate construction and operational emissions from land use development Projects. The model was developed for the California Air Pollution Control Officers Association in collaboration with multiple air districts across the state. Numerous lead agencies in the state, including SDAPCD, use CalEEMod to estimate greenhouse gas emissions in accordance with CEQA Guidelines Section 15064.4(a)(1).

2050. As such, the year 2050 was assumed for estimation emissions from the decommissioning phase. The analysis contained herein is based on the following schedule assumptions:

- Site Preparation – 8 Weeks ~~(2/2/ 2027 – 3/26/ 2027)~~
- Grading – 22 weeks ~~(3/27 2027 – 8/13/ 2027)~~
- BESS Foundations – 16 weeks ~~(3/8/2027 – 6/29/2027)~~
- Battery/Container Installation – 20 weeks ~~(6/1/2027 – 10/22/2027)~~
- PV Substation Installation – 32 weeks ~~(7/27/2027 – 3/15/2028)~~
- PG&E Substation Upgrades – 32 weeks ~~(11/4/2027 – 3/15/2028)~~
- Gen-tie foundation and Pole installation – 8 weeks ~~(3/4/2027 – 4/28/2027)~~
- Gen-tie stringing and pulling – 2 weeks ~~(4/29/2027 – 5/12/2027)~~
- Testing and commissioning – 26 weeks ~~(11/5/2027 – 4/13/2028)~~
- Decommissioning – 6 months ~~(year 2053)~~

The construction schedule has been developed based on available information provided by the Project applicant, typical construction practices, and CalEEMod default assumptions. Construction phasing is intended to represent a schedule of anticipated activities for use in estimating potential Project-generated construction emissions. Table 3.1-4 provides the construction equipment mix and vehicle trips assumed for estimating Project-generated construction emissions. It is also estimated that 6-acre feet of water would be used during construction. construction. Water would be sourced off-site and would be trucked in. Water trucks were modeled as vendor trucks as shown in the Table 3.1-4 below. Additional details regarding construction assumptions are provided in the modeling output, Appendix 3.1A.

Table 3.1-4. Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total Haul Truck Trips	Equipment Type	Quantity	Usage Hours
Site Preparation	50	10	600	Graders	2	8
				Rubber Tired Loaders	2	8
				Skid Steer Loaders	2	8
				Tractors/Loaders/ Backhoes	2	8
Grading	112	76	30,240	Graders	2	8
				Rollers	2	8
				Rubber Tired Loaders	2	8
				Skid Steer Loaders	2	8
				Tractors/Loaders/ Backhoes	2	8
Battery/Container Foundation	86	10	20	Paving Equipment	2	8
				Rollers	2	8

Table 3.1-4. Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips: Average Daily Worker Trips	One-Way Vehicle Trips: Average Daily Vendor Truck Trips	One-Way Vehicle Trips: Total Haul Truck Trips	Equipment: Equipment Type	Equipment: Quantity	Equipment: Usage Hours
				Cement and Mortar Mixers	2	8
				Bore/Drill Rig	1	8
				Tractors/Loaders/ Backhoes	2	8
Battery/Container Installation	310	20	2,636	Cranes	2	8
				Generator Sets	4	8
				Rough Terrain Forklifts	2	8
				Skid Steer Loaders	2	8
PG&E Substation Interconnection Facility Upgrades	40	20	0	Air Compressors	4	8
				Cranes	2	8
				Excavators	2	8
				Generator Sets	4	8
				Rough Terrain Forklifts	2	8
				Skid Steer Loaders	2	8
				Tractors/Loaders/ Backhoes	2	8
PV Substation Installation	40	20	0	Aerial Lifts	4	8
				Bore/Drill Rigs	2	8
				Cranes	2	8
				Excavators	2	8
				Generator Sets	2	8
				Rough Terrain Forklifts	2	8
				Rubber Tired Dozers	2	8
				Skid Steer Loaders	2	8
				Tractors/Loaders/ Backhoes	4	8
				Trenchers	4	8
Gen-tie foundation and tower erection	62	2	0	Cranes	2	8
				Forklifts	2	8
				Generator Sets	2	8
Gen-tie stringing and pulling	24	2	0	Forklifts	2	8
				Generator Sets	2	8
				Tractors/Loaders/ Backhoes	2	8
Testing and Commissioning	52	0	0	Rough Terrain Forklift	1	8

Table 3.1-4. Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total Haul Truck Trips	Equipment Type	Quantity	Usage Hours
Decommissioning	40	2	2,640	Concrete/Industrial Saws	2	8
				Cranes	2	8
				Rubber Tired Dozers	2	8
				Tractors/Loaders/ Backhoes	2	8

Note: See Appendix 3.1A for additional details.

The equipment mix assumptions were based on CalEEMod default assumptions based on proposed land use and is meant to represent a reasonably conservative estimate of construction activity. For the analysis, it is generally assumed that heavy construction equipment would be operating at the site for approximately 8 hours per day, 5 days per week. Default assumptions provided in CalEEMod were used to determine worker trips and vendor truck trips for each potential construction phase. The default CalEEMod trip distance for construction vehicles was assumed for all phases except for the Battery/Container installation phase. Default trip distances are a one-way distance of 11.97 miles for worker trips, 7.63 miles for vendor truck trips, and 20 miles for haul truck trips. In the Battery/Container Installation phase, the haul truck trip distance was assumed to be 55 miles, which is the approximate distance from the Project site to the Port of Oakland.

Implementation of the Project would generate criteria air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, and asphalt pavement application. Based on Project specific information, 7,845 cubic yards of material export is expected from the construction of the Project during the grading phase. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. The Project would be required to comply with PDF-AQ-1 (see Section 1.4, Project Design Features, of Appendix 3) to control dust emissions generated during the earthmoving activities. Standard construction practices that were assumed to be employed to reduce fugitive dust emissions per PDF-AQ-1 and were quantified in CalEEMod include watering of the active site twice a day, depending on weather conditions, and limitation of vehicle travel to 15 mph on unpaved roads; however, due to the developed nature of the Project Site, no unpaved roads are anticipated.

