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State of California **California Natural Resources Agency**

M e m o r a n d u m

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Subject: **UPDATE TO AIR QUALITY SECTION OF FEIR; FOR THE CA3 BACKUP GENERATING FACILITY (CA3BGF) SMALL POWER PLANT EXEMPTION (21-SPPE-01)**

In compliance with the Committee's direction following the CA3 Evidentiary Hearing conducted on May 27, 2022, staff is providing an update to the Air Quality section of the final environmental impact report (FEIR); the attached revised section constitutes staff's update. Staff has developed this update in coordination with the applicant. The data refinements contained in this update provide additional clarity to staff's analysis in three main areas; to provide clearer definitions of the Bay Area Air Quality Management District's CEQA Guidelines' thresholds of significance, a more thorough explanation of the reduction in background emissions associated with the Caltrain electrification, and discussion of impacts from all stationary sources within 1,000 feet as opposed to 2,000 feet.

4.3 Air Quality

This section describes the environmental setting and regulatory background and discusses impacts specific to air quality associated with the demolition/construction, readiness testing and maintenance, and the potential for emergency operation of the CA3 Data Center (CA3DC) and the associated CA3 Backup Generating Facility (CA3BGF), known together as the project. It is important to note that intermittent and standby emitting sources, like those proposed in this project, could operate for emergency use, and such emergency operations would be infrequent and for unplanned circumstances, which are beyond the control of the project owner. Emergency operations and the impacts of air pollutants during emergencies are generally exempt from air district offsetting and modeling requirements. Emissions from emergency operations are not regular, expected, or easily quantifiable such that they cannot be modeled or predicted with certainty.

AIR QUALITY Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?	☐	☒	☐	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

4.3.1 Summary

In this analysis, CEC staff (staff) concludes that, with the implementation of mitigation measure **AQ-1** and oxides of nitrogen (NOx) emissions fully offset through the permitting process with Bay Area Air Quality Management District (BAAQMD), the project would not have a significant impact on air quality. Staff analyzes two primary types of air emissions: (1) criteria pollutants, which have health-based ambient air quality standards (AAQS); and (2) toxic air contaminants (TACs), which are identified as potentially harmful even at low levels and have no established safe levels or health-based AAQS. The project would be constructed in two phases, with Phase I including demolition, grading, the installation of utility services, the construction of an on-site substation, the construction of the entire shell of the CA3DC building, and placement of approximately one-half of the gensets, and Phase II including the interior buildout and placement of the emergency backup generators for the second half of the CA3DC building (CEC 2022a). Staff analyzes the project's impacts on air quality during demolition/construction, routine operation, and the potential for emergency operation of the emergency backup generators (gensets). Staff also analyzes the potential cumulative effects of the project on air quality.

4.3.1.1 Significance Criteria

This air quality evaluation assesses the degree to which the project would potentially cause a significant impact according to the California Environmental Quality Act (CEQA) guidelines. BAAQMD is the local air district responsible for the attainment and maintenance of the federal and state AAQS and associated program requirements at the project location. The analysis is based upon the methodologies and related thresholds of significance in BAAQMD's May 2017 CEQA Air Quality Guidelines (BAAQMD 2017b) to determine the significance of the potential air quality emissions and impacts. These methodologies include qualitative determinations and the quantification of whether project construction or operation would exceed numeric emissions and health risk thresholds (BAAQMD 2017b).

BAAQMD CEQA Guidelines project-level thresholds of significance ("BAAQMD significance thresholds") for criteria pollutants and precursor pollutants and the health risks of TACs that apply during construction and operation are shown in **Table 4.3-1**. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the Bay Area region's existing air quality conditions. Staff evaluates project emissions against the BAAQMD significance thresholds under environmental checklist criterion "b."

For fugitive dust emissions during construction periods, the BAAQMD CEQA Guidelines do not have a significance threshold. Rather, BAAQMD recommends using a current Best Management Practices (BMPs) approach, which has been a pragmatic and effective approach to the control of fugitive dust emissions.

Staff also evaluates the project's potential to expose sensitive receptors to substantial pollutant concentrations under environmental checklist criterion "c." Staff addresses both the ambient air quality impacts of criteria pollutants, which have health-based standards, and the impacts of TACs, which are identified as potentially harmful even at low levels and have no established safe levels or health-based ambient air quality standards.

The analysis includes ambient air quality impact modeling for demolition/construction and operation, which consists of readiness testing and maintenance, of the proposed diesel-fueled gensets to estimate the air quality impacts caused by the emissions. The AAQS, shown in **Table 4.3-2**, are health protective values, so staff uses these health-based regulatory standards to help define what is considered a substantial pollutant concentration for criteria pollutants.[1] Staff's analysis determines whether the project would be likely to exceed any AAQS or contribute substantially to an existing or projected air quality violation, and, if necessary, proposes mitigation to reduce or eliminate these pollutant exceedances or substantial contributions.

TABLE 4.3-1 BAAQMD THRESHOLDS OF SIGNIFICANCE

Pollutant	Construction	Operation	
	Average Daily Emissions (lbs/day)	**Average Daily Emissions (lbs/day)**	**Maximum Annual Emissions (tpy)**
ROG	54	54	10
NOx	54	54	10
PM10	82 (exhaust)	82	15
PM2.5	54 (exhaust)	54	10
PM10/ PM2.5 (fugitive dust)	Best Management Practices	None	
Local CO	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
Risk and Hazards for New Sources and Receptors (Individual Project)	Same as Operation Threshold	Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of >10.0 in a million Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute) Ambient PM2.5 increase: > 0.3 $\mu g/m^3$ annual average Zone of Influence: 1,000-foot radius from property line of source or receptor	
Risk and Hazards for New Sources and Receptors (Cumulative Threshold)	Same as Operation Threshold	Compliance with Qualified Community Risk Reduction Plan OR Cancer: > 100 in a million (from all local sources) Non-cancer: > 10.0 Hazard Index (from all local sources) (Chronic) PM2.5: > 0.8 $\mu g/m^3$ annual average (from all local sources) Zone of Influence: 1,000-foot radius from property line of source or receptor	

Source: BAAQMD 2017b, Table 2-1

Significance criteria also include Significant Impact Levels (SILs) for the particulate matter portions of the analysis. Regulatory agencies have traditionally applied SILs as a de minimis value, which represents the off-site concentration predicted to result from a source's emissions that does not warrant additional analysis or mitigation. If a source's modeled impacts at any off-site location do not exceed relevant SILs, the source owner

1 This approach provides a complete analysis that describes the foreseeable effects of the project in relation to all potential air quality related health impacts, including impacts of criteria pollutants to sensitive receptors; and therefore, addresses the California Supreme Court December 2018 *Sierra Club v. County of Fresno* opinion (https://www.courts.ca.gov/opinions/archive/S219783A.PDF).

would typically not need to assess multi-source or cumulative air quality to determine whether or not that source's emissions would cause or contribute to a violation of the relevant National Ambient Air Quality Standard (NAAQS) or California Ambient Air Quality Standard (CAAQS). In the project's vicinity, based on data from the local San Jose-Jackson Street air quality monitoring station about 4.6 miles east-southeast of the project site, shown in **Table 4.3-4**, the background levels of particulate matter of 10 micrometers or less in diameter (PM10) and particulate matter of 2.5 micrometers and smaller in diameter (PM2.5) already exceed the 24-hour and annual AAQS even before accounting for the project's emissions. Staff compares the project's contribution to local criteria pollutant concentrations to SILs to determine whether the project's emissions would contribute significantly to those exceedances.

BAAQMD does not have significance criteria in terms of PM10 concentrations or 24-hour concentrations of PM2.5. To determine if the project could contribute substantially to the existing PM10 exceedances, this analysis relies on the United States Environmental Protection Agency (U.S. EPA) PM10 SILs established in federal regulations for non-attainment areas (40 CFR 51.165(b)(2)) for 24-hour impacts (5 $\mu g/m^3$) and for annual impacts (1 $\mu g/m^3$). The same federal regulation (40 CFR 51.165(b)(2)) also established the U.S. EPA PM2.5 SILs concentrations for 24-hour impacts (1.2 $\mu g/m^3$) and for annual impacts (0.3 $\mu g/m^3$).

- The BAAQMD significance threshold for a project-level increase in annual PM2.5 concentrations is also 0.3 micrograms per cubic meter ($\mu g/m^3$), as shown in **Table 4.3-1**. However, in April 2018, the U.S. EPA issued *Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program* (U.S. EPA 2018a), which recommends PM2.5 SILs levels for 24-hour impacts to be 1.2 $\mu g/m^3$ (as in [40 CFR 51.165(b)(2)]) and for annual impacts to be 0.2 $\mu g/m^3$ (lower than 0.3 $\mu g/m^3$). Note that the U.S. EPA SILs values are all based on the forms of the applicable NAAQS. For example, the 24-hour PM2.5 SILs of 1.2 $\mu g/m^3$ is based on the 98th percentile 24-hour concentrations averaged over three years. The annual PM2.5 SILs of 0.2 $\mu g/m^3$ is based on a three-year average of annual average concentrations. For this analysis, staff uses the U.S. EPA SILs as well as the BAAQMD CEQA Guidelines significance threshold to determine project impact significance of PM2.5 concentrations.

The health risks from the project's TACs emissions are compared with the BAAQMD significance thresholds for a single source. If risks to the maximally exposed sensitive receptors are below significance thresholds, then impacts to other receptors would also be below significance thresholds. Cumulative health risk assessment (HRA) results are also compared with the BAAQMD significance thresholds for cumulative risk and hazards. For HRA purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Therefore, there are two kinds of thresholds for TACs: cancer risk and non-cancer risk. Cancer risk is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure. Acute and chronic exposure to non-carcinogens is expressed as a hazard index (HI), which is the ratio of expected exposure levels to acceptable reference exposure levels (REL) for each of the TACs with acute and chronic health effects. The significance thresholds for TACs and PM2.5 are listed in **Table 4.3-1** and summarized in the following text (BAAQMD 2017b).

CEQA requires staff to consider: "whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable," [CEQA Guidelines § 15064(h)(1)]. The following paragraphs show the two sets of thresholds used by staff in the assessment of: (1) whether the effects of the project are cumulatively considerable; and (2) the significance of the cumulative impact for public health.

The BAAQMD recommends that operational-related TAC and PM2.5 emissions generated by a single source would be a significant impact and a cumulatively considerable contribution to local community risk and hazard impacts if emissions would cause impacts or cancer risks that would exceed the following thresholds (BAAQMD 2017b, pp.5-3 and 5-4)~~significance thresholds for a single source are as follows~~:

- An excess lifetime cancer risk level of more than 10 in one million.
- A non-cancer chronic HI greater than 1.0.
- A non-cancer acute HI greater than 1.0.
- An incremental increase in the annual average PM2.5 concentration of greater than 0.3 μg/m^3.

The BAAQMD CEQA Guidelines significance thresholds for cumulative impacts are also summarized below. Following the BAAQMD CEQA Guidelines (BAAQMD 2017b, p.5-16),~~A project would have a~~the cumulativel~~y considerable~~ impact would be significant if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot distance from the fence line of a source and the contribution from the project, exceeds the following:

- An excess lifetime cancer risk level of more than 100 in one million.
- A non-cancer chronic HI greater than 10.0.
- An annual average PM2.5 concentration of greater than 0.8 μg/m^3.

Additionally, if a project would not exceed the BAAQMD significance thresholds discussed above, then a project would also be consistent with and not have any impact on BAAQMD's Bay Area 2017 Clean Air Plan. This plan provides a regional strategy to protect public health and the climate, and it defines an integrated, multipollutant control strategy to reduce emissions of particulate matter, TACs, ozone and key ozone precursors, and greenhouse gases (GHG). The environmental checklist criterion "a" in this air quality analysis addresses the consistency of the project with BAAQMD's Bay Area 2017 Clean Air Plan.

4.3.1.2 Criteria Pollutants (including Fugitive Dust)

i. Construction

Under environmental checklist criterion "b," staff explains that construction-phase emissions are a result of construction equipment, material movement, paving activities, and on-site and off-site vehicle trips, such as material haul trucks, worker commutes, and delivery vehicles. The project would be constructed in two phases, with Phase I including demolition, grading, the installation of utility services, the construction of an on-site substation, the construction of the entire shell of the CA3DC building, and placement of approximately one-half of the gensets and Phase II including the interior buildout and placement of the emergency backup generators for the second half of the CA3DC building. Project construction would occur for a total of about 22 months.

As shown in **Table 4.3-5**, the project's average daily criteria pollutant emissions during construction would be lower than the relevant numeric BAAQMD significance thresholds. There is no numerical threshold for fugitive dust generated during construction. The BAAQMD CEQA Guidelines recommend the control of fugitive dust through BMPs to conclude that impacts from fugitive dust emissions are less than significant (BAAQMD 2017b). Staff recommends **AQ-1**, which incorporates the project applicant's proposed measures that would include BAAQMD's recommended construction BMPs and exhaust emissions mitigation measures. With the implementation of **AQ-1**, the fugitive dust impacts from construction would be less than significant.

Under environmental checklist criterion "c," staff also analyzes the localized impacts of construction criteria pollutant emissions by comparing them with the AAQS. As shown in **Table 4.3-7**, staff finds that construction emissions would not contribute to any exceedance of the AAQS, except to the preexisting exceedances of PM10 and PM2.5. For PM10 and PM2.5, the project's contributions to the concentrations of PM10 and PM2.5 at sensitive receptor locations would be below the relevant SILs. Therefore, the project would not expose sensitive receptors to substantial criteria pollutant concentrations during construction. Construction is considered short-term, and construction impacts would be further reduced with the implementation of **AQ-1**, which includes BAAQMD's recommended construction BMPs and exhaust emissions mitigation measures.

With the implementation of **AQ-1**, criteria pollutant and fugitive dust emissions from project construction would not exceed any BAAQMD CEQA Guidelines significance threshold, cause a cumulatively considerable net increase of any criteria pollutant, conflict with or obstruct any applicable regional or local air quality plan, or expose sensitive receptors to substantial criteria pollutant concentrations, and would, thus, be less than significant.

ii. Operation and Maintenance

Staff evaluates criteria pollutant emissions from operation and maintenance in two sections: (A) "routine operation" emissions including, among other things, emissions from readiness testing and maintenance of the 44 gensets; and (B) "emergency operation" emissions from using the gensets to support the electricity demand of the project.

(A) Routine Operation

Under environmental checklist criterion "b," staff concludes that criteria pollutant emissions from the project's routine operation would be less than significant with NOx emissions fully offset through the permitting process with BAAQMD. Routine operation of the project would generate criteria pollutant emissions from readiness testing and maintenance of the 44 gensets, off-site vehicle trips for worker commutes and material deliveries, and facility upkeep, such as architectural coatings, consumer product use, landscaping, water use, waste generation, natural gas use for comfort heating, and electricity use.

As shown in **Table 4.3-6**, staff finds that the project's total annual and average daily emissions of criteria pollutants from routine operation would be below the BAAQMD CEQA Guidelines significance thresholds, except for NOx emissions. The project's gross total NOx emissions would exceed BAAQMD significance thresholds and could, therefore, contribute to a cumulatively considerable net increase of NOx emissions. However, during BAAQMD's permitting process, BAAQMD will require the applicant to fully offset its NOx emissions. With NOx emissions fully offset, the project's total net annual and average daily emissions would not exceed any of the BAAQMD significance thresholds.

The project would also emit ammonia from the urea used in the selective catalytic reduction (SCR) system. There is no BAAQMD threshold for ammonia, which is not a criteria pollutant but instead a precursor to particulate matter. Because the project's primary emissions of particulate matter are well below the BAAQMD CEQA Guidelines significance thresholds, secondary particulate matter impacts from the project's ammonia emissions of 0.29 tons per year (tpy) would be less than significant and not require additional mitigation or offsets.

Under environmental checklist criterion "c," staff also analyzes the localized impacts of the project's criteria pollutant emissions during readiness testing and maintenance of the gensets by comparing them with the AAQS. As shown in **Table 4.3-8**, staff finds that the project's routine operation emissions would not contribute to any exceedance of any AAQS, except to the preexisting exceedances of PM10 and PM2.5. However, staff finds that the project's contributions to concentrations of PM10 and PM2.5 would be below the relevant SILs, and, therefore, would not expose sensitive receptors to substantial criteria pollutant concentrations.

Staff concludes that, with NOx emissions fully offset through the BAAQMD permitting process, criteria pollutant emissions from routine operation of the project would not exceed any BAAQMD CEQA Guidelines significance threshold, cause a cumulatively considerable net increase of any criteria pollutant, conflict with or obstruct any applicable regional or local air quality plan, or expose sensitive receptors to substantial criteria pollutant concentrations, and would, thus, be less than significant.

(B) Emergency Operation

The emergency use of the gensets could occur in the event of a power outage or other disruption, upset, or instability that triggers a need for the project to use emergency backup power.

(1) Criteria Pollutant Emissions from Emergency Operation

As discussed under environmental checklist criterion "b," the BAAQMD 2019 policy, *Calculating Potential to Emit for Emergency Backup Power Generators*, requires a facility's potential to emit (PTE) to be calculated based on emissions proportional to emergency operation for 100 hours per year per genset, in addition to the permitted limits for readiness testing and maintenance (BAAQMD 2019). However, after comparing the PTE calculated to determine the account eligibility threshold, the applicant would only be required to offset permitted emissions from readiness testing and maintenance and not the emissions from emergency operation. BAAQMD requires the use of offsets to counterbalance increases in regular and predictable emissions, not increases in emissions occurring infrequently when emergency conditions arise.

In addition, emissions during routine operation are conservatively estimated with the assumption of 35 hours of readiness testing and maintenance per year per engine. As discussed in **Section 4.8 Greenhouse Gas Emissions**, the project applicant would probably need to limit the readiness testing and maintenance to 20 hours per year per engine to lower the GHG emissions to the pending, still-to-be-adopted BAAQMD CEQA GHG threshold of significance of 2,000 metric tons of carbon dioxide equivalent per year ($MTCO_2e$/yr) if applicable at the time of permitting. However, other data center project applicants previously have stated that routine testing and maintenance would rarely exceed 12 hours per year. Based on the evidence about the likelihood and duration of emergency operation, the allowance of 20 (or 35) hours per engine per year likely accommodates the average annual emergency operation emissions. Thus, staff concludes that the project would be unlikely to cause a cumulatively considerable net increase of any criteria pollutant.