Internal combustion engines used by construction equipment, vendor trucks (i.e., delivery trucks), haul trucks, and worker vehicles would result in emissions of ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$. The application of architectural coatings, such as exterior application/interior paint and other finishes, and application of asphalt pavement would also produce ROG emissions; however, the contractor is required to procure architectural coatings from a supplier in compliance with the requirements of BAAQMD's Regulation 8, Rule 3 (Architectural Coatings). For additional details see Appendix 3-A, Air Quality and Greenhouse Gas Emissions CalEEMod Output Files.

3.1.3.2.2 Operation

Operation of the proposed Project would generate ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from area sources, energy sources mobile sources, offroad and stationary sources, which are discussed below. Emissions from these sources were estimated based on CalEEMod default assumptions for operations of the proposed Project land uses. It was assumed that the Project would be operational following the completion of construction, which would occur in 2028.

Area

The area source category calculates direct sources of air pollutant emissions located at the Project site, including consumer product use and landscape maintenance equipment. CalEEMod defaults were used to estimate emissions from area sources during operation of the Project.

Consumer products are various solvents used in non-industrial applications which emit ROGs during their product use, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Consumer product ROG emissions are estimated in CalEEMod based on the floor area of buildings and on the default factor of pounds of ROG per building square foot per day. The CalEEMod default utilization rates and emission factors were assumed.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers, as well as air compressors, generators, and pumps. The emissions associated from landscape equipment use were estimated using CalEEMod. The emission factors are multiplied by the number of summer days that represent the number of operational days.

Energy

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site. The Project does not include the use of natural gas during operation. Therefore, no emissions associated with energy sources were quantified for the air quality analysis. The estimated annual electricity consumption from the Project was provided by the applicant and assumed to be 17,520 megawatt-hours per year.

Mobile Sources

Following the completion of construction activities, the Project would generate criteria pollutant emissions from mobile sources (vehicular traffic) as a result of the periodic maintenance of the Project. The Project was assumed to require ~~8-10~~ up to 20 employees visiting the BESS facility sites 5 days a week for maintenance. The estimated trip lengths and trip modes were based on CalEEMod default data. CalEEMod was used to estimate emissions from proposed vehicular sources (refer to Appendix 3-A~~.1A~~). CalEEMod default data, including temperature, trip characteristics, variable start information, and emissions factors, were conservatively used for the model inputs. Project-related traffic was assumed to include a mixture of vehicles in accordance with the associated use, as modeled within CalEEMod, which is based on the California Air Resources Board (CARB) EMFAC2021 model. Emission factors representing the vehicle mix and emissions for 2028 were used to estimate emissions associated with vehicular sources.

Off-Road Sources

During irregular maintenance, the Project may require the movement or replacement of battery enclosures during the lifetime of the Project. As such, the use of 1 crane and 1 forklift were assumed to assist the lifting and movement of the BESS containers. CalEEMod was used to estimate criteria air pollutant emissions of the crane and forklift assuming 4 hours of operation on 2 days every year.

Stationary Sources

The Project would install ~~one~~ two emergency Diesel generator (~~200~~ 4,360 horsepower each) for emergency safety systems during a power outage that lasts longer than 24-48 hours. This 24-hour window would provide operations personnel enough time to safely de-energize and isolate equipment during operation. CalEEMod was used to estimate criteria air pollutant emissions of the generator assuming 1 hour per day and ~~50~~ 400 hours per year for maintenance and testing.

For additional details see Appendix 3-A~~.1A~~, Air Quality and Greenhouse Gas Emissions CalEEMod Output Files.

3.1.4 Impact Analysis

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

An area is designated as in attainment when it complies with the federal and/or state standards. These standards are set by EPA or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or public welfare, with a margin of safety. The Project Site is located within the SFBAAB, which is designated as nonattainment for the federal 8-hour O_3 and 24-hour $PM_{2.5}$ standards. The area is in attainment or unclassified for all other federal standards. The area is designated as nonattainment for state standards for 1-hour and 8-hour O_3, 24-hour PM_{10}, annual PM_{10}, and annual $PM_{2.5}$.

On April 19, 2017, BAAQMD adopted its 2017 Clean Air Plan (BAAQMD 2017a). The BAAQMD CEQA Air Quality Guidelines identify a three-step methodology for determining a project's consistency with the current Clean Air Plan. If the responses to these three questions can be concluded in the affirmative and those conclusions are supported by substantial evidence, then the BAAQMD considers the project to be consistent with air quality plans prepared for the Bay Area. The three questions are as follows:

1. Does the project support the goals of the Clean Air Plan?
2. Does the project include applicable control measures from the Clean Air Plan?
3. Does the project disrupt or hinder implementation of any control measures from the Clean Air Plan?

The first question to be assessed in this methodology is "does the project support the goals of the Clean Air Plan"? The BAAQMD-recommended measure for determining project support for these goals is consistency with BAAQMD thresholds of significance. If a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation measures the project would be consistent with the goals of the 2017 Clean Air Plan. The Project would result in a less than significant impact associated with emissions of criteria air pollutant emissions during construction and operation. Therefore, the Project would be considered to support the primary goals and be consistent with BAAQMD's current Clean Air Plan.

The second question to be assessed is “does the project include applicable control measures from the Clean Air Plan?” The 2017 Clean Air Plan contains 85 control measures aimed at reducing air pollution in the Bay Area. Projects that incorporate all feasible air quality plan control measures are considered consistent with the Clean Air Plan. The control strategies of the 2017 Clean Air Plan include measures in the categories of stationary sources, the transportation sector, the buildings sector, the energy sector, the agriculture sector, natural and working lands, the waste sector, the water sector, and super-GHG measures. Depending on the control measure, the tools for implementation include leveraging the BAAQMD rules and permitting authority, regional coordination and funding, working with local governments to facilitate best policies in building codes, outreach and education, and advocacy strategies. The Project site is designated Large Parcel Acreage (LPA) in the Alameda County East County Plan Area. The zone classification is Agriculture-Combining B District (A-BE). The proposed battery energy storage project would be allowed within the County’s conditional uses for these zoning and land use designations. Furthermore, the proposed Project would undergo decommissioning at the end of its useful life and the Project site would be returned to its current state. The Project would result in the development of uses and growth that are consistent with the City General Plan and zoning designations. Furthermore, because the Project would comply with all applicable BAAQMD rules and would meet or exceed state and federal standards and/or local building codes, the Project would not conflict with any applicable control measures from the 2017 Clean Air Plan.