(2) Criteria Pollutant Impacts from Emergency Operation

As discussed in detail under ***Emergency Operations Impacts for Criteria Pollutants*** under environmental checklist criterion "c," the air quality impacts of genset operation during emergencies are not quantified below because the impacts of emergency operations are typically not evaluated during facility permitting and local air districts do not normally conduct an air quality impact assessment of such impacts. Staff assessed the likelihood of emergency events but finds that assessing the air quality impacts of emergency operations would require a host of unvalidated, unverifiable, and speculative assumptions about when and under what circumstances such a hypothetical emergency would occur. Such a speculative analysis is not required under CEQA (CEQA Guidelines §§ 15064(d)(3) and 15145), and, most importantly, would not provide meaningful information by which to determine project impacts. If emergency operation becomes a more frequent occurrence and more data is gathered regarding when and how these facilities operate during emergency situations, this conclusion might change.

Staff reviewed the BAAQMD comments on the Notice of Preparation (NOP) regarding the use of diesel engines for "non-testing/non-maintenance" purposes (BAAQMD 2021b) and confirmed that these types of events are infrequent, irregular, and unlikely and the resulting emissions are not easily predictable or quantifiable. See more detailed discussion under ***Emergency Operations Impacts for Criteria Pollutants*** under environmental checklist criterion "c."

iii. Cumulative Impacts

Staff concludes that the project's criteria pollutant emissions would not be cumulatively significant. BAAQMD CEQA Guidelines state that if a project's daily average or annual emissions of operational-related criteria pollutants or precursors do not exceed any BAAQMD threshold of significance, as listed in **Table 4.3-1** above, the project would not result in a cumulatively significant impact. As explained above, staff finds that all the criteria pollutant emissions would be below the BAAQMD CEQA Guidelines thresholds of significance with the implementation of **AQ-1** and NOx emissions would be fully offset through the BAAQMD permitting process.

In addition, under environmental checklist criterion "c," staff performed a cumulative impacts analysis for annual PM2.5 impacts as part of a cumulative HRA. Staff concludes that the project's contribution to the annual PM2.5 concentrations would not be cumulatively significant.

Thus, staff concludes that the project's criteria pollutant emissions from the routine operation of the project would not be cumulatively significant.

4.3.1.3 Toxic Air Contaminants (TACs)

Under environmental checklist criterion "c," staff analyzes the potential impacts of the project's TAC emissions separately for construction and routine operation. Staff also analyzes the cumulative effects of the project's TAC emissions together with the impacts of other sources within 1,000 feet. Staff concludes that the individual and cumulative impacts from the project's TAC emissions would be less than significant.

Staff finds the health risks at ~~most~~ all sensitive receptor locations would be less than the BAAQMD CEQA Guidelines significance thresholds shown in **Table 4.3-1**. Staff concludes that the health risks from project construction and routine operation would not cause a cumulatively considerable contribution to local community risk and hazard impacts, ~~be less than significant~~ and the construction impact would be further reduced with the implementation of **AQ-1**.

Staff finds that significant cumulative health risks would not occur at sensitive receptor locations, and the project's contribution is not cumulatively considerable because the project effects would be less than the BAAQMD CEQA Guidelines significance thresholds shown in **Table 4.3-1**. Staff concludes that the effect of cumulative TAC emissions would be less than significant.

4.3.1.4 Background on Air Quality Evaluation

Criteria Pollutant Evaluation

California Air Resources Board (CARB) and U.S. EPA have each established federal and state AAQS for criteria pollutants. While both NAAQS and CAAQS apply to every location in California, typically the state standards are lower (i.e., more stringent) than federal standards. Air monitoring stations, usually operated by local air districts or CARB, measure the ambient air to determine an area's attainment status for NAAQS and CAAQS. Depending on the pollutant, the time over which these pollutants are measured varies from 1-hour, to 3-hours, to 8-hours, to 24-hours and to annual averages. Most criteria pollutants have ambient standards with more than one averaging time. Pollutant concentrations are expressed in terms of mass of pollution per unit volume of air, typically using micrograms for the mass portion of the expression and cubic meters of air for the volume, or "micrograms per cubic meter of air, expressed as "$\mu g/m^3$." The concentration can also be expressed as parts of pollution per million parts of air or "ppm." AAQS appear in Section 4.3.2 of this analysis.

Some forms of air pollution are primary air pollutants, which are gases and particles directly emitted from stationary and mobile sources. Other forms of air pollution are secondary air pollutants that result from complex interactions between primary pollutants, background atmospheric constituents, and other secondary pollutants. Some pollutants can be a combination of both primary and secondary formation, such as PM2.5. In this case, the primary pollutant component of PM2.5 is directly emitted from the stack of diesel-fueled engines and the secondary pollutant component of PM2.5 is formed in the air by the transformation of gaseous NOx and sulfur oxides (SOx) into particles. In this case, the NOx and SOx emissions are precursors to the formation of the secondary aerosol pollutant.

Emissions of NOx include nitric oxide (NO) and nitrogen dioxide (NO_2). In the case of stack emissions from diesel-fueled engines, approximately 90 percent of the NOx is in the form of NO while the remainder is directly emitted NO_2. The ambient standards are expressly for NO_2, not NO. Once these gases exit the stack, chemical reactions in the region downwind of the facility, meteorological conditions, and sunlight interact to convert the NO into NO_2, ozone, and particulates. Most ozone in the ambient air is not directly emitted. Rather, it is formed in the air when the NO to NO_2 reaction occurs, followed by a set of complex reactions including interactions with volatile organic compounds (VOC). BAAQMD uses the term precursor organic compounds (POC) instead of VOC.

California is divided into 35 local air districts. Some of these local governmental agencies are called "air quality management districts," while others are called "air pollution control districts." Generally, state law designates local air districts as having primary responsibility for the control of air pollution from all sources other than mobile sources while the control of vehicular air sources is the responsibility of CARB. (Health and Safety Code, §39002) Additionally, CARB is charged with coordinating efforts to attain and maintain CAAQS and NAAQS. (Health and Safety Code, §39003) Areas that meet the AAQS, based upon air monitoring measurements made by either the local air district or CARB, are classified as "attainment areas," and areas that have monitoring data that exceed AAQS are classified as "nonattainment areas." (Health and Safety Code, §39608) Additionally, any given area can be classified as attainment for some pollutants and nonattainment for others. Even for the same pollutant, an area can be attainment for one averaging time and nonattainment for another.

Air districts adopt rules and attainment and maintenance plans aimed at protecting public health and reducing emissions. (Health and Safety Code, §40001) Air districts incorporate these requirements into the State Implementation Plan (SIP), which CARB submits for approval to the U.S. EPA as the state's overall plan to come into attainment for federal NAAQS. (Health and Safety Code, §39602) Once a SIP is approved by the U.S. EPA and published in the Federal Register, the requirements in the SIP become federally enforceable. Consistency of the project with the applicable air quality management plan is addressed as part of environmental checklist criterion "a" in this air quality analysis.

For those facilities subject to CEC jurisdiction, the project is evaluated to determine whether it would be able to comply with all applicable local, state, and federal requirements. If the CEC is issuing the license, this analysis occurs during the review of the Application for Certification (AFC), with the local air district participating in this process by preparing a Determination of Compliance (DOC). However, since this project is going through an exemption to the AFC process under the Small Power Plant Exemption, the DOC is not prepared. If the proposed generating capacity is 50 megawatts (MW) to

100 MW, the CEC conducts a CEQA review before allowing the project to be exempt from CEC's AFC licensing. Once the CEC's jurisdictional process is approved, the local air district would then implement its permit review process and, if the proposed facility meets local air district requirements, an operating permit would be issued by that air district.

The local air district's New Source Review (NSR) program does the following: (1) defines the facility's potential-to-emit; (2) determines whether the sources would achieve minimum performance standards; (3) assesses whether the sources would achieve the Best Available Control Technology (BACT) requirements; and (4) determines whether the project would trigger offset requirements. These issues are addressed as part of environmental checklist criterion "b" in this air quality analysis.

Non-Criteria Pollutant Evaluation

Non-criteria pollutants that are typically evaluated are airborne toxic pollutants identified to have potential harmful human health impacts. Evaluations assess the potential risks from TACs and hazardous air pollutants (HAPs). TACs include toxic air pollutants identified by CARB, and HAPs include toxic air pollutants identified at the federal level. Most toxic air pollutants do not have AAQS; however, AAQS have been established for a few pollutants. Since TACs have no AAQS that specify health-based levels considered safe for everyone, a HRA is used to determine if people might be exposed to those types of pollutants at unhealthy levels.

TACs are separated into "carcinogens" and "non-carcinogens" based on the nature of the physiological effects associated with exposure. There are two types of thresholds for TACs: cancer risk and non-cancer risk. Cancer risk is expressed as excess cancer cases per 1 million exposed individuals, typically over a lifetime of exposure. Acute and chronic exposure to non-carcinogens is expressed as a HI, which is the ratio of expected exposure levels to acceptable REL for each of the TACs associated with acute and chronic health effects.

The impact evaluation of toxic pollutants focuses on the project's incremental impact due to diesel particulate matter (DPM) exhaust from construction equipment and from the stacks of the diesel-fueled gensets. That is because DPM is the primary TAC of concern. This issue is addressed as part of environmental checklist criterion "c" in this air quality analysis.

Odor Impact Evaluation

Aside from criteria pollutants and TACs, impacts may arise from other emissions, notably related to odor. This issue is addressed as part of environmental checklist criterion "d" in this air quality analysis.

4.3.2 Environmental Setting

The proposed project is proposed to be located at 2590 Walsh Avenue in Santa Clara. The property is irregularly shaped and is bounded on the northwest by an existing microelectronics testing facility, on the northeast by a software research and development facility, on the south by an operational CalTtrain rail line, on the east by Walsh Avenue, and on the west by an existing Silicon Valley Power (SVP) substation (Uranium Substation). The Vantage Santa Clara Data Center Campus CA1 is east across Walsh Avenue.

Refer to the **Section 3 Project Description** for further details regarding the project.

Criteria Pollutants

The U.S. EPA and the CARB have established AAQS for several pollutants based on their adverse health effects. The U.S. EPA has set NAAQS for ozone (O_3), carbon monoxide (CO), NO_2, PM10, PM2.5, sulfur dioxide (SO_2), and lead (Pb). These pollutants are commonly referred to as "criteria pollutants." Primary standards were set to protect public health; secondary standards were set to protect public welfare against visibility impairment, damage to animals, crops, vegetation, and buildings. In addition, CARB has established CAAQS for these pollutants, as well as for sulfate (SO_4), visibility reducing particles, hydrogen sulfide (H_2S), and vinyl chloride. CAAQS are generally stricter than NAAQS. The standards currently in effect in California and relevant to the project are shown in **Table 4.3-2**.

TABLE 4.3-2 NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards [a]	National Standards [b]	
			Primary	Secondary
O_3	1-hour	0.09 ppm (180 µg/m^3)	—	Same as Primary Standard
	8-hour	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)	
PM10	24-hour	50 µg/m^3	150 µg/m^3	Same as Primary Standard
	Annual Mean	20 µg/m^3	—	
PM2.5	24-hour	—	35 µg/m^3	Same as Primary Standard
	Annual Mean	12 µg/m^3	12 µg/m^3	15 µg/m^3
CO	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	—
	8-hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	—
NO_2	1-hour	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3) [c]	—
	Annual Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary Standard
SO_2 [d]	1-hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)	—
	3-hour	—	—	0.5 ppm (1,300 µg/m^3)
	24-hour	0.04 ppm (105 µg/m^3)	0.14 ppm (for certain areas) [d]	—
	Annual Mean	—	0.030 ppm (for certain areas) [d]	—

Notes: ppm=parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter; "—" = no standard

[a] California standard for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded.

[b] National standards (other than O_3, PM, NO_2 [see note c below], and those based on annual arithmetic mean) are not to be exceeded more than once a year. The 8-hour O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. The 24-hour PM10 standard of 150 µg/m^3 is not to be exceeded more than once per year on average over a 3-year period. The 24-hour PM2.5 standard is attained when the 3-year average of 98th percentile concentration is less than or equal to 35 µg/m^3.

[c] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.100 ppm.

[d] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The previous SO_2 standards (24-hour and annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is a U.S. EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

Sources: BAAQMD 2021a, U.S. EPA 2021a

Attainment Status and Air Quality Plans

The U.S. EPA, CARB, and the local air districts classify an area as attainment, unclassified, or nonattainment, depending on whether the monitored ambient air quality data show compliance, insufficient data are available, or non-compliance with the AAQS, respectively. The proposed project would be in Santa Clara County in the San Francisco Bay Area Air Basin (SFBAAB), under the jurisdiction of BAAQMD. **Table 4.3-3** summarizes attainment status for the relevant criteria pollutants in the SFBAAB with both NAAQS and CAAQS.

TABLE 4.3-3 ATTAINMENT STATUS FOR SFBAAB

Pollutant	Averaging Time	State Designation	Federal Designation
O_3	1-hour	Nonattainment	—
	8-hour	Nonattainment	Nonattainment
PM10	24-hour	Nonattainment	Unclassified
	Annual	Nonattainment	—
PM2.5	24-hour	—	Nonattainment [a]
	Annual	Nonattainment	Unclassifiable/attainment [b]
CO	1-hour	Attainment	Attainment
	8-hour	Attainment	Attainment
NO_2	1-hour	Attainment	Unclassifiable/Attainment
	Annual	Attainment	Attainment
SO_2	1-hour	Attainment	Attainment/Unclassifiable [c]
	24-hour	Attainment	— [d]
	Annual	—	— [d]

Notes:

[a] On January 9, 2013, U.S. EPA issued a final rule to determine that the Bay Area attains the 24-hour PM2.5 national standard (U.S. EPA 2013). This U.S. EPA rule suspends key SIP requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this U.S. EPA action, the Bay Area will continue to be designated as "non-attainment" for the national 24-hour PM2.5 standard until such time as the BAAQMD submits a "redesignation request" and a "maintenance plan" to U.S. EPA, and U.S. EPA approves the proposed redesignation.

[b] In December 2012, U.S. EPA strengthened the annual PM2.5 NAAQS from 15.0 to 12.0 $\mu g/m^3$. In December 2014, U.S. EPA issued final area designations for the 2012 primary annual PM2.5 NAAQS (U.S. EPA 2014). Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

[c] On January 9, 2018, U.S. EPA issued a final rule to establish the initial air quality designations for certain areas in the U.S. for the 2010 SO_2 primary NAAQS (U.S. EPA 2018b). This final rule designated the SFBAAB as attainment/unclassifiable for the 2010 SO_2 primary NAAQS.

[d] See noted under **Table 4.3-2**.

Sources: CARB 2021a, BAAQMD 2021a, U.S. EPA 2013, U.S. EPA 2014, U.S. EPA 2018b

Overall air quality in the SFBAAB is better than most other developed areas in California, including the South Coast, San Joaquin Valley, and Sacramento air basin regions. This is due to a more favorable climate with cooler temperatures and regional air flow patterns that transport pollutants emitted in the air basin out of the air basin. Although air quality improvements have occurred, violations and exceedances of the state ozone and PM standards continue to persist in the SFBAAB, and still pose challenges to CARB and local air districts (CARB 2013). The project area's proximity to both the Pacific Ocean and the San Francisco Bay has a moderating influence on the climate. This portion of the Santa Clara Valley is bounded by the San Francisco Bay to the north, the Santa Cruz Mountains to the southwest and west, and the Diablo Range to the northeast. The surrounding terrain greatly influences winds in the valley, resulting in a prevailing wind that flows along the Santa Clara Valley's northwest-southeast axis.

Pollutants in the air can cause health problems, especially for children, the elderly, and people with heart or lung problems. Healthy adults may experience symptoms during periods of intense exercise. Pollutants can also cause damage to vegetation, animals, and property.

Existing Ambient Air Quality

The nearest background ambient air quality monitoring station to the project is the San Jose-Jackson Street station, which is about 4.6 miles east-southeast of the project site. **Table 4.3-4** presents the air quality monitoring data from the San Jose-Jackson Street monitoring station from 2016 to 2020, the most recent years for which data are available. Data in this table that are marked in **bold** indicate that the most-stringent current standard was exceeded during that period.

TABLE 4.3-4 AMBIENT AIR QUALITY MONITORING DATA

Pollutant	Averaging Time	2016	2017	2018	2019	2020
O_3 (ppm)	1-hour	0.087	**0.121**	0.078	**0.095**	**0.106**
	8-hour	0.066	**0.098**	0.061	**0.081**	**0.085**
PM10 (µg/m^3)	24-hour	41	**70**	**121.8**	**77.1**	**137.1**
	Annual	18.5	**21.3**	**23.1**	19.1	**24.8**
PM2.5 (µg/m^3)	24-hour (98th percentile)	19	34.3	**73.4**	20.6	**56.1**
	Annual	8.4	9.5	**12.9**	9.1	11.5
NO_2 (ppb)	1-hour (maximum)	51.1	67.5	86.1	59.8	51.9
	1-hour (98th percentile)	42	50	59	52	45
	Annual	11.26	12.24	12.04	10.63	9
CO (ppm)	1-hour	2	2.1	2.5	1.7	1.9
	8-hour	1.4	1.8	2.1	1.3	1.5
SO_2 (ppb)	1-hour (maximum)	1.8	3.6	6.9	14.5	2.9
	1-hour (99th percentile)	2	3	3	2	2
	24-hour	0.8	1.1	1.1	1.5	0.8

Notes: All data from San Jose-Jackson Street monitoring station.
Concentrations in **bold** type are those that exceed the limiting ambient air quality standard.
Sources: CARB 2021b, U.S. EPA 2021b

The maximum concentration values listed in **Table 4.3-4** have not been screened to remove values that are designated as exceptional events. Violations that are the result of exceptional events, such as wildfires, are normally excluded from consideration as AAQS violations. Exceptional events undoubtedly affected many of the maximum concentration values in recent years, especially between September to mid-November during wildfire activity. The ozone, PM10, and PM2.5 in 2017, 2018, and 2020 illustrate the effect of events like the extensive northern California wildland fires.[2] Even though fires tended to be far from the monitoring stations, the blanket of smoke and adverse air quality most likely affected air monitoring stations in the urban areas surrounding the project. For a conservative analysis, staff uses the background ambient air quality concentrations from 2018 to 2020 to represent the baseline condition at the project site.

Health Effects of Criteria Pollutants

Below are descriptions of the health effects of criteria pollutants that are a concern in the regional study area. Health and Safety Code, section 39606 requires CARB to adopt ambient air quality standards at levels that adequately protect the health of the public, including infants and children, with an adequate margin of safety. Ambient air quality standards define clean air (CARB 2021c).