The third question to be assessed in this consistency methodology is “does the project disrupt or hinder implementation of any control measures from the Clean Air Plan?” Examples of how a project may cause the disruption or delay of control measures include a project that precludes an extension of a transit line or bike path or proposes excessive parking beyond parking requirements. The Project would not create any barriers or impediments to planned or future improvements to transit or bicycle facilities in the area, nor would it include excessive parking. Therefore, the Project would not hinder implementation of 2017 Clean Air Plan control measures. Therefore, the Project would not conflict with or obstruct the implementation of the 2017 Clean Air Plan, and impacts would be less than significant.

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 federal or state ambient air quality standard?

Past, present, and future development projects may contribute to the SFBAAB adverse air quality impacts on a cumulative basis. Per BAAQMD’s CEQA Air Quality Guidelines, by its nature air pollution is largely a cumulative impact; no single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project’s individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be considered cumulatively considerable, resulting in a significant adverse air quality impact to the region’s existing air quality conditions. Therefore, if the Project’s emissions are below the BAAQMD thresholds or screening criteria, then the Project would not result in a cumulatively considerable net increase of any criteria air pollutant.

Construction

Construction of the proposed Project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and ROG off-gassing) and off-site sources (vendor and haul truck trips, and worker vehicle trips). Construction emissions can vary substantially day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions.

Criteria air pollutant emissions associated with construction activities were quantified using CalEEMod. Default values provided by the program were used where detailed proposed Project information was not available. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in 3.1.3.2.

Development of the proposed Project would generate air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, and asphalt pavement application. As described previously, fugitive dust would be limited through compliance with SDAPCD Rule 55, which requires the restriction of visible emissions of fugitive dust beyond the property line.

Table 3.1-5 shows the estimated average unmitigated daily construction emissions associated with the conceptual construction years of the Project. Complete details of the emissions calculations are provided in Appendix 3.1A.

Table 3.1-5. Estimated Average Daily Construction Criteria Air Pollutant Emissions

Year	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2027	~~3.68~~ 3.17	~~34.57~~ 30.16	~~43.26~~ 36.83	~~0.11~~ 0.10	~~5.15~~ 4.44	~~1.94~~ 1.71
2028	~~0.90~~ 124	~~8.10~~ 10.88	~~10.86~~ 15.25	~~0.02~~ 0.03	~~0.52~~ 0.37	~~0.31~~ 0.31
2050	0.67	4.04	6.54	0.02	~~0.40~~ 0.78	~~0.18~~ 0.44
Maximum	**~~3.86~~ *3.17***	**~~34.57~~ *30.16***	**~~43.26~~ *36.83***	**~~0.11~~ *0.10***	**~~5.15~~ *4.44***	**~~1.94~~ *1.71***
BAAQMD Thresholds	*54*	*54*	*NA*	*NA*	*82*	*54*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: ROG = reactive organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; BAAQMD = Bay Area Air Quality Management District.
See Appendix 3.1A for complete results.
The values shown are the average daily emissions results from CalEEMod.

As shown in Table 3.1-5, daily construction emissions for the Project would not exceed BAAQMD's significance thresholds for criteria air pollutants during construction with incorporation of PDF-AQ-1. Therefore, the Project would have a less-than-significant impact related to criteria air pollutant emissions during construction and would not require mitigation.

Construction Ambient Air Quality Analysis

The screening analysis consists of evaluating modeled Project emissions against the significant impact levels (SILs) established by the EPA to determine if a project's criteria air pollutant emissions are considered inconsequential in comparison to the NAAQS. If the SILs are not exceeded, then a project's impacts would be considered insignificant, and no further analysis would be required. For completeness, this analysis also evaluates Project emissions to the CAAQS and NAAQS. Modeled concentrations are compared to the SILs in Table 3.1-6. All maximum facility impacts occurred at the ambient boundary, and the estimated concentrations are all below the applicable SILs.

Table 3.1-6. Air Quality Impact Results – Significant Impact Levels – Unmitigated

Pollutant	Averaging Time	Maximum Concentration (µg/m³)	Class II SIL (µg/m³)
Nitrogen dioxide (NO2)	1 hour	~~90.94~~ 248.89	—
	Annual	~~19.55~~ 53.50	1
Carbon monoxide (CO)	1 hour	~~597.71~~ 397.76	2,000
	8 hours	~~342.15~~ 227.69	500
Sulfur dioxide (SO2)	1 hour	~~0.92~~ 0.67	7.86
	24 hours	~~7~~ 0.24	5
Course Particulate Matter (PM10)	24 hours	~~3.46~~ 4.15	5
	Annual	~~1.62~~ 1.95	1
Fine Particulate Matter (PM2.5)	24 hours	~~0.81~~ 3.70	1.2
	Annual	~~0.38~~ 1.74	0.3

Notes: CAAQS are not listed because the SIL does not apply to CAAQS. µg/m3 = micrograms per cubic meter; SIL = Significant Impact Level.

As shown in Table 3.1-6, the maximum concentrations related by the Project would not exceed the SILs established by the EPA for ~~NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$.~~ CO and SO_2. However, the SIL for NO_x, PM_{10}, and $PM_{2.5}$ would exceed during construction for the annual averaging and $PM_{2.5}$ SIL would be exceeded for the 24-hour averaging. Because the SIL was exceed for NO_x, PM_{10}, and $PM_{2.5}$, maximum combined concentrations (modeled + background) are evaluated in Table 3.1-7.