Ozone. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and NOx, including NO_2. ROG and NOx are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight.

Ozone can cause the muscles in the airways to constrict, trapping air in the alveoli, potentially leading to wheezing and shortness of breath. Ozone can make it more difficult to breathe deeply and vigorously; cause shortness of breath and pain when taking a deep breath; cause coughing and sore or scratchy throat; inflame and damage the airways; aggravate lung diseases, such as asthma, emphysema, and chronic bronchitis; increase the frequency of asthma attacks; make the lungs more susceptible to infection; continue to damage the lungs even when the symptoms have disappeared; and cause chronic obstructive pulmonary disease. Long-term exposure to ozone is linked to the aggravation of asthma and is likely to be one of many causes of asthma development. Long-term exposures to higher concentrations of ozone may also be linked to permanent lung damage, such as abnormal lung development in children. The inhalation of ozone causes inflammation and irritation of the tissues lining human airways, causing, and worsening a variety of symptoms, and exposure to ozone can reduce the volume of air that the lungs breathe in and cause shortness of breath.

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2 Wildfires also emit substantial amounts of volatile and semi-volatile organic materials and nitrogen oxides that form ozone and organic particulate matter (NOAA 2019).

People most at risk for adverse health effects from breathing air containing ozone include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers. Children are at greatest risk from exposure to ozone because their lungs are still developing and they are more likely to be active outdoors when ozone levels are high, which increases their exposure. Studies show that children are no more or less likely to suffer harmful effects than adults; however, children and teens may be more susceptible to ozone and other pollutants because they spend nearly twice as much time outdoors and engage in vigorous activities compared to adults. Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults and are less likely than adults to notice their own symptoms and avoid harmful exposures.

Particulate Matter. PM10 and PM2.5 represent size fractions of particulate matter that can be inhaled into air passages and the lungs and can cause adverse health effects. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly or can contain absorbed gases (e.g., chlorides or ammonium) that may be injurious to health. The health effects of particulate matter may include cardiovascular effects, such as cardiac arrhythmias and heart attacks, and respiratory effects, such as asthma attacks and bronchitis. Particulates can also reduce visibility.

Nitrogen Dioxide. Breathing air with a high concentration of NO_2 can irritate airways in the human respiratory system. Such exposures over short periods (as represented by the 1-hour standards) can aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions, and visits to emergency rooms. Longer exposures to elevated concentrations of NO_2 (as represented by the annual standards) may contribute to the development of asthma and potentially increase susceptibility to respiratory infections. People with asthma, as well as children and the elderly, are generally at greater risk for the health effects of NO_2. NOx (includes NO_2 and NO) reacts with other chemicals in the air and sunlight to form both particulate matter and ozone.

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

Sulfur Dioxide. SO_2 is produced through the combustion of sulfur or sulfur-containing fuels, such as coal. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter (PM10 and PM2.5) and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain.

Lead. Lead has a range of adverse neurotoxin health effects and previously was predominately released into the atmosphere primarily via the combustion of leaded gasoline. The phase-out of leaded gasoline has resulted in decreasing levels of atmospheric lead.

Toxic Air Contaminants

Health and Safety Code, section 39655 defines a toxic air contaminant as "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health." In addition, substances that have been listed as HAPs pursuant to 42 U.S.C. section 7412 are TACs under the state law pursuant to Health and Safety Code, section 39657 (b). CARB formally identified HAPs in California Code of Regulations, Title 17, section 93001 (OEHHA 2021). TACs, also referred to as HAPs or air toxics, are different from criteria pollutants, such as ground-level ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. Criteria pollutants are regulated using NAAQS and CAAQS, as noted above. However, there are no ambient standards for most TACs[3] so site-specific HRAs are conducted to evaluate whether risks of exposure to TACs create an adverse impact. Specific TACs have known acute, chronic, and cancer health impacts. CARB has identified TACs in California Code of Regulations, Title 17, sections 93000 and 93001. The nearly 200 regulated TACs include asbestos, organic chemical compounds, and inorganic chemical compounds and compound categories, diesel exhaust, and certain metals. The requirements of the Air Toxic "Hot Spots" Information and Assessment Act of 1987 (Health and Safety Code, sec. 44300 et. seq) apply to facilities that emit these listed TACs above regulated threshold quantities.

Health Effects of TACs

The health effects associated with TACs are quite diverse and generally are assessed locally rather than regionally. TACs could cause long-term health effects, such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term effects, such as eye watering, respiratory irritation (a cough), runny nose, throat pain, and headaches (BAAQMD 2017b, pg. 5-1). Numerous other health effects also have been linked to exposure to TACs, including heart disease, Sudden Infant Death Syndrome, respiratory infections in children, lung cancer, and breast cancer (OEHHA 2015).

The primary on-site TAC emission sources for the CA3BGF would be diesel engines, including engines in vehicles and equipment used during construction and stationery genset engines during readiness testing and maintenance. Diesel exhaust is a complex mixture of thousands of gases and fine particles and contains over 40 substances listed by the U.S. EPA as HAPs and by CARB as TACs. The solid material in diesel exhaust is known as DPM (CARB 2021d).

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3 Ambient air quality standards for TACs exist for lead (federal and state standards), hydrogen sulfide (state standard), and vinyl chloride (state standard).

DPM has been the accepted surrogate for whole diesel exhaust since the late 1990s. CARB identified DPM as the surrogate compound for whole diesel exhaust in its Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant staff report in April 1998 (Appendix III, Part A, Exposure Assessment [CARB 1998]). DPM is primarily composed of aggregates of spherical carbon particles coated with organic and inorganic substances. Diesel exhaust deserves particular attention mainly because of its ability to induce serious noncancerous effects and its status as a likely human carcinogen. Diesel exhaust is also characterized by CARB as "particulate matter from diesel-fueled engines." The impacts from human exposure would include both short and long-term health effects. Short-term effects can include increased coughing, labored breathing, chest tightness, wheezing, and eye and nasal irritation. Effects from long-term exposure can include increased coughing, chronic bronchitis, reductions in lung function, and inflammation of the lung. Epidemiological studies strongly suggest a causal relationship between occupational diesel exhaust exposure and lung cancer. Diesel exhaust is listed by the U.S. EPA as "likely to be carcinogenic to humans" (U.S. EPA 2002).

Sensitive Receptors

Sensitive receptors are defined as groups of individuals that may be more susceptible to health risks due to chemical exposure. Sensitive individuals, such as infants, the aged, and people with specific illnesses or diseases, are the subpopulations that are more sensitive to the effects of toxic substance exposure. Examples of sensitive receptors include residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. Residences could include houses, apartments, and senior living complexes. Medical facilities could include hospitals, convalescent homes, and health clinics. Playgrounds could be play areas associated with parks or community centers (BAAQMD 2017b, pg. 5-8). The potential sensitive receptor locations evaluated in the HRA for CA3DC include (DayZenLLC 2021b, pg. 2):

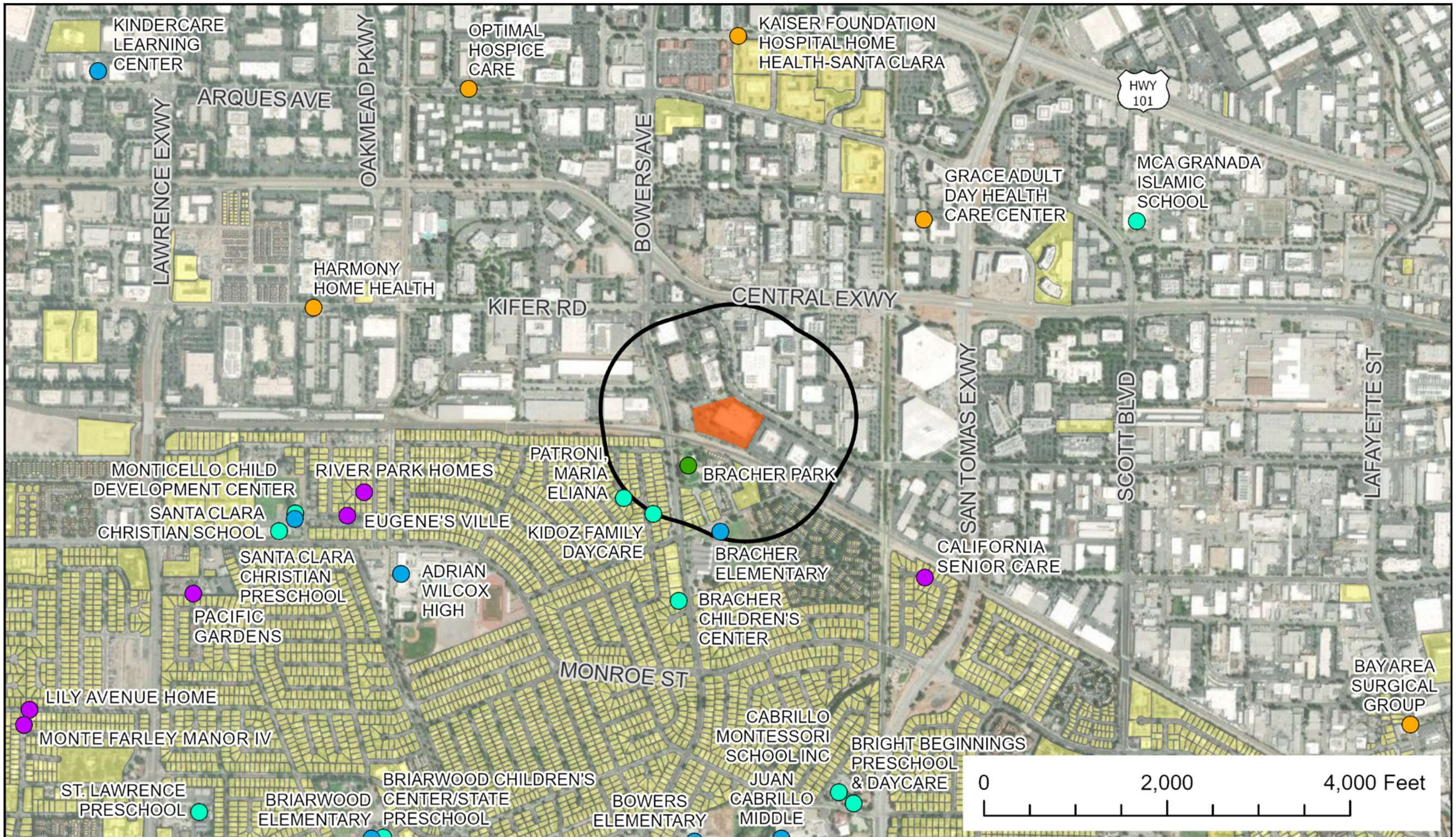
- Residential dwellings, including apartments, houses, and condominiums.
- Schools, colleges, and universities.
- Daycare centers.
- Hospitals and health clinics.
- Senior-care facilities.

Sensitive Receptors Near the Project

BAAQMD CEQA Guidelines recommends that any proposed project, including the siting of a new TAC emissions source, assess associated community risks and hazards impacts within 1,000 feet of the proposed project and take into account both individual and nearby cumulative sources (that is, proposed project plus existing and foreseeable future projects). Cumulative sources represent the combined total risk values of each individual source within the 1,000-foot evaluation zone. A lead agency should enlarge the 1,000-foot radius on a case-by-case basis if an unusually large source or sources of risk or hazard emissions that may affect a proposed project is beyond the recommended radius (BAAQMD 2017b, Table 2-1, pg. 5-2, and pg. 5-3).

Staff previously used a six-mile radius for cumulative impacts analyses of power plant projects. Based on staff's modeling experience, beyond six miles there is no statistically significant concentration overlap for nonreactive pollutant concentration between two stationary emission sources. The six-mile radius is more appropriate to be used for the turbines with tall stacks and more buoyant plumes. But the diesel genset engines would result in more localized impacts due to shorter stacks and less buoyant plumes. The worst-case impacts of the diesel genset engines would occur at or near the fence line and decrease rapidly with distance from fence line. Therefore, staff believes that the BAAQMD CEQA Guidelines-recommended 1,000 feet is reasonable for the cumulative HRA of the project.

The project site is approximately 6.69 acres (DayZenLLC 2021a, pg. 2-1). The applicant conducted a sensitive receptor search within the 1,000-meter (3,280-ft) of the project, which is farther than the BAAQMD recommended 1,000-ft evaluation zone and determined that the closest residential uses are to the south across the existing Caltrain railroad right-of-way. The applicant also included a park directly south of the project site across the rail line as a potential sensitive receptor. The nearest sensitive receptor would be the nearest residential areas to the south across the existing Caltrain railroad right-of-way, which is about 175 feet from the fence line. The nearest school or daycare to the facility was found to be a school (i.e., Bracher Elementary) approximately 650 feet south of the project boundary. All schools and daycare facilities with 1,000 meters were also analyzed in the HRA (DayZenLLC 2021b, pg. 2). A list of the nonresidential sensitive receptors, such as school, recreation, and daycare, within or just beyond a 1,000-foot radius of the CA3DC project site was presented in Response to Data Request 22 (DayZenLLC 2021t, pg. 18). **Figure 4.3-1** shows the map of sensitive receptors near the project.



CA3 (Vantage) Backup Generating Facility

- Project Footprint
- 1,000 Ft. Influence Zone

Sensitive Receptors

- Day Care Facility
- Health Care Facility
- Nursing Home
- School
- Recreation
- Residential Community

Figure 4.3-1
1,000 Foot Influence Zone

Sources: California Energy Commission, HIFLD, USGS, CDPH, ORNL, Esri

Regulatory Background

Federal, state, and regional agencies share responsibility for managing and regulating air quality in the SFBAA.

Federal

Federal Clean Air Act. The federal Clean Air Act (CAA) (42 U.S.C. section 7401 et. seq) establishes the statutory framework for regulation of air quality in the United States. Under the CAA, the U.S. EPA oversees the implementation of federal programs for permitting new and modified stationary sources, controlling TACs, and reducing emissions from motor vehicles and other mobile sources.

Title I (Air Pollution Prevention and Control) of CAA requires the establishment of NAAQS, air quality designations, and plan requirements for nonattainment areas. States are required to submit a SIP to the U.S. EPA for areas in nonattainment with NAAQS. The SIP must demonstrate how state and local regulatory agencies will institute rules, regulations, and other programs to attain NAAQS. Once approved by the U.S. EPA and published in the Federal Register, the local air district rules contained in the SIP are federally enforceable.

The Prevention of Significant Deterioration (PSD) program is a federal program for federal attainment areas. The purpose of the federal PSD program is to ensure that attainment areas remain in attainment of NAAQS based upon a proposed facility's annual PTE. If the annual emissions of a proposed project are less than prescribed amounts, a PSD review is not required. CA3DC is not expected to be subject to PSD, with a final determination made by BAAQMD at the time of permitting subsequent to the CEC determination.

New Source Performance Standard (NSPS) Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. CAA section 111 (42 U.S.C. section 7411) authorizes the U.S. EPA to develop technology-based standards for specific categories of sources. Manufacturers of emergency stationary internal combustion engines (ICE) using diesel fuel must certify that new engines comply with these emission standards (40 CFR 60.4205). Under NSPS Subpart IIII, owners and operators of emergency engines must limit operation to a maximum of 100 hours per year for maintenance and testing, which allows for some use if necessary, to protect grid reliability; there is no time limit on the use of an emergency stationary ICE in emergency situations (40 CFR 60.4211(f)). The project's Tier 4 diesel-fired gensets would be subject to and likely to comply with the requirements in NSPS Subpart IIII.

National Emission Standards for Hazardous Air Pollutants. CAA section 112 42 U.S.C. section 7412) addresses emissions of HAPs. CAA defines HAPs as a variety of substances that pose serious health risks. Direct exposure to HAPs has been shown to cause cancer, reproductive effects or birth defects, damage to the brain and nervous system, and respiratory disorders. Categories of sources that cause HAP emissions are controlled through separate standards under CAA Section 112: National Emission

Standards for Hazardous Air Pollutants (NESHAP). These standards are specifically designed to reduce the potency, persistence, or potential bioaccumulation of HAPs. New sources that emit more than 10 tpy of any specified HAP or more than 25 tpy of any combination of HAPs are required to apply Maximum Achievable Control Technology (MACT).

Asbestos is a HAP regulated under the NESHAP. The asbestos NESHAP is intended to provide protection from the release of asbestos fibers during activities involving the handling of asbestos. CAA air toxics regulations specify work practices for asbestos to be followed during demolitions and renovations. The regulations require a thorough inspection of the area where the demolition or renovation would occur and advance notification of the appropriate delegated entity. Work practice standards that control asbestos emissions must be implemented, such as removing all asbestos-containing materials (ACM), adequately wetting all regulated ACM, and sealing ACM in leak-tight containers and disposing of the asbestos-containing waste material as expediently as practicable.

State

Generally, state law designates local air districts as having primary responsibility for the control of air pollution from all sources other than mobile sources while the control of vehicular air sources is the responsibility of CARB. (Health and Safety Code, §39002) CARB is also responsible for the state's overall air quality management, including, among other things, establishing CAAQS for criteria pollutants identifying TACs of statewide concern and adopting measures to reduce the emissions of those TACs through airborne toxic control measures (ATCM), and regulating emissions of GHGs.

Air Toxic "Hot Spots" Information and Assessment Act of 1987. The Air Toxic "Hot Spots" Information and Assessment Act of 1987 (Health and Safety Code, sec. 44300 et. seq), also known as Assembly Bill (AB) 2588, identifies TAC hot spots where emissions from specific stationary sources may expose individuals to an elevated risk of adverse health effects, particularly cancer or reproductive harm. Many TACs are also classified as HAPs. AB 2588 requires that a business or other establishment identified as a significant stationary source of toxic emissions provide the affected population with information about the health risks posed by their emissions.

Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines, Emergency Standby Diesel-Fueled Compression Ignition Engines. Statewide regulations govern the use of and emissions performance standards for emergency standby diesel-fueled engines, including those of the project. As defined in regulation (17 CCR §93115.4(a)(29)), an emergency standby engine is, among other possible use, one that provides electrical power during an emergency use and is not the source of primary power at the facility and is not operated to supply power to the electric grid. The corresponding ATCM (17 CCR §93115.6) restricts each emergency standby engine to operate no more than 50 hours per year for maintenance and testing purposes.

The ATCM establishes no limit on engine operation for emergency use or for emission testing to show compliance with the ATCM's standards.

Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations. CARB has adopted the Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations to minimize the generation of asbestos from earth disturbance or construction activities (17 CCR §93105). The Asbestos ATCM applies to any project that would include sites to be disturbed in a geographic ultramafic rock unit area or an area where naturally occurring asbestos (NOA), serpentine, or ultramafic rocks are determined to be present. Based upon review of the U.S. Geological Survey map detailing the natural occurrence of asbestos in California, NOA is not expected to be present at the project site (Van Gosen and Clinkenbeard 2011).

Regional

BAAQMD is the regional agency charged with preparing, adopting, and implementing emissions control measures and standards for stationary sources of air pollution pursuant to state and federal authority for all stationary projects located within their jurisdiction. Under the California CAA state law, the BAAQMD is required to develop an air quality plan to achieve and/or maintain compliance with federal and state nonattainment AAQS within the air district's boundary.

Bay Area 2017 Clean Air Plan. BAAQMD adopted the Bay Area 2017 Clean Air Plan on April 19, 2017 (BAAQMD 2017a). The 2017 Clean Air Plan provides a regional strategy to protect public health and protect the climate. The 2017 Clean Air Plan updates the most recent Bay Area ozone plan, the 2010 Clean Air Plan, pursuant to air quality planning requirements defined in state law. The 2017 Clean Air Plan defines an integrated, multi-pollutant control strategy to reduce emissions of particulate matter, TACs, ozone and key ozone precursors, and greenhouse gases.

BAAQMD California Environmental Quality Act Guidelines. BAAQMD publishes CEQA Air Quality Guidelines to assist lead agencies in evaluating a project's potential impacts on air quality. The BAAQMD published the most recent version of its CEQA Air Quality Guidelines in May 2017 (BAAQMD 2017b).

BAAQMD Regulation 2, Rule 2: New Source Review (NSR). This rule applies to all new or modified sources requiring an Authority to Construct permit and/or Permit to Operate. The NSR process requires the applicant to use BACT to control emissions if the source will have the PTE of a BAAQMD BACT pollutant in an amount of 10 or more pounds per day (lbs/day). The NSR process also establishes the requirements to offset emissions increases and to protect NAAQS.

For emergency-use diesel engines with output over 1,000 brake horsepower, BAAQMD updated the definition of BACT in December 2020 to reflect the use of engines achieving Tier 4 exhaust standards (BAAQMD 2020); this requires Tier 4-compliant engines that may include Tier 2 engines abated by catalyzed diesel particulate filter (DPF) and selective catalytic reduction (SCR). Each of the 44 diesel back-up emergency generators would be equipped with SCR equipment and DPF to achieve compliance with Tier 4 emission standards. Staff expects the proposed generators would meet the current BAAQMD BACT requirements. However, BAAQMD would make the final determination of BACT during the permitting process.

To prevent sources from worsening regional nonattainment conditions, the NSR rule requires offsets at a 1:1 ratio if more than 10 tpy of NO_X or Precursor Organic Compounds (POC), or more than 100 tpy of PM2.5, PM10, or SO_2, are emitted. If the PTE for NOx or POC is more than 10 tpy but less than 35 tpy, BAAQMD needs to provide any required offsets at 1:1 ratio from the Small Facility Banking Account in BAAQMD's Emissions Bank. If the PTE for NOx or POC is 35 tpy or more, the offset ratio increases to 1.15:1 and offsets can no longer be obtained through the Small Facility Banking Account.

On June 3, 2019, BAAQMD staff issued a new policy to protect the Small Facility Banking Account from over-withdrawal by new emergency backup generator sources. The policy provides procedures, applicable to the determination of access to the Small Facility Banking Account only, for calculating a facility's PTE to determine eligibility for emission reduction credits (ERCs) from the Small Facility Banking Account for emergency backup generators (BAAQMD 2019). When determining the PTE for a facility with emergency backup generators, the PTE shall include as a proxy, emissions proportional to emergency operation for 100 hours per year per standby generator, in addition to the permitted limits for readiness testing and maintenance (generally 50 hours/year or less per standby or backup engine). BAAQMD would not allow an owner/operator to accept a permit condition to limit emergency operation to less than 100 hours per year to reduce the source's PTE for purposes of qualifying for the Small Facility Banking Account.

After comparing the PTE calculated to determine the account eligibility threshold, the amount of offsets required would be determined only upon the permitted emissions from readiness testing and maintenance and not the emissions from emergency operation. Emissions offsets represent ongoing emission reductions that continue every year, year after year, in perpetuity. BAAQMD requires the use of offsets to counterbalance increases in regular and predictable emissions, not increases in emissions occurring infrequently when emergency conditions arise. An owner/operator may reduce the hours of readiness testing and maintenance or install emissions controls to achieve a PTE of less than 35 tons per year (BAAQMD 2019).

BAAQMD Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants. This rule provides for the review of new and modified sources of TAC emissions to evaluate potential public exposure and health risk. Under this rule, a project would be denied an Authority to Construct permit if it exceeds any of the specified risk limits, which are consistent with BAAQMD's recommended significance thresholds. Best Available Control Technology for Toxics (TBACT) would also be required for any new or modified source of TACs where the source has a cancer risk greater than 1.0 in 1 million or a chronic hazard index (HI) greater than 0.20. The specific toxicity values of each TAC for use in an HRA, as identified by California Office of Environmental Health Hazard Assessment (OEHHA), are listed in Table 2-5-1 of BAAQMD Rule 2-5.

BAAQMD Regulation 9, Rule 8: Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines. This rule limits NOx and CO emissions from stationary internal combustion engines with an output rated by the manufacturer at more than 50 brake horsepower, including the standby gensets of the project. This regulation (Rule 9-8-231) defines emergency use as "the use of an emergency standby or low usage engine during any of the following:"

- In the event of unforeseeable loss of regular natural gas supply;
- In the event of unforeseeable failure of regular electric power supply;
- Mitigation or prevention of an imminent flood;
- Mitigation of or prevention of an imminent overflow of sewage or waste water;
- Fire or prevention of an imminent fire;
- Failure or imminent failure of a primary motor or source of power, but only for such time as needed to repair or replace the primary motor or source of power; or
- Prevention of the imminent release of hazardous material.

Local

The city of Santa Clara 2010-2035 General Plan (General Plan) includes goals and policies to reduce exposure of the city's sensitive population to the exposure of air pollution and TACs. The following goals, policies, and actions are applicable to the project:

- Air Quality Goals
    - 5.10.2-G1 Improved air quality in Santa Clara and the region.
    - 5.10.2-G2 Reduced greenhouse gas (GHG) emissions that meet the State and regional goals and requirements to combat climate change.

- Air Quality Policies
    - 5.10.2-P1 Support alternative transportation modes and efficient parking mechanisms to improve air quality.
    - 5.10.2-P2 Encourage development patterns that reduce vehicle miles traveled and air pollution.
    - 5.10.2-P3 Encourage implementation of technological advances that minimize public health hazards and reduce the generation of air pollutants.
    - 5.10.2-P4 Encourage measures to reduce GHG emissions to reach 30 percent below 1990 levels by 2020.
    - 5.10.2-P5 Promote regional air pollution prevention plans for local industry and businesses.

- 5.10.2-P6 Require "Best Management Practices" for construction dust abatement.

4.3.3 Environmental Impacts

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

This section considers the project's consistency with the applicable air quality plan (AQP). This is a qualitative determination that considers the combined effects of project construction and operation.

Construction and Operations

Less Than Significant Impact. BAAQMD has permit authority over stationary sources, acts as the primary reviewing agency for environmental documents, and adopts rules that must be consistent with or more stringent than federal and state air quality laws and regulations. The applicable AQP is the Bay Area 2017 Clean Air Plan (BAAQMD 2017a).

A project would be consistent with the AQP if that project (BAAQMD 2017b, pg. 9-2 and 9-3):

1) Supports the primary goals of the AQP.

The determination for this criterion can be met through consistency with the BAAQMD significance thresholds. As can be seen in the discussions under environmental checklist criteria "b" and "c" of this air quality analysis, the project would have less than significant impacts related to the BAAQMD significance thresholds. Therefore, the project would have a less than significant impact related to the primary goals of the AQP.

2) Includes applicable control measures from the AQP.

The project would include the implementation of applicable control measures from the AQP. The project-level applicable control measures set forth in the Bay Area 2017 Clean Air Plan include: Decarbonize Electricity Generation (EN1), Green Buildings (BL1), and Bicycle and Pedestrian Access and Facilities (TR9). The project would comply with these control measures through compliance with General Plan and the city's Climate Action Plan, as demonstrated in more detail in **Section 4.8 Greenhouse Gas Emissions**.

3) Does not disrupt or hinder implementation of any AQP control measures.

Examples of disrupting or hindering implementation of an AQP would be proposing excessive parking or precluding the extension of public transit or bike paths. The project design as proposed is not known to hinder the implementation of any AQP control measure.

The analysis in this section demonstrates that the project emissions would not exceed BAAQMD significance thresholds with NOx emissions fully offset through the permitting process with BAAQMD, as discussed under criterion "b" of the environmental checklist, and the project would not expose sensitive receptors to substantial pollutant concentrations, as discussed under criterion "c" of the environmental checklist. Thus, the project would be consistent with the Bay Area 2017 Clean Air Plan and would have a less than significant impact related to implementation of the applicable AQP.

BAAQMD Regulation 2, Rule 2: New Source Review (NSR). As discussed under criterion "b" of the environmental checklist, the NOx emissions of the gensets during readiness testing and maintenance would be fully offset through the permitting process with BAAQMD. Final details regarding the calculation of the facility's PTE and the ultimate NSR permitting requirements under BAAQMD's Regulation 2, Rule 2, would be determined through the permitting process with BAAQMD. The discussion below explains how the district will calculate the necessary offsets.

b. 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?

This section quantifies the project's nonattainment criteria pollutant emissions and other criteria pollutant emissions to determine whether the net emissions increase would exceed any of the BAAQMD emissions thresholds for criteria pollutants. TAC effects are not included because this section focuses only on criteria pollutants.

Construction

Less Than Significant with Mitigation Incorporated.

Project demolition/construction would include two phases. The first phase of construction (Phase I) would take approximately 15 months. Phase I construction includes demolition activities, grading and site work installation of utility services for interim power, construction of an on-site substation, construction of the entire shell of the CA3DC building, and placement of approximately one-half of the gensets. The second phase of construction (Phase II) would take approximately seven months. Phase II includes the placement of the remaining half of the gensets and interior buildout (CEC 2022a) Construction-phase emissions are a result of construction equipment, material movement, paving activities, and on-site and off-site vehicle trips, such as material haul trucks, worker commutes, and delivery vehicles.

Emissions from the 22-month construction period were estimated using the California Emissions Estimator Model[4] (CalEEMod) program. The estimated criteria pollutant construction-phase emissions are summarized in **Table 4.3-5**.

4 CalEEMod was developed by the California Air Pollution Control Officers Association in collaboration with California Air Districts. This model is a construction and emissions estimating computer model that estimates direct criteria pollutant and direct and indirect greenhouse gas emissions for a variety of land use projects. The model calculates maximum daily and annual emissions. The model also identifies mitigation measures to reduce criteria pollutant and GHG emissions along with calculating the benefits achieved from measures.

TABLE 4.3-5 CRITERIA POLLUTANT EMISSIONS FROM PROJECT CONSTRUCTION

Pollutant	Average Daily Emissions (lbs/day) [a]		Maximum Annual Construction Emissions (tpy)	BAAQMD Significance Thresholds for Construction-related Average Daily Emissions (lbs/day) [c]	Threshold Exceeded ?
	Phase I	Phase II			
ROG/VOC	15.9	0.3	2.4	54	No
CO	22.5	5.3	3.2	None	N/A
NOx	9.9	0.7	1.5	54	No
SOx	0.06	0.01	0.009	None	N/A
PM10 [b]	0.07 (exhaust) 2.5 (fugitive)	0.02 (exhaust) 0.8 (fugitive)	0.009 (exhaust) 0.4 (fugitive)	82	No
PM2.5 [b]	0.06 (exhaust) 0.8 (fugitive)	0.02 (exhaust) 0.2 (fugitive)	0.009 (exhaust) 0.1 (fugitive)	54	No

Notes:
[a] There are no annual construction-related BAAQMD significance thresholds. BAAQMD's thresholds are average daily thresholds for construction. Accordingly, the average daily emissions are the total estimated construction emissions in each phase averaged over total workdays for that phase.
[b] The average daily PM10 and PM2.5 exhaust emissions are compared to BAAQMD's significance thresholds for exhaust emissions. Fugitive emissions will be controlled with best management practices (BMPs), in accordance with the significance threshold.
[c] BAAQMD 2017b, Table 2-1.
Source: CEC 2022a, CEC staff analysis

The average daily emissions for each phase shown in **Table 4.3-5** indicate that construction emissions would be lower than the applicable BAAQMD significance thresholds for all criteria pollutants.

BAAQMD's numerical thresholds for PM10 and PM2.5 construction-phase emissions apply to exhaust emissions only. BAAQMD has no numerical threshold for fugitive dust generated during construction. The BAAQMD CEQA Guidelines recommend the control of fugitive dust through BMPs to conclude that impacts from fugitive dust emissions are less than significant (BAAQMD 2017b). The applicant proposed measures that would incorporate BAAQMD's recommended construction BMPs as well as exhaust emissions mitigation measures. Staff reviewed the measures and finds them sufficient to address impacts from construction emissions. Staff recommends **AQ-1** to ensure that PM10 and PM2.5 emissions are reduced to a level that would not result in a considerable increase of these pollutants. This impact would be reduced to less than significant with the implementation of **AQ-1**.

Operation

Less Than Significant Impact

Operation emissions would result from diesel fuel combustion from the gensets, off-site vehicle trips for worker commutes and material deliveries, and facility upkeep, such as architectural coatings, consumer product use, landscaping, water use, waste generation, natural gas use for comfort heating, and electricity use (DayZenLLC 2021e). Each of the primary emission sources are described in more detail below.

Stationary Sources – Generator Emissions. The project would include 44 gensets powered by 2.75-MW Caterpillar Model 3516E engines. Each engine would be equipped with SCR and DPF to achieve compliance with Tier 4 emission standards (DayZenLLC 2021a).

All gensets would be operated for routine readiness maintenance and testing to ensure they would function during an emergency event. During routine readiness testing, criteria pollutants and TACs would be emitted directly from the gensets. The applicant used emissions factors provided by Peterson Power Systems for the ecoCUBE engine configuration based on inlet and outlet emission performance (DayZenLLC 2021b). In estimating the annual emissions, the applicant assumed that testing would occur for no more than 35 hours per year averaged over all engines for a total of 1,540 hours. The average daily emissions are estimated by averaging the annual emissions (assuming all generators are operated for 35 hours per year) over the year (i.e. 365 days). The Airborne Toxic Control Measure for Stationary Compression Ignition Engines (CCR, Title 17, Section 93115) limits testing to 50 hours per year per engine. However, it is the applicant's experience that each engine would be operated for considerably less than 50 hours a year. The applicant is proposing an annual readiness testing and maintenance schedule not to exceed 35 hours per year averaged over all engines for a total of 1,540 hours. The NOx emissions are conservatively based on the Tier 2 emissions standards (uncontrolled emission factors), with the conservative assumption that the SCR will not operate during testing and maintenance purposes. Additionally, **GHG-1** could limit this to no more than 20 hours if BAAQMD updates its threshold of significance before this project receives its permit.

Emergency Operations. Emissions that could occur in the event of a power outage or other disruption, upset, or instability that triggers emergency operations would not occur on a regular or predictable basis. However, the BAAQMD 2019 policy, *Calculating Potential to Emit for Emergency Backup Power Generators*, requires a facility's PTE to be calculated based on emissions proportional to emergency operation for 100 hours per year per genset, in addition to the permitted limits for readiness testing and maintenance (BAAQMD 2019). However, after comparing the PTE calculated to determine the account eligibility threshold, the applicant would only be required to offset permitted emissions from readiness testing and maintenance and not the emissions from emergency operation. BAAQMD requires the use of offsets to counterbalance increases in regular and predictable emissions, not increases in emissions occurring infrequently when emergency conditions arise. The potential ambient air quality impacts of emissions during emergency operations are analyzed qualitatively under environmental checklist criterion "c."

Miscellaneous Operational Emissions. Miscellaneous emissions would occur from operational activities, such as worker travel, deliveries, energy and fuel use for facility electrical, heating and cooling needs, periodic use of architectural coatings, and landscaping. The applicant estimated the miscellaneous operational emissions using CalEEMod.

Table 4.3-6 provides the annual and average daily criteria pollutant emission estimates for project operation, including readiness testing and maintenance, using the emission source assumptions noted above. The average daily emissions are based on annual emissions averaged over 365 days per year. The NOx emissions of the gensets are conservatively estimated using Tier 2 emission factors, assuming the SCRs are not effective during readiness testing and maintenance (even though, depending on load, the SCR would be expected to kick on within 15 minutes, providing some additional emissions control for tests that run longer than this). With the conservative assumption of Tier 2 emissions, the NOx PTE of the project would exceed 35 tpy, and, therefore, the NOx emissions would be fully offset by the applicant through the air permitting process at a ratio of 1.15:1. However, in response to staff's Data Request #4, the applicant provided a more refined calculation of the NOx PTE assuming 35 individual 1-hour readiness testing and maintenance, each consisting of 15 minutes of warm up with Tier 2 emissions and 45 minutes with Tier 4 emissions. For the 100 hours of emergency operations (considering the BAAQMD 2019 policy [BAAQMD 2019]), the applicant assumed 15 minutes of uncontrolled emissions and 2 hours and 45 minutes of controlled emissions for every three hours of operation. Total NOx PTE from the applicant's refined calculation would be 28.7 tpy, which is less than 35 tpy (DayZenLLC 2021t). Therefore, the offset ratio would be 1:1 with the refined calculation. The exact amount and the source of the NOx offsets would be confirmed through the permitting process with BAAQMD. When BAAQMD reviews the permit application for the project, it would perform a refined emissions calculation if the applicant provides a detailed testing plan (including testing frequency, duration, and load, etc.) and the specifications from the SCR vendor. If it is uncertain whether the SCR would become effective during readiness testing and maintenance, BAAQMD would also use the most conservative calculation assuming Tier 2 emissions.

Therefore, the NOx emissions and offsets shown in **Table 4.3-6** assuming Tier 2 emissions are conservative estimates. Analysis of Tier 4 emissions would result in less impact than that for the analysis of Tier 2 emissions. Nonetheless, the NOx emissions of the gensets during readiness testing and maintenance would be fully offset through the permitting process with BAAQMD. Emissions from miscellaneous sources are not required to be offset under BAAQMD permitting policy, which only applies to stationary sources.