Table 3.1-7. Air Quality Impact Results – Ambient Air Quality Standards - Unmitigated

Pollutant	Averaging Time	Maximum Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	Ambient Air Quality Standard (µg/m³)	
					CAAQS	NAAQS
Nitrogen dioxide (NO2)	1 hour	~~90.94~~ 248.89	85	~~176~~ 334	339	N/A
	1 hour	~~90.94~~ 248.89	~~85~~ 79	~~176~~ 328	N/A	188
	Annual	~~19.55~~ 53.50	15	~~35~~ 69	57	100
Carbon monoxide (CO)	1 hour	~~597.71~~ 397.76	~~4,124~~ 18,902	~~4,722~~ 19,300	23,000	40,000
	8 hours	~~342.15~~ 227.69	~~2,406~~ 4,239	~~2,748~~ 4,466	10,000	10,000
Sulfur dioxide (SO2)[a]	1 hour	~~0.92~~ 0.67	~~39~~ 40	41	655	N/A
	24 hours	~~7~~ 0.24	~~0.14~~ 7	7	105	N/A
Course Particulate Matter (PM10)	24 hours	~~3.46~~ 4.15	~~165~~ 40	~~168~~ 44	50	N/A
	Annual	~~1.62~~ 1.95	10	~~11~~ 12	20	N/A
Fine Particulate Matter (PM2.5)	24 hours	~~0.81~~ 3.70	~~122~~ 44	~~123~~ 47	—	35
	Annual	~~0.38~~ 1.74	~~10.50~~ 8	~~11~~ 10	12	12

Notes: µg/m3 = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; N/A = not applicable or available.

[a] Results for SO_2 and CO are reported as the H1H even though the NAAQS allows other forms of compliance. Using the H1H is a more conservative approach.

As shown in Table 3.1-7, the proposed Project would ~~not~~ exceed the CAAQS for NAAQS after accounting for background concentrations for all criteria air pollutants except for ~~PM_{10} CAAQS~~ the 1-hour and annual NO_2 and 24-hour $PM_{2.5}$ NAAQS. Therefore, criteria air pollutant emissions would be potentially significant and thus mitigation is required. The following mitigation measures is required to minimize potentially significant impacts during construction of the Project. The exceedances for PM_{10} and $PM_{2.5}$ are due to the high level of background concentrations that already exceed the CAAQS and NAAQS. As shown in Table 3.1-8, the Project would not exceed the SIL for both the 24-hour and annual PM_{10} concentrations and $PM_{2.5}$ 24-hour concentration. Additionally, these emissions would be temporary and short-term construction-related emissions. Therefore, impacts would be **less than significant.**

MM-AQ-1 Require Use of Tier 4 Off-Road Equipment During Construction.

Prior to the commencement of construction activities for the Project, the Applicant shall require its construction contractor to demonstrate that all 50-horsepower or greater diesel-powered equipment is powered with California Air Resources Board (CARB)-certified Tier 4 Final engines.

An exemption from this requirement may be granted if (1) the Applicant documents equipment with Tier 4 Final engines are not reasonably available, and (2) the required corresponding reductions in criteria air pollutant emissions can be achieved for the Project from other combinations of construction equipment. Before an exemption may be granted, the Applicant's construction contractor shall: (1) demonstrate that at least two construction fleet owners/operators in the County of Alameda were contacted and that those owners/operators confirmed Tier 4 Final equipment could not be located within the County of Alameda during the desired construction schedule; and (2) the proposed replacement equipment has been evaluated using California Emissions Estimator Model (CalEEMod) or other industry standard emission estimation method and documentation provided to the County of Alameda to confirm that necessary Project-generated emissions reductions are achieved.

Table 3.1-8 summarizes the results of the construction AAQA after implementation of **MM-AQ-1.**

Table 3.1-8. Construction Air Quality Impact Results – Significant Impact Levels - Mitigated

Pollutant	Averaging Time	Maximum Concentration ($\mu g/m^3$)	Class II SIL ($\mu g/m^3$)
Nitrogen dioxide (NO_2)	1 hour	90.82	—
	Annual	19.52	1
Carbon monoxide (CO)	1 hour	457.77	2,000
	8 hours	262.04	500
Sulfur dioxide (SO_2)	1 hour	0.67	7.86
	24 hours	0.24	5
Course Particulate Matter (PM_{10})	24 hours	1.15	5
	Annual	0.54	1
Fine Particulate Matter ($PM_{2.5}$)	24 hours	0.85	1.2
	Annual	0.40	0.3

Notes: CAAQS are not listed because the SIL does not apply to CAAQS. $\mu g/m^3$ = micrograms per cubic meter; SIL = Significant Impact Level.

As shown in Table 3.1-8, the maximum mitigated concentrations related by the project would not exceed the SILs established by the EPA for CO, SO_2, and PM_{10}. However, the SIL for NO_x and $PM_{2.5}$ would exceed during construction for the annual averaging. Because the SIL was exceed for NO_x and $PM_{2.5}$ maximum mitigated combined concentrations (modeled + background) are evaluated in Table 3.1-9.

Table 3.1-9. Construction Air Quality Impact Results – Ambient Air Quality Standards - Mitigated

Pollutant	Averaging Time	Maximum Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	Ambient Air Quality Standard (µg/m³)	
					CAAQS	NAAQS
Nitrogen dioxide (NO_2)	1 hour	90.94	85	176	339	N/A
	1 hour	90.94	79	179	N/A	188
	Annual	19.55	15	35	57	100
Carbon monoxide (CO)	1 hour	457.77	18,902	19,360	23,000	40,000
	8 hours	262.04	4,239	4,501	10,300	10,300
Sulfur dioxide (SO_2)[a]	1 hour	0.67	40	41	655	N/A
	24 hours	7	0.24	7	105	N/A
Course Particulate Matter (PM_{10})	24 hours	1.15	40	41	50	150
	Annual	0.54	10	10	20	N/A
Fine Particulate Matter ($PM_{2.5}$)	24 hours	0.85	44	35	—	35
	Annual	0.40	8	8	12	12

Notes: µg/m³ = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; N/A = not applicable or available.

[a] Results for SO_2 and CO are reported as the H1H even though the NAAQS allows other forms of compliance. Using the H1H is a more conservative approach

As shown in Table 3.1-9, the proposed Project would not exceed the CAAQS for NAAQS after accounting for background concentrations for all criteria air pollutants except for the 24-hour $PM_{2.5}$ NAAQS. The exceedances for 24-hour $PM_{2.5}$ is due to the high level of background concentrations that already exceed the NAAQS. As shown in Table 3.1-8, the Project would not exceed the SIL for the 24-hour $PM_{2.5}$ after mitigation. Additionally, these emissions would be temporary and short-term construction-related emissions. Therefore, impacts would be **less than significant after mitigation.**

Operations

Operation of the proposed Project would generate ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources (vehicle trips), area sources), energy sources, off-road equipment, and stationary sources. As discussed in Section 3.1.3.2., pollutant emissions associated with long-term operations were quantified using CalEEMod. Project-generated mobile source emissions were estimated in CalEEMod based on Project-specific trip rates. CalEEMod default values were used to estimate emissions from the proposed Project source. CalEEMod was also used to estimate emissions of the off-road equipment and the stationary source based on hours of operation.

Table 3.1-~~8~~10 presents the unmitigated maximum daily emissions associated with the operation of the Project in 2028 after all phases of construction have been completed. Emissions represent the average daily emissions over the length of construction. Complete details of the emissions calculations are provided in Appendix 3-A~~.1A~~, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*.

Table 3.1-~~8~~10. Estimated Average Daily Operational Criteria Air Pollutant Emissions

Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Mobile	~~0.16~~ 0.14	~~0.02~~ 0.12	~~0.14~~ 0.13	<0.01	~~0.04~~ 0.35	~~0.01~~ 0.09
Area	0.37	<0.01	0.02	<0.01	<0.01	<0.01
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.20	0.30	<0.01	≤0.01	≤0.01
Stationary	~~0.05~~ 21.48	~~0.13~~ 1.05	~~0.12~~ 54.78	~~<0.01~~ 0.10	~~0.01~~ 0.42	~~0.01~~ 0.42
Total	**~~0.45~~ *21.99***	**~~0.35~~ *1.39***	**~~0.58~~ *56.24***	**~~0.01~~ *0.11***	**~~0.06~~ *0.78***	**~~0.02~~ *0.52***
BAAQMD Operational Thresholds	*54*	*54*	*NA*	*NA*	*82*	*54*
Threshold exceeded?	**No**	**No**	**NA**	**NA**	**No**	**No**

Notes: ROG = reactive organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; BAAQMD = Bay Area Air Quality Management District. <0.01 = reported value is less than 0.01.
See Appendix 3.1A for complete results.
Columns may not add due to rounding.

As shown in Table 3.1-~~8~~10, daily operational emissions for the Project would not exceed BAAQMD's significance thresholds for any criteria air pollutant. Therefore, the Project would result in a less-than-significant impact related to emissions of criteria air pollutant emissions during operation.

Operational Ambient Air Quality Analysis

The screening analysis consists of evaluating modeled Project operational emissions against the significant impact levels (SILs) established by the EPA to determine if a project's criteria air pollutant emissions are considered inconsequential in comparison to the NAAQS. If the SILs are not exceeded, then a project's impacts would be considered insignificant, and no further analysis would be required. For completeness, this analysis also evaluates Project operational emissions to the CAAQS and NAAQS. Modeled concentrations are compared to the SILs in Table 3.1-11. All maximum facility impacts occurred at the ambient boundary, and the estimated concentrations are all below the applicable SILs.

Table 3.1-11. Operational Air Quality Impact Results – Significant Impact Levels

Pollutant	Averaging Time	Maximum Concentration (µg/m³)	Class II SIL (µg/m³)
Nitrogen dioxide (NO2)	1 hour	4.69	–
	Annual	0.12	1
Carbon monoxide (CO)	1 hour	57.42	2,000
	8 hours	28.15	500

Table 3.1-11. Operational Air Quality Impact Results – Significant Impact Levels

Pollutant	Averaging Time	Maximum Concentration (µg/m³)	Class II SIL (µg/m³)
Sulfur dioxide (SO2)	1 hour	0.11	7.86
	24 hours	0.02	5
Course Particulate Matter (PM10)	24 hours	0.11	5
	Annual	0.01	1
Fine Particulate Matter (PM2.5)	24 hours	0.10	1.2
	Annual	0.01	0.3

Notes: CAAQS are not listed because the SIL does not apply to CAAQS. µg/m3 = micrograms per cubic meter; SIL = Significant Impact Level.

As shown in Table 3.1-11, the maximum concentrations related by the Project would not exceed the SILs established by the EPA for NO_x CO, SO_2, PM_{10}, and $PM_{2.5}$.

Table 3.1-12. Operational Air Quality Impact Results – Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	Ambient Air Quality Standard (µg/m³)	
					CAAQS	NAAQS
Nitrogen dioxide (NO2)	1 hour	4.69	85	89	339	N/A
	1 hour	4.69	79	84	N/A	188
	Annual	0.12	15	15	57	100
Carbon monoxide (CO)	1 hour	57.42	18,902	18,960	23,000	40,000
	8 hours	28.15	4,239	4,267	10,000	10,000
Sulfur dioxide (SO2)a	1 hour	0.11	40	40	655	N/A
	24 hours	0.02	7	7	105	N/A
Course Particulate Matter (PM10)	24 hours	0.11	40	40	50	N/A
	Annual	0.01	10	10	20	N/A
Fine Particulate Matter (PM2.5)	24 hours	0.10	44	44	–	35
	Annual	0.01	8	8	12	12

Notes: µg/m3 = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; N/A = not applicable or available.

[a] Results for SO_2 and CO are reported as the H1H even though the NAAQS allows other forms of compliance. Using the H1H is a more conservative approach.