Table 4.3-6 shows that with NOx emissions from the readiness testing and maintenance of the gensets fully offset through the permitting process with BAAQMD, the project would not exceed any of the BAAQMD emissions significance thresholds. The BAAQMD CEQA Guidelines state that, if the project's daily average or annual emissions of operational-related criteria pollutants or precursors do not exceed any applicable threshold of significance listed in **Table 4.3-1**, the proposed project would not result in a cumulatively significant impact (BAAQMD 2017b). Therefore, **Table 4.3-6** shows that the project would not be expected to result in a cumulatively considerable net increase of criteria pollutants during the lifetime of the project, including the readiness testing and maintenance of the gensets.

In addition to the emissions shown in **Table 4.3-6**, ammonia would also be emitted from the urea used in the SCR system. Ammonia is considered a particulate precursor but not a criteria pollutant. Reactive with sulfur and nitrogen compounds, ammonia is common in the atmosphere primarily from natural sources or as a byproduct of tailpipe controls on motor vehicles. Currently, there are no BAAQMD-recommended models or procedures for estimating secondary particulate nitrate or sulfate formation from individual sources, such as the proposed project. BAAQMD CEQA Guidelines do not include a significance threshold for ammonia emissions. The primary emissions of particulate matter from this project are well below the BAAQMD significance threshold and do not require additional mitigation or trigger the need for offsets. In addition, the applicant conservatively estimated the ammonia emissions of the project to be 0.29 tpy (582 lbs/yr), assuming the SCR is effective for a total of 35 hours per year per engine (DayZenLLC 2021w). However, it would take time for the SCR to warm up, especially during low-load readiness testing and maintenance, and, therefore, actual ammonia emissions would be less than applicant's estimates. Therefore, staff expects the secondary particulate matter impacts from ammonia emissions would be less than significant and would not require additional mitigation or offsets.

The project's operations would not result in a cumulatively considerable net increase of any criteria pollutant, and these impacts would be less than significant.

Cumulative Impacts

According to the 2017 BAAQMD CEQA Guidelines (BAAQMD 2017b), in developing thresholds of significance for air pollutants (as shown in **Table 4.3-1**), BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions.

As discussed above, with the implementation of mitigation measure **AQ-1** during construction and NOx offsets required through the BAAQMD permitting process for readiness testing and maintenance, the project emissions would not exceed the BAAQMD significance thresholds. Therefore, the project would not result in a cumulatively considerable net increase of any criteria pollutant, and these impacts would be less than significant with mitigation incorporated.

TABLE 4.3-6 CRITERIA POLLUTANT EMISSIONS FROM PROJECT READINESS TESTING AND MAINTENANCE

Source Type	ROG/VOC	CO	NOx	SO_2	PM10	PM2.5
	Annual Emissions (tpy)					
Phase I Miscellaneous Operational Emissions	1.14	0.48	0.09	0.001	0.15	0.04
Phase II Miscellaneous Operational Emissions	2.16	0.82	0.16	0.003	0.29	0.08
Standby Generators (Testing Only) [a]	0.44	4.39	35.14 [b]	0.03 [c]	0.14	0.14
Proposed Offsets [d]	--	--	(-40.41)	--	--	--
Total Phase I Net Emissions	1.36	2.68	-2.54	0.02	0.22	0.11
Total Full Buildout Net Emissions	2.60	5.22	-5.11	0.03	0.42	0.22
BAAQMD Annual Significance Thresholds	10	--	10	--	15	10
Net Emissions Exceed BAAQMD Threshold? (Y/N)	N	N/A	N	N/A	N	N
	Average Daily Emissions (lbs/day) [e]					
Phase I Miscellaneous Operational Emissions	6.27	2.63	0.51	0.01	0.83	0.23
Phase II Miscellaneous Operational Emissions	11.82	4.51	0.90	0.01	1.57	0.43
Standby Generators (Testing Only)	2.41	24.07	192.55	0.17	0.75	0.75
Proposed Offsets [c]	--	--	(-221.43)	--	--	--
Total Phase I Net Emissions	7.48	14.67	-13.93	0.09	1.20	0.60
Total Full Buildout Net Emissions	14.24	28.58	-27.98	0.19	2.33	1.18
BAAQMD Average Daily Significance Thresholds	54	--	54	--	82	54
Net Emissions Exceed BAAQMD Threshold? (Y/N)	N	N/A	N	N/A	N	N

Notes:
[a] The annual emissions of the standby generators are estimated assuming readiness testing and maintenance would occur 35 hours per year per engine.
[b] The NOx emissions for readiness testing and maintenance are conservatively estimated based on Tier 2 emission factors.
[c] Staff estimated the SO_2 emissions of the standby generators based on the hourly SO_2 emission rate of from the VDC Supplemental Responses to CEC Data Request Set 2 Air Quality (DayZenLLC 2021t, Table 7-5) assuming readiness testing and maintenance would occur 35 hours per year per engine.
[d] The conservatively estimated NOx emissions of the standby generators would exceed 35 tpy based on Tier 2 emission factors. Therefore, the offset ratio would be 1.15:1 (DayZenLLC 2021e).
[e] The average daily emissions and offsets are based on the annual emissions and offsets averaged over 365 days per year.
Sources: DayZenLLC 2021e, DayZenLLC 2021b, DayZenLLC 2021t with calculation spreadsheets, CEC staff analysis

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

This section quantifies the ambient air quality pollutant concentrations caused by the project and determines whether sensitive receptors could be exposed to substantial pollutant concentrations.

This section is comprised of separate discussions addressing impacts from criteria pollutants in staff's Air Quality Impact Analysis (AQIA) and impacts from TACs in staff's HRA. Staff's AQIA discusses criteria pollutant impacts from construction and operation. The section also discusses issues associated with potential emergency operations. Staff's HRA discusses the results of TACs for both construction and operation (readiness testing and maintenance) and cumulative sources.

Air Quality Impact Analysis for Criteria Pollutants

Staff considers any new AAQS exceedance and substantial contribution to any existing AAQS exceedance caused by the project's emissions to be substantial evidence of potentially significant impacts that would require the evaluation of potential mitigation measures. In this case, the existing background levels of PM10 and PM2.5 already exceed the AAQS.

Construction

Less Than Significant with Mitigation Incorporated. Construction emissions of criteria pollutants are shown in **Table 4.3-5** under criterion "b" of the environmental checklist. Emissions during project construction would not exceed significance thresholds for construction activities, as established in the BAAQMD CEQA Guidelines. With the staff recommendation to implement **AQ-1** to control fugitive dust and exhaust emissions, construction emissions would not exceed the BAAQMD significance thresholds. Although project construction emissions would fall below the emissions thresholds, this section of the staff analysis explores the ambient air quality impacts of criteria pollutant emissions during construction to evaluate whether substantial pollutant concentrations could occur.

In response to staff data requests, the applicant provided the modeled ambient air quality concentrations caused by the construction emissions (DayZenLLC 2021t; TN 239390). Staff reviewed the applicant's dispersion modeling files and agreed with the inputs used by the applicant and the outputs from the model for the construction AQIA for pollutants other than PM10 and PM2.5. This discussion presents the results of staff's independent analysis for PM10 and PM2.5.

The applicant's AQIA uses the U.S. EPA preferred and recommended dispersion model, American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD [version 21112]) to estimate ambient air quality impacts. For certain runs that provide a sum of NO_2 impacts and NO_2 background concentrations, an earlier version of AERMOD (version 19191) was used due to a known bug in the current version of AERMOD (DayZenLLC 2021t, pg. 4). For the 1-hour NO_2 modeling analyses, the applicant used the

Plume Volume Molar Ratio Method (PVMRM) in AERMOD, as described in U.S. EPA's *Guideline on Air Quality Models* (U.S. EPA 2017).

Meteorological Data. The applicant processed a five-year (2015-2019) record of hourly meteorological data collected at the Norman Y. Mineta San Jose International Airport surface station, approximately two miles east of the project site, and this sufficiently represents the meteorology at the project site for use in AERMOD. The concurrent daily upper air sounding data from the Oakland International Airport station were also included. The applicant's consultant processed the data with AERMET (version 19191), AERMOD's meteorological data preprocessor module, for direct use in AERMOD (DayZenLLC 2021b, pg. 9; TN 237381).

Modeling Assumptions. The applicant modeled the construction equipment and vehicle exhaust emissions from the project's on-site off-road equipment, as well as the exhaust emissions from the project's off-site on-road sources up to 2,000 feet from the project boundary (DayZenLLC 2021t, pg. 4). The applicant's dispersion modeling analysis divided the construction emissions into two construction phases. The applicant proposes to complete construction of the CA3DC building shell in its entirety in Phase I (during a 15-month period). Phase II would involve a much more limited scope of activity and emissions than Phase I and would consist of interior buildout and the placement of generators for the second half of the building (CEC 2022a). There would be a limited period (about seven months) in which half of the project operational activities could occur concurrently with Phase II construction activities. The applicant modeled the two separate phases of construction emissions as two different area polygons with an initial release height at five meters, which approximates equipment exhaust sources. Staff confirmed that the maximum impacts of construction would occur during the Phase I activities, because the rates of emissions during the limited duration of Phase II would be a fraction of those during Phase I (approximately one-quarter to less than one-tenth, depending on pollutant). Additionally, since the construction emissions in Phase II would be much less than those for Phase I, staff does not expect the impacts during the limited overlapping period of operational activities to be higher than the worst-case impacts modeled for Phase I construction or operation separately.

The applicant's construction modeling does not include fugitive dust emissions (DayZenLLC 2021t, pg. 4). Accordingly, staff independently evaluated PM10 and PM2.5 to determine the impacts of fugitive dust with the equipment and vehicle exhaust. Staff's analysis for PM10 and PM2.5 uses the same area polygons at an initial release height of one meter to approximate fugitive dust being released near the ground level. The area sources are shaped as polygons to cover the full site for Phase I and the eastern side of the site for Phase II. Applicant's and staff's dispersion modeling of construction activities both assume that exhaust emissions and fugitive dust could be released 11 hours per day, between 7:00 a.m. to 6:00 p.m. (DayZenLLC 2021t, pg. 5).

Table 4.3-7 shows the impacts of the project during the construction period. The project impact column shows the worst-case impacts of the project from modeling. The background column shows the highest concentrations, or the three-year averages of the highest concentrations for 24-hour PM2.5 and federal 1-hour NO_2 and SO_2 standards according to the forms of these standards, from the prior three years (2018-2020) from the Jackson Street station. The background PM10 and PM2.5 concentrations are shown in **bold** because they already exceeded the corresponding limiting standards. The total impact column shows the sum of the existing background condition plus the maximum impact predicted by the modeling analysis for construction. The limiting standard column combines CAAQS and NAAQS, whichever is more stringent.

TABLE 4.3-7 MAXIMUM AMBIENT AIR QUALITY IMPACTS DURING CONSTRUCTION ($\mu g/m^3$)

Pollutant	Averaging Time	Project Impact	Background	Total Impact	Limiting Standard	Percent of Standard
PM10	24-hour	1.908	**137.1**	**139**	50	**278%**
	Annual	0.681	**24.8**	**25**	20	**127%**
PM2.5	24-hour	0.853	**73.4**	**74**	35	**212%**
	Annual	0.305	**12.9**	**13**	12	**110%**
CO	1-hour	329	2,857	3,186	23,000	14%
	8-hour	100	2,400	2,500	10,000	25%
NO_2 [a]	State 1-hour	86.3	162	248.8	339	73%
	Federal 1-hour	---	---	110.8	188	59%
	Annual	1.68	22.6	24	57	43%
SO_2	State 1-hour	0.570	37.9	38	655	6%
	Federal 1-hour	0.570	7.8	8	196	4%
	24-hour	0.055	3.9	4	105	4%

Notes: Concentrations in **bold** type are those that exceed the limiting ambient air quality standard.
[a] 1-hour NO_2 impacts are evaluated using the PVMRM setting with a default initial NO_2/NOx ratio of 0.5. The state 1-hour NO_2 total impacts include the maximum modeled project impact combined with maximum NO_2 background value. The federal 1-hour NO_2 total impacts include the combined seasonal hour of day 98th percentile daily maximum 1-hour background NO_2 with modeled NO_2 project impact.
Source: DayZenLLC 2021t (Tables 5-6 and 5-7), CEC 2022a, with independent staff analysis for PM10 and PM2.5.

Table 4.3-7 shows that the impacts from project construction would be below the limiting standards for CO, NO_2, and SO_2. **Table 4.3-7** also shows that the existing 24-hour and annual PM10 background concentrations are already above the CAAQS. The project would, therefore, contribute to existing exceedances of the 24-hour and annual PM10 CAAQS. The modeled 24-hour PM10 concentration of 1.908 $\mu g/m^3$ from project construction would not exceed the U.S. EPA PM10 SILs of 5 $\mu g/m^3$ for 24-hour impacts, and the maximum modeled annual PM10 concentration of 0.681 $\mu g/m^3$ would not exceed the PM10 SILs of 1 $\mu g/m^3$ for annual impacts. The results provided in **Table 4.3-7** are maximum impacts predicted to occur primarily due to fugitive dust at the project fence line. The impacts would decrease rapidly with distance from the fence line, and for any location south of the fence line, the 24-hour PM10 concentration would be below the U.S. EPA PM10 SILs of 5 $\mu g/m^3$. The maximum annual PM10 impacts at the nearest residential receptors would be lower than the maximum shown. In addition, construction is considered short term, and the impacts during construction would be reduced with the implementation of **AQ-1**. With mitigation, the PM10 impacts of the project during construction would be less than significant.

Similarly, **Table 4.3-7** also shows that the existing 24-hour and annual PM2.5 background concentrations are already above the limiting standards. The project would therefore contribute to existing exceedances of the 24-hour and annual PM2.5 standards. The maximum 24-hour PM2.5 impacts of 0.853 $\mu g/m^3$ would not exceed the 24-hour PM2.5 SILs of 1.2 $\mu g/m^3$. The maximum modeled 24-hour PM2.5 impact would occur at the project fence line and would decrease rapidly with distance from the fence line. At the project fence line, the annual average PM2.5 impact during construction of 0.305 $\mu g/m^3$ would be greater than the BAAQMD significance threshold of 0.3 $\mu g/m^3$ and greater than the annual PM2.5 SILs for annual impacts of 0.2 $\mu g/m^3$ (US EPA 2018a). For all receptors beyond 150 feet of the fence line, concentrations would be less than 0.2 $\mu g/m^3$ during construction.

Sensitive receptors include residents and a park directly south of the CA3 project site. Two daycare facilities, an elementary school, and a city park are within 1,000 feet of the project fence line (DayZenLLC 2021t, pg. 18; Response to Data Request 22). The nearest sensitive receptor (i.e., the nearest residential areas) is about 175 ft south of the fence line. The maximum modeled annual PM2.5 impacts at all sensitive receptors would be much lower than the BAAQMD CEQA Guidelines significance threshold of 0.3 $\mu g/m^3$ and U.S. EPA annual PM2.5 SILs level of 0.2 $\mu g/m^3$. The PM2.5 impacts of the project during construction would be less than significant.

Project construction would not expose sensitive receptors to substantial criteria pollutant concentrations, and this impact would be less than significant.

Operation

Less Than Significant Impact. The AQIA for project operation includes emissions from the project's diesel gensets during readiness testing and maintenance use to compare worst-case ground-level impacts with established state and federal AAQS. No other on-site stationary emission sources, such as natural gas combustion devices, are proposed. The applicant's modeling analysis is described in more detail below.

The applicant's AQIA compares worst-case ground-level impacts resulting from the project operation with established state and federal AAQS. Staff reviewed the applicant's dispersion modeling files, and staff agrees with the inputs used by the applicant and the outputs from the model for the AQIA.

Modeling Assumptions. Stack parameters (e.g., stack height, exit temperature, stack diameter, and stack exit velocity) were based on the parameters given by the engine manufacturer and the applicant. The 44 gensets include 40 gensets for the data center suites and four house gensets for supporting the administration building. All generators would be located along the northern edge of the data center building. The design includes redundancy so that eight data center generators are redundant, and two of the house generators are redundant (DayZenLLC 2021a, pg. 2-2). Each engine-generator set would emit from a point with a stack height of 10.09 meters and diameter of 0.559 meters (DayZenLLC 2021t, pg. 15).

All engines could be tested or used at any load condition. The applicant's analysis modeled all engines at five different load conditions representing 10, 25, 50, 75, and 100 percent load settings to determine the worst-case concentrations.

In the applicant's analysis, two readiness testing and maintenance scenarios were evaluated. The first scenario represents the applicant's proposed monthly generator testing. During these tests, up to four gensets will be operated concurrently at 0 percent load for up to 15 minutes; this is conservatively characterized with emissions at 10 percent load. The second scenario represents the applicant's proposed annual genset testing. These tests are conducted on individual gensets once per year at a series of stepped loads up to 100 percent load. All discrete load levels for which emissions data is available (i.e., 10 percent, 25 percent, 50 percent, 75 percent, and 100 percent) were analyzed to identify the potential worst-case ambient air quality impacts.

The applicant proposes to accept a permit condition from BAAQMD to limit testing to no more than one generator at a time for annual testing at any load and no more than four generators at a time for monthly testing under 10 percent load (DayZenLLC 2021t, Response to Data Request 8).

Additionally, the modeling also presumes that routine readiness testing would be limited to occur within certain hours of the day. The applicant proposes to accept a permit condition from BAAQMD for limiting readiness testing to only be allowed during a 10-hour period between 7:00 a.m. and 5:00 p.m. daily (DayZenLLC 2021t, Response to Data Request 10).

Refined Modeling Analyses. The modeling considers the use of the diesel-fired gensets in all proposed readiness testing and maintenance scenarios. The AQIA for project operation includes generator operating assumptions that vary depending on the averaging period of the applicable CAAQS or NAAQS. Refined modeling for all 1-hour averaging periods considers the possibility of any single generator operating at any of five different load conditions. The 1-hour scenarios also include 11 different four-engine groups for the monthly testing under 10 percent load. The AQIA for readiness testing and maintenance assumes that engines may startup for 1-hour runs; each hour consists of 15 minutes of uncontrolled emissions and 45 minutes of controlled emissions a given load (DayZenLLC 2021t, Table 7-5).

Modeling for comparison to the short-term NAAQS follows the applicable multi-year statistical forms (one-hour NO_2 and SO_2 and 24-hour PM2.5). Similarly, for the 1-hour NO_2 and SO_2 CAAQS impacts analyses, the applicant reported the highest 1-hour NO_2 and SO_2 modeled concentrations in a manner consistent with the forms of the CAAQS.