As shown in Table 3.1-12, the proposed Project would not exceed the CAAQS for NAAQS after accounting for background concentrations for all criteria air pollutants except for PM_{10} CAAQS and $PM_{2.5}$ NAAQS. The exceedances for PM_{10} and $PM_{2.5}$ are due to the high level of background concentrations that already exceed the CAAQS and NAAQS. As shown in Table 3.1-11, the Project would not exceed the SIL for the $PM_{2.5}$ 24-hour concentration. Therefore, impacts would be **less than significant.**

Cumulative Impact Analysis

In analyzing cumulative impacts from a Project, the analysis must specifically evaluate the Project's contribution to the cumulative increase in pollutants for which the basin is designated as nonattainment for the CAAQS and NAAQS. If the Project does not exceed thresholds and is determined to have less than significant Project-specific impacts, it may still contribute to a significant cumulative impact on air quality if the emissions from the Project components, in combination with the emissions from other proposed or reasonably foreseeable future Projects, are in excess of established thresholds. However, the Project would only be considered to have a significant cumulative impact if it represents a "cumulatively considerable contribution" to the cumulative air quality impact.

Additionally, for the SFBAAB the 2017 Clean Air Plan serves as the long-term regional air quality planning document for the purpose of assessing cumulative operational emissions within the basin to ensure the SFBAAB continues to make progress toward NAAQS and CAAQS attainment status. As such, cumulative projects located in the bay area would have the potential to result in a cumulative impact to air quality if, in combination, they would conflict with or obstruct implementation of the 2017 Clean Air Plan. Similarly, individual projects that are inconsistent with the regional planning documents on which the 2017 Clean Air Plan is based would have the potential to result in cumulative impacts if they represent development beyond regional projections.

The SFBAAB has been designated as a national nonattainment area for O_3 and $PM_{2.5}$, and a California nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The geographic extent for the analysis of cumulative impacts related to criteria air pollutants is the SFBAAB. Due to the O_3, PM_{10}, and $PM_{2.5}$ nonattainment status of the SFBAAB, the primary air pollutants of concern are ROG and NOx, which are O_3 precursors, and PM_{10} and $PM_{2.5}$. Because of the nature of O_3 as a regional air pollutant, emissions from the entire geographic area for this cumulative impact analysis would tend to be important, although maximum O_3 impacts generally occur downwind of the area where the O_3 precursors are released. PM_{10} and $PM_{2.5}$ impacts, on the other hand, tend to occur locally. The nonattainment status is the result of cumulative emissions from all sources of these air pollutants and their precursors within the SFBAAB. As shown in Table 3.1-5, the emissions of all criteria pollutants from the Project's construction would be below the significance threshold identified by the BAAQMD.

Construction schedules for potential future projects near the Project site are currently unknown; therefore, potential construction impacts associated with two or more simultaneous projects would be speculative.[4] However, future projects would be subject to CEQA and would require an air quality analysis and, where necessary, mitigation if the project would exceed BAAQMD's significance thresholds. Criteria air pollutant emissions associated with construction activity of future proposed projects would be reduced through implementation of control measures required by BAAQMD. Cumulative PM_{10} and $PM_{2.5}$ emissions would be reduced because the Project would incorporate PDF-AQ-1 to reduce fugitive dust emissions and MM-AQ-1 to reduce diesel PM emissions. Therefore, the Project's construction activities are not anticipated to result in a cumulatively significant impact on air quality.

Once construction is completed, construction-related emissions would cease. As shown in Table 3.1-~~8~~10, operational emissions generated by the Project would not result in emissions that exceed significance

[4] The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145). This discussion is nonetheless provided in an effort to show good-faith analysis and to comply with CEQA's information disclosure requirements.

thresholds for any criteria air pollutant and would be substantially less than construction impacts. Regarding long-term cumulative operational emissions in relation to consistency with local air quality plans, the 2017 Clean Air Plan serves as the primary air quality planning documents for the state and SFBAAB, respectively. The 2017 Clean Air Plan relies on MTC growth projections based on population, vehicle trends, and land use plans developed by the cities and by the County as part of the development of their general plans. Therefore, projects that propose development that is consistent with the growth anticipated by local plans would be consistent with the 2017 Clean Air Plan and would not be considered to result in cumulatively considerable impacts from operational emissions.

As a result, the Project would not result in a cumulatively considerable contribution to regional O_3 concentrations or other criteria pollutant emissions. Cumulative impacts for construction and operation would be less than significant for the Project.

Would the Project expose sensitive receptors to substantial pollutant concentrations?

Carbon Monoxide Hotspots

Mobile source impacts occur on two scales of motion. Regionally, Project-related travel would add to regional trip generation and increase the VMT within the local airshed and the SFBAAB. Locally, Project generated traffic would be added to the County's roadway system near the Project Site. If such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles cold started and operating at pollution-inefficient speeds, and is operating on roadways already crowded with non-Project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SFBAAB is steadily decreasing.

The BAAQMD thresholds of significance for local CO emissions are the 1-hour and 8-hour CAAQS of 20 ppm and 9 ppm, respectively. By definition, these represent levels that are protective of public health. According to BAAQMD, a project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met (BAAQMD 2017b):

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

The maximum estimated peak-hour traffic of 194 vehicles would be at the Midway Road East and Patterson Pass Road intersection assessed in the Transportation Analysis (Appendix 3.12A). This hourly volume would be substantially less than the BAAQMD screening criteria. Accordingly, Project-related traffic would not exceed CO standards; therefore, no further analysis was conducted for CO impacts. Thus, the CO emissions impact would be considered **less than significant** on a Project level and cumulative basis.

Health Effects of Criteria Air Pollutants

Construction and operation of the Project would not result in emissions that exceed BAAQMD's emission thresholds for any criteria air pollutants. The BAAQMD thresholds are based on the SFBAAB complying with the NAAQS and CAAQS which are protective of public health; therefore, no adverse effects to human health would result from the Project. The following provides a general discussion of criteria air pollutants and their health effects.

Regarding ROGs, some ROGs would be associated with motor vehicles and construction equipment, while others are associated with architectural coatings and asphalt off-gassing, the emissions of which would not result in exceedances of BAAQMD's thresholds. Generally, the ROGs in architectural coatings and asphalt are of relatively low toxicity. Additionally, the contractor is required to procure architectural coatings from a supplier in compliance with the requirements of BAAQMD's Regulation 8, Rule 3 (Architectural Coatings).