Modeled 1-hour NO_2 concentrations reflect an ambient equilibrium between NO and NO_2 computed using PVMRM for single-source runs and the Ozone Limiting Method (OLM) for groups of multiple sources. Both methods represent Tier 3 approaches for NO_2 analysis as defined in U.S. EPA's *Guideline on Air Quality Models* (U.S. EPA 2017). The applicant used an NO_2/NOx in-stack ratio of 0.1 (10 percent), which is typical for large diesel engines.

For analysis relative to the state one-hour NO_2 standard, the modeled NO_2 results from PVMRM or OLM are added to the maximum 1-hour background NO_2 value from the Jackson Street monitoring site (2018-2020) to arrive at the total NO_2 impact for the 1-hour NO_2 CAAQS analysis (DayZenLLC 2021t, pg. 8 and Response to Data Request 18). For the NAAQS analysis, the modeled NO_2 results from PVMRM or OLM are added to the three-year average of the second-highest hourly background NO_2 value, consistent with U.S. EPA guidance for the NO_2 NAAQS (U.S. EPA 2011).

Staff's review for the state 1-hour NO_2 standard confirmed the applicant's PVMRM runs (using AERMOD version 19191) as being representative of worst-case NO_2 1-hour results. In confirming this, staff also used the earlier version of PVMRM and the current version of OLM, with staff's seasonal hour-by-day highest single hour background NO_2 values to test the sources likely to result in the highest NO_2 concentrations.

Modeling for comparison with the 24-hour PM10 and PM2.5 standards assumes that any single genset could operate at the maximum 1-hour rate during any given 24-hour period (DayZenLLC 2021t, Table 7-6).

Table 4.3-8 shows the maximum impacts from project operation, including readiness testing and maintenance. The project impact column shows the worst-case impacts of the project from modeling. The background column shows the highest (or three-year averages for the 24-hour PM2.5 and federal 1-hour SO_2 standards) of the background concentrations from the last three years of representative data (2018-2020) from the Jackson Street station. The background PM10 and PM2.5 concentrations are shown in **bold** because they already exceeded the corresponding limiting standards. Except for the 1-hour NO_2 total impacts, the total impact column shows the sum of the existing background condition plus the maximum impact predicted by the modeling analysis for readiness testing and maintenance. The limiting standard column combines CAAQS and NAAQS, whichever is more stringent.

Table 4.3-8 shows that the project's stationary sources would not cause exceedances of the CO, NO_2, or SO_2 standards. **Table 4.3-8** also shows that the existing PM10 and PM2.5 background concentrations are already above the limiting standards. The project would, therefore, contribute to existing exceedances of the PM10 and PM2.5 standards.

The modeled PM10 concentrations from the project's operation in **Table 4.3-8** are well below the U.S. EPA PM10 SILs of 5 $\mu g/m^3$ for 24-hour impacts and 1 $\mu g/m^3$ for annual impacts. Similarly, the maximum modeled PM2.5 concentrations from project operation would not exceed the U.S. EPA PM2.5 SILs of 1.2 $\mu g/m^3$ for 24-hour impacts at any location. **Table 4.3-8** also shows that the annual PM2.5 project impacts of 0.054 $\mu g/m^3$ would not exceed the U.S. EPA PM2.5 of 0.2 $\mu g/m^3$ for annual impacts (US EPA 2018a) or the project-level BAAQMD CEQA Guidelines threshold for annual-average PM2.5 of 0.3 $\mu g/m^3$, for risk and hazards.

TABLE 4.3-8 MAXIMUM AMBIENT AIR QUALITY IMPACTS DURING OPERATION (µg/m³)						
Pollutant	**Averaging Time**	**Project Impact**	**Background**	**Total Impact**	**Limiting Standard**	**Percent of Standard**
PM10	24-hour	0.13	**137.1**	**137**	50	**274%**
	Annual	0.054	**24.8**	**25**	20	**124%**
PM2.5 [a]	24-hour	0.13	**73.4**	**74**	35	**210%**
	Annual	0.054	**12.9**	**13**	12	**108%**
CO	1-hour	172	2,857	3,029	23,000	13%
	8-hour	115	2,400	2,515	10,000	25%
NO_2 [b,c]	State 1-hour	---	---	327	339	96%
	Federal 1-hour	---	---	179	188	95%
	Annual	8.6	22.6	31	57	55%
SO_2 [c]	State 1-hour	0.84	37.9	39	655	6%
	Federal 1-hour	0.84	7.8	9	196	4%
	24-hour	0.76	3.9	5	105	4%

Notes: Concentrations in **bold** type are those that exceed the limiting ambient air quality standard.
[a] To compute the total impacts for the 24-hour PM2.5 NAAQS, staff conservatively combined the maximum modeled 24-hour PM2.5 impacts to the three-year average of 98th percentile PM2.5 background.
[b] The NO_2 impacts are evaluated using the U.S. EPA PVMRM for single source scenarios and OLM for multiple-source scenarios, with each source's NO_2/NOx in-stack ratio of 0.10.
[c] Impacts for the 1-hour NO_2 and SO_2 CAAQS are based on the maximum 1-hour modeled concentrations and maximum seasonal hour-of-day backgrounds since these CAAQS are "values that are not to be exceeded." Impacts for the 1-hour statistical-based NO_2 NAAQS use seasonal hour-of-day background concentrations adjusted to reflect the form of the standard.
Source: DayZen LLC 2021t (Tables 7-8 through 7-10).

Table 4.3-8 shows that use of the diesel-fired gensets in all proposed readiness testing and maintenance scenarios would not expose sensitive receptors to substantial pollutant concentrations, and this impact would be less than significant.

Localized CO Concentrations. Engine exhaust may elevate localized CO concentrations, resulting in "hot spots." Receptors exposed to these CO hot spots may have a greater likelihood of developing adverse health effects. CO hot spots are typically observed at heavily congested intersections where a substantial number of vehicles idle for prolonged durations throughout the day. BAAQMD screening guidance indicates that a project would not exceed the CO significance threshold if a project's traffic projections indicate traffic levels would not increase at any affected intersection to more than 44,000 vehicles per hour or at any affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (BAAQMD 2017b).

The proposed project would generate a small number of vehicle trips to the site. These trips would include workers and material and equipment deliveries. It is unlikely that the addition of vehicle trips from the project on any roadway in the vicinity of the project site would result in an exceedance of the BAAQMD screening threshold. As a result, the additional vehicle trips associated with the project would result in a negligible effect on CO concentrations in the vicinity of the project site.

Table 4.3-7 and **Table 4.3-8** show the CO concentrations resulting from the project's construction and operation and modeling results confirm that impacts would be well below the limiting standards and BAAQMD CEQA Guidelines significance thresholds of 20.0 ppm (23,000 µg/m^3) for 1-hour average concentrations and 9.0 ppm (10,000 µg/m^3) for 8-hour average concentrations.

Localized CO impacts during construction and operation, including readiness testing and maintenance, would not expose sensitive receptors to substantial pollutant concentrations, and this impact would be less than significant.

Emergency Operations Impacts for Criteria Pollutants

This section addresses the potential for emergency situations that could trigger the unplanned operation of the project's diesel-fired gensets. Emergency use of the gensets could occur in the event of a power outage or other disruption, upset, or instability that triggers a need for emergency backup power at CA3DC.

The air quality impacts of genset operation during emergencies are not quantified below because the impacts of emergency operations are typically not evaluated during facility permitting and local air districts do not normally conduct an air quality impact assessment of such impacts. CEC staff assessed the likelihood of emergency events but finds that modeling the air quality impacts of emergency operations would require a host of unvalidated, unverifiable, and speculative assumptions about when and under what circumstances such a hypothetical emergency would occur. Such a speculative analysis is not required under CEQA (CEQA Guidelines, CCR, Tit. 14, § 15064(d)(3) and § 15145), and, most importantly, would not provide meaningful information by which to determine project impacts.

Emissions that occur during the emergency use of the gensets would not occur on a regular or predictable basis (see **Appendix B** for more information). During the permitting process, BAAQMD policy requires facilities to presume that each of their generators will experience 100 hours per year of emergency operation when calculating their PTE for determining the applicability of certain permitting regulations (BAAQMD 2019).

Although normally excluded from ambient air quality impact analysis during permit review, BAAQMD comments on the NOP requested that this air quality analysis include various scenarios of backup power generation operations beyond routine testing and maintenance (BAAQMD 2021b). The comments from BAAQMD provided a review of data centers that initiated operation of diesel engines for "non-testing/non-maintenance" purposes, for the purpose of informing staff's consideration of scenarios of backup power generation operations beyond routine testing and maintenance (BAAQMD 2021b).

Staff reviewed the BAAQMD comments regarding the use of diesel engines for "non-testing/non-maintenance" purposes and confirmed that these types of events are infrequent, irregular, and unlikely and the resulting emissions are not easily predictable or quantifiable. The BAAQMD comments showed that extended durations of standby generator engines use occurred for "non-testing/non-maintenance" purposes, mostly due to extreme events within the 13-month record of the data. The 13-month period of BAAQMD's review (September 1, 2019, to September 30, 2020) included the implementation of Pacific Gas and Electric's Public Safety Power Shutoff (PSPS), severe wildfires, several California Independent System Operator (CAISO)-declared emergencies, and winter storms.

In staff's analysis of BAAQMD's review, without excluding the extreme events, 1,877 engine-hours of diesel engine use occurred at 20 data centers for "non-testing/non-maintenance" purposes (less than half of the 45 facilities included in the review, and less than a third of such facilities under BAAQMD's jurisdiction). BAAQMD's review covered 288 individual diesel engines that operated over a 13-month record. Because the backup generator engines were collectively available for over 2.74 million engine-hours during the 13-month period (288 engines * 9,504 hours in the 13-month record), and they were used for "non-testing/non-maintenance" purposes for 1,877 engine-hours, at those facilities where operation occurred, the engines entered into emergency operations during 0.07 percent of their available time (1,877 / 2.74 million). Staff's analysis of BAAQMD's information found that the average runtime for each diesel backup generator engine per event in BAAQMD's review was approximately 5.0 hours. Based on this data, staff determined that the emergency use of the standby generator engines was infrequent and of short duration.

Due to the number of factors that need to be considered, using an air quality model to evaluate ambient air quality impacts during emergency operations would require unnecessary speculation and would render the results of any such exercise too speculative to be meaningful. This remains especially true when neither the CEC nor any other agency has established or used in practice a threshold of significance by which to interpret air quality modeling results from emergency operations. Emergency operation would be very infrequent, and emergency operations would not occur routinely during the lifetime of the facility. Accordingly, the potential for any adverse impacts to ambient air quality concentrations would be a very-low probability event.

Thus, staff concludes that assessing the impacts of emergency operation of the gensets would be speculative due to the infrequent, irregular, and unplanned nature of emergency events. Emissions and impacts during emergency operation are not easily predictable or quantifiable.

Because of the infrequent nature of emergency conditions and the reliability of the grid as detailed in **Appendix B**, the project's emergency operation would be unlikely to expose sensitive receptors to substantial concentrations of criteria air pollutants.

Cumulative Impacts for Criteria Pollutants

Under environmental checklist criterion "b" above, staff concludes that the project emissions would not exceed the BAAQMD significance thresholds with the implementation of **AQ-1** during construction and NOx offsets for readiness testing and maintenance. Therefore, the project would not result in a cumulatively considerable net increase of any criteria pollutant, and these impacts would be less than significant with mitigation incorporated.

Health Risk Assessment for Toxic Air Contaminants

The HRA for the project was conducted separately for (1) the period of project's demolition, excavation, and construction, and (2) the period of operation, which consists of readiness testing and maintenance. A separate discussion summarizes the risk and hazards for the project in a cumulative HRA that includes the project's impact with the impacts of existing sources in the area.

The HRA estimated risks of cancer, non-cancer chronic exposure, and non-cancer acute exposure for residential, worker, and sensitive receptors, including the maximally exposed individual resident (MEIR), maximally exposed individual worker (MEIW), maximally exposed school receptor (MESR), maximally exposed daycare receptor (MEDR) and the maximally exposed recreational receptor (MERR) (DayZenLLC 2021b, pg. 16). As required by the 2015 OEHHA Guidance, sensitive receptor (including residential) cancer risks were estimated assuming exposure beginning in the third trimester of pregnancy and worker cancer risk was estimated assuming an 8-hour-per-day, 250 day-per-year exposure, beginning at the age of 16 (OEHHA 2015).

Some exposure assumptions (DayZenLLC 2021b, pg. 11-12):

- For construction, off-site residents were assumed to be present at one location for the entire duration of the construction period. For operation, off-site residents were assumed to be present at one location for a 30-year period, beginning with exposure in the third trimester.
- For off-site school and childcare receptors, the applicant selected exposure parameters using the conservative assumption that a child would be located at the daycare facility starting at age of six weeks until age six, and for the school receptor, a child would be at the school starting at age six until 18 years. For construction and operation, the child was assumed to be present at the location for eight hours a day, for five days a week.
- For off-site recreational receptors, exposure parameters were selected with the conservative assumption that a child would be present at the park starting at age zero for two hours a day and would be present for 30 years, 180 days per year.
- For off-site receptors, including fence line and all other public spaces adjacent sidewalk receptors, the applicant adopted the staff-requested methodology of assigning the exposure parameters of worker to those locations for assessment of health impacts. A 25-year exposure duration for workers is assumed based on the

OEHHA recommended exposure duration period and an exposure frequency of 250 days in a year is used in the analysis.

Construction HRA

Less Than Significant Impact. Project construction is expected to occur over two phases, with Phase I construction lasting for about 15 months, and Phase II construction lasting for 7 months (DayZenLLC 2021e, pg. 4-31; CEC 2022a). Emissions from the approximate 22-month construction period were estimated using CalEEMod (DayZenLLC 2021e, pg. 4-25; CEC 2022a). Construction emissions are a result of construction equipment, material movement, paving activities, and on- and off-site vehicle trips, such as material haul trucks, worker commutes, and delivery vehicles (DayZenLLC 2021e, pg. 4-25). Construction health risk impacts are based on the assumption that all construction off-road equipment meets Tier 4 final engine standards and that all exposed areas in the site would undergo watering twice a day. The risks and health impacts reported are for the entire duration of construction period (DayZenLLC 2021e, pg. 4-31). Only DPM emissions from off-road construction equipment and on-road vehicles are analyzed (DayZenLLC 2021e, Table 4.3-10).

Staff reviewed the applicant's modeling files and agrees with the inputs used by the applicant and the outputs from the model for carcinogenic and chronic health risks. There are no acute risks analyzed (DayZenLLC 2021e, Table 4.3-10) for construction HRA. Acute (non-cancer) health risks were not estimated because there is no acute inhalation REL for DPM, indicating that DPM is not known to result in acute health hazards. The results of the construction HRA are presented in **Table 4.3-9**. It shows that the maximum cancer risk impact, chronic HIs, and PM2.5 concentrations at the MEIR, MEIW, MEDR, MESR, and MERR during the construction of the project would be less than BAAQMD's significance thresholds. Therefore, staff concluded that the health risks of the project construction would be a less than significant impact.

Note that the risk values shown in **Table 4.3-9** are the highest of those modeled for each type of sensitive receptors. The risk values at other locations for each type of sensitive receptors would be lower than those shown in **Table 4.3-9**. Health risks at nearby worker/residential/sensitive receptors would all be below the significance thresholds. The health risks from project construction would be less than significant, and no mitigation would be necessary. The health risks from project construction would be less than significant with the implementation of **AQ-1**.

TABLE 4.3-9 CONSTRUCTION -- MODELED RECEPTOR MAXIMUM HEALTH RISK

Receptor Type	Cancer Risk Impact (in one million)	Chronic Non-Cancer Hazard Index (HI) (unitless)	Acute Non-Cancer Hazard Index (HI) (unitless)	PM2.5 Concentration ($\mu g/m^3$)
Residential-MEIR[1]	1.5	0.0017	N/A	0.09
Worker-MEIW[2]	0.45	0.005	N/A	0.27
Daycare-MEDR[3]	0.8	2.6E-04	N/A	0.014
School-MESR [4]	0.17	3.9E-04	N/A	0.021
Recreational-MERR [5]	0.1	8.2E-04	N/A	0.0044
BAAQMD Threshold	10	1	1	0.3

Notes:
[1] Maximally Exposed Individual Resident (MEIR). It is located about 175 ft south the project boundary (just across the street of the project).[2] Maximally Exposed Individual Worker (MEIW). It is located on the southeast of the project boundary. Risks at the worker receptors include a Worker Adjustment Factor of 4.2 (7/5*24/8) to account for the hours a worker is present at a site.
[3] Maximally Exposed Daycare Receptor (MEDR). It is located approximately 1750 ft southeast of the project boundary. Risks at the daycare and school receptors include a modeling adjustment factor of 4.2 (7/5*24/8) to account for the hours when a child is present at the site.
[4] Maximally Exposed School Receptor (MESR). It is the Bracher Elementary, approximately 650 feet south of the Project boundary. Risks at the daycare and school receptors include a modeling adjustment factor of 4.2 (7/5*24/8) to account for the hours when a child is present at the site.
[5] Maximally Exposed Recreational Receptor (MERR). It is the Bracher Park. Locating about 150 ft south of the project boundary (just across the street of the project).
Source: DayZenLLC 2021e, Table 4.3-10, DayZenLLC 2021b, pg. 2, and DayZenLLC 2021t, pg. 18 and Table 20-3.

Operation HRA

Less Than Significant Impact. Project operation emissions are a result of diesel fuel combustion from the gensets, off-site vehicle trips for worker commutes and material deliveries, and facility upkeep, such as architectural coatings, consumer product use, landscaping, water use, waste generation, natural gas use for comfort heating, and electricity use. They are categorized into two major sources: (1) stationary sources and (2) miscellaneous operation emissions (DayZenLLC 2021e, pg. 4-26 through 4-28).

(1) Stationary Sources: CA3BGF's 44 diesel gensets. Each of the 44 gensets for the data center suites would be powered by Caterpillar Model 3516E engines equipped with SCR equipment and DPF to comply with Tier 4 emissions standards. The DPFs are expected to control particulate matter by approximately 71 percent. All gensets would be tested routinely to ensure they would function during an emergency. TAC emissions resulting from diesel stationary combustion were assumed equal to PM10 emissions or estimated using speciated emission factors from CARB profile 818[5] (DayZenLLC 2021e, pg. 4-26).

[5] https://ww2.arb.ca.gov/speciation-profiles-used-carb-modeling

CARB's ATCM limits each engine to no more than 50 hours annually for reliability purposes (i.e., testing and maintenance). The applicant's health impacts are based on an annual maximum operating limit of 35 hours per year averaged over all engines for a total of 1,540 hours for readiness testing and maintenance operations (DayZenLLC 2021e, pg. 4-26 and pg. 4-32).

(2) Miscellaneous Operational Emissions: Miscellaneous emissions from operational activities such as worker travel, deliveries, energy and fuel use for facility electrical, heating and cooling needs, periodic use of architectural coatings, landscaping, etc. were evaluated by CalEEMod (DayZenLLC 2021e, pg. 4-28). However, these emissions were not included in the operation HRA. The health impacts are based on an annual maximum operating limit of 35 hours for readiness testing and maintenance operations (DayZenLLC 2021e, pg. 4-32).

All discrete loads levels for which emissions data is available (i.e., 10%, 25%, 50%, 75%, and 100%) were analyzed to identify the potential worst-case PM2.5 annual average concentrations which correspond to the worst-base health risk impacts. The applicant reported the second greatest impact at 25% load, where the greatest impact is at 100% load. Since it is impossible to run the generators at 100% load for the entire maximum run time, the HRA was run at 25% load for all engines for all hours. Even that is an overestimate of the impacts, as much of the run time will be at 0% load, which is characterized by the parameters for 10% load (DayZenLLC 2021t, pg. 16).

Table 4.3-10 shows that the cancer risks, chronic HIs, acute HIs, and PM2.5 concentrations at the MEIR, MEIW, MEDR, MESR, and MERR during the project's operation would be less than the BAAQMD's significance thresholds. Therefore, staff concluded that the health risks of the project operation would be a less-than-significant impact.

It should be noted that the risk values shown in **Table 4.3-10** are the highest of those modeled for each type of sensitive receptors. The risk values at other locations for each type of sensitive receptors would be lower than those shown in **Table 4.3-10**. Health risks at nearby worker/residential/sensitive receptors would all be below the significance thresholds. The health risks from the project's operation would be less than significant, and no mitigation would be necessary. The health risks from the project's construction would be less than significant with the implementation of **AQ-1**.

In conclusion, staff finds the health risks at sensitive receptor locations would be less than the BAAQMD CEQA Guidelines significance thresholds shown in **Table 4.3-1**. Staff concludes that the health risks from the project's construction and routine operation would be less than significant and would be further reduced with the implementation of **AQ-1**.

TABLE 4.3-10 OPERATION - MODELED RECEPTOR MAXIMUM HEALTH RISK

Receptor Type	Cancer Risk Impact [6] (in one million)	Chronic Non-Cancer Hazard Index (HI) [6] (unitless)	Acute Non-Cancer Hazard Index (HI) [7] (unitless)	PM2.5 Concentration [6] (μg/m³)
Residential-MEIR[1]	8.73	0.0037	0.027	0.012
Worker-MEIW[2]	8.99	0.0108	0.053	0.035
Daycare-MEDR[3]	4.38	0.001	0.015	0.003
School-MESR [4]	1.35	0.0008	0.016	0.003
Recreational-MERR [5]	0.31	0.001	0.029	0.003
BAAQMD Threshold	10	1	1	0.3

Notes:
[1] Maximally Exposed Individual Resident (MEIR). It is located about 175 ft south the project boundary (just across the street of the project).
[2] Maximally Exposed Individual Worker (MEIW). It is located on the southeast of the project boundary. Risks at the worker receptors include a Worker Adjustment Factor of 4.2 (7/5*24/8) to account for the hours a worker is present at a site.
[3] Maximally Exposed Daycare Receptor (MEDR). It is located approximately 1750 ft southeast of the project boundary. Risks at the daycare and school receptors include a modeling adjustment factor of 4.2 (7/5*24/8) to account for the hours when a child is present at the site.
[4] Maximally Exposed School Receptor (MESR). It is the Bracher Elementary, approximately 650 feet south of the Project boundary. Risks at the daycare and school receptors include a modeling adjustment factor of 4.2 (7/5*24/8) to account for the hours when a child is present at the site.
[5] Maximally Exposed Recreational Receptor (MERR). It is the Bracher Park. Locating about 150 ft south of the project boundary (just across the street of the project).
[6] Load scenario: 25%.
[7] Value of the worst-case generator at 25% load.
Source: DayZenLLC 2021e, pg 4-32, and DayZenLLC 2021t, Table 20-2.

Emergency Operations HRA

Less Than Significant Impact. As discussed above and in **Appendix B**, any operation of this project for emergency purposes would be infrequent, irregular, and unlikely and the resulting emissions are not easily predictable or quantifiable. Nevertheless, because the Health Risk Assessment thresholds and modeling of TACs are less sensitive to minor adjustments in variable assumptions than is the case for criteria air pollutants, staff can generally extrapolate some of the modeling that is done for testing and routine maintenance to explore what emissions could look like under an emergency operation scenario. This is more true, however, for cancer and chronic impacts than it is for acute HI which, like some criteria pollutant modeling, relies on 1-hour modeling results to determine impact.

For this project, the HRA of acute TAC impacts, shown in **Table 4.3-10**, represents the acute HI of the generator of reasonable worst-case (25% load). In other words, the engines would result in greater impacts at 25% load than at any other load except for 100%. However, data provided about real-world operation of data center backup generating facilities during emergency situations show that they do not run at 100% load. Therefore, it is reasonable to use 25% as a reasonable worst-case scenario for purposes of modeling. Staff also concludes that modeling the project at 25% load results in an overestimation of reasonable worst-case conditions because much of the actual operation would be at 0% load, which must be reflected in the model as 10% load. In other words, typical backup generating facilities for data centers do not run for an hour when operating during an emergency situation. Nevertheless, to estimate potential impacts for acute HI, the project must be modeled as if it is operating for the full hour. Since the value provided by the applicant is only for one engine, staff summed the acute HIs of all 44 diesel gensets, assuming they operated concurrently for one hour. The acute HIs of each receptor are shown in **Table 4.3-11** and most of them are all still below the significance threshold. As mentioned above, the design includes redundancy so that eight gensets are redundant, and two of the four house gensets are redundant (DayZenLLC 2021a, pg. 2-2). Therefore, it is very conservative to suppose 44 gensets operate concurrently. For some receptors (i.e., MEIR and MEIW) with acute HI higher than one (1), staff recalculated by excluding 10 redundant engines with the lowest HI, which brought the HIs down to less than the threshold of one (1). As discussed above, this represents one of the reasonable worst-case scenarios because the total available gensets exceed what would be operated.

This approach is typical of how air quality modeling is done. Certain worst-case assumptions are made to conduct the initial screening-level modeling. If the results show project impacts would fall below all applicable thresholds, then no further refinement is necessary. If, however, the results show the potential for predicted exceedances, then further refinements are necessary to ensure the model reflects likely real-world operation parameters.

While concurrently operating all gensets could approximate what might occur during an undefined emergency, the analysis of acute non-cancer hazards showed the acute health risks to be below the relevant significance thresholds. Therefore, staff concludes that the project is expected to have less than significant acute health risks from emergency operations.

TABLE 4.3-11 EMERGENCY OPERATION -- MODELED RECEPTOR MAXIMUM HEALTH RISK

Receptor Type	Acute[6] Non-Cancer Hazard Index (HI) (unitless)	Acute[7] Non-Cancer Hazard Index (HI) (unitless)
Residential-MEIR[1]	0.027	0.832 [8]
Worker-MEIW or PMI[2]	0.053	0.985 [9]
Daycare-MEDR[3]	0.015	0.504
School-MESR [4]	0.016	0.621
Recreational-MERR [5]	0.029	0.931
BAAQMD Threshold	1	1

Notes:
[1] Maximally Exposed Individual Resident (MEIR), Receptor # 2621. It is located about 175 ft south the project boundary (just across the street of the project).
[2] Maximally Exposed Individual Worker (MEIW) and Point of Maximum Impact (PMI), Receptor # 5082. It is located on the southeast of the project boundary. Risks at the worker receptors include a Worker Adjustment Factor of 4.2 (7/5*24/8) to account for the hours a worker is present at a site.
[3] Maximally Exposed Daycare Receptor (MEDR). It is located approximately 1750 ft southeast of the project boundary. Risks at the daycare and school receptors include a modeling adjustment factor of 4.2 (7/5*24/8) to account for the hours when a child is present at the site.
[4] Maximally Exposed School Receptor (MESR). It is the Bracher Elementary, approximately 650 feet south of the Project boundary. Risks at the daycare and school receptors include a modeling adjustment factor of 4.2 (7/5*24/8) to account for the hours when a child is present at the site.
[5] Maximally Exposed Recreational Receptor (MERR). It is the Bracher Park. Locating about 150 ft south of the project boundary (just across the street of the project).
[6] Value of the generator of the worst-case at 25% load.
[7] Assume all 44 generators operate concurrently for one hour.
[8] Receptor # 5080. HI was calculated by excluding 10 redundant engines with lowest HI.
[9] Receptor # 4137. HI was calculated by excluding 10 redundant engines with lowest HI.
Source: DayZenLLC 2021e, pg 4-32, DayZenLLC 2021t, Table 20-2., and CEC staff analysis.

Cumulative HRA

Less Than Significant Impact. This discussion addresses the impacts from cumulative sources in comparison to the BAAQMD significance thresholds for risk and hazards from cumulative sources (BAAQMD, 2017b). The cumulative HRA is an assessment of the project's impact summed with the impacts of existing sources within 1,000 feet of the project. The results of this cumulative HRA are compared to the BAAQMD CEQA cumulative thresholds of: no more than 100 cancer cases per million; a chronic HI of no more than 10.0; and PM2.5 concentrations of no more than 0.8 μg/m^3 annual average PM2.5 concentrations.

Per staff's request in Data Requests 25 and 26, the applicant provided a cumulative HRA and compared results with the BAAQMD threshold of significance for cumulative risk and hazards (DayZenLLC 2021t, pg. 19-20). The BAAQMD CEQA Guidelines for assessing cumulative health risk impacts recommend investigating all sources of TACs within 1,000 feet of a proposed project. The BAAQMD CEQA Guidelines also suggest that a lead agency enlarge this radius "on a case-by-case basis if an unusually large source or sources of risk or hazard emissions that may affect a proposed project is beyond the recommended radius."[6] However, the BAAQMD CEQA Guidelines do not elaborate on what constitutes "an unusually large source or sources of risk or hazard emissions." The BAAQMD's *Recommended Methods for Screening and Modeling Local Risks and Hazards* potentially provides some insight on the topic wherein it also recommends a 1,000-foot radius for a cumulative analysis but states that for "large, complex sources" a larger radius may be appropriate, but the specifics should be determined on a case-by-case basis. The examples it then provides for complex sources include major ports, railyards, distribution centers and truck-related businesses, airports, oil refineries, power plants, metal melting facilities, and cement plants. Because of the nearby railroad (~~CalTrain~~Caltrain) and surrounding industrial stationary sources that could present elevated existing levels of TACs, staff requested information on TAC sources within 2,000 feet of the project fence-line (DayZenLLC 2021t, pg. 19). After thoroughly searching, there is no unusually large or major source (as explained above) beyond 1,000 feet; therefore, staff conducted the cumulative HRA within 1,000 feet of the project fence-line.

However, the applicant only conducted the cumulative HRA for the MEISR as part of the project (DayZenLLC 2021t, pg. 20), and not other sensitive receptors. It's important to note that the MEISR in the applicant's analysis is the same as the MEIR in the staff's analysis. The applicant's cumulative HRA ~~shows~~ showed that the maximum cumulative cancer risk at the MEISR would be 133 in a million, higher than the threshold of 100 in a million; the maximum cumulative HI would be 0.15, below the threshold of 10; and the maximum cumulative PM2.5 concentration would be 1.3 μg/m^3, higher than the threshold of 0.8 μg/m^3. ~~This~~ These exceedances ~~is~~were driven largely by the proximity of the MEISR to the nearby railroad (~~CalTrain~~Caltrain). The exceedances ~~is~~ were also impacted by the conservative nature of the cumulative analysis. BAAQMD CEQA Guidelines and tools were developed to analyze the impacts from all stationary sources within 1,000 feet of the project site, rather than the 2,000-foot distance requested by staff. As a result, the distance multipliers ~~do~~did not account for the incrementally decreasing risk and hazard impacts from sources that ~~are~~were ~~further~~farther than 1,000 feet from the MEISR/MEIR and ~~are~~were overestimates of the impact~~. Therefore, the total cumulative risk is overestimated~~ (DayZenLLC 2021t, pg. 20, Table 26-1).

In TN 243305, the applicant provided an updated analysis that included the following refinements:

1. The screening radius in the applicant's analysis of the MEISR was adjusted from 2,000 feet to 1,000 feet to portray the cumulative health risk impacts from stationary sources on that receptor in a manner consistent with the 1,000-foot recommendation of the BAAQMD CEQA Guidelines.
2. The cancer risk and annual DPM/PM2.5 contributions from the nearby railroad were adjusted to account for future electrification and substantially lower emissions of Caltrain passenger rail locomotives under the CalMod Program as a foreseeable future project that is under construction.

[6] BAAQMD CEQA Guidelines, p. 2-5.

3. The DPM/PM2.5 exposure assumptions for the staff's analysis of the MEIW were adjusted to reflect that a worker would only be exposed to the adjacent railroad/highways/major roadways for a fraction of the year because a worker would only be present at the location during working hours.

With the applicant's adjustments to the cumulative source radius of the MEISR/MEIR from 2,000 feet to 1,000 feet and other refinements above, the cumulative health risk impacts are substantially below the cumulative thresholds outlined in the BAAQMD CEQA Guidelines.

Staff also conducted an independent revised cumulative HRA, assessing the proposed project's impact summed with the impacts of existing sources within 1,000 feet[7] of the maximally exposed sensitive receptors, including MEIR, MEIW, MEDR, MESR, and MERR. Staff also considered the refinement of number 2 and number 3 proposed by the applicant. Staff used an 87 percent reduction to refine the risk of the railroad (explained in detail in a later paragraph) and 0.24 as the Worker Adjustment Factor (WAF)[8]. The results of staff's cumulative HRA are compared to the BAAQMD significance thresholds (BAAQMD 2017b) in **Table 4.3-12, Table 4.3-13**, and **Table 4.3-14**. Staff's cumulative HRA includes ~~four major~~ three categories of sources ~~of impacts~~: (1) existing stationary sources; (2) surrounding highways, main streets, and railways; and (3) the project. Staff has included the updated results from staff's revised analysis, and also the updated ones prepared by the applicant. The project would not cause a cumulatively considerable contribution along with existing and foreseeable projects to cancer risk, non-cancer HI, and PM2.5 concentrations. The updated analysis demonstrates that the cumulative impacts would be below the BAAQMD CEQA Guidelines cumulative thresholds.

1. Existing Stationary Sources

The cumulative cancer risk, non-cancer HI, and PM2.5 concentrations of existing stationary sources were first retrieved from BAAQMD'S Permitted Sources Risk and Hazards Map[9]. Then the risks were calculated using BAAQMD's Health Risk Calculator[10] to refine screen-level cancer risk, non-cancer health hazard index, and PM2.5 concentrations. The Health Risk Calculator incorporates factors such as risk associated with individual TACs emitted from an existing stationary source and how far a stationary

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7 Per the BAAQMD CEQA Guidelines, the zone of influence for the cumulative threshold is 1,000 feet from the source or receptor.

8 The Worker Adjustment factor (WAF) = (5/7)X(8X24), accounting that off-site workers usually work 8 hours per day and 5 days per week.

9 The BAAQMD'S Permitted Sources Risk and Hazards Map can be accessed here: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65

10The BAAQMD Health Risk Calculator Beta 4.0 can be downloaded here: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/tools/baaqmd-health-risk-calculator-beta-4-0-xlsx.xlsx?la=en source is from the project's maximally exposed sensitive receptor locations to calculate overall cancer risk, hazard index, and PM2.5 concentration from a stationary source.

Stationary sources contributing health risks and hazard impacts within a ~~2~~1,000-foot radius of the project site were determined using BAAQMD's updated CEQA Tool Permitted Stationary Sources Risk and Hazards Map, a GIS map that provides the locations of stationary sources permitted by BAAQMD. The applicant also submitted a subsequent stationary source data request to BAAQMD to ensure the most recent health risk and hazard data had been identified. ~~Appropriate d~~Distance multipliers provided by the BAAQMD CEQA Tool Health Risk Calculator with Distance Multipliers were applied to represent adjusted risk and hazard impacts that can be expected with farther distances from the sources of emissions (DayZenLLC 2021t, pg. 19).

Staff searched the risk data for existing stationary sources within 1,000 feet of MEIR, MEIW, MEDR, MESR, and MERR. There is no stationary source found within 1,000 feet of MESR.

2. Surrounding Highways, Main Streets, and Railways

Mobile impacts were determined using BAAQMD's raster tools, which provide impacts from major streets, highways, and railroads[11]. The tools developed by BAAQMD incorporate risk assessment procedures from the 2015 OEHHA Air Toxics Hot Spots Program Guidance (DayZenLLC 2021t, pg. 19). The cancer risk and PM2.5 concentration from surrounding highways, major streets and railways were determined using BAAQMD raster files that incorporate annual average daily traffic (AADT) per EMFAC 2014 data for fleet mix and includes OEHHA's 2015 Guidance Methods. The raster files encompass highways, major streets, and rails with greater than 30,000 AADT. Staff received the raster files directly from BAAQMD, and then extracted the risk numbers by ArcGIS for the surrounding highways, main streets, and railways.

Caltrain is in the process of electrifying a large portion of its fleet, with electric engines currently undergoing testing and rollout expected to be substantially completed by 2024. This project is reasonably foreseeable ~~and~~ ,therefore, it is reasonable to include the anticipated emissions reductions in an analysis of cumulative impacts for this project. The Caltrain project involves replacing the majority of diesel engines in the fleet with electric engines; these engines travel on tracks close to the CA3 project site and are currently a significant source of cumulative emissions in the vicinity of the CA3 proposed location. Taking the Caltrain electrification into account, the emissions from the railways would be substantially reduced. To reflect this quantitatively, staff conducted a refined cumulative HRA. The cancer risks and annual DPM/PM2.5 contributions from the nearby railroad were adjusted to account for future electrification and substantially lower emissions under the CalMod Program as a foreseeable future project that is under construction.