In addition, ROGs and NO_x are precursors to O_3, for which the SFBAAB is designated as nonattainment with respect to the NAAQS and CAAQS ~~(the SDAB is designated by EPA as an attainment area for the 1-hour O_3 NAAQS standard and 1997 8-hour NAAQS standard)~~. The health effects associated with O_3, as discussed in Section 3.1.1.2.1, Criteria Air Pollutants, are generally associated with reduced lung function. The contribution of ROGs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SDAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the ROG emissions would occur because exceedances of the O_3 NAAQS and CAAQS tend to occur between April and October, when solar radiation is highest. The holistic effect of a single Project's emissions of O_3 precursors is speculative due to the lack of quantitative methods to assess this impact. Nonetheless, the ROG and NO_x emissions associated with Project construction could minimally contribute to regional O_3 concentrations and the associated health impacts. Due to the minimal contribution during construction and operation, health impacts would be considered less than significant.

Similar to O_3, construction of the Project would not exceed thresholds for PM_{10} or $PM_{2.5}$ and would not contribute to exceedances of the NAAQS and CAAQS for particulate matter. Due to the minimal contribution of particulate matter during construction and operation, health impacts would be considered less than significant.

Regarding NO_2, which is a constituent of NO_x, construction of the Project would not contribute to exceedances of the NAAQS and CAAQS for NO_2 since NO_x emissions would be less than the applicable BAAQMD threshold. As described in Section 3.1.1.2, NO_2 health impacts are associated with respiratory irritation, which may be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. However, these operations would be relatively short term, and the off-road construction equipment would be operating on various portions of the site and would not be concentrated in one portion of the site at any one time. Construction of the Project would not require any stationary emission sources that would create substantial, localized NO_2 impacts.

Based on the preceding considerations, health impacts from Project-related criteria air pollutant emissions would be considered less than significant.

Conclusion

The results of the HRA demonstrate that with incorporation of PDF-AQ-1 and after implementation of **MM-AQ-1**, which requires use of Tier 4 ~~interim~~ final equipment during construction, the TAC exposure from construction diesel exhaust emissions would result in cancer risk below the 10 in 1 million threshold and a Chronic Hazard Index greater less than 1.0. Therefore, impacts during construction would be less than significant after mitigation. Furthermore, the emergency generator would be subject to the ATCM and BAAQMD BACT requirements and would require minimal maintenance and testing, resulting in less than significant impacts during operation.

In addition, ROG and NO_x emissions, as described previously, would minimally contribute to regional O_3 concentrations and the associated health effects. In addition to O_3, NO_x emissions would not contribute to potential exceedances of the NAAQS and CAAQS for NO_2. As shown in Table 3.1-2, the existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards. Thus, it is not expected that the Project's operational NO_x emissions would result in exceedances of the NO_2 standards or contribute to the associated health effects. CO tends to be a localized impact associated with congested intersections. The associated CO "hotspots" were discussed previously as a less than significant impact. Thus, the Project's CO emissions would not contribute to significant health effects associated with this pollutant. PM_{10} and $PM_{2.5}$ would not contribute to potential exceedances of the NAAQS and CAAQS for particulate matter and would not obstruct the SFBAAB from coming into attainment for these pollutants and would not contribute to significant health effects associated with particulates. In addition, the Project would not expose sensitive receptors to substantial pollutant concentrations. Therefore, overall health impacts associated with criteria air pollutants would be considered less than significant.

Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Construction

Odors would be generated from vehicles and/or equipment exhaust emissions during construction of the Project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and asphalt pavement application. Such odors are temporary and for the types of construction activities anticipated for Project components, would generally occur at magnitudes that would not affect substantial numbers of people. Odors are highest near the source and would quickly dissipate. Therefore, impacts associated with odors during construction would be considered less than significant.

Operational

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, there are no quantitative or formulaic methodologies to determine if potential odors would have a significant impact. Examples of land uses and industrial operations that are commonly associated with odor complaints include agricultural uses, wastewater treatment plants, food processing facilities, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding facilities. In addition to the odor source, the distance between the sensitive receptor(s) and the odor source, as well as the local meteorological conditions, are considerations in the potential for a Project to frequently expose the public to objectionable odors. Although localized air quality impacts are focused on potential impacts to sensitive receptors, such as residences and schools, other land uses where people may congregate (e.g., workplaces) or uses with the intent to attract people (e.g., restaurants and visitor-serving accommodations) should also be considered in the evaluation of potential odor nuisance impacts. The Project would not include land uses that would generate objectionable odors, nor would it attract people to an area where there would be a potential for exposure to objectionable odors. The Project is not expected to produce any nuisance odors or place sensitive receptors next to existing objectionable odors; therefore, impacts related to odors caused by the Project during operations would be less than significant.

3.1.5 Laws, Ordinances, Regulations, and Statutes

3.1.5.1 Federal LORS

The federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the CAA, including the setting of National Ambient Air Quality Standards (NAAQS) for major air pollutants, hazardous air pollutant (HAP) standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions.

NAAQS are established by the EPA for "criteria pollutants" under the CAA, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The CAA requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan (SIP) that demonstrates how those areas will attain the standards within mandated time frames.

The EPA has also adopted technology-based standards that limit the emissions of criteria pollutants from new or modified facilities in specific source categories. These standards are referred to as New Source Performance Standards and are found in 40 Code of Federal Regulations (CFR) Part 60. The applicability of these standards depends on the equipment size or rating; material or fuel process rate; and/or the date of construction, modification, or reconstruction. In the event that emergency backup generators are required for Project facilities, the Project's diesel-powered emergency generators would be subject to Subpart IIII, which establishes emission and operational limits of criteria pollutants for new stationary compression ignition engines. To comply with the requirements of Subpart IIII, the Project's diesel-fired emergency generators would be operated and maintained as per the manufacturer specifications and would be certified to comply with Tier 4 emission rates.