[11] https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/tools/2020_02_20-methodology-risk-and-hazards-screening-tool-pdf.pdf?la=en

In the Caltrain 2017 Sustainability Report, it is said that "the improved system will reduce criteria air pollutant emissions by up to 97 percent[12] (TN 243442)." In the Peninsula Corridor Electrification Project (PCEP) FEIR 2014[13] for the Caltrain electrification project, it says annual DPM emissions would be reduced by 87 percent in 2020[14] and 100 percent in 2040 (assuming 100 percent electrified service between San Jose and San Francisco). Because the two numbers differ, staff chose to use the 87 percent reduction as a more conservative approach to refine the health risks of railroad.

3. The Project

For the project, please see the result of the applicant's HRA for facility-wide operation of CA3 presented in **Table 4.3-10**.

Table 4.3-12, Table 4.3-13, and **Table 4.3-14** summarize the results of the staff cumulative HRA and compares them to the BAAQMD significance thresholds for cumulative risk and hazards. The cumulative cancer risk, HI, and PM2.5 concentration were conservatively calculated using the maximum value in relation to the maximally exposed sensitive receptors as well as at the nearest residences. **Table 4.3-12, Table 4.3-13**, and **Table 4.3-14** show that ~~most~~none of the project's health risks would ~~not~~ exceed the cumulative health risk thresholds when summed with the health risks of cumulative sources within 1,000 feet ~~(or 2,000 feet)~~ of each receptor.

~~**Table 4.3-12** shows that the proposed project's health risks (i.e., cancer risks) would exceed the cumulative health risk thresholds when summed with the health risks of cumulative sources within 2,000 feet of MEISR and 1,000 feet of MEIR. Also, **Table 4.3-14** shows that the proposed project's health risks (i.e., PM2.5 concentration) would exceed the cumulative health risk thresholds when summed with the health risks of cumulative sources within 2,000 feet of MEISR and 1,000 feet of MEIW.~~

~~However, as mentioned above, the cumulative impacts are the summation of each category (cancer risks, PM2.5 concentrations) from all the sources to each receptor, and the exceedances in cancer risk (**Table 4.3-12**) and PM2.5 concentration (**Table 4.3-14**) are because the background values (i.e., sources of surrounding highways, major streets, and railways) are already very high or even have already exceeded the thresholds. In other words, the exceedance is not due to the project itself.~~

[12] Caltrain 2017 Sustainability Report, https://www.caltrain.com/media/1625/download

[13] Peninsula Corridor Electrification Project (PCEP) Final Environmental Impact Report (FEIR), January 2015, 3.2 Air Quality. https://www.caltrain.com/projects/caltrain-modernization/calmod-document-library/pcep-feir-2014?fbclid=IwAR2HkVLQSjvIHQd1mT_6DUayCWy0-4fLDzeoshlKRx0k_l13b7RSxgeV9fM

[14] The project's timeline appears to have slipped somewhat since issuance of the FEIR and the 2020 reductions are now expected by 2024 (https://www.caltrain.com/news/caltrain-electrification-delayed-2024).

~~As set forth in **Table 4.3-12**, the modeled cancer risk at the receptor of MEISR is 9.9 in one million, meaning the project contributes 9.9 in one million to this total number of 133 in one million. Comparing 9.9 in one million to 133 in one million, the project contributes seven percent to the existing exceedances. Note the risk numbers for MEISR were overestimated because it is the summation of all sources within 2,000 feet. Also, the cumulative cancer risks are over the BAAQMD threshold primarily because of the proximity of receptors to the nearby railroad, which contributes a cancer risk of 72 in a million at the MEISR (DayZenLLC 2021t, Table 26-1). Potentially beneficial effects of the ongoing and probable future Caltrain Electrification Program were not considered. As for MEIR, its modeled incremental cancer risk is 8.73 in one million, meaning the project contributes 8.73 in one million to this total number of 111.73 in one million. Comparing 8.73 in one million to 111.73 in one million, the project contributes 7.8 percent to the existing exceedances. Also, the cumulative cancer risk total (111.73 in one million) for MEIR are over the BAAQMD threshold primarily because of the proximity of receptors to the surrounding highways, major streets, and railways, which contributes a cancer risk of 102.31 in one million at the MEIR. The cancer risk from the surrounding highways, major streets, and railways at MEIR is already above the threshold. Staff identifies the health risks from cumulative sources and the potential for a significant cumulative impact in the project area, primarily due to nearby highways, major streets, and railways, and other stationary sources. When the effects of the project are considered in this context, staff determined that the project's contribution to the cumulative impact is less than cumulatively considerable and, thus, is not significant. Therefore, staff concluded the project's contribution is not cumulatively considerable and the project does not cause cumulatively considerable impacts.~~

~~As set forth in **Table 4.3-14**, the modeled total PM 2.5 concentration at the receptor of MEISR is only 0.013 µg/m^3, meaning the project only contributes 0.013 µg/m^3 to this total number of 1.3 µg/m^3. Comparing 0.013 µg/m^3 to 1.3 µg/m^3, the project only contributes one percent to the existing exceedances and the contribution is, therefore, not cumulatively considerable. Also, the modeled cancer risk at the receptor of MEIW is only 0.035 µg/m^3, meaning the project only contributes 0.035 µg/m^3 to this total number of 1.3 µg/m^3. Comparing 0.035 µg/m^3 to 1.3 µg/m^3, the project only contributes two percent to the existing exceedances and the contribution is, therefore, not cumulatively considerable. Therefore, staff concluded the project's contribution is not cumulatively considerable and the project does not cause cumulatively considerable impacts.~~

In conclusion, staff finds that cumulative health risks at ~~most~~ all sensitive receptor locations would be less than the BAAQMD CEQA Guidelines significance thresholds shown in **Table 4.3-1**. Staff concludes that the project's contribution to the cumulative impact ~~effect~~ of ~~cumulative~~ TAC emissions would be less than significant.

TABLE 4.3-12 CANCER RISKS (PER MILLION) FROM CUMULATIVE SOURCES						
Sources of Cumulative Impacts	**Cancer Risk at MEISR[a]**	**Cancer Risk at MEIR[b]**	**Cancer Risk at MEIW[c]**	**Cancer Risk at MEDR[d]**	**Cancer Risk at MESR[e]**	**Cancer Risk at MERR[f]**
Existing Stationary Sources	~~32~~ 0.69	0.69	3.92	0.05	0	0.46
Surrounding Highways, Major Streets, and Railways[g]	~~91~~ 20.79	~~102.31~~ 29.5	~~81.95~~ 6.57	~~52.11~~ 24.6	~~43.71~~ 21.16	~~90.04~~ 27.71
• **Railways[g]**		10.88	1.96	4.11	3.37	9.31
• **Major Streets**		13.45	3.35	15.38	13.03	13.34
• **Highways**		5.17	1.26	5.11	4.75	5.05
CA3	9.9[h~~g~~]	8.73	8.99	4.38	1.35	0.31
Total - Cumulative Sources	~~**133**~~ 31.38	~~**111.73**~~ 38.91	~~94.86~~ 19.48	~~56.54~~ 29.03	~~45.06~~ 22.51	~~90.80~~ 28.47
Significance Threshold	100	100	100	100	100	100
Potential Significant Impact?	~~**Yes**~~No	~~**Yes**~~No	No	No	No	No

Notes:

[a] Maximally Exposed Individual Sensitive Receptor (MEISR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within ~~2~~1,000 ft of the project boundary. Staff used the data provided by the applicant in TN243305.

[b] Maximally Exposed Individual Resident (MEIR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD.

[c] Maximally Exposed Individual Worker (MEIW). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD~~.~~, and refined the mobile source impacts by using the Worker Adjustment Factor (WAF) of 0.24 to reflect that the worker receptor would only be present at the location for a portion of the day/week.

[d] Maximally Exposed Daycare Receptor (MEDR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD.

[e] Maximally Exposed School Receptor (MESR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD.

[f] Maximally Exposed Recreational Receptor (MERR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD.

[g] Staff assumed railway impacts would be reduced by 87% to reflect the effects of Caltrain Modernization Program (The applicant used 97% off for MEISR).

[~~g~~ h] Load scenario: 100% load.

Sources: CEC staff analysis of data from BAAQMD, and DayZenLLC 2021t, pg. 19-20, Table 26-1

TABLE 4.3-13 CHRONIC HAZARD INDICES FROM CUMULATIVE SOURCES

	Chronic Hazard Index					
Sources of Cumulative Impacts	**MEISR[a]**	**MEIR[b]**	**MEIW[c]**	**MEDR[d]**	**MESR[e]**	**MERR[f]**
Existing Stationary Sources	~~0.15~~ 0	0	0	0.0015	0	0.0004
Surrounding Highways, Major Streets, and Railways	No Data Available[g]	No Data Available[g]	No Data Available[g]	No Data Available[g]	No Data Available[g]	No Data Available[g]
CA3	0.0037[h]	0.0037	0.0108	0.001	0.0008	0.001
Total - Cumulative Sources	~~0.1537~~ 0.0037	0.0037	0.0108	0.0025	0.0008	0.0014
Significance Threshold	10	10	10	10	10	10
Potential Significant Impact?	No	No	No	No	No	No

Notes:
[a] Maximally Exposed Individual Sensitive Receptor (MEISR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within ~~2~~1,000 ft of the project boundary. Staff used the data provided by the applicant.
[b] Maximally Exposed Individual Resident (MEIR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD.
[c] Maximally Exposed Individual Worker (MEIW). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD.
[d] Maximally Exposed Daycare Receptor (MEDR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD.
[e] Maximally Exposed School Receptor (MESR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD.
[f] Maximally Exposed Recreational Receptor (MERR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD.
[g] No data available — BAAQMD staff did not provide data for these sources.
[h] Load scenario: 100% load.
Sources: CEC staff analysis of data from BAAQMD, and DayZenLLC 2021t, pg. 19-20, Table 26-1

TABLE 4.3-14 ANNUAL PARTICULATE MATTER (PM2.5) CONCENTRATIONS (µg/m³) FROM CUMULATIVE SOURCES

	Annual DPM/PM2.5 Concentration					
Sources of Cumulative Impacts	**MEISR[a]**	**MEIR[b]**	**MEIW[c]**	**MEDR[d]**	**MESR[e]**	**MERR[f]**
Existing Stationary Sources	~~0.73~~ 0	0	0.433	0.004	0	0
Surrounding Highways, Major Streets, and Railways[g]	~~0.57~~ 0.414	~~0.569~~ 0.43	~~0.542~~ 0.105	~~0.207~~ [i] 0.455	~~0.139~~ [i] 0.396	~~0.541~~ 0.422
• **Railways[g]**		0.021	0.004	0.008	0.006	0.018
• **Major Streets**		0.289	0.072	0.331	0.28	0.287
• **Highways**		0.12	0.029	0.117	0.109	0.117
CA3	0.013[~~g~~h]	0.012	0.035	0.003	0.003	0.003
Total - Cumulative Sources	~~1.3~~ 0.427	~~0.581~~ 0.442	~~1.010~~ 0.573	~~0.214~~ [i] 0.462	~~0.142~~ [i] 0.399	~~0.544~~ 0.425
Significance Threshold	0.8	0.8	0.8	0.8	0.8	0.8
Potential Significant Impact?	~~Yes~~No	No	~~Yes~~No	No	No	No

Notes:

[a] Maximally Exposed Individual Sensitive Receptor (MEISR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within ~~2~~1,000 ft of the project boundary. Staff used the data provided by the applicant in TN243305.

[b] Maximally Exposed Individual Resident (MEIR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD.

[c] Maximally Exposed Individual Worker (MEIW). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD, and refined the mobile source impacts by using the Worker Adjustment Factor (WAF) of 0.24 to reflect that the worker receptor would only be present at the location for a portion of the day/week.

[d] Maximally Exposed Daycare Receptor (MEDR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD.

[e] Maximally Exposed School Receptor (MESR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD.

[f] Maximally Exposed Recreational Receptor (MERR). The cumulative health risk impact of the proposed project was calculated including the stationary and mobile sources within 1,000 ft of this receptor. Staff used the data provided by BAAQMD.

[g] Staff assumed railway impacts would be reduced by 87% to reflect the effects of Caltrain Modernization Program (The applicant used 97% off for MEISR).

[~~g~~h] Load scenario: 100% load.

[i] Staff noticed some typographical errors in the FEIR. The PM2.5 concentrations at MEDR and MESR for surrounding highways, major streets, and railways should be 0.507 µg/m³ and 0.439 µg/m³ respectively, instead of 0.207 µg/m³ and 0.139 µg/m³. The cumulative PM2.5 concentrations at MEDR and MESR should be 0.514 µg/m³ and 0.442 µg/m³ respectively, instead of 0.214 µg/m³ and 0.142 µg/m³. In staff's revised cumulative HRA, staff made refinements based on the corrected values.

Sources: CEC staff analysis of data from BAAQMD, and DayZenLLC 2021t, pg. 19-20, Table 26-1

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

This section considers impacts that may arise from emissions other than criteria air pollutants and TACs, such as emissions that may lead to odors.

BAAQMD states that, while offensive odors rarely cause direct health impacts or any physical harm, they still can be very unpleasant and lead to considerable distress among the public, often generating citizen complaints to local governments and BAAQMD (BAAQMD 2017b). Any project with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact. Odor impacts on residential areas and other sensitive receptors warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas.

BAAQMD CEQA Guidelines recommend a two-step process for determining the significance of potential odor impacts. First, determine whether the project would result in an odor source affecting receptors within the distances indicated in **Table 4.3-15**. Second, if the proposed project would result in an odor source and receptors within the screening level distances indicated in **Table 4.3-15**, a more detailed analysis should be conducted (BAAQMD 2017b).

TABLE 4.3-15 PROJECT SCREENING TRIGGER LEVELS FOR POTENTIAL ODOR SOURCES

Land Use/Type of Operation	Project Screening Distance
Wastewater Treatment Plant	2 miles
Wastewater Pumping Facilities	1 mile
Sanitary Landfill	2 miles
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	2 miles
Chemical Manufacturing	2 miles
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Rendering Plant	2 miles
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Confined Animal Facility/Feed Lot/Dairy	1 mile
Green Waste and Recycling Operations	1 mile
Metal Smelting Plants	2 miles

Source: BAAQMD 2017b, Table 3-3.

The project is not a type of operation that is classified as a typical odor source by BAAQMD, as shown in **Table 4.3-15**. The diesel engine generators would not be stationary sources of a type that are typically known to cause significant odor impacts.

Construction

Less Than Significant Impact. Minor odor sources during construction activities include diesel exhaust from heavy-duty equipment. Odors from construction activities near existing receptors would be temporary in nature and dissipate as a function of distance. Accordingly, the construction of the project is not expected to result in substantial emissions that may lead to odor impacts or impacts of emissions other than those of criteria pollutants and TACs identified elsewhere in this analysis.

Fugitive dust emissions can also create a nuisance that can cause adverse effects. The project is proposing to comply with the BAAQMD construction fugitive dust control BMPs and so should not have substantial fugitive dust emissions during construction that could adversely affect a substantial number of people.

Therefore, the construction of the project would not result in other emissions, such as those leading to odors, that could adversely affect a substantial number of people and would have less than significant impacts.

Operation

Less Than Significant Impact. Potential odor sources from the project's readiness testing and maintenance along with emergency operation would include diesel exhaust from genset readiness testing and maintenance, trash pick-up and other heavy-duty delivery vehicles, and the occasional use of architectural coatings during routine maintenance. When compared to existing odor sources near the project site, which include heavy and light industrial uses, odor impacts from project readiness testing and maintenance along with emergency operations would be similar.

Once built and operating, the project would have no notable emissions other than those of criteria pollutants and TACs identified elsewhere in this analysis. Therefore, nuisance impacts would not be likely to occur during operation, including readiness testing and maintenance or emergency operation. During readiness testing and maintenance and during emergency operation, the project would not result in odors or other emissions that could adversely affect a substantial number of people and would have a less than significant impact related to odors. In conclusion, staff finds that the project would not likely create objectionable odors affecting a substantial number of people.

4.3.4 Mitigation Measures

To ensure that fugitive dust impacts are less than significant, the project will implement BAAQMD's recommended BMPs during the construction phase. On September 13, 2021, the applicant provided a revised mitigation measure **AQ-1**, as shown below, to ensure it reflects the assumptions used as the bases for construction equipment emissions estimates and modeling (DayZenLLC 2021w).

AQ-1: To ensure that fugitive dust impacts are less than significant, the project will implement the Bay Area Air Quality Management District (BAAQMD) recommended Best Management Practices (BMPs) during the construction phase, the project owner shall implement a construction emissions control plan that has been reviewed and approved by the Director or Director's designee of the City of Santa Clara Community Development Department prior to the issuance of any grading or building permits, whichever occurs earliest. These BMPs are incorporated into the design of the project and will include:

- Water all exposed areas (e.g., parking areas, graded areas, unpaved access roads) twice a day.
- Maintain a minimum soil moisture of 12% in exposed areas by maintaining proper watering frequency.
- Cover all haul trucks carrying sand, soil, or other loose material.
- Suspend excavation, grading, and/or demolition activities when average wind speed exceeds 20 miles per hour.
- Pave all roadways, driveways, and sidewalks as soon as possible. Lay building pads as soon as grading is completed, unless seeding or soil binders are used.
- Install wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of construction with a maximum 50 percent air porosity.
- Use a power vacuum to sweep and remove any mud or dirt-track next to public streets if visible soil material is carried onto the streets.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- Minimize idling time for all engines by shutting engines when not in use or limiting idling time to a maximum of five minutes. Provide clear signage for construction workers at all access points.
- Properly tune and maintain construction equipment in accordance with manufacturer's specifications. Check all equipment against a certified visible emissions calculator.
- Post a publicly visible sign with the telephone number and person to contact at the Lead Agency and the on-site job superintendent regarding dust complaints.
- Install vegetative ground cover in disturbed areas as soon as possible and water appropriately until vegetation is established.
- Limit simultaneous occurrence of excavation, grading, and ground-disturbing construction activities.
- Install water washers to wash all trucks and equipment prior to leaving site.
- Treat site access to a distance of 100 feet from the paved road with a 6- to 12-inch compacted layer of wood chip, mulch, or gravel.
- Install sandbag or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.

- Minimize idling time of diesel-powered construction vehicles to two minutes.
- All off-road equipment greater than 25 horsepower (hp) shall have engines that meet or exceed Tier 4 final off-road emission standards. Use of zero-emission and hybrid-powered equipment is encouraged.
- All on-road trucks used for material delivery or hauling shall have engines that meet or exceed 2014 CARB emissions standards.
- Where grid power is available, portable diesel engines should be prohibited.
- Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
- All construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM.
- All contractors use equipment that meets CARB's most recent certification standard for off-road heavy-duty diesel engines.

4.3.5 References

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