3.1.5.2 State LORS

Criteria Air Pollutants

The federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the CAA, including the setting of National Ambient Air Quality Standards (NAAQS) for major air pollutants, hazardous air pollutant (HAP) standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions.

NAAQS are established by the EPA for "criteria pollutants" under the CAA, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The CAA requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan (SIP) that demonstrates how those areas will attain the standards within mandated time frames.

The EPA has also adopted technology-based standards that limit the emissions of criteria pollutants from new or modified facilities in specific source categories. These standards are referred to as New Source Performance Standards and are found in 40 Code of Federal Regulations (CFR) Part 60. The applicability of these standards depends on the equipment size or rating; material or fuel process rate; and/or the date of construction, modification, or reconstruction. In the event that emergency backup generators are required for Project facilities, the Project's diesel-powered emergency generators would be subject to Subpart IIII, which establishes emission and operational limits of criteria pollutants for new stationary compression ignition engines. To comply with the requirements of Subpart IIII, the Project's diesel-fired emergency generators would be operated and maintained as per the manufacturer specifications and would be certified to comply with Tier 4 emission rates.

Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment (HRA), and if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation was anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. Several Airborne Toxic Control Measures (ATCM) that reduce diesel emissions include In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025). CARB established the ATCM for Stationary Compression Ignition Engines (17 CCR Section 93115) to reduce diesel particulate matter (DPM) and criteria pollutant emissions from stationary diesel-fueled compression ignition engines through fuel requirements, operational restrictions, and emission limits.

3.1.5.3 Air Pollution Control District LORS

Bay Area Air Quality Management District

BAAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SFBAAB, where the Project Site is located. BAAQMD's clean air strategy includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient air quality and meteorological conditions, and implementation of programs and regulations required by the federal and California Clean Air Acts.

On April 19, 2017, BAAQMD adopted Spare the Air: Cool the Climate – Final 2017 Clean Air Plan (2017 Clean Air Plan; BAAQMD 2017a). The 2017 Clean Air Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the 2017 Clean Air Plan includes all feasible measures to reduce emissions of O_3 precursors (ROGs and NO_x) and reduce O_3 transport to neighboring air basins. In addition, the 2017 Clean Air Plan builds on BAAQMD efforts to reduce $PM_{2.5}$ and TACs. To protect the climate, the 2017 Clean Air Plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious GHG reduction targets for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets.

BAAQMD establishes and administers a program of rules and regulations to attain and maintain state and national air quality standards and regulations related to TACs. The rules and regulations that may apply to the Project include, but would not be limited to, the following:

- **Regulation 2, Rule 1 – Permits.** This rule specifies the requirements for authorities to construct and permits.
- **Regulation 6, Rule 1 – General Requirements.** This rule limits the quantity of particulate matter in the atmosphere through the establishment of limitations on emission rates, concentration, visible emissions, and opacity.
- **Regulation 6, Rule 3 – Wood-Burning Devices.** This rule limits the emissions of particulate matter and visible emissions from wood-burning devices used for primary heat, supplemental heat, or ambiance.
- **Regulation 6, Rule 6 – Prohibition of Trackout.** This rule addresses fugitive road dust emissions associated with trackout of solid materials onto paved public roads outside the boundaries of large bulk material sites, large construction sites, and large disturbed surface sites (sites of 1 acre or more).
- **Regulation 8, Rule 1 – General Provisions.** This rule limits the emission of organic compounds into the atmosphere.
- **Regulation 8, Rule 3 – Architectural Coatings.** This rule limits the quantity of ROGs in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the BAAQMD.
- **Regulation 8, Rule 15 – Emulsified and Liquid Asphalts.** This rule limits the emissions of ROGs caused by the use of emulsified and liquid asphalt in paving materials and paving and maintenance operations.

Table 4.1-13. Laws, Ordinances, Regulations, and Standards

LORS	Requirements/ Applicability	Administering Agency
Federal		
Clean Air Act	Establishes federal ambient air quality standards	USEPA
State		
Clean Air Act	Establishes state ambient air quality standards	CARB

Table 4.1-13. Laws, Ordinances, Regulations, and Standards

LORS	Requirements/ Applicability	Administering Agency
Local		
Bay Area Air Quality Management District Rules and Air Quality Management Plans	Regulates air pollutant emissions throughout the San Francisco Bay Area Air Basin	BAAQMD

3.1.6 Agency Jurisdiction and Contacts

~~No agencies were contacted directly to specifically discuss air quality impacts related to the proposed Project.~~

Table 4.1-14 provided below contains contact information for agencies related to air quality. The CARB contact have not been contacted previously regarding the project but has been identified as the appropriate contacts for Commission staff.

Table 4.1-14. Permits and Agency Contacts

Issue/Approval	Agency	Contact
Public exposure to air pollutants	California Air Resources Board	Steven S. Cliff, Executive Officer 1001 I Street, Sacramento, CA 95814 800. 242.4450
	Bay Area Air Quality Management District	Isis O. Virrueta Air Quality Engineer II (she/her) Bay Area Air Quality Management District Engineering Division ivirrueta@BAQMD.gov

3.1.7 Permit Requirements and Schedules

Pursuant to Assembly Bill 205 subsection 25545.1(b)(1), the CEC retains exclusive authority over permitting and supersedes any applicable statute, ordinance, or regulation of a local air quality management district. The Applicant and CEC would collaborate with the BAAQMD on review of this Opt-In Application to ensure compliance with BAAQMD rules and regulations.

3.1.8 References

BAAQMD. 2017a. *Spare the Air: Cool the Climate – Final 2017 Clean Air Plan.* April 19, 2017. Accessed May 2019. http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en.

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BAAQMD. 2023. *California Environmental Quality Act Air Quality Guidelines.* April 2023. Accessed August 2023. https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines.

CARB (California Air Resources Board). 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October 2000. Available: http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf. Accessed October 2023.

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EPA (U.S. Environmental Protection Agency). 2009. "Integrated Science Assessment for Particulate Matter." EPA/600/R-08/139F.

EPA. 2023a. "Criteria Air Pollutants." November 17, 2020. https://www.epa.gov/criteria-air-pollutants.

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